Somalia National Strategic Plan for Malaria
2011 – 2015

March 2010,
Djibouti
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Foreword

In recent years, there has been significant progress in expanding coverage of key malaria interventions such as effective treatment and LLINs throughout Somaliland, Puntland and South Central zone of the country. Major efforts to scale up have had the support of international and national partners alike. In 2006 Artemesinin-based Combination Therapies were first introduced at mother & Children centres, microscopical diagnosis was strengthened and there was an expansion of the use of Rapid Diagnostic Tests at both hospital and health facility levels. Vector control was stepped up and since 2006 approximately 2 million Long-lasting Insecticidal Nets have been distributed in malarious areas.

The main aim of expanding access to these interventions was to achieve objectives set out in the 2005-2010 National Strategic Plan. Since then, activities have increased rapidly resulting in increased coverage with LLINs, and availability of ACTs in public health facilities. The results to date is due to the enormous support of implementing partners delivering health services on the ground, donors and technical support agencies.

Estimates based on the latest surveys in country and distribution databases indicate that we are making steady progressing in achieving Scale-Up For Impact. We continue along that road in the first phase of this National Strategic Plan and will enter into a sustained control phase by 2012/2013 with the ongoing support of our partners.

Focus in the previous National Strategic Plan was aimed at increasing availability of interventions at health facility level. This new strategic plan emphasizes the need to build capacity of community structures to ensure the uptake and sustainability of all interventions. Community engagement and mobilization will support four main components; diagnosis and case management, prevention, Epidemic preparedness, detection and response and health systems strengthening. While the previous National Strategic Plan was modest in its targets, bearing in mind the situation in all zones, this NSP is ambitious in setting out a timeline for sustained control to be reached in most areas of all three zones by 2015.

The challenges within the three zones are great, more so than most countries following the Global Malaria Action Plan. As such, there is a need to consolidate efforts and re-invigorate partnership and coordination among Ministries of Health, UN agencies, Non-Governmental Organisations, Faith-Based Organisations and the Private Sector.

All goals, objectives and activities fall within the structure of the Somali Reconstruction & Development Plan (2008-2015), and responds to the Millennium Development Goals. As we consolidate activities and move towards sustained control through Scaling Up for Impact we look forward to reducing the impact of malaria on the Somali population by 2015.
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<td>Artemisinin Combination Therapy</td>
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<td>ANC</td>
<td>Antenatal Care</td>
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<td>BCC</td>
<td>Behaviour Change Communication</td>
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<td>CCM</td>
<td>Country Coordinating Mechanism</td>
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<td>CHW</td>
<td>Community Health Workers</td>
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<td>CISS</td>
<td>Coordination of International Support for Somalia</td>
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<td>CM</td>
<td>Community Mobilisers</td>
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<td>CSZ</td>
<td>Central South Zone</td>
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<td>DiID</td>
<td>Department for International Development</td>
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<td>DHB</td>
<td>District Health Board</td>
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<td>DHMT</td>
<td>District Health Management Team</td>
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<td>EARN</td>
<td>East African Roll Back Malaria Network</td>
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<td>EPHS</td>
<td>Essential Package of Health Services</td>
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<td>EPI</td>
<td>Expanded Programme on Immunisation</td>
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<td>FAO</td>
<td>Food and Agriculture Organisation</td>
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<td>FSNAU</td>
<td>Food Security and Nutrition Analysis Unit</td>
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<td>GDP</td>
<td>Gross Domestic Product</td>
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<tr>
<td>GFATM</td>
<td>Global Fund to Fight AIDS, Tuberculosis, and Malaria</td>
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<tr>
<td>HH</td>
<td>Household</td>
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<td>HP</td>
<td>Health Post</td>
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<td>HSC</td>
<td>Health Sector Committee</td>
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<td>HSS</td>
<td>Health Systems Strengthening</td>
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<td>IASC</td>
<td>Inter Agency Standing Coordination</td>
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<td>IDP</td>
<td>Internally Displaced People</td>
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<td>IEC</td>
<td>Information, Education, and Communication</td>
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<tr>
<td>IPT</td>
<td>Intermittent Presumptive Treatment</td>
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<td>IRS</td>
<td>Indoor Residual Spraying</td>
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<tr>
<td>ITN</td>
<td>Insecticide Treated Net</td>
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<td>JNA</td>
<td>Joints Needs Assessment</td>
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<td>LLIN</td>
<td>Long Lasting Insecticidal Net</td>
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<td>M&amp;E</td>
<td>Monitoring and Evaluation</td>
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<td>MCH</td>
<td>Mother &amp; Child Health</td>
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<td>MDG</td>
<td>Millennium Development Goals</td>
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<td>MFP</td>
<td>Malaria Focal Person</td>
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<td>MDGs</td>
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<td>MoH</td>
<td>Ministry of Health</td>
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<td>NGO</td>
<td>Non-Governmental Organisation</td>
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<td>NSP</td>
<td>National Strategic Plan</td>
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<td>PHC</td>
<td>Public Health Coordinators</td>
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<td>PHS</td>
<td>Public Health Supervisors</td>
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<td>RBM</td>
<td>Roll Back Malaria</td>
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<td>RHB</td>
<td>Regional Health Board</td>
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<td>RDT</td>
<td>Rapid Diagnostic Test</td>
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<td>RDP</td>
<td>Reconstruction and Development Plan</td>
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<td>SACB</td>
<td>Somalia Aid Coordination Body</td>
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<td>SP</td>
<td>Sulfadoxine-Pyrimethamine (Fansidar)</td>
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<td>SDG</td>
<td>Somali Donor Group</td>
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<tr>
<td>Abbreviation</td>
<td>Full Form</td>
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<td>SUFI</td>
<td>Scale-Up For Impact</td>
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<td>SSS</td>
<td>Somali Support Secretariat</td>
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<td>SWALIM</td>
<td>Somalia Water and Land Information Management</td>
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<td>TFG</td>
<td>Transitional Federal Government</td>
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<td>UN</td>
<td>United Nations</td>
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<td>UNDP</td>
<td>United Nations Development Programme</td>
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<td>UNHCR</td>
<td>United Nations High Commission for Refugees</td>
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<td>UNICEF</td>
<td>United Nations Childrens Fund</td>
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<td>VHC</td>
<td>Village Health Committee</td>
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<tr>
<td>WASH</td>
<td>Water, Sanitation and Hygiene</td>
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<tr>
<td>WHO</td>
<td>World Health Organisation</td>
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<td>WHOPES</td>
<td>World Health Organisation Pesticide Evaluation System</td>
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Executive Summary
Somalia has been steadily progressing towards Scale-Up For Impact (SUFI) targets since 2006. The 2005-2010 aimed to build upon structures within Somalia in order to establish a sound base for further progress and in order to achieve a 50% reduction of the malaria burden, in line with RBM objectives. The status of coverage of the major interventions in 2009 indicates that while Scale-Up is not complete, excellent progress has been made. LLIN coverage is estimated to have more than doubled since 2006, and progress reports indicate successful expansion of diagnostic and case management activities across Mother and Child Centres in Somaliland, Puntland and CSZ.

Resources have been secured to support continued progress towards SUFI of all key malaria interventions until 2012, however, resources are not in place to reach SUFI targets by 2010. Regardless, Somalia will aim to achieve universal coverage within the lifetime of this National Strategic Plan and move to sustained control of malaria in Somaliland and Puntland. The strategic plan builds on the strong foundation set out in the previous NSP and will continue expansion of health services to community level through Health Posts and Community Health Workers. This will be achieved through increased diagnosis and case detection, increased access to treatment, continued provision of malaria prevention methods (LLINs and IRS), and will only be possible as part of a community engagement and mobilization effort.

The specific goals of the Somali National Strategic Plan for Malaria are:

- By 2015, achieve near zero (<1% parasite prevalence) malaria prevalence within areas of historically low transmission (Somaliland, Puntland and Central parts of Central South Zone)
- By 2015, achieve and sustain universal coverage resulting in 50% reduction of malaria prevalence in malarious areas of the country (Southern parts of Central South Zone)

The NSP provides a detailed account on the status and direction of the major malaria prevention and control strategies that include community engagement approach, quality diagnosis and treatment, selective vector control, epidemic, preparedness, detection and response, as well as supporting strategies that include Partnership and Coordination, Monitoring and Evaluation, Operational Research, and Human Resources Development.

Component 1: Case Management
Diagnostic capacity has been strengthened at MCH level throughout Somalia in the last five years. In 2008, 60% of laboratories were monitored for laboratory quality control. Capacity needs to be strengthened further however, especially with the introduction of RDTs into community level health posts. Experience in Somalia has demonstrated that the introduction of RDTs, even at MCH level, has been challenging and requires strong supervisory support, this will need to be reflected in M&E activities.
Since 2006, Artemisinin-based Combination Therapy (ACTs) and Rapid Diagnostic Tests (RDTs) were introduced at MCH level in Somalia. Current operational plans are to extend these services out to health posts at the periphery of the health system. However, this roll out needs careful supervision and continuity of supply to all areas. Emphasis for supervision will be placed on health posts in key areas for example servicing large populations, or populations living close to riverine or focal malaria transmission areas.

Rectal artesunate and injectable artemether is available at present at hospital level, but not used. Phase II (2013 – 2015) of the NSP will see a phased roll out of Rectal Artesunate at HP level. However, that roll out is entirely dependent on health system structure improvement and availability of referral mechanisms between HP – MCH – Hospital levels.

**Component 2: Prevention**

The main vector control activities implemented in the country is LLIN distribution and utilisation by the community. Other vector-control activities include IRS and larval control, in localized areas where malaria transmissions is focal and geographically limited. Somalia will continue its current activities of scale up for impact to universal coverage of LLINs in malarious areas. IRS is targeted to reach 85% of households in epidemic-prone areas in phase II of the NSP depending on findings from operational research in phase I.

Trends in net utilisation have increased steadily since 2005 to approximately 47% coverage as of October 2009 (FSNAU, 2009 and estimates based on distributions), thus achieving targets for LLIN use set out in the previous national strategy. Ongoing distributions throughout 2009/2010 until the end of the lifetime of the previous national strategic plan should further increase coverage and utilisation and bring Somalia within reach of SUFI targets.

IRS is not a component of the previous national strategic plan. However, IRS has been undertaken reactively to outbreaks of malaria in Somaliland. This proposal aims to increase the use of IRS in specific settings where malaria transmission is highly focal. Water sources in Somalia have been well-defined through SWALIM, and cross-referencing this with increased geographical reconnaissance and reinforced surveillance will allow for identification of a limited number of areas where IRS will have significant impact.

**Component 3: Epidemic Preparedness, Detection and Response**

There is an inverse relationship between malaria transmission intensity and epidemic risk. In Somalia, the low malaria transmission in Somaliland, Puntland and some parts of Central zone means the populations in those areas are at risk of malaria epidemics or outbreaks. Malaria prevalence in the some parts of Central and South Zones is relatively higher than in either Somaliland or Puntland. While malaria transmission in CSZ is highly variable in time and space with prevalence ranging between 0-17% (FSNAU 2008-2009) models of malaria risk indicate highest transmission rates between, and immediately adjacent to the two major rivers. Seasonal floods, rains and flash floods lead to malaria outbreaks in those areas and districts neighbouring major river networks. Strengthening of malaria surveillance and
reporting within the framework of the HMIS, especially in epidemic or outbreak prone districts and villages, should allow for quicker detection of abnormal rises of fever and malaria cases.

An equivocal response to abnormal rises in fever or malaria cases is required to prevent excess morbidity and mortality associated with malaria epidemics. This proposal will aim to ensure that health staff is trained on epidemic detection and response, with initial focus on known epidemic districts and in sentinel sites currently being utilised by WHO. Training will be undertaken in an integrated manner within integrated communicable diseases surveillance system and HMIS or case management trainings due to be undertaken during the course of this plan. Emphasis of surveillance strengthening for malaria in focal areas will allow for a shift to active surveillance in areas such as Somaliland and Puntland where both access and transmission patterns may require this towards the second phase of the strategic plan.

Component 4 (supporting strategy): Information, Education and Communication
A strong and sustained campaign for Behaviour Change is needed in Somalia. To date, while there has been some focus on IEC, it has been fragmented and has had patchy coverage. This plan seeks to build on the work already done with IEC, and to expand it further, using both mass media and community mobilisation as complementary approaches.

Component 5: Health Systems Strengthening
There are four components to Health System Strengthening which include;

*Partnership and Coordination*
Coordination and partnership to date in Somalia has been weak. The only source of coordination is around the Global Funds which focuses on engaging with sub-recipients in order to ensure activities are progressing and reports completed. However, there is a need for a broader RBM partnership both at Nairobi-level and in Somaliland, Puntland and CSZ.

*Monitoring and Evaluation* An effective and robust monitoring and evaluation (M&E) system will be required to measure the success of the Somalia National Strategic Plan at achieving goals of the 5-year strategic plan and ensure programmatic decisions are evidence-based. The goal of the national M&E plan for malaria control in Somalia is to provide reliable information on sustaining malaria control and progress towards SUFI targets and sustained control.

*Operational Research* A number of operational research (OR) studies to be carried out have been identified already. As Somalia continues progress towards SUFI targets and towards sustained control, additional needs for OR will identified by the RBM partnership throughout the implementation of this National Strategic Plan. Operational studies that are relevant to the context of the regions will also be supported, to ensure regions apply interventions which are well suited to the local circumstances.

*Human Resources Development*
Human Resource capacity is key in building up and sustaining major strategic interventions in Somalia. Currently massive turnover of staff and extremely low literacy are major challenges which partners in health face in trying to roll out interventions across the country. Conflict-affected areas suffer especially high turnover of core central level staff. As a result, the focus of this NSP will be on technical teams at regional level, and community health committees and workers at health post or village level. In turning attention to these three main areas the aim is to increase capacity of people who will remain stable enough within communities to ensure sustained activities.
Introduction

Country Profile

Somalia (Somali: Soomaaliya; Arabic: الصومال aṣṣūmāl), officially the Republic of Somalia (Somali: Jamhuuriyadda Soomaaliya, Arabic: جمهورية الصومال Jumhūriyyat aṣṣūmāl) and formerly known as the Somali Democratic Republic, forms the largest part of Horn of Africa. It is bordered by Djibouti to the northwest, Kenya to the southwest, the Gulf of Aden with Yemen to the north, the Indian Ocean to the east, and Ethiopia to the west.

Demography

Population estimates for Somalia are contentious. The last population census was conducted in the 1970s. All population estimates have therefore been derived through a mixture of projecting from these figures as well as operational experience in delivering services and/or household surveys (for example national polio vaccination campaigns).

Somalia is currently (2009) estimated to have a total population of roughly 9.3 million people, although estimates range from 6 – 11 million. Conflict within the country has resulted in considerable displacement making population quantification and distribution even more difficult to assess.

A UNDP survey (2002) indicated that the average household in Somalia consists of 5.8 persons with nearly 50% of the population under the age of 15 years. Over 80% of the population were estimated to be illiterate (65% urban and 89% rural). And roughly 38% were living in an urban environment (62% rural). This differs by zone with Somaliland having an estimated 45% of the population living in urban settings, Puntland 38% and central South zone an estimated 36% in urban settings.

The most recent population estimates (UNICEF, 2008) largely concur with polio data (developed through nationwide polio vaccination strategies) and are thus judged to the best population estimates at present.

Table 1: Demographic indicators for Somalia

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<th>Estimations</th>
<th>Source (year)</th>
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<tr>
<td>Total population</td>
<td>9.3 million</td>
<td>UNICEF, 2008</td>
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<tr>
<td>South Central Zone</td>
<td>5.5 million</td>
<td></td>
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<tr>
<td>Somaliland</td>
<td>2.0 million</td>
<td></td>
</tr>
<tr>
<td>Puntland</td>
<td>1.8 million</td>
<td></td>
</tr>
<tr>
<td>Population growth</td>
<td>2.9%</td>
<td>World Bank, World Development Indicators (last updated, 2010)</td>
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<tr>
<td>Estimated # Internally Displaced People (IDPs)</td>
<td>Approximately 1 million</td>
<td>UNHCR, 2008</td>
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<tr>
<td>% Living below $1/day</td>
<td>43.2%</td>
<td>World Bank, 2002 <a href="http://go.worldbank.org/79I6OT35O0">http://go.worldbank.org/79I6OT35O0</a></td>
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<tr>
<td>Life expectancy at birth</td>
<td>48.1 years</td>
<td>World Bank, World Development Indicators (last updated, 2007)</td>
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<tr>
<td>Primary School Enrolment</td>
<td></td>
<td>UNICEF - UIS and UNESCO, including the Education for All 2000 Assessment, Multiple Indicator Cluster Surveys (MICS) and Demographic and Health Surveys (DHS).</td>
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### Political and Administrative structure

Somalia has not functioned as a unitary state since 1991, when the overthrow of the Siad Barre regime ushered in a long of instability, from which the country has yet to emerge. The state has effectively fragmented into three distinct regional blocks, Somaliland, Puntland and the Central Southern Zone (CSZ). Attempts have been made since 2000 to unite various factions through the development of a parliament which has appointed successive Transitional Governments. The current Transitional Federal Government was put in place in 2004, and was to be installed in Southern Somalia. However, attacks from opposition groups and militias have not made this possible. As of October 2009, the TFG has little or no control over the CSZ and a power struggle continues with Al-shabab, an Islamist faction which has taken over the majority of the southern part of the country.

While all three regional blocks – Somaliland, Puntland and South Central Somalia – can be characterised by fragility and vulnerability to conflict, they are also have noticeable different levels of political and institutional development (see Table 2).

The Republic of Somaliland, in the Northwest of Somalia, comprises five of the eighteen administrative regions. Somaliland remains internationally unrecognised, but in stark contrast to the South, has developed its own political institutions, judiciary, police, armed forces and currency. The Puntland State of Somalia comprises three of the eighteen regions of Somalia, and contests control of two further regions, Sool and Sanaag on its western side with neighbouring Somaliland. Puntland formally endorses the transitional federal process, but has its own constitution, political institutions and armed forces, and conducts its own foreign and trade policies.

The CSZ has little or no political infrastructure. Attempts have been made since 2000 to unite warring factions in the CSZ as well as Somaliland and Puntland through the development of a parliament and appointment of Transitional Governments. The current Transitional Federal Government (TFG) was appointed in 2004 by the parliament. However, the TFG has been unable to take control of the country because of opposition and attacks from various warring groups and militias based mainly in the South Central Zone.
In the absence of an overall national government to promote the country's development, and at the request of the TFG, the World Bank and the United Nations Development Program spearheaded a drive to re-engage with Somalia. This was done mainly through the Joint Needs Assessment, carried out from 2005-2006, supported by donors and undertaken jointly with Somali authorities. The aim of the JNA was to provide an assessment of the rehabilitation and transitional recovery needs of the country with the main output being the Reconstruction and Development Plan.

The RDP constitutes Somalia’s development strategy for five years since 2008 (2008 – 2013). The architecture of the RDP recognises the “variable geometry” of development needs and opportunities. It consists of a synthesis volume and three regional volumes for South Central Somalia, Somaliland and Puntland; in the case of the latter two, the regional volumes take account of own development plans. In all three regions the framework is built on three pillars:

- Deepening peace, improving security and establishing good governance;
- Strengthening essential basic services and social protection;
- Creating an enabling environment for private sector-led growth to expand employment and reduce poverty

The RDP recognises the different stages at which Somaliland, Puntland and South Central Somalia are in the process of state building and that there is no ‘one size fits all’ formula for development in Somalia. The RDP supports a multilayered approach, with institutions at regional and sub-regional levels to be developed and strengthened. At the same time local community initiatives that fully involve all elements of society will be encouraged and supported.

**Table 2: Political and Institutional Development characteristics of Central South, Puntland and Somaliland (Adapted from RDP, 2008)**

<table>
<thead>
<tr>
<th>Regional block</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>South Central</td>
<td>• Complex emergency&lt;br&gt;• Dependence on Humanitarian assistance&lt;br&gt;• Access and security difficulties with pockets of stability&lt;br&gt;• Increased IDPs&lt;br&gt;• Food insecurity&lt;br&gt;• Minimal quality frameworks</td>
</tr>
<tr>
<td>Puntland</td>
<td>• Relative stability&lt;br&gt;• Functional regional and administrative institutions&lt;br&gt;• Early stages of recovery&lt;br&gt;• Disruption of Livelihoods&lt;br&gt;• Access issues: Sool and Sanaag&lt;br&gt;• Emerging quality assurance frameworks</td>
</tr>
</tbody>
</table>
| | • Incipient government presence  
| | • Limited Institutional Capacity  
| Somaliland | • Relative political stability and social opportunity  
| | • Early stages of development  
| | • Functioning parliament  
| | • Functioning regional administrative institutions  
| | • Disruption of livelihoods  
| | • Access issues: Sool and Sanaag  
| | • Growing quality assurance framework  
| | • Viable government role  
| | • Lack of sustainability or institutional capacity  
| | • Strong private sector participation  

The overall coordination of the RDP is carried out by the Coordination for International Support to Somalia (CISS) a coordinating body which evolved out of the Somalia Aid Coordination Body (SACB) previously functioning since 1993. The CISS has the mandate of supporting and facilitating coordination for a constructive and effective partnership between the international aid community and Somali counterparts.
Figure 1: Map of regional boundaries - Somalia
The CISS is lead and guided by an Executive Committee which is chaired, in line with the Joint Planning Committee arrangements, the UN resident coordinator and the World Bank. Permanent nominated members of the committee include focal persons from NGO consortium, UN country team, Somalia Donor Group (SDG) and technical committee representatives (Sectoral chair committees and the Inter-agency Standing Committee - IASC).

The Somali Support Secretariat is responsible for providing secretariat support services to the Somali authorities and the international community in order to facilitate their efforts of coordination of the humanitarian, reconstruction and development programme for the country. It provides responsive secretariat services to the CISS, and oversees sectoral steering and coordination committees including; Food Security & Rural Development, Education, Indicators Working Group, Water Sanitation and Hygiene (WASH), Health sector – in which there are numerous working groups and coordination committee for RDP pillar I.

Administratively, Somalia is divided into 18 regions, under which fall districts and then village level sub-structures. The functionality of the regional level administrations is variable depending on the level of partner support and stability in the areas. Somaliland and Puntland have far more developed regional capacity, relative to CSZ, however, in general the nature, authority and structure of the regional governments vary if they exist at all.

**Economy**

Economic progress in Somalia is mixed. As of October 2009, Somalia is still a fragile state with hundreds of thousands of Internally Displaced People due to floods and the latest fighting of the civil war. However, when extreme poverty (percentage of individuals living on less than PPP$1 a day) was last measured by the World Bank in 1998, Somalia fared better than many other countries in Africa, over some of whom Somalia also had superior infrastructure. In the absence of a Somali state and its institutions, the private sector grew "impressively" according to the World Bank in 2003, particularly in the areas of trade, commerce, transport, remittance and infrastructure services and in agricultural sectors.

The private sector, with external support including international Islamic and diaspora funds, has invested strongly in the provision of basic services such as education and health. Delivery of these basic services has actually improved since state collapse in the early 1980s. However, such services are generally concentrated in urban centres and do not cater for the needs of the poor.

However with a GDP of $600 per capita the country is still relatively poor.

**Geography, hydrology and climate**

Although Somalia in general has an arid to semi-arid climate, there are substantial localised differences throughout the country. Rainfall is the defining characteristic of the climate, and can vary greatly both spatially and temporally. In most areas of the country there are two
rainy seasons, the long rains – Go from April to June and a shorter dry season – Deyr from October to December. Temperatures are over 20C for most part of the year throughout the country, however, there are strong regional differences. Luuq near the border with Ethiopia in the Gedo region has the highest mean annual temperature in the country, at over 30C. Most low inland areas of the country are only slightly cooler. The temperatures along the southern coast are lower than those of inland areas. Average monthly temperatures can increase to 41C in places (in March) along the Juba river valley.

Somalia can be divided in to five distinct physio-geographic zones differentiated by topography (FAO, 2005).

- the Northern coastal plains
- the Golis mountain range and plateaus in the north
- the central coastal plains, with a wide sand dune system
- the broad limestone-sandstone plateau covering all of central and southern Somalia
- and the flood plains of the Juba and Shabelle in the South

The predominant hydrological features of Somalia are the downstream stretches of the two main permanent rivers of the Horn of Africa, both of which flow from the highlands of Ethiopia towards the Indian ocean: the Juba which flows in Somalia for more than 1,000 km of its length and the Shabelle which extends for more than 1,200 km from the Somali-Ethiopian border to its confluence with the Juba. Both these rivers are most affected by rainfall from neighbouring countries.

Ephemeral streams dominate throughout the rest of the country, they are dry for most of the year with moisture only following major rainfalls. There are however, natural springs and several short streams in the mountainous areas of the north which flow all year round in some stretches. Rainwater harvesting is also prevalent in the north in the form of berkads or wars.

Flash floods are common along the streams in the north of the country. Floods are also prevalent along the Juba and Shabelle alluvial plains. Historically floods have affected riverine areas during the Deyr season (October to December), and less frequently during the Gu season.

Flash floods are a common occurrence along the intermittent wadis in the North of the country.

**Health System Structure**

Up until recently, there was no one single National Health Sector Strategic Plan which outlines the health system structures, objectives and activities. Instead there were numerous fragmented donor-driven or agency plans. This is remains the case in some areas, however, since the development of the Reconstruction and Development Plan a more coherent and inclusive approach is being taken by donors and partners.
Borne out of the RDP are packages attempting to define the health system structure and what services it should provide. The Essential Package of Health Services (EPHS) is one of those key documents, and while it is being rolled out in Somaliland initially, it provides a framework for the theoretical structure of the health system throughout the country.

A theoretical framework for the health system has been developed through the Joint Needs assessment, RDP and subsequent outputs such as the Essential Package of Health Services. The latter of which serves as a practical guideline focusing on outlining the health system and increasing quality of care. There is no formal structure which has been endorsed by MoHs or the HSC. However, partners implementing activities on the ground have adopted a Primary Health Care approach and framework.

The partner PHC structure follows the political divisions of Somalia with each zone housing the Ministry of Health. From the zone level the health system flows to regional, district and then village level. Health Boards sit at regional and district level. District Health Boards are linked to the Maternal and Child Health Centres (MCH) of which there is one per district. Public Health Coordinators (PHC) are employed at District level and are responsible for supervising activities in the district, including the MCH, public health (PHS) and outreach supervisors. The DHMT coordinates with the Village Health Committees (VHC) who work with Community Mobilisers (CM) to oversee the Health post from which Community Health Workers (CHW) serve their villages.

Regardless of the theoretical structure, the health systems in each zone are largely fragmented with patchy support of all level of health care in Somalia. MCHs and Health Posts by international and national donors. The current estimates of functioning health facilities is; Hospitals (63), MCHs (234), and Health posts (625). International and national support in recent years has been concentrated at MCH level. However, those MCHs that are functioning are doing so at varying levels and do not have enough resources, capacity and support to provide full range of health services according to the Essential Package of Health Services. In addition, while a mapping exercise has been carried out for MCHs, no equivalent exercise has been done for health posts. Thus, the actual number of functional health posts and the geocoordinates remains largely unknown.

<table>
<thead>
<tr>
<th>Health Posts</th>
<th>MCHs</th>
<th>District Hospitals</th>
<th>Ref. Hospitals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central Southern Zone</td>
<td>356</td>
<td>130</td>
<td>15</td>
</tr>
<tr>
<td>Puntland</td>
<td>119</td>
<td>36</td>
<td>2</td>
</tr>
<tr>
<td>Somaliland</td>
<td>90</td>
<td>50</td>
<td>2</td>
</tr>
<tr>
<td>Sool + Sanaaq</td>
<td>60</td>
<td>18</td>
<td>2</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>625</strong></td>
<td><strong>234</strong></td>
<td><strong>21</strong></td>
</tr>
</tbody>
</table>

Note: there are some 9 quasi hospitals in CSZ supported by MSF.
Some private hospitals have been supported by Somalian professionals who remained in the country in collaboration with some businessmen, some good health care facilities, albeit much smaller than what the country currently needs, have been established. These include general hospitals such as Al-Hayat, Arafat and SOS for Children, all situated in Mogadishu. Several health facilities have also been set up in Somaliland, chief among them being the modern and well equipped Edna Maternity Hospital which was constructed in Hargeisa.

**General health profile**

The last available Human Development ranking for Somalia showed it to be 161/163 in the world. Estimates for Under 5 mortality are 225/1,000 (World Bank Development indicators database, 2008). Maternal mortality is incredibly high at 1,044/100,000 (UNICEF statistics, 2008). Immunisation rates are low, less than half (45%) of under-1’s were immunised against measles in 2001 (UNICEF SOWC, 2002). There are an estimated 4 physicians per 100,000 people (UNDP, 2007).

**Malaria Epidemiological Profile**

The earliest malariometric surveys undertaken in Somalia were in the Northwest (Puntland) in 1946 which reported a highly varying prevalence distribution of *P. falciparum* ranging from 0 to 17% across three clusters of villages [1]. Between the 1940s and 2005 there were only three malaria infection surveys across five villages in the Lower Shabelle area of the south-central zone [2-4].

*Figure 2: Prevalence of Plasmodium falciparum in different regions as taken from FSNAU surveys 2004-2007*
This equates to unstable and epidemic transmission in Somaliland and Puntland, moderate transmission in central Somalia and high transmission in the South.

Table 4: Summary of PfPR survey data among 21,436 people examined in 363 communities between 2004 and 2007 in Somalia

<table>
<thead>
<tr>
<th>Region</th>
<th>No. of surveys</th>
<th>Mean PfPR %</th>
<th>No. surveys PfPR=0</th>
<th>PfPR Range</th>
<th>Overall PfPR n/Slides examined</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bari</td>
<td>32</td>
<td>4.65</td>
<td>10</td>
<td>0-38</td>
<td>4.28% (133/3104)</td>
</tr>
<tr>
<td>Galguduud</td>
<td>1</td>
<td>0.00</td>
<td>1</td>
<td>0</td>
<td>0% (0/35)</td>
</tr>
<tr>
<td>Mudug</td>
<td>13</td>
<td>2.35</td>
<td>8</td>
<td>0-20</td>
<td>3.1% (30/968)</td>
</tr>
<tr>
<td>Nugaal</td>
<td>14</td>
<td>0.00</td>
<td>14</td>
<td>0</td>
<td>0% (0/832)</td>
</tr>
<tr>
<td>Awdal</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Sanaag</td>
<td>6</td>
<td>6.76</td>
<td>2</td>
<td>0.30</td>
<td>7.97% (29/364)</td>
</tr>
<tr>
<td>Sool</td>
<td>7</td>
<td>8.32</td>
<td>2</td>
<td>0-27</td>
<td>8.46% (49/579)</td>
</tr>
<tr>
<td>Togdheere</td>
<td>12</td>
<td>9.34</td>
<td>5</td>
<td>0-30</td>
<td>5.66% (34/601)</td>
</tr>
<tr>
<td>Woqooyi Galbeed</td>
<td>2</td>
<td>1.35</td>
<td>1</td>
<td>0.3</td>
<td>1.15% (1/87)</td>
</tr>
<tr>
<td>Bakool</td>
<td>8</td>
<td>10.16</td>
<td>1</td>
<td>0-18</td>
<td>11.01% (50/454)</td>
</tr>
<tr>
<td>Banadir</td>
<td>11</td>
<td>1.29</td>
<td>7</td>
<td>0-9</td>
<td>1.03% (12/1163)</td>
</tr>
<tr>
<td>Bay</td>
<td>121</td>
<td>21.92</td>
<td>15</td>
<td>0-78</td>
<td>21.90% (1368/6248)</td>
</tr>
<tr>
<td>Gedo</td>
<td>39</td>
<td>15.95</td>
<td>11</td>
<td>0-65</td>
<td>16.31% (345/2115)</td>
</tr>
<tr>
<td>Hiran</td>
<td>9</td>
<td>1.86</td>
<td>6</td>
<td>0-8</td>
<td>2.42% (10/413)</td>
</tr>
<tr>
<td>Lower Juba</td>
<td>4</td>
<td>9.04</td>
<td>2</td>
<td>0-32</td>
<td>6.59% (12/182)</td>
</tr>
<tr>
<td>Lower Shabelle</td>
<td>40</td>
<td>6.64</td>
<td>12</td>
<td>0-42</td>
<td>6.16% (124/2013)</td>
</tr>
<tr>
<td>Middle Juba</td>
<td>6</td>
<td>8.35</td>
<td>0</td>
<td>3-15</td>
<td>9.15% (26/284)</td>
</tr>
<tr>
<td>Middle Shabelle</td>
<td>38</td>
<td>1.80</td>
<td>25</td>
<td>0-14</td>
<td>2.06% (41/1994)</td>
</tr>
</tbody>
</table>

Trends in the burden of malaria

There are different estimates of the burden of disease in Somalia. In 2008 the HMIS reported 45,826 uncomplicated malaria cases (both confirmed and unconfirmed) and 4,456 severe malaria cases. As HMIS has not been rolled out to all health facilities this is probably an underestimate of the actual burden of disease. The World Malaria Report (2008) [5] estimated that there were 608,831 cases of uncomplicated malaria (lowest predicted: 311,038- highest predicted: 1,981,438) and 3,491 malaria deaths. However, based on a modelled approach undertaken by Snow et al (2007) using epidemiological data approximately 770,000 (IQR, 464,000 – 1,700,000) clinical attacks of P.f. are estimated to occur per year. The burden of disease is predicted to vary considerably across the country depending upon the dominant transmission patterns and human population density. In
addition approximately 4,500 deaths each year are estimated to occur as a direct result from \textit{P. falciparum} infection [6].

**Figure 3: Epidemiological profile per zone in Somalia**

<table>
<thead>
<tr>
<th></th>
<th>Somaliland</th>
<th>Puntland</th>
<th>Central Zone</th>
<th>Southern Zone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Epidemic potential</td>
<td>High</td>
<td>High</td>
<td>Moderate</td>
<td>Moderate-Low</td>
</tr>
<tr>
<td>Populations at risk</td>
<td>All age groups</td>
<td>All age groups</td>
<td>All age groups, but particularly pregnant women and children under 5</td>
<td>Pregnant women and children under 5</td>
</tr>
<tr>
<td>Mosquito vectors</td>
<td>\textit{An arabiensis}</td>
<td>\textit{An arabiensis}</td>
<td>\textit{An. Arabiensis}</td>
<td>\textit{An. Arabiensis}</td>
</tr>
<tr>
<td>Plasmodium species</td>
<td>\textit{P. falciparum} \textit{P. vivax} \textit{P. malariae}</td>
<td>\textit{P. falciparum} \textit{P. vivax} \textit{P. malariae}</td>
<td>\textit{P. falciparum} \textit{P. vivax} \textit{P. malariae}</td>
<td>\textit{P. falciparum} \textit{P. vivax} \textit{P. malariae}</td>
</tr>
</tbody>
</table>

**Parasite & Vector species composition**

The dominant species of malaria throughout Somalia is thought to be \textit{P. falciparum}. However, there have been limited investigations into the prevalence of \textit{P. vivax} – which has been found to be one of the predominant parasite species (40%) in neighbouring Ethiopia (PMI, 2009). There is patchy evidence of \textit{P. vivax} infections in Somalia among peacekeeping and US soldiers in the 1990s [7-9]. In addition, seroprevalence in Somaliland have demonstrated a relatively high prevalence (19.3%) of antibodies to \textit{P. vivax} [10]. However, there is conflicting evidence, for example, reports from the CSZ zone indicate that \textit{P.f.} prevalence is 98% and \textit{P.v.} 2%. Further investigation is needed. Worryingly, studies during the 1990s also demonstrated resistance of \textit{P. vivax} infections in soldiers at that time to primaquine treatment [9].

Based on limited entomological data, malaria transmission is thought to be supported almost entirely by \textit{An. arabiensis} in the Northern zones of Somalia, and by both \textit{An. funestus} and \textit{A. arabiensis} in CSZ. \textit{An. arabiensis} are most commonly associated with clean, sunlit pools – especially small, ephemeral habitats such as footprints, borrow pits, streambed pools and roadside ditches, irrigation canals and birkits in Somaliland and Puntland [7, 46-48]. \textit{An. Arabiensis} and \textit{An. funestus} are more commonly found in lower rainfall zones or in less moist climates [11-13].

\textit{An. funestus} are highly anthropophilic [14-17] and are generally classified as endophilic [15, 18-20] and endophagic. \textit{An arabiensis} is markedly exophilic, exophagic and is a more catholic feeder than \textit{An. funestus} [19]. Studies have shown that \textit{An. arabiensis} can be diverted from feeding on humans where large numbers of cattle or livestock are present [21-24]. In addition, using zooprophylaxis in areas where \textit{An. arabiensis} is the dominant vector decreases human biting [25], and has been associated with a significant reduction in malaria transmission to humans [26]. Contrary evidence from Southern Ethiopia has shown that \textit{An.
arabiensis are inherently anthropophagic, and will feed on humans and livestock in spite of an increased ratio of animals to humans [27].

**Malaria Situation Analysis**

Progress towards previous national strategy (and RBM indicators) has been mixed in Somalia. However, bearing in mind the complexity of working in such a dynamically changing environment, overall progress has been good. Malaria parasite prevalence as of the last set of FSNAU surveys (Jan – June 2009) is ranging from between 5 – 15%. Latest parasite prevalence surveys undertaken between January and June 2009 show an average parasite prevalence of 2.44% (range 0.1-7.3%).

Core outcome indicators are reported in Table 5. Progress since the last strategic plan is evidence even between the years 2005 and 2006. Figures for 2008/2009 are incomplete, but conservative estimates have been based on the number of LLINs distributed since 2006.

**Table 5: Current progress towards scale-up of interventions – key outcome indicators**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>% of HH with at least one net (any net)</td>
<td>10</td>
<td>22</td>
<td></td>
</tr>
<tr>
<td>% of HH with at least one ITN</td>
<td>2</td>
<td>12.2</td>
<td>47**</td>
</tr>
<tr>
<td>% use of nets (any nets) by children under five</td>
<td>unknown</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>% use of ITNs by children under five</td>
<td>3</td>
<td>9.2</td>
<td>35**</td>
</tr>
<tr>
<td>% use of nets (any net) by pregnant women</td>
<td>unknown</td>
<td>unknown</td>
<td></td>
</tr>
<tr>
<td>% use of ITNs by pregnant women</td>
<td>17.1</td>
<td>17.1</td>
<td>tbd</td>
</tr>
<tr>
<td>% of children with a fever who took an anti-malarial (within 24 hrs)</td>
<td>8</td>
<td>tbd</td>
<td>tbd</td>
</tr>
</tbody>
</table>

**Early Diagnosis and Treatment**

Previous targets were to ensure that;

- 80% of people at risk of malaria to have access to affordable and appropriate treatment within 24 hours of onset of symptoms;
- 100% of public health facilities in malarious areas to have adequate anti-malarial drugs and diagnostic supplies;
- 100% of all anti-malarials provided through formal sector and 80% of all anti-malarials provided through the informal sector to be of internationally acceptable pharmacological standards;
- 80% of first line therapeutic failures and severe, complicated malaria cases to be correctly managed in appropriate health facilities.
- 70% of pregnant women in stable malaria areas receive at least two doses of IPT under direct observation.
AS+SP is the current first line treatment for uncomplicated in Somalia at hospital and MCH level. Quinine is reserved for treatment of severe malaria at hospital level. Sulfadoxine-Pyrimethamine remains first line therapy at the Health Post (HP) level. IPTp is used for the control of malaria in pregnancy. Pregnant women with malaria in their 1st trimester are treated with quinine and AS+SP in the second and third trimesters.

Diagnostic guidelines vary per transmission area with Northern zones classified loosely as “low transmission” and CSZ as “high transmission” (see table below). ACTs and RDTs are currently being supplied through partners on the ground to MCHs and hospital level. At present it is estimated that 59% of health facilities (MCHs and hospitals) have access to either microscopy or RDT diagnostics, all of which are being visited at least quarterly for quality control purposes (Global Fund performance report, 2009).

<table>
<thead>
<tr>
<th>Table 6: Overview of diagnostic guidelines in Somalia</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Low</strong></td>
</tr>
<tr>
<td>All cases need confirmation (RDT or microscopy) before treatment.</td>
</tr>
</tbody>
</table>

Training of all MCH and hospital staff on diagnosis and case management of uncomplicated (and severe in hospitals) has been completed. Supervision, including on-the-job training is carried out by an external sub-contractor for all partners supporting health facilities. Partners continue to make progress towards introducing diagnosis and case management at health post level. Training guidelines for fever management at this level have been developed and partner teams have been trained as trainers. The roll-out of ACT and RDTs at HP level is due to commence before the start of this new strategic plan.

With these outputs, 3,621 health service providers (some trained 2 -3 times including refresher training) in 220 MCHs have been trained on proper diagnosis and case management of malaria. IPTp indicators are lower, with 40% of women receiving IPTp2 (up from a baseline of 30%) in CSZ.

**Prevention: Long Lasting Insecticidal Nets**

The previous strategy targeted for;
- 80% of children under 5 and 80% of pregnant women sleep under an LLIN;
- 40% of children above 5 years and 40% of adults sleep under an LLIN.

The current distribution strategy to achieve these targets is community based mass distributions aiming for at least 2 nets distributed per household in malarious areas. Although household size in Somalia is estimated to be 5.8, the number of sleeping places is unknown. However, on examination of the household structure and based on partners experiences, providing at least 2/LLINs per household should be sufficient to cover all sleeping places. In order to monitor this, an additional activity will be carried out during pre-distribution exercises to count the number of family sleeping places. Transmission areas have been
mapped by KEMRI Wellcome Trust and 19 districts are targeted located mainly in Southern Somalia with some areas in the north. The net replacement cycle is 3 years.

Initially net distributions were being carried out through health facilities, but a successful pilot of the mass distribution approach led to a switch to the latter strategy. The exception to the mass distribution are nutritional stabilization centers and hospitals where LLINs are provided to patients. Estimated possession rates as of 2009 are between 40-47% based on most recent distribution and baseline figures. Those estimates are confirmed in some areas where FSNAU surveys have been undertaken in 2009 (FSNAU Technical series, Sept. 2009)

Figure 4: –Estimated LLIN ownership in malarious areas of Somalia (estimated population 6 m) based on distributions by partners 2004 - 2009

Prevention: Indoor Residual Spraying
IRS was not a strategy with set targets in the previous National Strategic Plan. However, a limited amount of IRS has been undertaken in Somaliland in response to malaria outbreaks detected through scheduled FSNAU surveys. Stocks of Pyrethroid insecticide, pumps and safety equipment as well as IRS trainers are available in Somaliland, Puntland and CSZ. However, this IRS was not a major strategy in the previous NSP.

Epidemic Prevention and Control
Previous targets for epidemic prevention and control;

- 90% of epidemic prone districts have epidemic preparedness plans and detection/rapid response systems for local malaria epidemics;
- 80% of malaria epidemics are detected within two weeks of onset;
- 70% of confirmed epidemics are effectively contained through selective interventions including effective case management, ITNs and/or IRS, community mobilization.
Malaria outbreaks have been detected in focal areas as a result of FSNAU surveys, which are carried out in 40 locations per year and thus are not sensitive enough to pick up all epidemics. Response to epidemics was relatively quick, although capacity is limited. As yet there is no system in place for the early detection of epidemics, although data from 225 WHO sentinel sites is available for partners. While epidemic detection and response was not a major priority in the previous strategic plan, there has been a shift in focus recently with Epidemic Preparedness and Response (EPR) training for partners in Somaliland.

**Support strategies – Information, Education and Communication**

- 80% of population in hyper-meso endemic areas knows and utilizes methods of prevention/treatment of malaria.

IEC is a support activity of both the treatment and prevention aspects of the programme. From 2006 to date 665 health staff have been trained on malaria communication techniques. Until 2008 there patchy IEC/BCC activities were taking place. Some partners were implementing malaria field (information) days during which they would interact with village leaders and groups to give them information about different aspects of malaria including treatment seeking behavior. Since 2008, a more coherent approach to IEC/BCC has been adopted and implementing partners are involved a collaborative training approach for community mobilisers working in their areas of operations. Since 2008, 35 CMs have been trained through 8 partners.

A strong mass media campaign is in place during which radio spots, discussion shows and advertisements on malaria are carried out. That campaign is ongoing.

**Gaps and weaknesses - overall**

**Partnership and Coordination for malaria control and prevention activities**

There is weak coordination of partners delivering health services in Somalia. Ideally an RBM partnership should consist of a range of organizations involved in malaria control in Somalia, MoH, UN agencies, NGO partners delivering health or implementing malaria specific programmes, Faith-based organizations and the private sector. Currently, for Somalia a technical Malaria Working Group exist at Nairobi-level which welcomes all partners interested in RBM initiatives and whose mandate is to guide malaria control activities.

However, with the vast majority of funding for malaria currently coming from the Global Funds, meetings are skewed towards GF activities and sub-recipients rather than attempting to reach a broader base of health service delivery organizations.

In addition, there is a need to reflect MWG or broader RBM partnership taskforce meetings and coordination in Somaliland, Puntland and, where possible, CSZ. In the former two areas Malaria Focal Persons are present at the Ministry of Health and require support to undertake coordination of partners activities. In all three areas mechanisms need to be put in place to keep all partners delivering health care in Somalia up to date on activities, guidelines and upcoming workshops or meetings.
Diagnostics and antimalarials supply
The security situation in Somalia creates a dual problem in terms providing continuous supplies of antimalarials and diagnostics. Supplies into the country are costly as a result of high local transport costs. In addition, supplies in the country are sometimes looted (as seen in May 2009) or unreachable because of insecurity. There is a dire need for additional warehousing either in more stable areas inside, or areas bordering Somalia in order to shorten the distance by which commodities need to be transported.

Accessibility to Health Post level facilities
Support in recent years has focused on the MCH level in order to increase their capacity and quality of care. As a result, MCHs/Hospitals have relatively well-defined structures, with clear roles in relation to their services to the population, and with ongoing refresher training and supervision in place. However, focusing on those levels has meant that the health post (HP) level, which could potentially open up access to far greater people has been neglected.

One of the problems is that there has been no systematic approach to the HPs. Development of training guidelines was relatively straightforward for MCHs because the level of training of staff is known (albeit low), and the numbers of functioning MCHs relatively clear. In the case of health posts, there is a continuing struggle to determine how to approach these structures when even the most basic items are not available. Basics such as role of HP, managing HP, referral, reporting, etc are not in place. An additional issue is that health posts are expected to be staffed by voluntary Community Health Workers. The implications of this on training and continuity of supplies is clear. Partner NGOs report that a CHW could be trained one month and has left the next; leaving the village to chose another CHW for whom further training is required.

Community engagement and social mobilization
Up until recently, malaria interventions have been channelled through MCHs, supported by BCC carried out with mass media (radio) and patchy IEC/BCC activities at community level in specific areas. There is a concerted move towards a more coherent BCC/IEC malaria strategy that can be integrated into an overall health communications toolkit when it is developed. However, current coverage through partners is patchy and there is a need for a strong push of an already established tool out to other areas. With the development of the EPHS in Somaliland, there is an opportunity to begin to build on the health system structure to train and equip MoH coordinated and supervised Community Mobilisers and CHWs.

Community volunteerism
The operation of Health Post levels, on which this NSP is focussed, is dependent entirely on voluntary Community Health Workers selected by their village peers. In any context this is a challenge. In Somalia, the added difficulty of insecurity and scarcity of food and resources means that retaining a trained CHW at health post level is extremely difficult. Partners have emphasised this issue, reporting that they may train a volunteer one month, only to have to train a new replacement a few months following.
Historically low attendance rates at public health facilities further compounds this problem. Whereas in other countries utilisation of public health services is relatively high, serving as a CHW brings with it some prestige. In Somalia, this may not be the case – and without any incentives either morally or financially retention of volunteers is likely to continue to be a challenge.

**M&E and Operational Research**

No comprehensive M&E framework for the previous National Strategic Plan and as such the new National Strategic Plan needs to be supported by a comprehensive framework. As well as lack of an overall coherent M&E strategy, a key constraint is the lack of reliable, timely information on programmes for decision-making. These constraints are related to the poor overall infrastructure and staff capacity at different levels in the health system. Partners have, over time, developed their own monitoring systems which need to be standardised and fed into an overall coordinated and integrated M&E strategy.

Operational research has been a strong component of malaria control and prevention activities in Somalia during the lifetime of the last National Strategic plan. Those activities should be continued. However, there are some major gaps in understanding the perceptions of people towards LLIN utilisation, knowledge of treatment and treatment seeking behaviour which do need to be included as priorities in a research strategy for the country.

**Gaps in service delivery**

**Case Management**

Emphasis previously was on MCH capacity. While a certain focus needs to remain on increasing and sustaining capacity at MCH levels for the case management of malaria, training on fever management needs to extend down to Health post level. Both diagnostic and case management training and supplies need to be focussed at health post level to increase accessibility to ACTs. Work has already commenced on this area with guidelines for fever management at health post level. An operational plan is being elaborated and training of all HP workers in targeted areas should be completed by the beginning of this National Strategic Plan. During the lifetime of this NSP, capacity strengthening will continue at community level through HPs.

However, bearing in mind the changing context of Somalia and issues with insecurity an alternative strategy for the roll out of ACTs at community level will involve training of CHWs in targeted areas and supplying them with supplies of RDTs and ACTs. CHWs will be re-supplied and monitored by outreach workers from MCHs. Home-based Management of Malaria (HMM) will also be considered as an activity that should be piloted in targeted areas of Somalia in phase II of the NSP.

The private sector is a major service provider for malaria in Somalia. However, there is only limited information on the quality of diagnosis or treatment. Studies by Noot et al (2008) in three sentinel districts in Somaliland, Puntland and CSZ reported that private pharmacies
outnumbered public health facilities 4:1. However, only 8.8% of the private pharmacies prescribed Artesunate+SP, while 53.1% prescribed Chloroquine as first-line therapy. One-third of pharmacies also provided diagnostic services using RDT or microscopy. There is little or no regulation of the private sector at present in Somaliland, Puntland or CSZ.

During the roll-out of this NSP the private sector will be approached in an effort to improve quality of diagnosis in the first instance. While the private sector continues to be an ill-defined entity in Somalia initial engagement will take place through private sector laboratories. Partners in all three zones and the MoH in Puntland and MoH&L in Somaliland will be supported to include private sector pharmacies in any diagnostic training being undertaken. At this time, private pharmacies will be provided with guidelines on diagnosis for malaria. At present, there is no system for quality control certification in Somalia. However, in the longer-term in-line with ongoing health system strengthening and collaboration with the private sector this should be an area that is explored.

BCC/IEC support strategies need to prioritise treatment seeking behaviour. There needs to be engagement with both the community, especially religious leaders to encourage mothers to refer children to public health facilities if a child is ill.

LLINs were previously being distributed through MCHs only. However, there has been a move to mass distribution at community level since the last NSP. Current activities are aimed at providing at least 2 LLINs per household and use a community entry approach which involves pre-distribution engagement with communities and pre-distribution registration. However, LLIN campaigns require more IEC/BCC support post-distribution hang-up campaigns to ensure retention and utilisation. This NSP aims to prioritise post-distribution net hang-up campaigns to ensure utilisation.

IRS was prioritised in Somalia during the previous NSP only for Epidemic prone areas in the North zones. Regardless IRS capacity is present in Somalia. Since 2005, four entomologists have been trained to MSc level and are in place in Somaliland, Puntland and CSZ and a total of 24 people have been trained throughout all three areas on IRS.

In addition, Pumps (>10/Zone), safety equipment and insecticide is available for IRS activities on a limited scale in each of the three areas with a strategic stock of insecticides and spray pumps are in place in the main WHO warehouse in Hargeisa. Spray activities were undertaken in 2008 & 2009 in response to unusually high malaria prevalence detected through FSNAU surveys. However, with increasing coverage with malaria interventions and likelihood of epidemics, IRS capacity needs to be further extended and activities expanded to spray focal areas of transmission on an annual basis. These areas need to be identified either through MICS, Malaria Indicators Survey (MIS) or sentinel sites weekly reporting of malaria cases.

Malaria epidemics and control Not addressed as a priority in the last few years, mainly due to an underperforming HMIS and sentinel site system. However, recent HMIS strengthening
has been mirrored by the development of a malaria epidemic preparedness and response plan and training is due to be undertaken 2009-2010. In late 2009, an Epidemic Preparedness and Response training was developed and undertaken with participants from all three zones and that training is set to continue. This NSP aims to further strengthen malaria epidemic detection through sentinel sites which will allow for more rapid detection of, and response to malaria epidemics.

**Health System weaknesses**

The overall gaps in health service delivery are summarised concisely in the RDP as follows:

“The impact of 15 years of conflict on the health system has been profound, affecting all its components: human resources, infrastructure, management, service delivery and support systems. Access to health services is low and uneven. Distance, economic, cultural and gender barriers limit the access to health services. Further limiting factors to the utilization of health services are lack of confidence in the system and insufficient knowledge and awareness. Overall, curative care provision has been ensured by an expanding private sector, while the coverage and quality of public health services has suffered, despite the support given by international agencies and special programs.”

There is limited capacity of health system management at all levels in Somaliland and Puntland and absence of real health authorities in South Central. Efforts are being made to formulate policies, guidelines and reforms; however they remain largely on paper, due to lack of capacity and resources to comprehensively implement them across a wide area, with different facilities, and different actors each with different funding modalities and different staff and supervision capabilities.

**Health systems management**

Management barriers in provision of quality health services are diverse; In particular, there is a weak technical capacity for providing strategic vision, policy, planning, coordination and monitoring. On-the-job training is uncoordinated and not necessarily up to standard; systems for training and management are vertical fixes associated to particular programmes – to boost performance in the absence of system capacity.

There is an absence of regulation for public and private sectors, and inexperience in contracting out mechanisms. Health system structures and institutions at central, regional and district levels are either absent or very weak. Health departments lack adequate technical and logistic support to carry out efficient supervision, monitoring and evaluation of activities. There is a need to develop clear policies, legislation and regulations for public sector, but particularly for the private sector.

**Human Resources for Health**

There is no clear human resource development policy or plan, or even consistent data on human resources in the public health sector. Last estimates of health staff in CSZ was 2,383, however, of those most are unskilled, and any professional health staff receive no structured service training (Joint Needs Assessment, 2005). Estimates of skilled cadres in Puntland are
fewer than 200. In Somaliland there are an estimated 400 health staff, however, a recent assessment of MCHs in Somaliland found 70% of staff without any formal training or certification (ref). All in all, the health workforce in the public health sector is small and under-skilled. The average health work force ratios are very low in Somalia: 3 Physicians per 100,000 (300 Physicians) and 11 Nurses per 100,000 (995 Nurses). The health workforce shortage is particularly acute for midwives within the 3 zones with a total of 282 midwives and a ratio of 3 midwives per 100,000.

Medical training institutes exist but require system of accreditation and standardized curricula. In addition, due to weak capacity and shortage of financial and human resources, most training facilities struggle to attain acceptable quality standards. Shortage of qualified and competent teachers is one of the key concerns. Furthermore training institutions concentrate on the production of nurses and doctors (there is some training of midwives in Hargeisa) and neither produce specialists nor the diverse range of other cadres needed to manage and implement health services (e.g. administrators, lab techs, pharmacists and CHWs).

Health staff that are trained through Somali training institutes, either nurses or even MDs, normally enter the private sector. As such, there is a fundamental disconnect between production of skilled workers and recruitment, deployment and retention. The health system cannot attract newly trained staff because of low budgeting leading to poor salaries, no pension. As a result, trained staff tends to migrate either into the private sector or overseas.

The result is that a large proportion of health staff in the public sector lack formal training, but continue to provide health care. Job descriptions for health staff and mechanisms for performance assessment are not in place. Since there are no structures and procedures for in-service training of health staff, there is lack of motivation, career opportunities, and incentives for the staff. A substantial proportion of staff is unlikely to benefit from retraining, due to poor education, professional background or advanced age.

The number of workers operating private outlets is unknown, but thought to be substantial. Health professionals are concentrated in urban centres, where overstaffing of facilities is reportedly frequent.

**Health system infrastructure & accessibility**

In general physical/financial barriers exist to accessing health services and these are generally cost and distance (cost/time for transport). Most health facilities were seriously damaged and looted during the civil war, and only few have been completely rehabilitated. While international and national partners continue to provide support to the health system, overall the public health care network is small. Concentration of facilities is in main towns and or where security conditions allow. Unevenness and lack of continuity of service provision are the rule.
Apart from cultural factors impinging on demand (lack of previous exposure, lack of knowledge about health services, gender roles and decisional power), the low number of facilities and charging of fees at point of service also has a major impact on accessing health services and when services are accessed. Data reviewed for safe motherhood programmes etc. indicates that cost and distance (transport cost) to health facilities is a major barrier to use. Low use of lower level services, at MCHs, results in catastrophic health events presenting to MCH or hospital level only after all other options have been tried.

Low use of MCHs is probably due to a lack of previous exposure and lack of knowledge. However, quality of care is major issue. Somalia has never had an effective and equitable health system – estimates for pre-war utilization are roughly 6% for the rural populations. Surveys indicate even populations living near public facilities often do not use them. Public facilities are considered to have inappropriate opening times (only in the morning), poor staff quality, high costs and lack of drugs and service options. Indeed, health services are poorly organised with low quality of staff and supervision and absence of many essential services. Services that do exist are not linked up to any system and so do not provide any coherent referral options. Hospitals are on average small (50-100 beds), providing in most cases sub-standard services. In total, few thousands beds are available. Occupancy rates are low in most cases.

Private health care outlets have proliferated, and are now estimated to be in the thousands, with large variations in their size, services offered, staff qualifications and performance. Where public health facilities are closed in the afternoons, private sector facilities remain open. However, the quality of provided care in private facilities is unknown. For those who can pay, private pharmacies are often preferred as they are customer oriented. Private facilities are open when customers wish to seek health care, and will provide the service according to customer demand and purchasing power.

Nomads are not only hard to reach because they are mobile - but also because they tend to live in the most marginal lands in the Northern zones. Low population densities and poor infrastructural development mean services are far apart, hard to supervise, with poor human resources and poor supply chains.

**Further barriers to access**

**Cost**
Provision of all services – public and private – is for a fee. The cost of modern health services is highly determined in defining who has access to care. Fees are not well regulated. Surveys indicate the rural population use public or private services according to proximity – indicating little preference for public services. Service costs are considered to pose a substantial barrier to access. Even relatively low fees represent a significant barrier to the majority of the rural populations and many of the displaced and destitute populations congregating around major urban centres.
**Education**

The population of Somalia is more than 80% illiterate. Somali society is highly traditional and conservative, particularly in rural areas. The rural populations of Somalia have low health seeking behaviours. Most health seeking responses are based on the traditional knowledge, beliefs and the perceived causes of the specific illnesses. Across all livelihood zones, these responses tend to follow a generalized pattern of: Prayer->Traditional home health practice->Traditional healer->Buy Medicine->Get Sheikh to pray-> Health facility.

**Addressing Health system weaknesses**

**Human Resource Development**

Improvements of HR are very much dependant on current capacity within the different zones. In Puntland and Somaliland, where MoH/MoH&L are functioning, HR development is ‘easy’ relative to the CSZ.

Donors are stepping in to try to address the shortage of trained health manpower at all levels. The GF/HSS is responding to the lack of health manpower through recruitment of health workers and development of non-monetary based incentive schemes as well as performance assessment mechanisms to augment current HR capacity. GF/HSS funding compliments EC Lot 3 donor support to develop standardised packages of incentives and salaries. While these HR systems are being developed, partners have coordinated with functioning ministries of health in Somaliland and Puntland to try to standardise staff incentives across the board. The same standardised mechanisms can be applied to CSZ through partners operational in that zone.

Health training institutes are being strengthened in Puntland and Somaliland with the support of a number of different donors. In Puntland focus is on training of general doctors, nurses and a smaller number of midwives. In Somaliland there is a wider focus which is addressing training institute technical capacity, certification (standard diplomas), as well as work with the MoH and professional bodies to improve technical capacity and establishment of regulatory frameworks.

WHO is investing in six main blocks of health system strengthening, one area of which is capacity building of the health work force as part of human resource development, in collaboration with health partners. Specific to malaria WHO is investing in strengthening capacity in Malaria Programme Management and Planning, Malaria QC, TOT for RDTs, Malaria Microscopes and Entomology & Vector control (MSc for 4 people recently trained and 4 more people this year). The plan must be explicit on how this capacity will be utilized as part of health system strengthening overall but also on entomology (M&E) and vector control operations.

**Health Care Delivery**

A health systems working group was put in place by the Somalia Support Secretariat in 2007 with support from the EU and GF (round 7 – HIV) to put measures into place to strengthen the health system. The working group has made progress, with funding from donors
including EC (Lot 3) and DfiD, towards developing Essential Packages of Health Services and standardising partner activities in support of health facilities. Similarly other projects are addressing different components of service delivery including lack of standards, protocols for staff, facilities and services.

Regulation of private sector health care providers is being assessed. In addition, the GF/HSS will address other gaps including the poor maintenance and equipment of selected PHC facilities, the poor quality of services, the weak referral mechanisms, the lack of effective mechanisms for monitoring and supportive supervision and the low demand and poor utilization of public health services.

**Health Information Systems (HIS) and Monitoring and Evaluation (M&E):**

Major steps have been taken in terms of designing, standardizing, simplifying and integrating the existing programme-oriented, parallel system into a single data channel. The design and pilot stage of the HMIS reform is currently being undertaken and a pilot will be rolled out in January 2010. Significant challenges still persist in the areas of staff capacity and training, and private sector participation. The goal is to have a single reporting format that embraces the needs of the diverse stakeholders in the health sector and improves access to health information nationwide for all relevant diseases.

**Institutional Framework and Responsibilities**

**Policy Environment**

As discussed above, the health sector programme in Somalia is guided by a five year strategy outlined by the Reconstruction and Development Programme (RDP).

The health sectors in Somaliland and Puntland have institutions and structures in place with functional ministries of health\(^1\) under which to move towards implementation of the RDP. Somaliland has developed a five year health strategic plan with an investment plan and a health strategic framework called “The Blue Book”, which was developed to guide the reform process. A Health Sector Reform (HSR) secretariat was established, but needs further assistance to make it functional.

In Northwest Zone ('Somaliland') a health policy and strategic health plan are being applied with a national professional health council providing oversight. While taking into account existing constraints, the EPHS acts as a blueprint for health sector development and future resource investments. The South Central MOH/TFG does not have such units at the central level.

\(^1\) Each MoH/MoH&L is differently structured – but each has departments dealing with health services, primary health care, EPI, nutrition, planning and human resource development, administration and finance and health management information systems (HMIS) – among other things.
Responsibilities

Full implementation of the five-year RDP requires active involvement and participation of all partners from central zonal to community level.

The health care system of Somalia follows the zonal structure, with the Ministries of Health of each zone at the apex. While the coordination of malaria activities to date has been unstructured, as of this strategic plan the MOHs, in collaboration with the Malaria partners (RBM partners and Malaria Working Group), will begin to conduct annual review meetings. These meetings gather both zonal and regional staff, as well as partners. They are a forum to review the achievements of the programme and an opportunity to amend the Strategic Plan if needed.

**Community level:** Involvement and participation of the community is crucial not only for the implementation of the national strategy but also to ensure ongoing sustainability of activities. As such, capacity building of the community will be a critical component of the strategy. Community level committees will be involved in three ways. Firstly, through village health committees whose roles, as defined by the EPHS, will be in the oversight, ownership and support of the malaria program (where possible as an integrated part of the overall Primary Health Care System). CHCs through health workers or volunteers will undertake participative education at community level through which will serve to increase messaging regarding health seeking behaviour, services at health facilities, and vector control. Communities will identify personnel for health who will serve them either as committee members, or as health workers.

Health facilities (Health posts, Mother and Child Health facilities and hospitals)

Community Health Workers will be trained to manage fever cases at health post level. The malaria program will be integrated into general health services. However, health facilities in areas of higher malaria transmission or focal areas will be concentrated on for support in terms of staff training as well as supervisory and technical support.

**Regional level:** The regional health office is responsible for planning, monitoring and evaluating all health priorities in the region including malaria as well as ensuring quality of care at health facilities. Regional office roles will also include malaria stratification of districts/villages to which resources should be targeted for malaria control and prevention based on programmatic monitoring and evaluation results. The regional PHC coordinator will be responsible or liaising with Community Health Committees to reinforce oversight and quality at health facilities.

**Zonal/Central level:** Zonal level health authorities are the main coordinators of the malaria program. Their role will be to ensure the continuous availability of adequate essential supplies required or the different strategic approaches to malaria control. Other responsibilities will include the stratification of zones into eco-epidemiological areas in order to allow for targeting of malaria control and prevention activities. The Zonal health office
also ensures the availability of manpower and equipment to the regions, and coordinates
resources of the different partners. The Zonal health offices are also responsible for ensuring
timely compilation, reporting, analysis of data and feedback to lower levels, as well as use of
information for decision-making and effective action. Zonal health personnel are responsible
for planning, monitoring and evaluating all health priorities in the zone

*Private sector:* Current access to public health facilities in Somalia is low. The private sector
is relatively strong and provides health care to a large proportion of the Somali population.
The private sector needs to be engaged in order to increase access to high quality malaria
diagnosis and treatment. This is a challenge in the Somali context because of issues with
training of private sector staff who may be unaware of current diagnosis and treatment
protocols, regulation and pharmacovigilance especially in the Southern zone of the country.
However, what is possible is advocacy of the private sector to provide them with national
guidelines, and train them in diagnosis and case management of fever cases and malaria.

**Partnership and Coordination**

Functioning Ministries of Health exist in Puntland and Somaliland both of which have
developed their own policies and strategies. However, due to limited resources, their roles
have been primarily restricted to coordination, and where possible supervision of, the
activities of their implementing partners.

While health ministries continue to develop, the coordination of health programming
pertinent to the RDP falls under the Health Sector Committee (HSC), which responds to the
SSS and CISS. The mandate of the HSC is to facilitate, in collaboration with existing and
emerging Somali authorities, the coordination of Health Sector interventions to; (1) ensure
rapid response, (2) enhance impact, (3) enhance equity and; (4) promote synergies, learning
and overall contribution of health care actions towards development of an appropriate health
care system within the framework of a public health approach.

The HSC forms specific thematic working groups to organise collective work and report to
the General meetings for health sector coordination on a timely basis. Within the HSC there
are 11 technical working groups and taskforces of which malaria is one.

**Somalia Roll Back Malaria Partnership**

Somalia is part WHO, Eastern Mediterranean Region (EMRO) as well as of the East African
Roll Back Malaria Network, which is attended by WHO and UNICEF representing Somalia.
Within the country, the Malaria Technical Working group, under the auspices of the Health
Sector Committee, take on technical guidance of malaria control and prevention activities.
However, a fully fledged RBM partnership with full membership and taskforces at both
Nairobi and Zonal level has not been fully realised.

Malaria Focal Personnel are present in both Somaliland and Puntland. The MFP in
Somaliland holds quarterly meetings to chart the progress of malaria control and prevention
activities with partners. The same has not been true of either Puntland or CSZ which has no Malaria FP representing the MOH/TFG.

**Malaria and the Broader Developmental Framework**

Somalia, through the RDP has prioritised the reduction of levels of mortality and morbidity, especially among women and children through (i) the provision of an equitable, effective and efficient package of health services which are available, accessible, and of reasonable quality, especially in rural areas and (ii) the development of the capacity to deliver the necessary services.

By the end of 2013, zonal and local health authorities are envisioned to have acquired a stronger technical, managerial and financial capacity and will be able, with the support of other partners - including external agencies and private health care providers - to lead and sustain:

a) An increase in coverage and improvement of quality of basic health care,

b) The development of efficient health systems, and

c) The progressive reduction of inequality in access to basic services.

MDG goals focus on achieving the priority target of halting malaria by 2015 can lead to gains in reductions in maternal health and child mortality (MDGs 4 and 5). Accordingly, the RDF Vol1 I (for health) and the 2011-2015 National Strategic Plan for Malaria Prevention and Control aim at achieving 100% access to malaria diagnosis and treatment and 100% LLIN coverage in all targeted households by 2012 to significantly impact the malaria burden in the country. The interventions and services proposed in the previous National Strategic Plan (2005-2010), as well as in this Strategic Plan, are closely linked to international and regional initiatives, including the Roll Back Malaria (RBM) partnership, the Integrated Management of Neonatal and Childhood Illnesses (IMNCI), and the Child Survival, through partnership with multilateral agencies (e.g. WHO, UNICEF) and bilateral donors.

The RDP, HSC vision and National Strategic Plan for Malaria all respond to the overall vision of the MDGs in reducing poverty. The National Strategic Plan for Malaria currently, and will continue to, provide both treatment and prevention free of charge. In addition, it will continue to collaborate with partners for the expansion of the health system infrastructure and referral systems to reduce severe and complicated illness.

That said, within the Somali context the RDP, while recognising the importance of the MDGs, realises the practicalities of the situation on the ground. In all reality, the MDGs, without a significant increase in technical support and resources will not be achieved by 2015. Donor commitment to the MDGs in the specific context of Somalia means first and foremost damage control, so that further decline is averted, and preparations for future recovery, if and when this starts.
### Millennium Development Goals

- **Goal 6: Combat HIV/AIDS, malaria and other diseases**
  
  **Target 8: to have halted by 2015 and begun to reverse the incidence of malaria and other major diseases.**
  
  - Incidence and death rates associated with malaria
  - Proportion those sleeping under insecticide-treated bednets
  - Proportion fever who are treated with appropriate anti-malarial drugs

### RBM Partnership

- In 2008 The Roll Back Malaria Partnership added new goal as part of global malaria Action Plan “near zero for all deaths by 2015”

### World Assembly targets

- In 2005, The World Health Assembly goals for malaria are reduction in morbidity and mortality by >50% by 2010 and by 75% in 2015 compared to 2000.

### Reconstruction and Development Programme for Somalia goals (2008-2015)

The health sector vision is to reduce the high levels of mortality and morbidity, especially among women and children through

1. The provision of an equitable, effective and efficient package of health services which are available, accessible, and of reasonable quality, especially in rural areas
2. The development of the capacity to deliver the necessary services.

By the end of 2013, zonal and local health authorities will have acquired a stronger technical, managerial and financial capacity and will be able, with the support of other partners - including external agencies and private health care providers - to lead and sustain:

- An increase in coverage and improvement of quality of basic health care,
- The development of efficient health systems, and
- The progressive reduction of inequality in access to basic services.

### National Strategy for Malaria goals (2011 – 2015)

- By 2015, achieve near zero (<1% parasite prevalence) malaria prevalence within areas of historically low transmission (Somaliland, Puntland and Central parts of CSZ)
- By 2015, achieve and sustain universal coverage resulting in 50% reduction of malaria prevalence in malarious areas of the country (Southern parts of South Central Zone)

### Through:

- Universal coverage of LLINs in malarious areas in Somalia
- Universal coverage of diagnosis and case management through community health structure (HP)
- Strengthening partnership and coordination among MoHs/MOH&L and partners

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**Table 7: Key Health & Malaria Control Goals and Targets**
The National Strategic Plan for Malaria

Progression from 2005 – 2015: Linkages between strategic plans and the way forward

Somalia faces significant challenges because of ongoing conflict and the resulting weakened health system. Given the overwhelming issues, it is difficult to envision that the country will be able to fully embrace SUFI goals. However, progress towards targets in the country have been steady and partners working there are experienced in the context and committed to improving on current successes. Since 2005, over 2 million nets have been distributed in Somalia and mass distribution campaigns are ongoing. In 2006, first line antimalarials therapy was changed to ACTs, on the basis of evidence from drug efficacy studies and diagnostic and treatment capacity is continually being strengthened through training at MCH level. Training has been carried out for vector control personnel and epidemic response mechanisms are in place in some areas of the country. The country is supported by committed partners with strong technical expertise and long country experience.

In short, there is a good foundation on which further progress can be made in reaching targets for malaria control and prevention in Somalia. This National Strategic Plan will outline how those targets will be achieved.

Major resources have been secured, through the Global Fund to support a move towards universal coverage of key malaria interventions by the end of 2010. Somalia will continue to aim for SUFI targets during the initial phase of this National Strategic plan and will aim to move from SUFI to sustained control in the second phase in certain geographical areas. These are key steps towards malaria elimination within the next two decades in Somalia. In the coming years, Somalia needs to build up its weakened health system from community level upwards in order to ensure absorption of malaria interventions. Interventions need to be implemented in a more selective manner, targeting areas with interventions where the impact on malaria morbidity and mortality will be greatest.

These steps will form part of the roadmap in preparation for pre-elimination in areas of focal transmission by 2015 and national elimination by 2025. The 2011-2015 NSP will focus on achieving SUFI targets, building on achievements from the NSP 2005 – 2010, and moving to sustained control by 2015.

The 2011-2015 NSP will achieve this ambitious goal by targeting appropriate prevention tools and strengthening community level health posts and higher level MCHs in areas with highest malaria morbidity and mortality. Interventions will be delivered within the overall health system while building up community involvement in health care. Supporting strategies, such as M&E, HR development and Operational Research will contribute to achieving the Plans objectives.

The Roll Back Malaria Global Malaria Action Plan defines malaria control as a continuum consisting of two main stages with different, although complementary, objectives:
• Scaling-Up for Impact (SUFI) with a goal to rapidly reach universal coverage for all populations at risk with locally appropriate malaria control interventions, supported by strengthened health systems.
• Sustained Control with a goal to maintain universal coverage with interventions by continued strengthening of health systems until universal coverage

This National Strategic Plan will run in two phases. Phase I (2011 – 2012) during which SUFI will continue to be rolled out. Phase II (2013 – 2015) which will move into sustained control of all interventions.

Caveat

The different components outlined in this National Strategic Plan are subject to the limitations imposed by the yet uncertain political future of the country. Malaria control targets will not be reached without a profound revision and strengthening of the current health system that will be possible only in a pacified country. On the other hand, the majority of the outlined activities will depend on financial and technical support by international actors, such as multilateral and bilateral donors, UN agencies, and NGOs.

It is envisioned that local authorities will progressively take over roles and responsibilities for malaria control and this is likely to happen with different speed in different zones of the country. Zonal implementation plans shall be developed in accordance with the principles of this strategy with the full participation of all actors involved in malaria control in each zone. The current strategy shall therefore be considered a set of tools to be used for the development of detailed implementation plans at zonal level.
**Purpose**

The purpose of this NSP is to elaborate the malaria prevention and control country directions and implementation strategies so that all efforts by RBM partners are harmonized and tuned towards achieving SUFI targets and moving towards sustained control. This NSP is intended to serve as a guide for the development of plans of action at various levels. It is a framework by which annual operational plans should be guided.

The NSP also provides indicative figures on the resource needs for the implementation of the planned activities in a bid to emphasize on the need to hasten resource mobilization efforts. The plan also emphasizes on the need to strengthen monitoring and evaluation (M&E) activities to complement the scale up of malaria interventions in order to measure the progress, effectiveness and impact of implemented activities.

The main purposes of this NSP at various levels of the system are:

*For MOH/MoH&L and HSC*: To identify areas that require policy decisions and guideline revision and development, as well as coordinating M&E activities, resource mobilization and capacity building. MoH/MoH&L and HSC will be responsible for advocating the National Strategic Plan (2011-2015).

*For Regional levels*: To guide development of locally appropriate plans and implementation arrangements and detailed work plan for zonal, district and community levels.

*RBM Partners*: A basis for identifying and developing strategic roles to fill gaps in technical and resource inputs critical for the attainment of the goal.

*For Academic and Research Institutions*: To identify problems and to design and implement research activities that are needs-driven and respond to operational questions and obstacles preventing partners from achieving targets.

*For NGOs and affected communities*: To empower communities, local NGOs, community leadership and affected populations to actively seek to achieve SUFI and sustained control.

**Scope**

This document includes the vision, mission, mandate, values, situation analysis, goals and strategic objectives in relation to all malaria prevention, control and treatment activities in Somalia for the period 2011-2015. This document will be complemented by a practical, implementable monitoring and evaluation plan which will allow partners to clearly map out progress towards targets outlined in the plan.

The strategic plan provides a detailed account on the status and direction of the major malaria prevention and control strategies that include early diagnosis followed by effective treatment, targeted vector control and malaria epidemic prevention and control, surveillance, as well as supporting strategies that including IEC and social mobilization, human resources development, M&E and operational research.
For each of the major and supporting strategies which are described separately, general objectives, operational targets rationale to activities proposed are indicated.

**Vision**

By 2015, the malaria-specific Millennium Development Goal (MDG) is achieved, and malaria is no longer a major cause of morbidity and mortality and no longer a barrier to social and economic development and growth in Somalia.

**Mission**

Through an integrated health systems approach the Malaria Prevention and Control program will expand and maintain high quality malaria prevention and control interventions with special emphasis on community empowerment and mobilization.

**Goals**

(i) By 2015, achieve near zero (<1% parasite prevalence) malaria transmission within areas of historically low transmission (Somaliland, Puntland and Central parts of CSZ).

(ii) By 2015, achieve and sustain universal coverage resulting in 50% reduction of malaria transmission in malarious areas of the country (Southern parts of CSZ).

**Figure 6: Current estimated *P.f.* prevalence (2007) and targeted *P.f.* prevalence (2015)**
**Approach of the National Strategic Plan (2011 – 2015)**

Capacity building and social mobilization of communities are crucial to malaria prevention and control. Success in achieving targets set out in this strategic plan rest on a sustained uptake of interventions at community level. Focus on community empowerment is even more important in Somalia where political and thus administrative infrastructure is limited by insufficient capacity and resources to carry out program interventions effectively.

Communication is a key component in community empowerment and mobilisation. Participative IEC/BCC provides information and skills to populations at risk of malaria so that they can make informed decisions and participate in malaria prevention, treatment, and control. In particular, IEC/BCC raises community awareness about the signs and symptoms of malaria, encourages early treatment-seeking behaviour, treatment compliance and creates demand for and increases the utilization of malaria services including LLINs. Thus, the overall approach during the lifetime of this NSP should be to engage with and empower the community through dialogue and communication.

The previous National Strategic Plan (2005 – 2010) focused on strengthening capacity at MCH and Hospital level. This NSP continue with strengthening capacity at MCH level, but will shift focus on augmenting health infrastructure at the community level while supporting and building capacity at the regional and zonal levels. Emphasising quality of care at community levels will increase access of the population and coverage of malaria interventions.

It is also important to recognise the emerging health system and political administrations which will require support and capacity building to coordinate activities. Partnership and coordination will be a key requirement in developing capacity at community levels and linking health posts to MCHs and upwards in the health system structure. We know that implementation of malaria diagnosis and case management is challenging at community level. Thus, those activities will require ongoing supervisory support from not only partners, but MoH as well.

The approach to each component of the National Strategic Plan will be to undertake activities through partners, but with inclusion and engagement of both the community and functioning health authorities. These approaches are in line with both the RDP and HSC goals.

**Objectives**

The objective of the 2011-2015 National Strategic Plan is to consolidate the achievements of the 2006-2010 National Strategic Plan, and sustain its impacts. This overall objective will be attained through the following specific objectives:

1. At least 80% of suspected malaria cases are diagnosed using RDTs or microscopy within 24 hours of fever onset
2. 100% of confirmed *Plasmodium falciparum* malaria cases are treated with ACTs
3. 100% of households in malaria transmission areas own at least two LLINs
4. At least 80% of the population (under 5s and total population) used LLIN previous night
5. At least 80% of pregnant women used LLIN previous night
6. At least 85% of households in focal transmission areas in Somaliland and Puntland sprayed in previous 12 month
7. At least 80% pregnant women receiving IPTp2 in malarious areas in CSZ
8. At least 90% of people living in malarious areas recognize the importance of using an LLIN, having their house sprayed, seeking treatment within 24 hours of fever onset for the prevention of malaria.
9. Strengthen the capacity of the ministries of health in close collaboration with national and international partners.

**Financing of National strategic plan**
The attached budget is indicative, based on currently implemented activities (2009) and pending a full financial gap analysis.

**Components and activities**

**Component 1: Case management**

**Background**

*Diagnosis*
Diagnostic capacity has been strengthened at MCH level throughout Somalia in the last five years. In 2008, 60% of laboratories were monitored for laboratory quality control. Capacity needs to be strengthened further however, especially with the introduction of RDTs into community level health posts. Experience in Somalia has demonstrated that the introduction of RDTs, even at MCH level, has been challenging and requires strong supervisory support; this will need to be reflected in M&E activities.

*Treatment*
Since 2006, Artemisinin-based Combination Therapy (ACTs) and Rapid Diagnostic Tests (RDTs) were introduced at MCH level in Somalia. Current operational plans are to extend these services out to health posts at the periphery of the health system. However, this roll out needs careful supervision and continuity of supply to all areas. Emphasis for supervision will be placed on health posts in key areas for example servicing large populations, or populations living close to riverine or focal malaria transmission areas.

Rectal artesunate and injectable artemether is available at present at hospital level, but not used. Phase II (2013 – 2015) of the NSP will see a phased roll out of Rectal Artesunate at HP level. However, that roll out is entirely dependent on health system structure improvement and availability of referral mechanisms between HP – MCH – Hospital levels.
Guiding principles
The MoH and HSC guided by the MWG are mandated to issue policies and guidelines regarding drug treatment and diagnostic protocols. The following guidelines are in place for malaria diagnosis and case management:

Diagnosis
All malaria cases should be confirmed by either microscopy or RDT. Microscopy remains the gold standard for diagnosis of malaria and is available at MCH & hospital level. RDTs are available at all levels, but are the mainstay of diagnosis at HP level.

Treatment
- First line therapy: Artesunate and Sulfadoxine-Pyrimethamine
- Treatment for complicated malaria: Quinine/ Injectable artemether
- Treatment for malaria in pregnancy: 1st trimester – quinine; 2nd & 3rd trimesters – AS+SP
- IPTp – Sulfadoxine-Pyrimethamine

Sentinel sites should monitor drug efficacy on an 18-month basis, which can be supplemented by ongoing molecular studies.

Treatment for Internally Displaced People
Health facilities in IDP camps will provide treatment and diagnosis to all patients presenting with suspected malaria after displacements.

Objectives
- At least 80% of suspected malaria cases in public health facilities are diagnosed using RDTs and/or microscopy within 24 hours of fever onset
- 100% of confirmed uncomplicated *Plasmodium falciparum* in public health facilities malaria cases are treated with ACTs
- 80% of pregnant women who attend public health facilities receive IPTp2 in malarious areas

Targets
- Provide RDTs and/or microscopy to all public health facilities in malaria risk areas to sustain treatment and diagnostics
- Provide ACTs and other antimalarials to all public health facilities in malaria risk areas
- Provide Training of trainers (as part of an integrated training package) in a phased way targeting malaria risk areas initially, but in a manner that can be integrated into overall health training packages once developed
Key outcomes and indicators

- Proportion of suspected malaria cases (under 5’s and total population) diagnosed using RDTs and/or microscopy within 24 hours of fever onset
- Proportion of confirmed uncomplicated *Plasmodium falciparum* malaria cases (under 5s and total population) are treated with ACTs
- Proportion of pregnant women receive IPTp2 in malarious areas

Activities

*Update the essential drugs list to include ACTs, rectal artesunate and injectable Artemether*

*Train health post/community personnel in the diagnosis and treatment of uncomplicated and severe malaria*

Health post personnel and their supervisors will have systematic training and coaching on fever management and the correct use of diagnostics in order to improve capacity and continue to maintain a quality of care at health posts. Partners have identified issues with staff turnover and low literacy rates and the need to increase the frequency of training sessions. However, as well as increased cycles of formal training courses, frequent on-the-spot training of health post workers will allow for training in their own environments and can enhance quality.

Mobilizing and capacitating communities will be a major activity in malaria diagnosis and case management because communities’ involvement will be of critical importance for the uptake of services provided at the health post.

Health workers will be trained in the management of severe malaria, prioritizing facilities with highest cases. Treatment guidelines will also be provided.

*Ensure availability of essential, high quality, commodities for the diagnosis and treatment of malaria*

RDTs, laboratory supplies for microscopy, ACTs and other anti-malarial medicines will be procured at the national level through the PR for Global Funds and distributed to through partners to zones, regions and districts. Partners will ensure RDTs and ACTs reach peripheral health facilities, and that laboratory supplies, quinine and other essential commodities for the treatment of severe malaria reach health centres and hospitals. Issues with continuity of supply are common in Somalia. The MWG and partners will advocate HSS groups and donors for storage and warehousing within and bordering Somalia so that supplies can be regularised.

*Increase availability of diagnostics at health post level*

Microscopes will be procured for any constructed, rehabilitated or upgraded MCHs. Supplies of diagnostics will be channelled through partners to relevant areas. Refresher training will be provided to all microscopists annually through integrated laboratory training and ongoing monitoring and on-the-site training.
Ensure availability of ACTs and RDTs for Internally Displaced Persons

The level of \(P.f.\) prevalence have been reported to have increased where IDPs have settled after forced displacement. There is a need to ensure that IDPs are correctly treated after mass displacements in order to reduce morbidity among IDPs and the likelihood of transmission to host communities. The RBM taskforce will coordinate with agencies such as UNHCR as well as the Population Tracking Initiative to determine whether mass movements have taken place. Resources will be mobilised for implementing agencies on the ground to treat IDPs in camp health facilities.

Engage with private sector pharmacies and clinics to advocate and train for increased quality of treatment and diagnosis of malaria in that sector

As part of their mandates, partners and MoHs will begin to advocate to Private Sector pharmacies and clinics to follow national guidelines on diagnosis and case management. Guidelines will be provided to both private and public sector health facilities alike. In Somaliland and Puntland advocacy will be coordinated by the MoH, in CSZ by partners. Initial engagement with the private sector will involve training of private laboratory technicians. Partners will be encouraged and resourced to either incorporate private technicians into ongoing refresher trainings or establish separate training sessions.

Develop regulatory guidelines for ACT quality assurance to be incorporated into overall drug regulatory guideline

There is currently no regulatory framework under which the quality of medicines being used in Somalia can be regularly monitored and assessed. The development, installation and enforcement of a regulatory framework is a major area of work, and one which may not be immediately implementable in all zones of Somalia. Regardless, with the increased roll out of ACTs, in addition to the focus on engagement with the private sector as part of this NSP, there is a need to begin to develop this framework and assess where and how it may be feasible. This activity needs to take place in line with health strategies in all three zones.

Strengthen support supervision by undertaking training of trainers in supervision and training in malaria diagnosis and treatment for increased supervisory visits to health post level.

Support supervision is acknowledged to increase quality and capacity of teams, while also reducing the number of workshops which health teams need to attend for refresher training. Training of trainers for support supervision at zonal and regional level or from MCHs down to health post level could enhance quality of diagnosis of treatment. Cascade training would need to take place at the zonal level for regional staff and at regional level for MCH teams.

Component 2: Prevention

The main vector control activities implemented in the country is LLIN distribution and utilisation by the community. Other vector-control activities include IRS and larval control, in localized areas where malaria transmissions is focal and geographically limited. Somalia will continue its current activities of scale up for impact to universal coverage of LLINs in
malarious areas. IRS is targeted to reach 85% of targeted households in epidemic-prone areas in phase II of the NSP depending on findings from operational research in phase I.

Component 2.1: LLINs

Background
Trends in net utilisation have increased steadily since 2005 to approximately 47% ownership as of October 2009 (FSNAU, 2009 and estimates based on distributions), thus achieving targets for LLIN use set out in the previous national strategy. Ongoing distributions throughout 2009/2010 until the end of the lifetime of the previous national strategic plan should further increase coverage and utilisation and bring Somalia within reach of SUFI targets.

Through collaboration the FAO (SWALIM – mapping group), FSNAU and partners such as KEMRI malaria partners have already been able to identify and map priority areas for malaria prevention. Thus, previous emphasis had been placed on reaching targets in malarious areas in CSZ. Malarious areas will continue to be targeted and keep-up campaigns installed to ensure correct usage.

However, malaria partners are also extending activities outwards from highest transmission areas to surrounding areas (i.e. from riverine to riverine hinterland areas). During the first phase of this NSP any remaining gaps in coverage for scale-up will be filled, and keep-up strategies will be strengthened. Phase II will see a shift in focus to maintenance of universal coverage, and continued work and engagement with communities to sustain utilisation. This will require replacement of all nets as well as maintenance through mass distribution in the first instance, while community structures are being strengthened to identify and request for LLIN replacements. Higher attrition rates than normal (15%/annum estimate), for LLINs is assumed to occur among IDPs and Pastoralists, more frequent LLIN distributions will be undertaken for these two populations.

Challenges facing scale up of LLIN coverage in the past remain, these include the potential diversion of LLINs to the private sector, lack of security, difficulties in supply and logistics, and potential issues with durability of LLINs in the Somali setting, but particularly among IDPs and pastoralists. Regardless, partners are reporting an increased demand for LLINs from communities in Somalia.

Guiding principles
- Multiple LLIN distribution strategies will be used to ensure all households in targeted geographical areas can protect themselves from malaria. The aim of universal coverage is to ensure that all households (100%) own and use at least 2 LLINs. Although household size in Somalia is estimated to be 5.8, the number of sleeping places is unknown. However, on examination of the household structure and based on partners experiences, providing at least 2/LLINs per household should be sufficient to cover all sleeping places.
Distribution mechanisms include;

– Mass distribution of nets at community level, and at-no-cost to beneficiaries (catch-up). Where possible pre-registration of households and issuance of vouchers should be used to minimize leakage to private sector.
– Replacement of old ineffective nets with free new LLINs through two possible mechanisms. Firstly, through requests to MCHs for replacements which triggers a provision of nets for that request to the MCH and/or through requests to CHWs, Village Health Committees, ANCs, and health posts
– Maintenance, through provision of nets to newborns, through ANCs
– Free distribution of nets in IDP camps post-emergency (i.e. when IDPs have been forced to move)

All nets and insecticides supplied in Somalia will meet pre-qualification standard as determined by WHOPES
Local community should be approached and involved with LLIN distribution (regardless of politics).
Close collaboration will need to be maintained with the Shelter Working Group to ensure that LLINs can be made available to IDP populations at the right time
LLINs will be distributed in focal transmission ‘hotspots’. Communication and education should emphasis use of LLINs by any family members who sleep outdoors in focal transmission areas.

Objectives

• 100% of households in malaria transmission areas own at least two LLINs
• At least 80% of population (under 5s and total population) used LLIN previous night
• At least 80% of pregnant women used LLIN previous night

Targets

– Provide supplies of LLINs to reach and maintain 100% ownership in targeted geographical areas (two LLINs/household)
– Achieve and maintain coverage levels above 80%

Key outcomes and indicators

• Percent households in targeted areas with at least one LLIN
• Percent households in targeted areas with at least two LLINs
• Percent population (under 5s and total population) that slept under an LLIN the previous night
• Percent pregnant women that slept under an LLIN previous night

Activities

Procurement, storage and distribution of LLINs
LLINs will be procured in the main by the GF PR. Storage at different points of the supply route will be those that are regularly used in the distribution chain by partners. LLINs will be
distributed to partners, and to village level through mass campaigns coordinated by the MoH in Somaliland and Puntland and partners in CSZ.

**Carry out LLIN distributions through mass campaigns**
Mass distribution campaigns will be carried out through partners, but after engagement with in communities targeted. Initial contact will be made with local authorities, traditional leaders and community groups. Orientation of those groups on the importance and utilisation of LLINs will be carried out. Social mobilisation will be carried out through CMs (where they exist), market days and via mass media. Communities will choose distributors who are trusted for the actual campaign. Where human resources allow (which should always be the case if communities are engaged) hang-up campaigns should take place during which house to house visits are made and LLINs hung at point of contact with household residents.

**Maintain keep up of nets through MCHs and health posts with support from CSOs and CHWs**
Until now systems for the maintenance of nets through keep-up campaigns have been low priority in Somalia. However, with mass distributions currently taking place, there will be a need in Phase I of this NSP to ensure maintenance strategies are in place. LLINs will be made available at health post and MCH level for distribution to pregnant women (thus covering population growth). Maintenance will also be done through replacement campaigns, including registration of sleeping places without LLINs or with torn/unusable LLINs. Where structures exist, partners will pilot the installation of a request system by Village Health Committees for LLINs that are torn.

**Monitor, record and document LLIN distributions**
The current database used to monitor bednet distributions will be modified, augmented and usable in phase I of the National Plan activities. Information captured should include date, destination of LLINs, estimated population in area, type of LLINs, donor, and number distributed. This aggregated database will be fed into by a more detailed database held at zonal level which will also record village and household information (# sleeping places, number of LLIN/household). Development of the database will take place in phase I so that it can be referred to in phase II during keep-up campaigns.

**Carry out post-distribution LLIN follow-up**
Post-distribution surveys are integrated into the FSNAU nutritional surveys, of which 40 a year take place, in randomly chosen areas throughout Somalia. Results of those surveys are openly accessible and available to all partners. Support for the collection of indicators related to LLINs and malaria during those surveys will continue throughout the NSP.
Component 2.2: IRS

Background
IRS has been undertaken reactively to outbreaks of malaria in Somaliland. This proposal aims to increase the use of IRS in specific settings where malaria transmission is highly focal. Water sources in Somalia have been well-defined through SWALIM, and cross-referencing this with increased geographical reconnaissance and reinforced surveillance will allow for identification of a limited number of areas where IRS will have significant impact.

Guiding principles
IRS will be used in areas of focal malaria transmission and in response to malaria epidemics (where they have been detected early enough for an IRS response to be effective i.e. within two weeks).

- Pyrethroid insecticides will be used, preferably lamdacyhalothrin 10 WP.
- Regular monitoring of insecticide resistance will be conducted in selected sentinel sites throughout the country to develop mechanisms for insecticide resistance management.
- Regular entomological studies will be carried out to determine vector behaviour patterns
- Quality control based on WHO standards for quality of inputs and operations for vector control will be institutionalized, maintained and updated through time.
- Procedures will be installed to ensure safety of sprayers and disposal of insecticides in accordance with WHO and manufacturer guidelines.
- Overlap of LLINs and IRS in focal transmission ‘hotspots’ is accepted.

Objectives
At least 85% of house structures in epidemic/focal transmission areas sprayed in previous 12 month

Targets
- To carry out IRS in focal transmission areas or in (rapid) response to epidemics detected within 2 weeks of onset.

Key outcomes and indicators
- Proportion of house structures in IRS targeted areas protected by IRS in previous 12 months

Activities
Review maps of target areas for implementation of vector control activities through regional and zonal level planning
Priority areas for IRS will be identified in collaboration with FAO-SWALIM and the HMIS team. Areas with high prevalence of birkits, high incidence of malaria (relative to immediate or neighbouring village/districts) should be considered IRS priority areas.
Undertake baseline vector studies to determine resistance levels and effective insecticides
Studies will include susceptibility tests, as well as molecular tests where inadequate numbers of mosquitoes are available for the former.

Procurement, distribution and storage of WHOPES approved insecticides, spray and safety equipment
Insecticides will be procured through competitive bidding; spray materials (e.g. pumps, spare parts, personal protective equipment) will be procured from international suppliers. Insecticides and spray materials will be distributed to the respective regional states and districts. Zonal warehousing will be modified to accommodate storage of insecticides and spraying materials. During spray campaigns health posts will be used as the focal coordination points around which sprayers will gather, regroup and report. Separate structures near HPs will be used for this.

Improve human resources for IRS
IRS spray teams in relevant geographical areas will need to be trained, or receive refresher training, on the application of IRS and related safety procedures. Training guidelines will follow WHO IRS training manual.

Monitor quality of IRS operations
The timing of spray operations will be determined according to the local epidemiological situation (i.e. malaria season). Spray equipment will be checked for functionality and new spray pumps and spare parts will be procured through donor assistance to replace non-functional old spray pumps. Emphasis will be given to close supervision during spraying operations by trained supervisors from the general health services using standardised checklists for safety and IRS quality.

Ensure safety of IRS operations
Safety procedures during spray operations will strictly adhere to WHO guidelines for dealing with Pyrethroid insecticides. IRS teams will be provided with the necessary safety equipment and insecticide containers disposed of in a way appropriate to guidelines.

Component 2.3: Larval control

Background
Anopheles arabiensis is the principal vector of malaria in Somalia. It breeds in man-made cemented reservoirs (birkets), shallow standing or moving waters with algae in streams or river beds, rainwater pools, ponds with grassy margins, moderately polluted household waste waters, sunlit wells and irrigation channels.

In Somalia there are three main larval habitats [Yadav 2001]:
- Villages with large cement lined man-made reservoirs (birkets);
Earthen ponds (wars or bulleys);
Villages along streams often with shallow sunlit wells used for irrigation and occasionally with wars and urban areas with waters storage practices including rainwater harvesting tanks, wars, wells, and some pools.

Larval control can be achieved by environmental management, Temephos 50% EC, Temephos 1% granules and the use or larvicides or larvivorous fish. A variety of larvicides have been used for malaria control worldwide but the evidence base of the impact and cost effectiveness of this strategy is limited [WHO 2005].

Larvicides have been used in Somalia since 1945 and several projects using larvivorous fishes have been implemented in Somaliland since 1980.

There is limited evidence of the success of larval control in Somalia and public health officials seem skeptical about its implementation, as it requires high levels of community participation/acceptance and substantial technical, logistical and financial efforts. In addition, according to current WHO recommendations, “larval control is indicated only for vectors breeding in permanent or semipermanent water bodies that can be identified and treated with relatively short cycles and where the density of the human population to be protected is sufficiently high to justify the treatment of all the breeding places. These prerequisites practically reduce the indications for larval control to some urban areas, labour or refugee camps and development projects.”

Based on the above and in view of the difficulties of the Somalia environment, larval control will not be included as one of the key activities of the present malaria strategy. Thus, larval control will be retained as a potential operational research activity only.

Component 3: Epidemic, Preparedness, Detection and Response

Background
There is an inverse relationship between malaria transmission intensity and epidemic risk. In Somalia, the low malaria transmission in both Somaliland and Puntland means the populations in those areas are at risk of malaria epidemics or outbreaks. Malaria prevalence in the Central and South Zones is relatively higher than in either Somaliland or Puntland. While malaria transmission in CSZ is highly variable in time and space with prevalence ranging between 0-17% (FSNAU 2004-2007; Figure 2) models of malaria risk indicate highest transmission rates between, and immediately adjacent to the two major rivers. Seasonal floods, rains and flash floods lead to malaria outbreaks in those areas and districts neighbouring major river networks. Experiences in Gologob, December 2008 when a malaria outbreak occurred which could not be responded to in a timely manner highlighted the need for an epidemic detection and response plan.

This proposal will aim to ensure that health staff is trained on epidemic detection and response, with initial focus on known epidemic districts and in sentinel sites currently being
utilised by WHO. Training will be undertaken in an integrated manner within integrated communicable diseases surveillance system and HMIS or case management trainings due to be undertaken during the course of this plan. Emphasis of surveillance strengthening for malaria in focal areas will allow for a shift to active surveillance in areas such as Somaliland and Puntland where both access and transmission patterns may require this towards the second phase of the strategic plan.

Guiding principles

Objectives

- To improve detection, weekly reporting of Malaria cases under integrated disease surveillance and response (IDSR) and timely responses to malaria epidemics

Targets

- National Guidelines and protocols for the malaria epidemic preparedness system are updated, to address transition from epidemic response to surveillance and health post staff involvement, published, distributed and available nationwide.
- Training materials for malaria surveillance system revised according to updated National Epidemic Preparedness Guidelines, published, distributed and available for training in all malarious regions.
  - 100% of sentinel health facilities in epidemic prone areas adhere to the national epidemic and response plan.
  - 100% of health facilities in epidemic prone areas have developed epidemic thresholds defined by time period using all available past data of diagnostic-confirmed cases.
- 100% of health facilities and regional offices using epidemic monitoring charts based on diagnostic confirmed cases.
- 100% of all detected malaria epidemics properly controlled per the national epidemic and response plan within two weeks of onset.

Key outcomes and indicators

- Proportion of malaria epidemics responded to within two weeks of onset

Activities

Pre-position of resources and supplies

Essential emergency resources and supplies, include the availability of trained human resources, antimalarial medicines, RDTs, LLINs, insecticides and contingency operational funds for surveillance actions, will be pre-positioned zonal level. The proportion of these contingency supplies required at each level will be determined by HMIS and population data in identified epidemic-prone sites.

Establish epidemic zonal epidemic response plans, naming contact people, contact methods and alternative contacts
Detailed emergency plans of action with a clear definition of malaria epidemics will be prepared in order to optimally use available personnel, finance, transportation, supplies and time.

Undertake inter-sectoral collaborative meetings with partners including FAO-SWALIM to strengthen epidemic planning

Strengthen diagnostic capacity in sentinel sites.
Presently not all sentinel sites have diagnostic capacity, thus malaria cases are based on clinical diagnosis. Diagnostic capacity will be strengthened in sites, in a phased way with emphasis in Somaliland and Puntland and expansion to CSZ.

Strengthen early detection system at health post levels through training of staff
The system will be strengthened to detect, verify and notify epidemic outbreaks, based on diagnostic-confirmed cases, within two weeks of the onset. Sentinel site health facilities will have a major role in monitoring this data and will be trained in methods of data management, analysis and interpretation as part of integrated refresher training to strengthen the existing sentinel site system. Epidemics detected though the sentinel sites from diagnostic-confirmed cases will be verified and responded to by rapid epidemic investigation teams.

Train spray and epidemic response teams
Trainers and spray teams are in place in Somaliland, Puntland and CSZ currently. However, capacity needs to be strengthened and refresher training undertaken on a regular basis. Resources will be provided to undertake refresher training. In addition, community members from epidemic-prone areas will be trained in preparation for them to be called on in case of any epidemics.

Under take post-epidemic evaluations
Post-epidemic evaluations will be carried out to identify any constraints or bottlenecks in forecasting, diagnostics, early detection, prevention and/or control; and to undertake retrospective investigations on the possible causes of the epidemic. Such information helps to identify both the strengths and drawbacks of the epidemic management system and take corrective actions in the future.

Component 4 (supporting strategy): Information, Education and Communication

Background
Up until recently, malaria interventions have been channelled through MCHs, supported by Behaviour Change Communication carried out with mass media (radio) and patchy IEC/BCC activities at community level in specific areas. There is a concerted move towards a more coherent BCC/IEC malaria strategy that can be integrated into an overall health communications toolkit when it is developed. However, current coverage through partners is fragmented and there is a need for a strong push of an already established tool for participative education at community levels out to other geographical areas.
With the development of the EPHS in Somaliland, there is an opportunity to begin to build on the health system structure to train and equip MoH coordinated and supervised Community Mobilisers and CHWs. In addition mass media needs to continue, become more harmonised and aim for a larger reach by augmenting current mass media activities.

**Guiding principles**

Information, Education and Communication packages will be undertaken in a sustained and comprehensive manner throughout the implementation of the National Strategic Plan. Approaches will include mass media strategies complemented by on the ground community mobilisation.

**Objectives**

- At least 90% of people living in malarious areas recognize the importance of owning an LLIN, having IRS done, seeking treatment and diagnosis before treatment of malaria.

**Targets**

- To promote political and community support for malaria prevention and control services through educating and influencing planners, policy makers, managers and potential collaborators.
- To create synergy between different partners in their IEC/BCC activities and as a result, avoid duplication of efforts.
- To improve communication skills among service providers and community mobilisers.
- To improve skills of mass media personnel in communication and information

**Key outcomes and indicators**

- Percentage mothers/caregivers who know that it is rank LLINs or IRS as one of the main methods of preventing malaria
- Percentage of mothers/caregivers who know that children under 5 with fever should be seen by a health care provider
- Percentage of household representatives who know that malaria should be diagnosed with RDT or microscopy

**Activities**

*Sustain ongoing participative education campaigns on the importance of seeking treatment at health facilities, malaria tests and treatments available at health posts.*

Treatment seeking behaviour at health facilities is historically low in Somalia. The initial steps in increasing access to care are to engage with communities to understand their current treatment seeking behaviour. Open dialogue with different sectors of communities, such as traditional leaders and religious leaders, should be held to discuss the benefits of correct
diagnosis and treatment of fever. Communication at village level, using VHCs, community mobilisers and health workers can strengthen the links between the population and the health system. As such, an ongoing campaign will be carried out, set within an integrated package of BCC, which emphasises treatment and compliance.

*Sustain ongoing participative education campaigns on the importance of ownership and utilisation of LLINs*

Uptake, retention and utilisation is crucial to ensuring that targets are met for a reduction in malaria transmission and burden. Engagement with communities needs to be ongoing (rather than activity-related). Participative community engagement and education will be undertaken in support of LLIN utilisation.

*Public acceptance, practice, and participation in IRS programmes*

IRS will be supported by health education to make it acceptable to 100% of the households in the targeted villages. Health posts failing to spray more than 80% of units will review the strategy and approach of their operations and take corrective measures immediately. Intensive IEC and social mobilization campaigns will be carried out through various channels to ensure messages on IRS integrated IEC/BCC health package are used on a timely basis to educate the public about upcoming IRS campaigns.
Component 5: Health Systems Strengthening

The overall objective of the HSS component is to strengthen the capacity of the ministries of health (specifically the Malaria Control Programs) in close collaboration with national and international partners.

A. Partnership and Coordination

Background

Coordination and partnership to date in Somalia has been weak. The only source of coordination is around the Global Funds which focuses on engaging with sub-recipients in order to ensure activities are progressing and reports completed. However, there is a need for a broader RBM partnership both at Nairobi-level and in Somaliland, Puntland and CSZ. Such a partnership can ensure that all actors on the ground are engaged with to strengthen malaria interventions and ensure a standardised approach in terms of case management, prevention and education.

Key indicators

• Proportion of all partners delivering health services in Somalia who have updated fever management, diagnosis and case management and EPR guidelines
• Proportion of other sectors actively involved on malaria activities

Activities

In the first instance a leading body for the RBM partnership will need to be identified (if necessary by tender), preferably not the current PR for the Global Fund. Resources will need to be mobilised for the lead agency, as well as MoH focal persons in the zones. A process of identification of all partners working on health services delivery throughout Somalia will be carried out in coordination with the HSC, OCHA and the MoH and a full database of all agencies and contacts will be established.

The RBM chair will be mandated to advocate the NSP and any other technical documents to partners through the HSC. In addition, they will be responsible for the development and dissemination of quarterly newsletter of all activities and events relating to malaria.

Finally, the RBM partnership, supported by the core malaria technical working group (as technical advisors) will support overall coordination of activities being undertaken by partners.

B. Monitoring and Evaluation

Background

An effective and robust monitoring and evaluation (M&E) system will be required to measure the success of the Somalia National Strategic Plan at achieving goals of the 5-year strategic plan and ensure programmatic decisions are evidence-based. The goal of the national M&E plan for malaria control in Somalia is to provide reliable information on
sustaining malaria control and progress towards SUFI targets and sustained control. In 2009, the HMIS system in Somalia was considerably strengthened at MCH level through the standardization of forms, training of staff and provision of forms and data feedback. That work needs to be continued in order to maintain the HMIS at MCH and extended to health post level. In addition, resources are needed to improve the functionality of the current HMIS and surveillance systems, as well as ongoing surveys needed to monitor and evaluate the program.

Finally, drug and insecticide efficacy studies have been undertaken in Somalia over the last 5 years. However, in order to ensure the ongoing effectiveness of current interventions there is a need to regularize these activities and ensure that studies are undertaken as part of the regular M&E system.

Objectives

The objectives of the national M&E plan for malaria control in Somalia can be summarized as follows:

- To coordinate collection, processing, analysis and management of malaria data
- To verify whether activities have been implemented as planned to ensure accountability and address problems that have emerged in a timely manner
- To provide feedback to data providers, relevant authorities and partners to improve future planning
- To assess progress towards strategic plan goals and objectives for sustained malaria control and sustained control

Key indicators

- Number and proportion of health facilities receiving standardized supervision per quarter
- Number and proportion of laboratories undergoing quality control
- Number and proportion health facilities submitting reports in a timely manner

Activities

Routine monitoring and evaluation activities will include use of data from a number of M&E systems being strengthened within the overall health program, including HMIS, activity and performance reports, sentinel site surveillance, and LLIN program data. The HMIS is the routine health M&E system, in which impact malaria indicators are incorporated.

Periodic data collection systems will include the Malaria Information Survey (MIS), FSNAU, and health facility surveys. The MIS is instrumental in measuring progress on coverage and utilization rates of malaria control interventions, and prevalence of *Plasmodium falciparum* and *P. vivax*. FSNAU measure outcome indicators such as LLIN utilization and health seeking behavior as well as parasite prevalence. Health facility survey are important, as they measure the quality of malaria control services within the integrated health system. Of even
more use, health facility surveys will also be instrumental for measuring impact indicators, including progress to elimination.

An M&E plan has been developed to support the National Strategic Plan (2011-2015) strategic plan. It provides details of M&E for malaria prevention, control and sustained control in Somalia, specifies key output, outcome and sustained impact indicators, key data sources, the data flow structure, data quality and supervision, expected reporting outcomes and has a concise implementation plan. Activities below need to be integrated into an overall M&E system within the structure of the health system as it emerges.
**Table 8: Key impact and outcome measurements for NSP 2011-2015**

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Targets by 2015</th>
<th>Source</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>U5 all-cause mortality</td>
<td>112/1,000</td>
<td>MICS FSNAU surveys</td>
<td>UNICEF, WHO, FSNAU</td>
</tr>
<tr>
<td>Proportion of uncomplicated malaria cases presenting to OPD</td>
<td>10%</td>
<td>HMIS Sentinel sites</td>
<td>UNICEF, WHO, FSNAU</td>
</tr>
<tr>
<td>Proportion of admissions attributed to severe malaria</td>
<td>2%</td>
<td>HMIS at hospital level</td>
<td>UNICEF, WHO, FSNAU</td>
</tr>
<tr>
<td>U5 and total population parasite prevalence</td>
<td>&lt;1% in Somaliland, Puntland and central parts of CSZ Reduced by 50% in Southern parts of CSZ</td>
<td>MICS FSNAU surveys</td>
<td>UNICEF, WHO, FSNAU</td>
</tr>
</tbody>
</table>

- Percentage children under 5 years with clinical malaria who received confirmatory diagnosis (RDT or microscopy) | 80% | HMIS | Partners, MoH, UNICEF |
- Percentage children under 5 years with confirmed malaria who received ACTs according to guidelines | 80% | HMIS | Partners, MoH, UNICEF |
- Percentage of children under 5 years of age with fever in the previous 2 weeks who received antimalarial treatment according to national policy within 24 hours of onset of fever | 50% | MICS | UNICEF |
- Percentage of pregnant women who receive appropriate IPTp2 according to national policy in targeted areas | 80% | HMIS | UNICEF |

- % households own at least one LLIN in malarious areas | 100% | MICS FSNAU surveys | UNICEF, WHO, FSNAU |
- % households own at least two LLINs | 100% | MICS FSNAU surveys | UNICEF, WHO, FSNAU |
- % Under 5s slept under LLIN previous night | 80% | MICS FSNAU surveys | UNICEF, WHO, FSNAU |
- % pregnant women slept under LLIN previous night | 80% | MICS FSNAU surveys | UNICEF, WHO, FSNAU |
- % population in epidemic-prone/focal transmission areas sprayed in previous 12 months | 80% | MICS FSNAU surveys | UNICEF, WHO, FSNAU |
- Proportion of malaria epidemics responded to within 2 weeks of detection | 80% | Sentinel site reports | WHO, MoH and partners |
| Percentage of mothers/caregivers who state that LLINs or IRS as important methods to prevent malaria | 90% | Annual KAP surveys MICS | RBM partnership NGO partners |
| Percentage of mothers/caregivers who know that children under 5 with fever should be seen by a health care provider | 80% | Annual KAP surveys MICS | RBM partnership NGO partners |
| Percentage of household representatives who know that malaria should be diagnosed with RDT or microscopy | 80% | Annual KAP surveys MICS | RBM partnership NGO partners |

Routine monitoring and evaluation activities will include use of data from a number of M&E systems already established within the overall health program, including HMIS, LLIN database, activity and performance reports from partners, sentinel site surveillance and IRS reports. While HMIS has been weak in the past in Somalia it is currently being strengthened with standardised data collection registers and feedback mechanisms. Malaria indicators will be included into this system to capture diagnostic and case management indicators (diagnosis, uncomplicated malaria, severe malaria, drug stock-outs).

Periodic data collection systems will include the Multiple Information Cluster Survey (MICS), FSNAU nutrition surveys, and health facility surveys. The MICS is a key tool used to measure progress on coverage and utilization rates of malaria control interventions, and prevalence of *Plasmodium falciparum* and *P. vivax*. Health facility surveys are important, as they will measure the quality of malaria control services within the integrated health system.

### C. Operational Research

**Background**

A number of operational research (OR) studies to be carried out have been identified already. As Somalia continues progress towards SUFI targets and towards sustained control, additional needs for OR will identified by the RBM partnership throughout the implementation of this National Strategic Plan. Operational studies that are relevant to the context of the regions will also be supported, to ensure regions apply interventions which are well suited to the local circumstances.

**Key outcome indicators**

- At least 5 Operational research questions completed with operational research response plans attached

**Activities**

*Develop Operational Research Database to aggregate all OR results* While operational research has been undertaken in the last few years, there is a need to consolidate documentation on what has been undertaken, and to continue to monitor and record ongoing and planned studies.
Undertake Annual reviews of ongoing OR, and upcoming OR needs with relevant partners A list of potential operational research areas/questions is included into this strategic plan, there will be a need to review research as it is undertaken in order to determine its impact on current strategies. In this way, a dynamic and responsive operational research strategy can be maintained which will feed directly into programming. An annual review between relevant parties will allow for this.

Train local health authorities in Operational Research Research capacity in Somalia is weak currently. Capacity will need to be augmented in order for OR to be continued after the life time of this plan.

Undertake OR studies pertinent to ongoing program operations Potential areas/questions pertinent to current programming are described below:

- **Operational Research 1:** Assessment of communication at community, health post and MCH levels. The assessment should include a KAP study on malaria interventions. Planning for proper utilization of key malaria interventions requires assessing the community knowledge, attitude and practice (KAP) on malaria, malaria interventions, health services and their delivery. Comprehensive KAP surveys, complemented by high quality focus group discussions, will also serve in the development of communication toolkits for community health workers.

- **Operational Research 2:** Assessment the acceptance of RDTs and fever/case management by health staff and patients.

- **Operational Research 3:** Health Post audit. An MCH audit was undertaken previously. However in order to increase access there is a need to expand health service delivery to lower levels i.e. health posts. A health post audit is required which will define, and identify functional health facilities. This audit will inform health strategies in general, but will allow for malaria-specific partners to identify target areas of HP strengthening in terms of fever management.

- **Operational Research 4:** Continued support to FSNAU surveys for mapping of malaria prevalence. Those surveys should include DBS to determine seroprevalence of malaria antibodies (e.g. PfMSP1-19 and *P. vivax*) in order to establish longer term trends of malaria, extent of *P. vivax* transmission and identification of ‘hotspot’ areas.

- **Operational Research 5:** Larval control in Somaliland and Puntland. Operational feasibility of larval control (answering questions such as re-stocking of birkits, reservoir stocks, impact of larvivorous fish on mosquito density and overall impact on malaria incidence)

- **Operation Research 6:** Vector behaviour studies on *An. arabiensis* and piloting of camel sponging with insecticide.

- **Operation Research 7:** Determine effectiveness (impact and implementation) of Insecticide-Treated Plastic Sheeting among relevant populations in Somalia
D. Human Resources Development

Background

Human Resource capacity is key in building up and sustaining major strategic interventions in Somalia. Currently massive turnover of staff and extremely low literacy are major challenges which partners in health face in trying to roll out interventions across the country. Conflict-affected areas suffer especially high turnover of core central level staff. As a result, the focus of this NSP will be on technical teams at regional level, and community health committees and workers at health post or village level. In turning attention to these three main areas the aim is to increase capacity of people who will remain stable enough within communities to ensure sustained activities.

Objectives

To strengthen the existing human resource capacity working on malaria control and prevention at lower levels of the health system;

- Management level at regional and community levels, and
- Health workers at hospitals, health centres, health posts and CHWs if feasible

Targets

- Health post workers receive Integrated Refresher Training with updated malaria National Strategic Plan.
- All hospital and health centre staff will receive refresher training on malaria prevention and control activities, including treatment of severe malaria
- All management (relevant) staff at zonal, regional and community level will receive training in malaria management, monitoring and evaluation

Key Indicators

- Number of health post workers, MCH and hospital staff who receive training on malaria diagnosis and case management
- Number of management level staff who received training on project cycles, performance indicators and reporting

Activities

Collaborate with HSS and health authorities to support HR mapping and future HR strategic planning In an effort to define a nucleus or minimum HR requirements for a malaria unit the following has been agreed on by all zones:

a. Malaria coordinator
b. Vector control unit
c. Lab. Focal point
d. HMIS
e. Logistic and supply management.

These staff will need to have their capacities developed to ensure a more sustainable, country-managed National Program. Support structures, such as logistics, equipment and office infrastructure will need to be augmented in order to units to function.

Facilitate training of technical staff in WHO annual regional courses (e.g. case management, vector control, Malaria QC and QA, Programme Management and Planning etc.) Further to improving health authorities technical capacities it is imperative that their leadership and management capacity is strengthened in order for them to coordinate their programmes.

Improve capacity of health post workers in the diagnosis, case management, prevention and control of malaria There is a need for ongoing training in order to complement the ongoing capacity building of MCH teams as well as the extension of case management to health post level.
References


