

SOMALIA NATIONAL MALARIA STRATEGIC PLAN 2017-2020

Maximising Efforts to Control and Eliminate Malaria



Developed and approved by the NMCP in collaboration with the Federal Government of Somalia, Puntland & Somaliland

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Foreword

In the last few years, there has been significant progress with the support from Global Fund to fight AIDS, Tuberculosis and Malaria ('the Global Fund') Rounds 2, 6 & 10 in expanding coverage of key malaria interventions such as effective treatment and Long Lasting Insecticidal Nets (LLINs) throughout South Central, Puntland and Somaliland. Major efforts to scale up have had the support of international and national partners.

In 2014, the National Malaria Programs succeeded to implement both a Malaria Program Review (MPR) and Malaria Indicator Survey (MIS). These, in addition to ongoing internal progress reviews, form the foundation on which the National Malaria Strategy Plan (NMSP) 2017-2020 is developed.

Focus in the previous National Strategic Plan was at increasing availability of interventions at health facility level. This new strategic plan emphasizes the need to build the capacity of community structures to ensure the uptake and sustainability of all interventions and focus on advances in striving towards elimination in areas in which there is historically low-level cases of malaria or maintenance of elimination in areas without record of indigenous cases.

Community engagement and mobilization will support four main components; case management, prevention, emergency preparedness and response (EPR) and behaviour change communication (BCC). While the previous National Strategic Plan was modest in its targets, bearing in mind the situation in South Central, Puntland and Somaliland, this NMSP is ambitious in setting out a timeline for sustained control to be reached in most areas by 2020.

All goals, objectives and activities fall within the Global Malaria Technical Strategic Plan. 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 2020.

Somali Health Authorities would like to thank all partners in the ongoing fight against malaria. It is our sincere hope that partners will consider this National Malaria Strategic Plan for the period 2017-2020 as a beginning to renewed commitment to partnership, its coordination and efficient and effective use of resources.

Acronyms

ACT	Artemisinin Combination Therapy
ANC	Antenatal Care
ACSM	Advocacy, Communication and Social Mobilisation
AL	Arthemether + Lumenifantrien (AL)
BCC	Behaviour Change Communication
CCM	Country Coordinating Mechanism
CHW	Community Health Workers
CHC	Community Health Committees
CM	Community Mobilisers
DHB	District Health Board
DHIS	District Health Information System
DHMT	District Health Management Team
EARN	East African Roll Back Malaria Network
EMP	Essential Medicines Program
EPHS	Essential Package of Health Services
EPI	Expanded Programme on Immunisation
EPR	Emergency Preparedness and Response
FAO	Food and Agriculture Organisation
FSNAU	Food Security and Nutrition Analysis Unit
GDP	Gross Domestic Product
GFATM	Global Fund to Fight AIDS, Tuberculosis, and Malaria
GNI	Gross National Income
HAB	Health Advisory Board
HH	Household
HP	Health Post
HMIS	Health Management Information System
HSC	Health Sector Committee
HSS	Health Systems Strengthening
HSSP	Health Sector Strategic Plan
IDP	Internally Displaced People
IEC	Information, Education, and Communication

IPT	Intermittent Presumptive Treatment
IRS	Indoor Residual Spraying
iTCZ	Inter-Tropical Convergence Zone
ITN	Insecticide Treated Net
JNA	Joints Needs Assessment
LLIN	Long Lasting Insecticidal Net
NMTG	National Malaria Treatment Guidelines
M&E	Monitoring and Evaluation
MCH	Mother & Child Health
MDB	Malaria Data Base
MDG	Millennium Development Goals
MFP	Malaria Focal Person
MIP	Malaria in Pregnancy
MIS	Malaria Indicator Survey
MoH	Ministry of Health
MPR	Malaria Program Review
MWG	Malaria Working Group
NGO	Non-Governmental Organisation
NMCPs	National Malaria Control Programs
NMSP	National Malaria Strategic Plan
OPD	Outpatient Department
PESS	Population Estimation Survey
PHC	Public Health Coordinators
PHS	Public Health Supervisors
PHU	Primary Health Units
PSCM	Procurement and Supply Chain Management
PSM	Procurement and Supply Management
RBM	Roll Back Malaria
RDT	Rapid Diagnostic Test
RDP	Reconstruction and Development Plan
SACB	Somalia Aid Coordination Body
SCS	South and Central Somalia
SCMWG	Supply Chain Management Working Group
SP	Sulfadoxine-Pyrimethamine

SUFI	Scale-Up for Impact
SWALIM	Somalia Water and Land Information Management
UN	United Nations
UNDP	United Nations Development Programme
UNHCR	United Nations High Commission for Refugees
UNICEF	United Nations Children’s Fund
UNFPA	United Nations Population Fund
VHC	Village Health Committee
WASH	Water, Sanitation and Hygiene
WHO	World Health Organisation
WHOPES	World Health Organisation Pesticide Evaluation System

Acknowledgments

The Somali NMSP 2017-2020 was jointly developed by the Somali Health Authorities (MOHs), WHO, UNICEF and other partners. It is a product of an elaborate consultative process involving several key stakeholders in malaria control at international, national and local NGO partners.

The commitment, technical support and remarkable contributions from the Somali Health Authorities, WHO at all levels, UNICEF, Roll Back Malaria (RBM), KEMRI/Wellcome Trust, have made possible the development of this Somali National Malaria Strategic Plan 2017-2020.

Sincere gratitude goes to Global Fund, RBM, UNICEF, WHO and African Leaders Malaria Alliance (ALMA) for financially supporting the development of this document.

Executive Summary

Malaria transmission has declined during the Millennium Development Goal (MDG) era of 2000-2015 across most of Somalia. Much of the country now has a transmission risk of less than 5% which equates to unstable transmission (hypoendemic). The Malaria Indicator Survey (MIS) conducted in 2014 showed the national prevalence to be 1.8%, but highlighted regional variation where more than 90% of the malaria burden originated in the South and Central areas of the country.

Transmission is highly congruent with eco-climate classification (predominantly rainfall patterns) with much of the hypoendemic areas, where epidemics are likely to occur, concentrated in the semi-arid, arid and desert eco-zones (predominantly Somaliland and Puntland). In South and Central Somalia, the central region is semi-arid to arid, and it experiences highly seasonal transmission with pockets of stable transmission. In the southern part, malaria is endemic between the Juba and Shabelle rivers. Heavy rains and flooding of these rivers and other seasonal rivers are associated with an increased malaria burden in stable areas and epidemics in the arid areas, all of which contribute to seasonal and annual variations in the overall country burden.

The National Malaria Control Programs (NMCPs) under their respective MoHs have worked with a range of technical and service delivery partners to adapt and optimise the use of program resources based on the shift in malaria transmission over recent years. A combination of -

- 1) Assessing impact from parasite prevalence outlined in the 2014 MIS
- 2) Outlining the epidemic risk potential across the country in the face of transmission reductions and the eco-climate stratification of Somalia, and
- 3) Review of the pre-intervention estimate of parasite prevalence to assess the intrinsic receptivity for transmission and identifying areas in which the withdrawal of interventions would have negative consequences and likely lead to an upsurge in malaria cases

- have all guided the operational stratification of core intervention delivery for this NMSP. Ultimately this approach will accelerate the process of malaria elimination across the country and harness the vision outlined in the World Health Organization's Global Technical Strategy (GTS) for Malaria 2016-2030 and EMRO Regional Malaria Action Plan (2016-2020).

The purpose of this NMSP is to elaborate on malaria accelerated control and elimination. Implementation strategies and all efforts by partners are harmonised and tuned towards achieving the national, regional (EMRO) and GTS global milestone targets. This NMSP is intended to serve as a guide for the development of plans of action at various levels. The NMSP 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 the need to strengthen monitoring and evaluation (M&E) activities to complement the scale-up of malaria interventions to measure the progress, effectiveness and impact of implemented activities. The NMSP 2017-2020 is guided by the following overarching principles;

Vision

A malaria free Somalia which contributes towards further social and economic development and growth across the nation.

Mission

Through an integrated health systems approach, the Malaria Control and Elimination program with the involvement of communities and in coordination with all partners and relevant sectors, will expand, sustain and monitor implementation of high quality evidence based control and elimination interventions.

Goals

By 2020 and in line with the Regional Malaria Action Plan and Global Technical Strategy;

- 1. ensure there is interruption of local *Plasmodium falciparum* transmission in 25% of the regions;**
- 2. prepare 50% of regions for pre-elimination (malaria incidence <1 case per 1000) in which there has been historically low transmission; and**
- 3. reduce malaria case morbidity and mortality by 40% in endemic areas**

Objectives

The overall objectives of the 2017-2020 NMSP are;

- to consolidate the achievements of the previous NSPs
- to maintain and increase equitable coverage of interventions for all at risk populations including internally displaced persons (IDPs) and mobile populations where geographically relevant; and
- to enhance national surveillance systems and community based case management to promote an enabling environment in which to move towards malaria elimination in areas of continually low transmission.

The NMSP specific objectives are outlined within respective strategy areas. [Accompanying the NMSP is the National Monitoring and Evaluation Strategy 2017-2020.](#) This outlines broader level Impact indicators and associated targets, as well as Outcome/Output Indicators and targets specifically associated with strategies and

components; all to ensure the programme can track progress in achieving the goal of the NMSP. Specific activities linked to strategy components are provided as part of a combined work plan and budget for the period 2017-2020 and serves as a complementary tool to the NMSP.

Strategies and Components

Strategy 1: Prevention

Vector control interventions will be guided by Integrated Vector Management (IVM) approach, mainly as follows;

Component 1: LLIN Distribution

A WHOPEs approved LLIN should be utilised as part of the national net delivery program in targeted areas (See Figure 11) to provide universal access to coverage from the provision of one LLIN per two persons.

Component 2: Indoor Residual Spraying

A WHOPEs approved efficacious insecticide will be utilised for Indoor Residual Spraying (IRS). Health facility epidemic surveillance reporting from continual monitoring of vulnerability criteria outlined in the Somalia National Malaria Epidemic Detection, Preparedness and Response Strategy 2015-2020, should form the basis in which to mount a rapid IRS response within 2 weeks of detection in selected districts (See Figure 11).

Component 3: Integrated Entomological Surveillance

NMCPs will aim to enhance longitudinal entomological surveillance to assess behavioural trends of principal vectors in their respective areas. This local evidence should support the basis on which to assess the need for diversification of the vector control portfolio through both insecticidal and non-insecticidal measures.

Strategy 2: Case Management

Component 1: Diagnosis

All malaria cases countrywide should be confirmed by either microscopy or RDT.

Component 2: Treatment

An efficacious ACT will be used as per the national treatment guidelines for the 1st line antimalarial treatment of uncomplicated *P. falciparum* / *P. vivax* malaria countrywide. National Treatment Guidelines also recommend for the radical treatment of any confirmed *P. vivax* cases and the inclusion of an appropriate gametocytocidal therapy.

Component 3: Selective IPTp3

Intermittent Presumptive Treatment of pregnant women is included as part of focussed antenatal care but will be strictly limited in high endemic districts in SCS.

Strategy 3: Epidemic Preparedness, Detection and Response

Component 1: Epidemic Detection

A reliable early warning system that triangulates data from numerous sources and from surveillance linked to other strategies, needs to be strengthened and coordinated more effectively under this NMSP.

Component 2: Epidemic Response

Containment of outbreaks / epidemics will require a continuous preparedness plan. Contingency funding that is weighted according to the number of high risk districts needs to be in place.

Strategy 4: Advocacy and Behavioural Change Communication

Component 1: Higher Level Advocacy for Malaria

More political commitment and higher level visibility needs to be attached to control and elimination of malaria in Somalia, and the benefits this can bring to country development overall.

Component 2: Mass Media & Community Based Interventions

The communication strategy for BCC needs to be implemented through a multichannel approach.

Strategy 5: Surveillance, Monitoring and Evaluation

Component 1: Monitoring and Information System

There is a need to further strengthen the existing integrated HMIS/DHIS2 and to address the granularity of reporting. The country needs to invest in and align surveillance systems in line with the broader health sector development plan.

Component 2: Early Warning Disease Surveillance System

The early warning disease surveillance system will be strengthened further as part of Epidemic Preparedness, Detection and Response (Linkage with Strategy 3, Component 1).

Component 3: Impact and Outcome Surveys

Periodic data collection systems will include the Malaria Indicators Survey (MIS), Demographic Health Survey (DHS), Food Security and Nutrition Analysis Unit (FSNAU), and health facility assessment.

Component 4: Operational Research

A strong local evidence base will be required to adopt new interventions, pilot new mechanisms of programme delivery and look at cost effectiveness of current and new tools in a range of varying transmission settings across the country. Operational research needs to include as well the issue of service delivery extension to IDPs and Semi-Nomadic Pastoralists.

Strategy 6: Programme Management and Coordination

Component 1: Partnership and Coordination

NMCPs are mandated to coordinate all malaria control and elimination efforts and ensure that there is standardisation within respective programmes to present a unified and cohesive national strategy.

Component 2: Human Resource Development

Human resource capacity, both in terms of spatial coverage and in quality, based on the training background and relevant experience will be continually improved.

Component 3: Logistical Management

Efficient procurement and supply chain management (PSCM) is essential for the uninterrupted supply of malaria commodities. This will be continually strengthened in line with the national strategy on PSCM.

Introduction

Country Profile

Somalia (Somali: *Soomaaliya*; Arabic: الصومال *aş-Şūmāl*), officially the Republic of Somalia (Somali: *Jamhuuriyadda Soomaaliya*, Arabic: جمهورية الصومال *Jumhūriyyat aş-Şūmāl*) and formerly known as the Somali Democratic Republic, forms the largest part of the 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. Somali is the official language followed by English and Arabic.

Demography

Population estimates for Somalia are currently derived from the 2014 country-wide Population Estimation Survey (PESS) that was conducted by The Ministry of Planning with facilitation by UNFPA. An extensive household sample survey (October 2013-March 2014) provided reliable and comprehensive population estimates and important demographic characteristics by 18 pre-war regions.

The total population in 2014 is estimated to be 12.3 million people. Population projections for the term of this NMSP are provided in Annex 1. The PESS¹ indicated that the average household size in Somalia consisted of 6.5, 6.4, 5.8 and 3.7 persons in Nomadic, Urban, Rural and IDPs populations respectively (Refer to Annex 1). Somalia has a youthful population (Figure 1) with just under half (45.6%) being less than 15 years and with three-quarters (75%) being under 30 years. This is a benefit for national development as this population cohort will be largely dynamic and a beneficial resource over the coming years.

¹ Population Estimation Survey 2014 for the 18 Pre-War Regions of Somalia, Data for a Better Tomorrow: PESS 2014 (October 2014), Federal Public of Somalia and UNFPA.

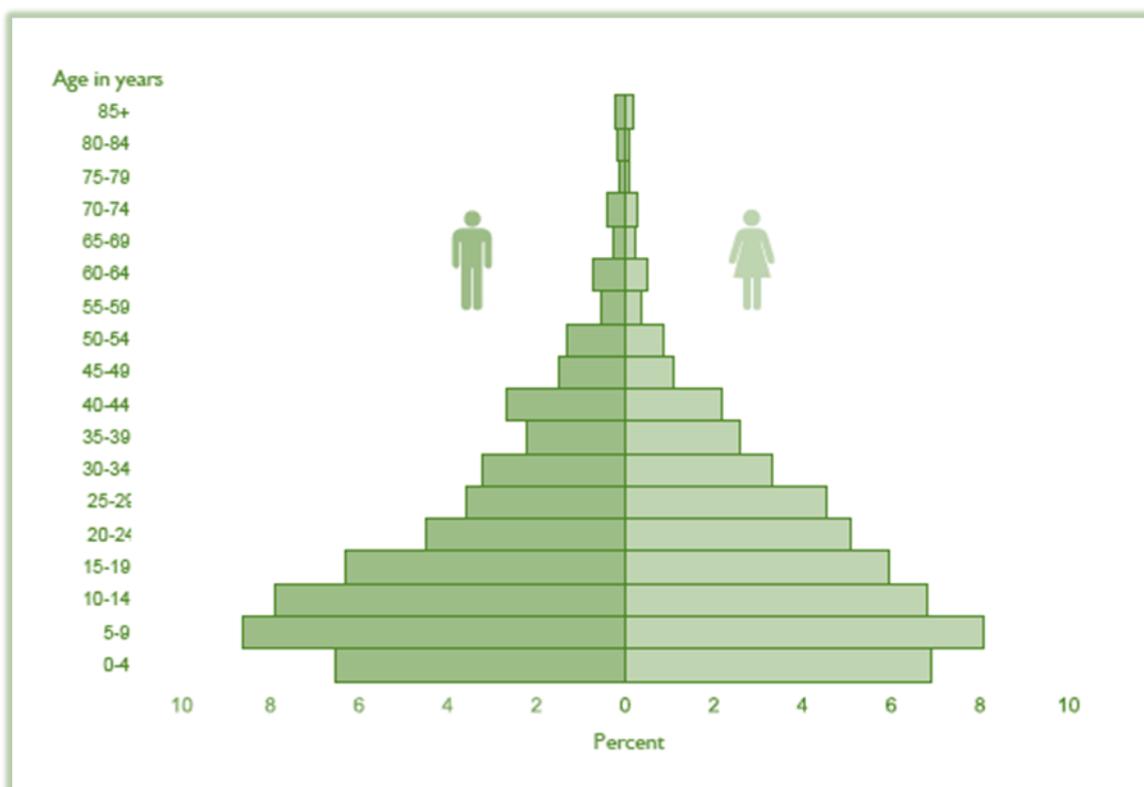


Figure 1: Population Pyramid by age group and sex²

Life expectancy at birth was 55.1 years in 2013³. Poverty remains widespread throughout the country and many communities are living in precarious security situations that impacts on their livelihoods which exacerbates ill-health and malnutrition. It is estimated that GNI per capita is US\$ 843⁴. Educational attainment is low with a high proportion of Somali women receiving no formal education. The adult literacy rate is 31.8%⁵ and it is expected that adults ages 25 years or above will receive on average 4.82 years of schooling⁶.

Vulnerable Population Sub-groups

Owing to chronic political and climate based uncertainties, many parts of the country are still in a state of complex emergency. An estimation of population vulnerability by the Food Security and Nutrition Analysis Unit (FSNAU) has outlined that nationally, 32%, 7.6% and 0.6% of the population is classified as “Stressed”, “In-Crisis” or “State of Emergency” respectively. Regional variation in population vulnerability exists (Figure 2) with the “State of Emergency” being confined mainly to Mogadishu. Population vulnerability has led to a large part of the population becoming internally displaced. The proportion of IDPs is highest in areas which have higher degrees of population vulnerability (Figure 3). There remains over 1.1 million protracted displaced people in Somalia, who are vulnerable, under constant threat of eviction and abuse and not protected by clan structures. The recent crisis that

² Reproduced from the PESS 2014 Report

³ United Nations Development Programme (UNDP)

⁴ Somalia Household Survey 2010; World Bank International Comparison Program 2010 (PPP 2008 US\$)

⁵ United Nations Development Programme (UNDP)

⁶ Somalia Household Survey 2010

began in 2015 in Yemen has resulted in an influx of *circa* 30,000 Yemeni refugees from the southern regions of Yemen to Somaliland and Puntland⁷. As well, a significant number of migrants from Ethiopia enter the country from the north regions. With the anticipated closure of the Dadaab Refugee camp in Kenya, the return of long-term asylum seekers will undoubtedly increase the number of IDPs across the country and place additional stresses on existing IDP camps.

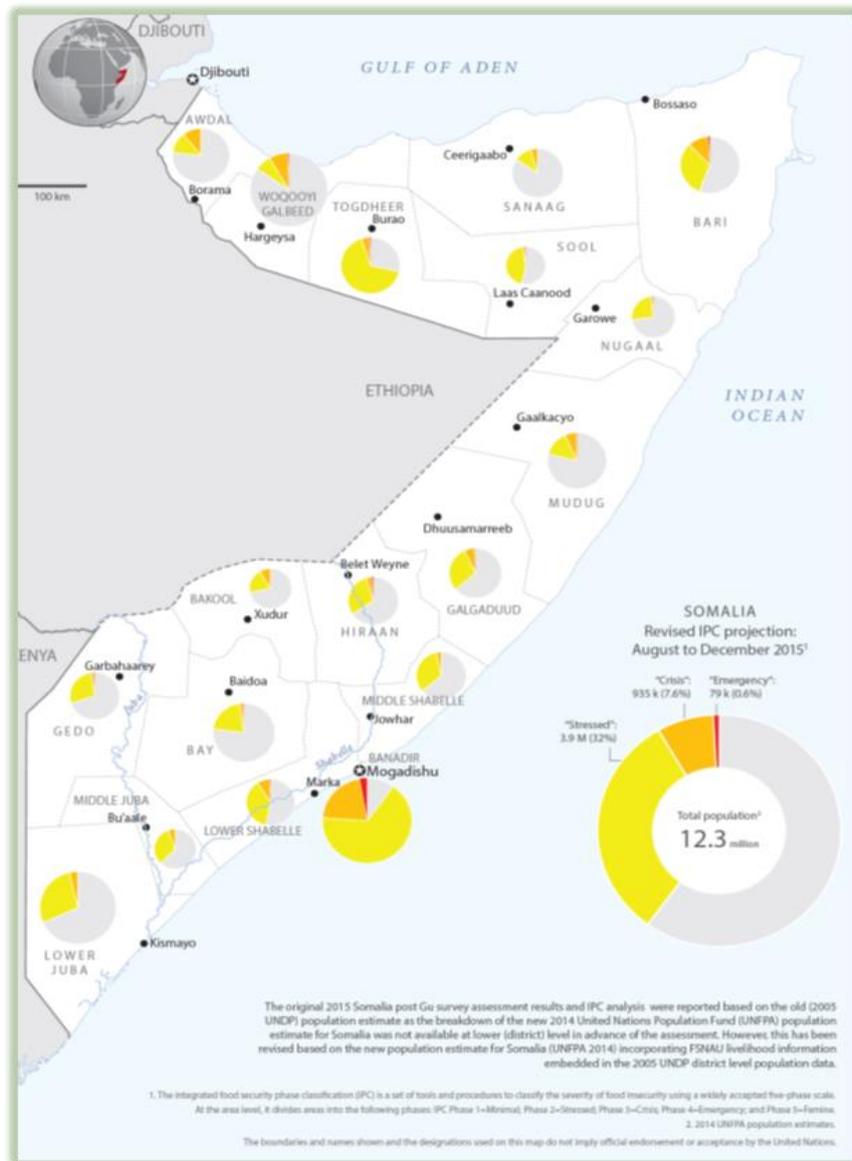


Figure 2: Regional Variation in Population Vulnerability Classification⁸

Somalia also plays host to nomadic pastoralists that move throughout the country throughout part of the year based primarily on seasonal based agricultural harvesting.

⁷ UNHCR 2016

⁸OCHA (2016a). Humanitarian Needs Overview: Somalia. <http://reliefweb.int/report/somalia/somalia-humanitarian-needs-overview-2016>

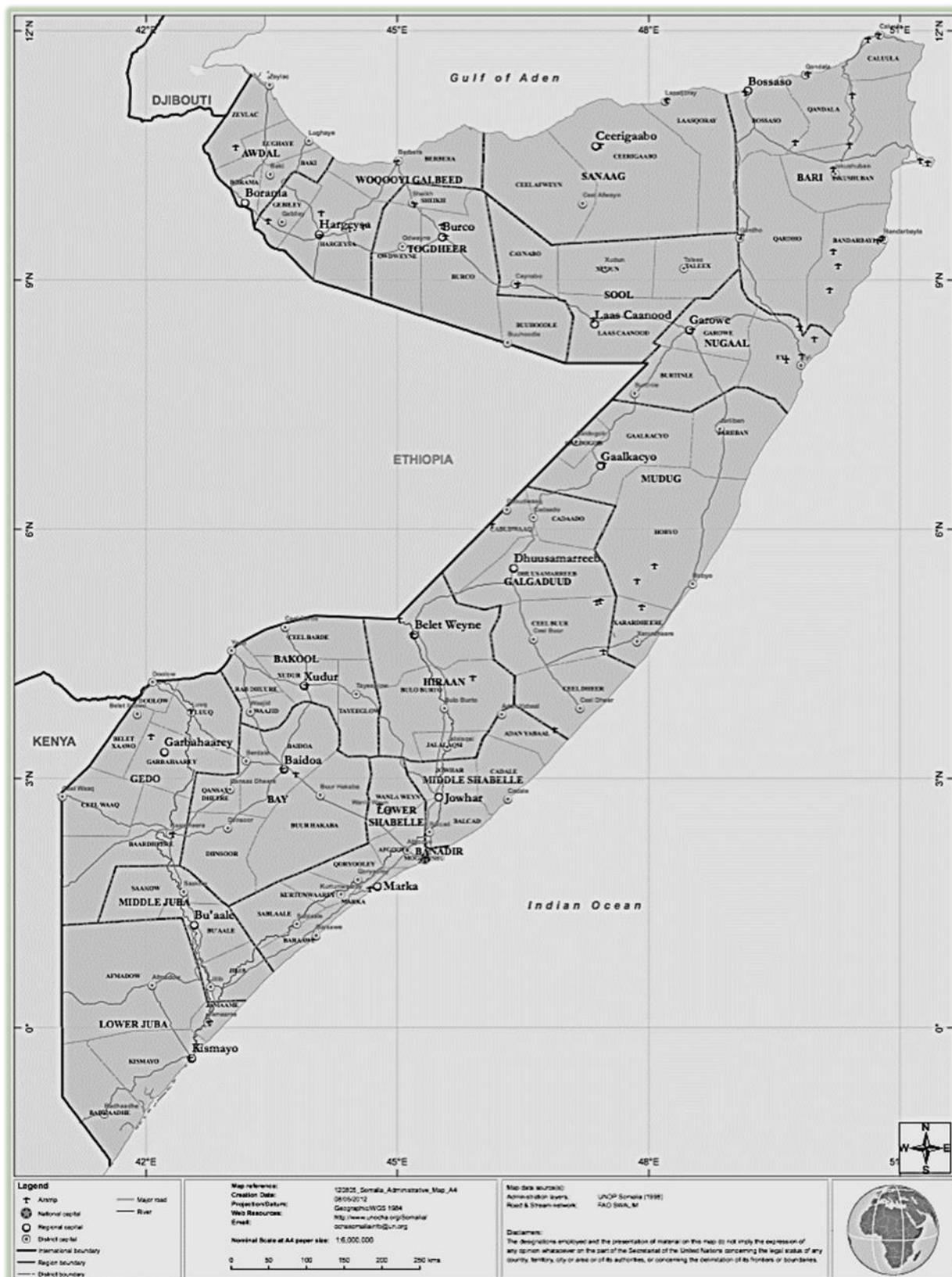


Figure 4: Regional and District Boundary Reference Map of Somalia¹⁰

¹⁰Reproduced from OCHA (Created 8th May 2012)

As for political, administrative and health systems; malaria control and elimination efforts are operationally managed separately with three distinct National Malaria Control Programs (NMCPs) providing service delivery to respective regions and districts. The Reconstruction and Development Programme (RDP) 2008-2013 outlined potential barriers and opportunities with respect to country development which may impact on malaria control and elimination programming (Annex 5). To ensure a country-wide perspective is provided on progress towards malaria elimination, NMCPs remain committed in their coordination, to compile HMIS data and other evaluation data measurement outcomes under a unified national monitoring and evaluation framework. Since 2011 there have been numerous changes to the administrative boundary units (region and district level) by agencies and Somali governments. In practice, according to the Malaria Database (MDB), there are 91 districts across 20 regions are used by NMCPs to track progress in controlling malaria.

Economy

Economic progress in Somalia is mixed. Somalia remains a fragile state and is classified as a Low-Income Country with an estimated US\$ 843 GNI per capita⁵. The GDP of Somalia was estimated at close to US\$ 5.8 billion in 2010, with a per capita GDP of USD600¹¹. Livestock accounts for about 40% of GDP and more than 50% of export earnings. Other main products include fish, charcoal and bananas, sugar, sorghum and corn. According to the Central Bank of Somalia, aggregate imports of goods average about US\$460 million per year, which stand above the level prior to the start of the civil war in 1991. Exports of about US\$270 million annually have also surpassed pre-war aggregate export levels (before 1991), but still resulting in a trade account deficit of about US\$190 million per year.

The private sector has demonstrated resilience and vitality in areas such as telecommunications, livestock and fisheries. In this context, the extensive Somali Diaspora, estimated to be 1-1.5 million people, has played a major role, by injecting a significant inflow of funds through a somewhat sophisticated banking system. Remittances alone are estimated at about US\$1bn-2bn a year in Somalia – and this figure does not even consider the vital role the diaspora plays in providing basic services such as healthcare, education and water, as well as infrastructure and enterprise schemes through NGOs and Social Service Providers (SSPs)¹². Various new telecommunications companies have sprung up, in the absence of public-owned infrastructure, with funding from Somali entrepreneurs and backed by expertise from countries such as China, Korea and some European countries.

Geography, Hydrology and Climate

Somalia is the eastern most county in Africa and its terrain consists mainly of plateaus and plains with a few highland areas in the northern margins¹³. There is a diverse altitudinal range across the country (Figure 5a), with the Karkaar Mountains extending east to west in the far north rising as high as 2440m, whilst on the eastern and northern sides is the longest coastline in Africa. On the west is the vast Somali plateau consisting of a series of tablelands.

¹¹ Various sources, including the UN, The World Bank and the CIA World Fact Book.

¹² Somalia, Country Brief 2013-2015; OREB Department, African Development Bank Group, March 2013.

¹³The Geology of Somalia: A Selected Bibliography of Somalian Geology, Geography and Earth Science (2007). Hadden, R.L., Engineer Research and Development Laboratories, Topographic Engineering Center.

In the East and the South, the plateau ends in arid steppes, from under 200 meters at the Indian Ocean. The plains drain into the Juba River in the south and Shabelle River in the centre, which disappears into a swamp before reaching the coast.

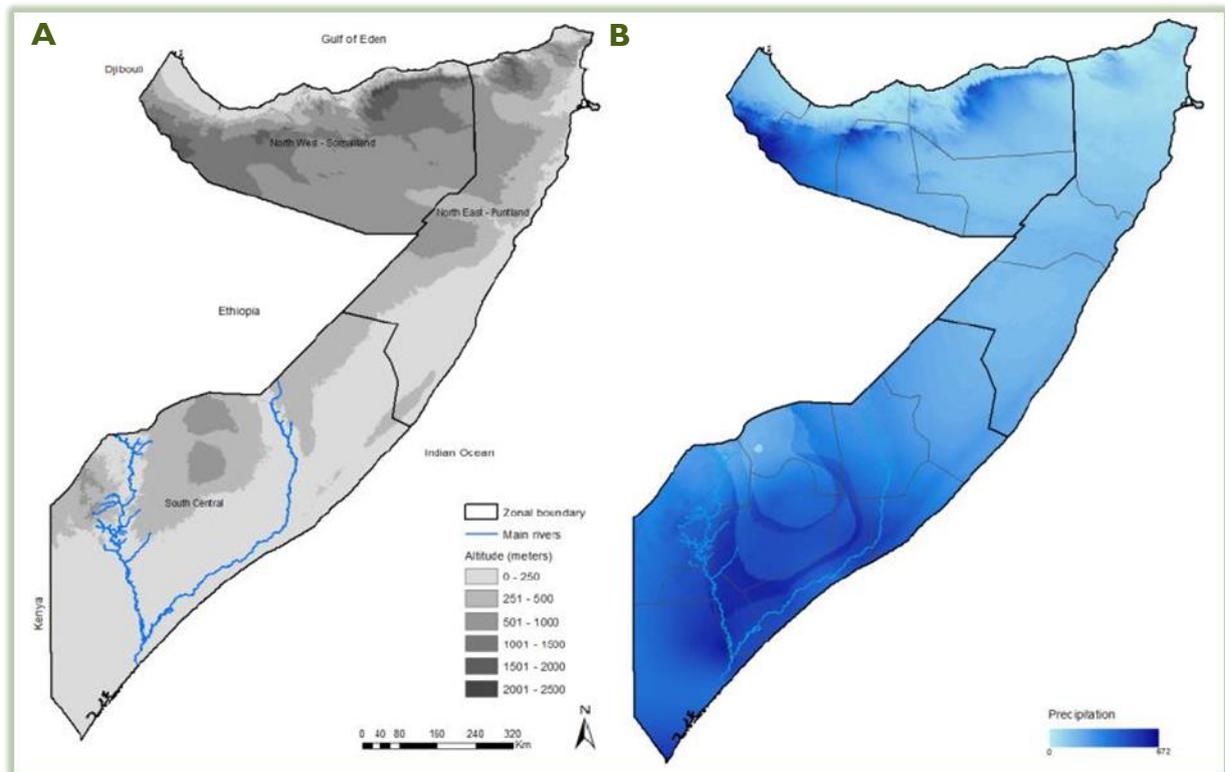


Figure 5: Altitudinal range and Mean Annual Precipitation Maps of Somalia¹⁴

The predominant hydrological features of Somalia are the downstream stretches of the two perennial 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 rivers are most affected by rainfall from neighbouring countries.

Seasonal streams dominate throughout the rest of the country but in large areas remain dry, apart from following heavy rains occurring in the wet seasons. 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*.

Overall, Somalia is classified as having an arid to semi-arid climate. North and South movement of the inter-Tropical Convergence Zone (iTTCZ) determines rainfall, the primary characteristic of climate in Somalia. The annual cycle of movement from the iTTCZ provides

¹⁴Somalia National Malaria Epidemic Detection, Preparedness and Response Strategy 2015-2020, National Malaria Control Programmes for Somaliland, Puntland and Central South Zone. Adapted from earlier Somalia Water and Land Information Management, FAO.

great spatial variation in precipitation levels (Figure 5b). Additionally, the iTCZ contributes to temporal variation in rainfall, which in most parts of the country results in two wet-seasons. The *Gu* occurs in the period between March and July and the *Deyr* from August to November. The months of highest rainfall within these seasons are generally from April-June and October-November respectively. Outside of the wet-seasons are two distinct dry periods which vary across the country in their onset, based on when the wet-seasons end. The principal dry season is the *Jilaal*, occurring between December-March, when the iTCZ is far to the south. The secondary dry season, the *Haggai*, occurs between the *Gu* and *Deyr* wet seasons.

Across years, of all climatic parameters, rainfall offers the most variability and unpredictability. This can lead to droughts which can persist for years in more arid locations such as the northern coastline and inland areas of the north-eastern coast. Conversely, there can be intense downpours that lead to flash flooding which are a common occurrence along the intermittent *wadis* 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 (principally between October to December), and less frequently during the *Gu* season. Rainfall is a key determinant of growing seasons and the types of agriculture practiced, directly influencing surface runoff, stream flow, and groundwater recharge. Years in which rainfall patterns are anomalous can result in food insecurity as well as increased seasonal malaria transmission and epidemic outbreaks.

Mean air temperatures are generally over 20°C for most part of the year throughout the country. However, like with rainfall, there is spatial and temporal variations throughout the year. In the south, the temperature is highest inland, with Luuq in Gedo region near the border with Ethiopia and Kenya, having the highest mean temperature in Somalia of over 30°C. Temperatures along the southern coast are lower than those inland, due to the influence of cold ocean currents. Temperatures in the north at lower altitudes at the height of the dry season can reach 38°C. The relative thermal uniformity prevailing in the south is distorted by the effects of higher altitudes in the north, where temperature decreases with altitude, giving a larger mean daily lapse rate of about 6°C per 1000m, which can widen more in the dry season compared to that of the wet. Isotherms are widely spaced in the south where the surface is more homogeneous, unlike in the north where they are relatively closer to each other, with a varied topographical coverage.

The Food and Agricultural Organisation (FAO) adopted an Eco-climate classification for Somalia in 1981¹⁵ (Figure 6). Rainfall, temperature and an indigenous vegetation index are principal criteria in determining climatic zones, with the benefit of providing ecological and agricultural requirements for crop-growth within each zone.

¹⁵ Muchiri, P.W. (2007), Climate of Somalia. Technical Report No W-01, FAO-SWALIM, Nairobi, Kenya.

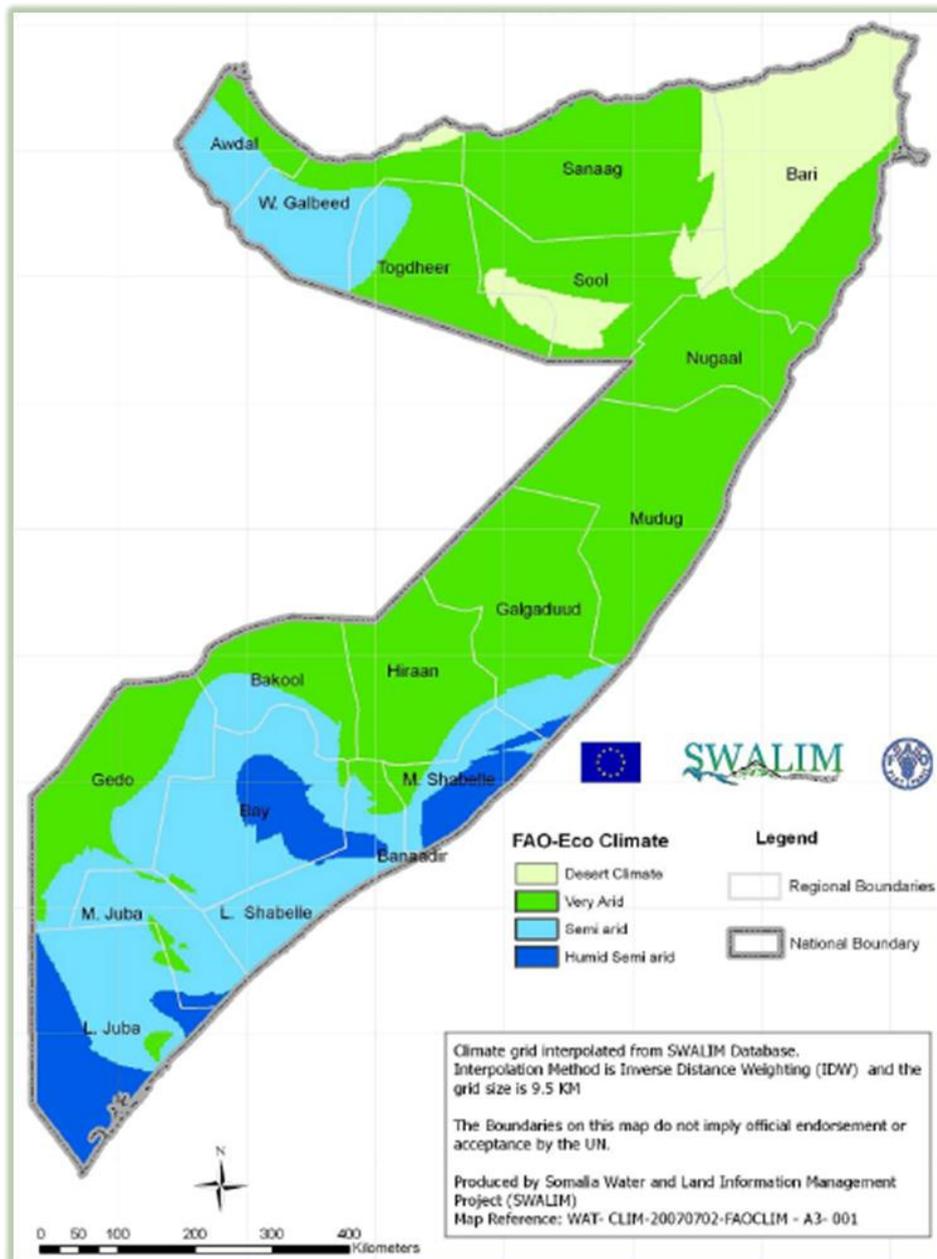


Figure 6: FAO Eco-climate classification for Somalia

Health System Structure

The first Somali Health Sector Strategic Plan (HSSP) 2013-2016 was developed under a nationally uniform structure but adapted individually to complement the specific needs of Somaliland, Puntland and the Federal Government of the Somali Republic. The vision of respective HSSPs is based on ensuring that the health of the population is prioritised, to ensure the population itself can further contribute to the development of each respective area in Somalia.

Each HSSP is underpinned by the WHO framework for a well-functioning health system and focuses on the following strategies; 1) Enhance, expand and increase utilisation of Essential Package of Health Services (EPHS) delivery, 2) Development of financial systems which

increasingly depend more on national financing and local resources, whilst utilising external funding more efficiently through sector wide approaches, 3) Establish a skilled, well managed, motivated and equitably distributed workforce to provide EPHS, 4) Improve the availability, quality, safety and rational use of medicines and health products, 5) Improve decision-making through collecting and analysing comprehensive and accurate information on key health metrics, and 6) Strengthen leadership and governance to better manage the core functions of the MoH at all levels.

Prior to HSSP development, Somali governments operated a three-tiered health service (Figure 7a) system consisting of 6 hospitals, 97 health centres providing Mother and Child Health (MCH) and Outpatient Department (OPD) Services and 164 Primary Health Units (PHUs) which provided frontline basic aspects of the EPHS. Since the inception of the HSSPs, a four-tier system (Figure 7b) has been phased in and consists of the following structure:

- **412 Primary health unit (PHUs)** formed from health posts and staffed by at least one trained Community Health Worker (CHW) to provide basic health prevention and promotion services.
- **502 Health Centres (HCs)** is the key service delivery unit providing maternal and child health services, a delivery unit and a six-bed observation unit. MCH/OPDs not meeting these criteria will become PHUs.
- **7 Referral Health Centres (RHCs)** and district hospitals provide the next level of services including comprehensive obstetric care.
- **81 Hospitals** provide 24 hour uninterrupted services with resident doctors and specialists.
- **72 TB Centres** provide TB services.

Public sector service delivery points are principally managed by employees of international or national NGOs and community-based organizations, through external financing and coordinated through the Somalia Health Sector Committee and Somali Health Advisory Board (HAB). The Health Sector Committee provide oversight for planning and implementation of activities. These committees report to the HAB comprising ministers of health and heads of multilateral and bilateral agencies supporting the health sector.

Some private hospitals have been supported by Somali health professionals in-country in collaboration with local businesses or the diaspora. 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.

Much of the private sector mainly comprises of standalone pharmacies or in combination as pharmacy-clinics or pharmacy-clinic-laboratories. They are a significant provider of health

care services and in Puntland and Somaliland, and are estimated to comprise of about a third of the health care facilities.

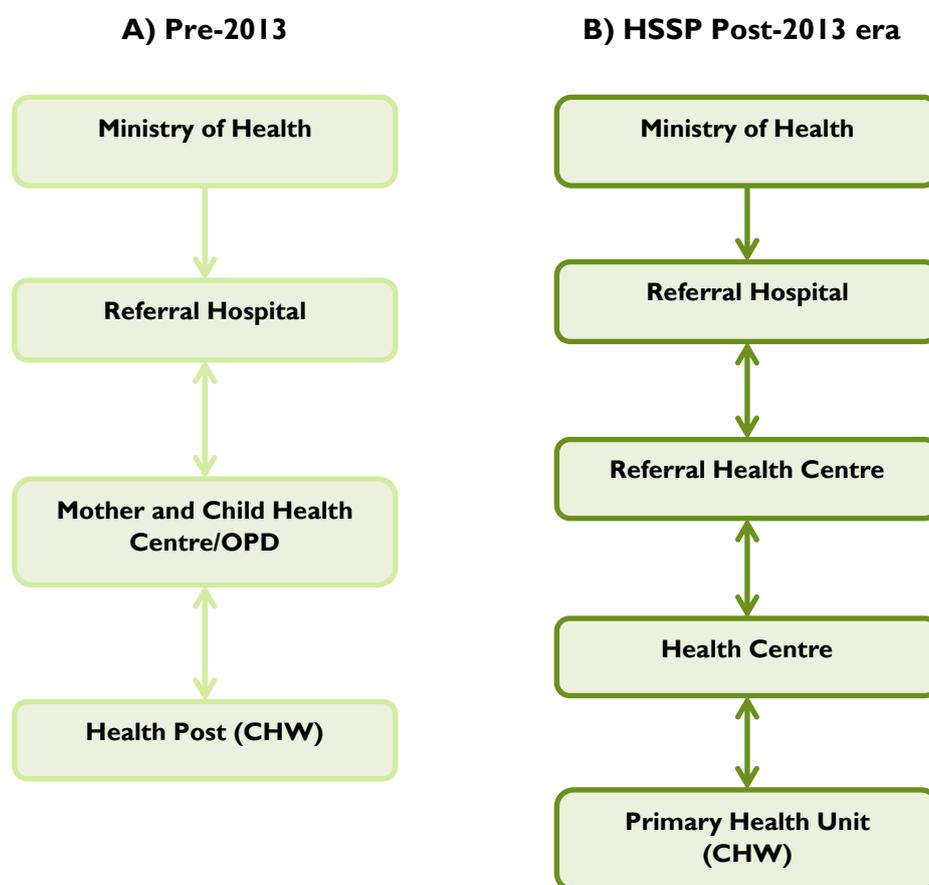


Figure 7: Overview of the Previous (A) and Current (B) Tiered Health Administration System

General health profile

Under-5 mortality is estimated to be 61 (34-115) / 1,000 children in 2015¹⁶. Despite progress being made, maternal mortality remains high, with 732 (361-1390) deaths per 100,000 live births. Likewise, the Neonatal mortality rate (per 1000 live births) is also high at 39.7 (19.7-81.6)¹⁷ Immunisation rates are lowest amongst countries within the Eastern Mediterranean Region with only 42% of infants receiving DPT3 vaccinations compared to the regional average of 83%. There is also a >10% DTPI-DPT3 drop-out rate¹⁸. Decades of political and security vulnerability across the country has led to a weakened health infrastructure. A key pillar of the HSSPs is to rebuild the human resource capacity of the

¹⁶ Global Health Observatory, WHO, <http://apps.who.int/gho/data/view.main.CM1320N?lang=en>. (Accessed 12/02/2016).

¹⁷ Global Health Observatory, WHO, <http://apps.who.int/gho/data/node.country.country-SOM?lang=en>. (Accessed 17/02/2016).

¹⁸ Global Immunisation Coverage, WHO/UNICEF, July 2013.

http://www.unicef.org/immunization/files/Global_immunization_coverage.pdf. (Accessed 17/02/2016).

country. However, between 2000 and 2010, there were only 0.4 and 1.1 doctors and nursing and midwifery personnel respectively per 10,000 of the population. This compares to 11.0 and 15.4 for the Eastern Mediterranean Region¹⁹.

Current Malaria Profile and the Pathway to Elimination

Like the trend for much of the African continent, malaria transmission has declined during the Millennium Development Goal era of 2000-2015 across most of Somalia. Much of the country now has a transmission risk of less than 5% which equates to unstable transmission (hypoendemic). The Malaria Indicator Survey (MIS) conducted in 2014 showed the national prevalence to be 1.8%, but highlighted regional variation where more than 90% of the malaria burden originated in the South and Central part of the country. It appears, from HMIS, that the Bari Region also has a high burden of malaria.

The dynamic Somali malaria transmission scenario provides varying level of risks for the whole of the population. The low level of transmission leaves all age groups immune susceptible to malaria which can quickly lead to outbreaks or epidemics when unusual climatic events unfold. In riverine areas where malaria remains endemic, younger children and pregnant women are more vulnerable to infection. Population movement, whether it be through seasonal pastoralism/nomadism or internal displacement for political/security reasons, can complicate matters further, if non-immune individuals move to areas in which transmission is more stable.

Transmission is congruent with eco-climate classification. The lowest intensity of *P. falciparum* transmission is in the northern areas of Puntland (excluding Bari) and Somaliland and malaria is very focal and subject to epidemics. The highest areas of transmission, are located between the Juba and Shabelle rivers in South and Central Somalia, which experience highly seasonal endemic transmission.

Efforts to control malaria throughout the country over the last decade, through the scale-up of multiple interventions and enhancing public sector service delivery of effective case management, are likely leading factors in the sustained prevalence reduction observed both at regional and district level. This has coincided with prolonged periods of drought however, so direct attribution of burden is hard to measure. Geo-coded prevalence surveys from 2128 settlement areas throughout the country have been collected between 2005 and 2014, including the 2014 MIS enumeration locations, to produce age-standardised prevalence ranges for *P. falciparum*. Such estimates combined with population distributions were used to track Population Adjusted PfPR₂₋₁₀ between 2005 and 2014, and reflect both the underlying diversity of human settlements across Somalia with their associated malaria risk (Figure 8).

It appears that since 2008, transmission has been declining throughout the country and the current risk profile is one characterised by almost universally low infection rates (<5%). Regions having less than 1% prevalence, despite what level of heterogeneous variation in transmission there may be, are positioned for malaria elimination.

¹⁹ World Health Statistics 2011 (2011), WHO. http://www.who.int/whosis/whostat/EN_WHS2011_Full.pdf. (Accessed 17/02/2016).

To reliably assess country level and sub-national progress towards malaria elimination and to tailor intervention delivery and initiate timely case investigations in an environment in which malaria is becoming increasingly heterogeneous, there is a fundamental need under this NMSP to utilise routine quality based HMIS reporting to measure malaria incidence. To estimate true risk within the population, HMIS reports should not only account for strengthened facility level data but also community surveillance efforts (Active/Reactive-Case Detection and Foci-Case Investigation) and private sector caseloads. The use of HMIS will overcome limitations of single, snap-shot estimations of malaria prevalence, which given the paucity of transmission, demand large sample sizes per cluster and large numbers of clusters to provide reliable precision of risk. In addition to producing regular quality reports from a range of sources, caseload data will need to be parasite specific so elimination of both *P. falciparum* and *P. vivax* can be tracked.

Routine measurement of incidence through the HMIS will be the primary metric in guiding when regions become elimination ready. When there has been consistent record (e.g. 3 years continuously) of an incidence level of <1 case per 1000 of the population, regions will undergo programme re-orientation from control to the pre-elimination operational phase. In elimination target regions, case management practices should routinely record and report whether there is history of travel to establish if cases are indigenous or imported.

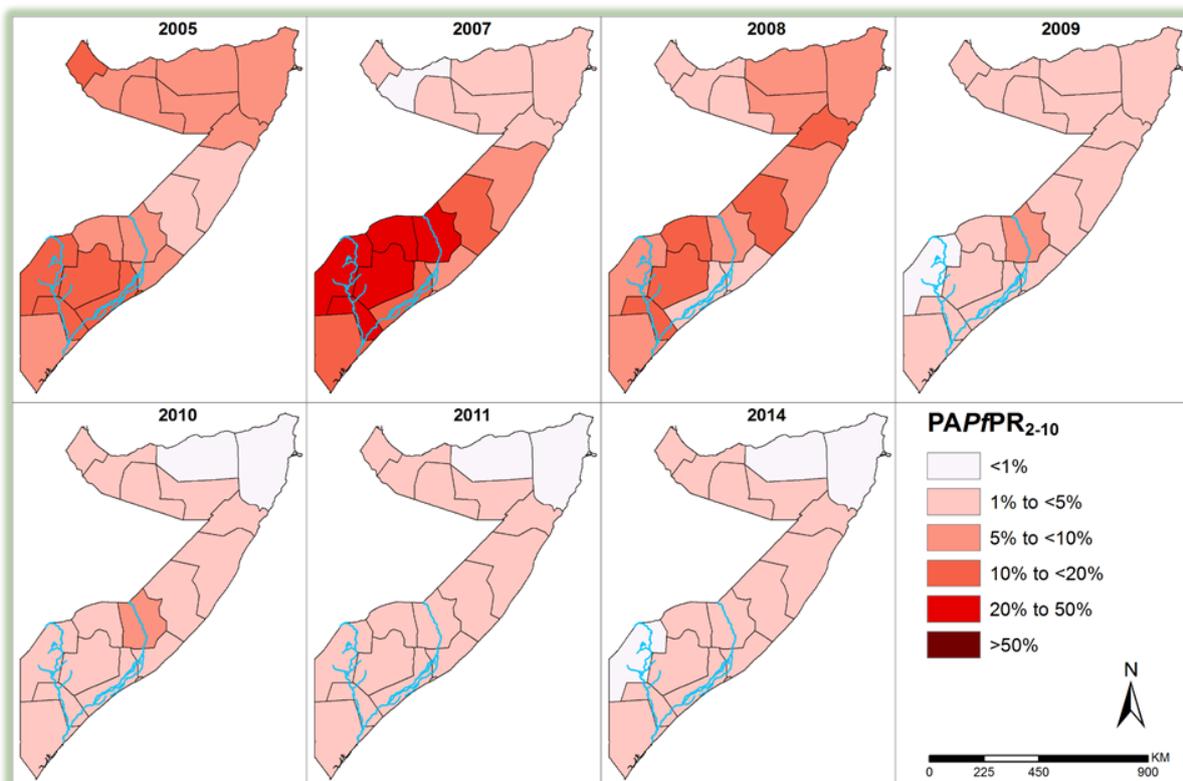


Figure 8: Longitudinal Trend in Regional Population Adjusted *P. falciparum* Parasite Rates in Children Aged 2-10 years²⁰

Elimination target regions will require the expansion of community based surveillance interventions as part of programme reorientation. Whilst community based passive/active case detection should be extended countrywide to transition districts to the pre-elimination phase, districts in which the incidence has consistently (e.g. last 3 years) been <1 per 1000 of the population for indigenous cases²¹, should explore suitable Re-active based case detection options for foci in which active transmission is highly heterogeneous and there is potential to remove the parasite reservoir from within the immediate community population. In regions targeted for elimination, full epidemiological investigation of newly reported cases should be conducted. Transmission receptivity from an entomological perspective should also be evaluated and the outcome and response classified and registered in a national database as part of reporting malaria as a notifiable disease.

Parasite & Vector species composition

The dominant species of malaria throughout Somalia is *P. falciparum* and responsible for >90% of infections. Combination therapy with Artesunate and Sulphadoxine-Pyrimethamine (SP) was adopted in 2005 for the 1st line treatment of *P. falciparum*, after the rapid spread of chloroquine resistance and based on the proven clinical efficacy of this combination²². However, a more recent efficacy study showed the PCR-corrected treatment failures was high in Jamame (22%, 95% CI: 13.7–32.8%) and low (<5%) in Janale and Jowhar²³. Molecular markers associated with SP resistance were detected readily in all three sites, thus led to revision of the National Malaria Treatment Guidelines. According to the new guideline the first line treatment for Malaria is Artemether + Lumefantrine (AL) while the second line treatment is Dihydroarthemisinin + Piperaquine.

P. vivax transmission is found in the country, with low level parasite rates featuring mainly in Somaliland, Puntland and Northern coastal areas of South and Central Somalia. There is historical evidence recording *P. vivax* transmission among military servicemen stationed in the South and Central in towns alongside the Juba and Shabelle Rivers.^{24,25} Presence of the

²⁰ Produced by KEMRI as part of the INFORM Project, 2014.

²¹ Indigenous case definition: regardless of the presence or absence of clinical symptoms, malaria parasites which have been confirmed by nationally approved RDT or quality-controlled laboratory diagnosis and without strong evidence of a direct link to an imported case.

²² Warsame, M., Atta, H., Klena, J. D., Waqar, B. A., Elmi, H. H., Jibril, A. M., et al. (2009). Efficacy of monotherapies and Artesunate-based combination therapies in children with uncomplicated malaria in Somalia. *Acta Tropica*, 109(2), 146–151. <http://doi.org/10.1016/j.actatropica.2008.10.009>

²³ Warsame, M., Hassan, A. M., Barrette, A., Jibril, A. M., Elmi, H. H., Arale, A. M., et al. (2015). Treatment of uncomplicated malaria with Artesunate plus sulfadoxine-pyrimethamine is failing in Somalia: evidence from therapeutic efficacy studies and Pfdhfr and Pfdhps mutant alleles. *Tropical Medicine & International Health: TM & IH*, 20(4), 510–517. <http://doi.org/10.1111/tmi.12458>

²⁴ Newton, J. A., Jr., Schnepf, G. A., Wallace, M. R., Lobel, H. O., Kennedy, C. A. and Oldfield, E. C., 3rd (1994) 'Malaria in US Marines returning from Somalia', *Jama*, 272(5), pp. 397-9.

²⁵ Peragallo, M. S., Sabatinelli, G., Majori, G., Cali, G. and Sarnicola, G. (1997) 'Prevention and morbidity of malaria in non-immune subjects; a case-control study among Italian troops in Somalia and Mozambique, 1992-1994', *Trans R Soc Trop Med Hyg*, 91(3), pp. 343-6

Duffy Negativity Blood type in the far south of SCS may limit the transmission range of *P. vivax*.

The presence of the *An. gambiae* complex is common across the entire county (Figure 9). Among the *An. gambiae* complex, *An. arabiensis* is by far the most common sibling species. The presence of *An. gambiae* s.s. has only been recorded in Puntland and is identifiable as the previous molecular M-form and therefore assigned to *An. colluzzi*. Another sibling species member, *An. merus*, which has affinity for saline aquatic habitats has been collected in Buscusc in SCS. *An. gambiae* s.s. and *An. arabiensis* were found to be highly anthropophilic in collections from Puntland, yet more longitudinal surveillance is required to accurately monitor the feeding and resting behaviour of these species.²⁶

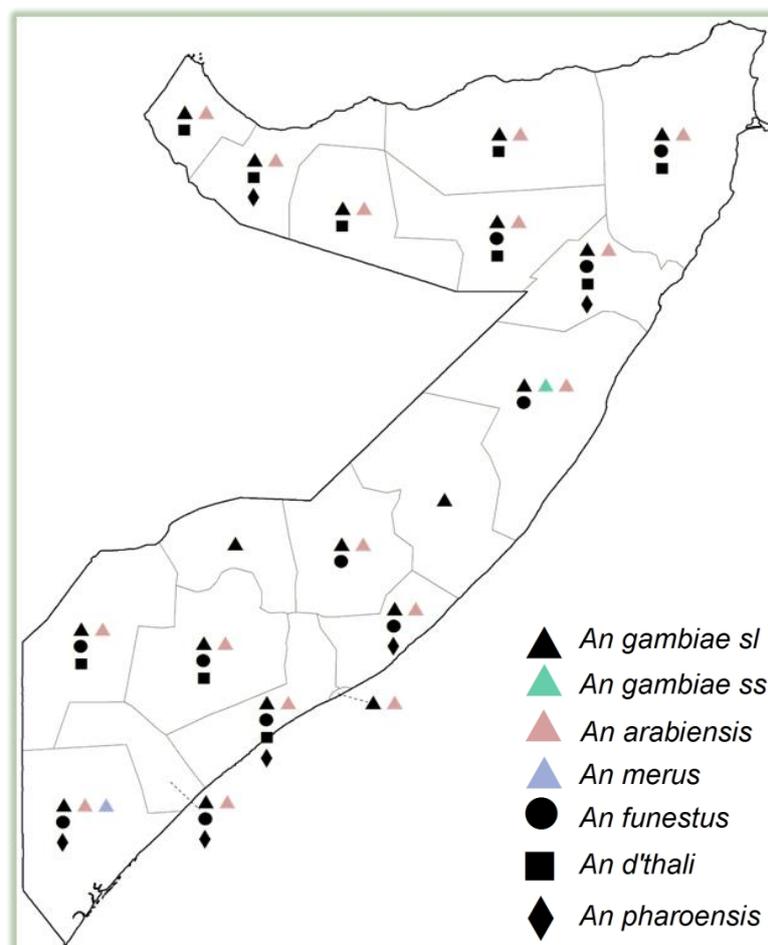


Figure 9a: Regional Vector Species Composition Map showing regions where vector species have been empirically surveyed

An. funestus s.l. has been collected throughout much of SCS and Puntland but its geographical limits only seem to extend to the Sool region (Figure 9). The sibling species composition of *An. funestus* s.l. is not currently known.

²⁶ Diallo, M (2014) WHO Consultancy Report on The Study of Malaria Vectors Behaviour in Somalia (February – March 2014), October 10th 2014 Report.

An. d'thali has been collected throughout SCS and Somaliland. Historically, this species has been confirmed positive for sporozoites as early as 1961²⁷ and therefore its potential to be a secondary vector should not be ruled out. There is no empirical evidence that *An. pharoensis* contributes to transmission in Somalia; however, it has been identified as a secondary vector in Egypt. The *An. nili* group has been described in the Shebelle regions but there have been no records of *An. moucheti* group or *An. hancocki* in Somalia.

As of 2013, both *An. arabiensis* and *An. funestus* remained susceptible to Carbamates, Organophosphates and Pyrethroids in sentinel sites located in Marodi-Jeeh (Somaliland) and Lower Shabelle (SCS) when conducting WHO insecticide resistance monitoring bioassays. Resistance to DDT was observed in *An. arabiensis* from Marodi-Jeeh and Nugal (Puntland).

Current Malaria Situation Analysis

NMCPs have worked with KEMRI, WHO, UNICEF, UNHCR and other partners to adapt and optimise the use of programme resources based on the shift in malaria transmission over recent years. A combination of 1) Assessing impact from parasite prevalence outlined in the 2014 MIS, with respect to achieving the primary goals of the 2011-2015 NMSP, 2) Outlining the epidemic risk potential across the country in the face of transmission reductions and the eco-climate stratification of Somalia and 3) Review of the pre-intervention estimate of parasite prevalence to assess the intrinsic receptivity for transmission and identifying areas in which the withdrawal of interventions would have negative consequences and likely lead to an upsurge in malaria cases, have all guided the operational stratification of core intervention delivery for this NMSP. Linked with the NMSP Goal, it is envisaged that the regions of Somaliland and Puntland will either have eliminated indigenous malaria case incidence by 2020 or are designated as being within the pre-elimination operational phase. Regions within SCS will require ongoing sustained control support²⁸.

Malaria Prevention through Vector Control

WHO approved vector control strategies have been documented as early as the 1960s during a WHO supported malaria eradication project and in strategic plans since 2006. Vector Control has focused primarily on the mass-distribution and utilisation of LLINs with selective use of IRS as part of an outbreak response or in focal areas not targeted for LLINs. The WHO has been providing technical support and has supported national partners to implement vector control since 2003. Vector control strategies are reviewed as part of the quarterly programme reviews. WHOPES approved nets – conical and white in colour as preferred by the population due to several factors. These have been provided free of charge and are delivered through mass campaigns and routine distribution via ANC. Whilst the previous NMSP defines universal coverage as 2 LLIN per household, the LLIN procurement methodology has been updated to align to best practice and applies an operational factorial of 1 LLIN per 1.8 people, to maximise opportunity to reach the global indicator of Universal

²⁷ Rishikesh N (1961). *Anopheles d'thali* Patton as a possible secondary vector of malaria in the northern region of Somali Republic. Geneva, WHO, 1961 (mimeographed document WHO/MAL/308).

²⁸ IDPs and Nomadic Populations are defined as “special risk groups” and will receive interventions as required irrespective of whether they are located in elimination areas.

Access (1 LLIN per 2 people). National LLIN distribution guidelines are available and have been updated for current best practice under the last NMSP.

IRS has historically been implemented as a vector control measure in areas of focalised malaria transmission which have not routinely received LLINs under the mass distribution campaigns, but are at risk of outbreaks. IRS has been deployed across Somalia previously for prevention of outbreaks in historically prone foci (Puntland 34 sites, Somaliland 8 sites, and South Central 17 sites). The campaign was conducted annually prior to the October rainy season in Somaliland and Puntland and in the SCS is focused on IDP camps and is implemented as part of the humanitarian emergency response. A national IRS implementation manual was developed in 2007 and has been updated recently. For the last two years IRS is conducted only in areas with an early signs of outbreaks or in response to outbreak. Targets of 85% household coverage have been exceeded annually amongst targeted populations and to date 460,000 people at-risk have been protected by this intervention.

Over the last five years, entomological surveillance has been enhanced and is conducted monthly. Recently established entomology labs are now partially functioning in Mogadishu, Garowe and Hargeisa.

Effective Case Management through Early Diagnosis and Treatment

There has been a recent review of the national treatment guidelines. The last therapeutic efficacy study highlighted the underlying presence of Sulphadoxine-Pyrimethamine (SP) markers of resistance. This would increasingly compromise the effectiveness of SP as a partner to Artesunate for the treatment of uncomplicated malaria. As such, Artemether-Lumefantrine is now approved as the 1st line treatment for malaria across Somalia. National guidelines are comprehensive and support options for treatment and management of uncomplicated, radical treatment for *P. vivax*, pre-referral and severe malaria. Treatment and management for special-risk groups (e.g. IDPs) and the guidelines on the use of IPTp3 for pregnant females is also addressed. Malaria diagnosis through use of RDTs or microscopy at supported facilities is used to confirm malaria cases. Within the last five years, diagnostic and treatment services have been expanded to primary health care levels and are being phased in to all health posts across the country. The targets of confirming 80% or more of suspected malaria cases with either RDTs or microscopy has been exceeded in 2015 based on HMIS reports.

There is strong technical capacity in malaria treatment across the country supported by international development partners. Collaboration between the NMCPs, UN agencies and international and national NGOs is robust. Technical assistance is provided by WHO, funded by the Global Fund through UNICEF and Roll Back Malaria (RBM). Case management training programmes have been implemented with adapted WHO and INGO curricula. From 2013, a new comprehensive case management program has been developed for use at all levels. During 2016, the National Malaria Curriculum for pre service training has been endorsed by Somali Health Authorities.

Mitigating Epidemics through Preparedness and Response

An Epidemic Prevention and Response (EPR) National Strategy 2015-2020 has been developed. This provides a standardised approach for the country to measure data from proposed sentinel surveillance sites and determine when caseloads are defined above historical thresholds (3rd Quartile) to guide when an epidemic is imminent. NMCPs in collaboration with partners have addressed numerous components from within the Strategic Framework for Control of Malaria Epidemics²⁹ and in partnership with KEMRI have defined an updated country stratification of malaria risk (Figure 9b). The improvement and standardisation of malaria case definitions, management and reporting provides underlying confidence in the reported data which determines the basis for which outbreaks and epidemics are reported to the NMCPs.

Several NMCP officers and regional health teams have been trained in malaria EPR and currently monitor information through the Communicable Disease Surveillance System (CSR) in all areas. These personnel, in addition to entomologists, are available in Somaliland, Puntland and SCS should rapid assessments be required in the event of outbreak/epidemic reports. WHO works closely with the Somalia Water and Land Information Management (SWALIM) under FAO, and meteorological warnings through this group provide additional guidance to NMCPs on the probability that climate induced outbreaks will occur. In addition to enhanced human resource capabilities, logistical support and annual needs assessments for outbreak/epidemic response measures have improved. The NMCPs routinely forecast for equipment and insecticide needs, should rapid field assessments conclude that an emergency focal IRS campaign is required, as part of outbreak/epidemic response.

²⁹ Guintran J-O (2006). *Control of malaria epidemics in Somalia: 2006-2007 strategic framework*. Report of Short Term Consultancy for WHO/EMRO, March 2006.

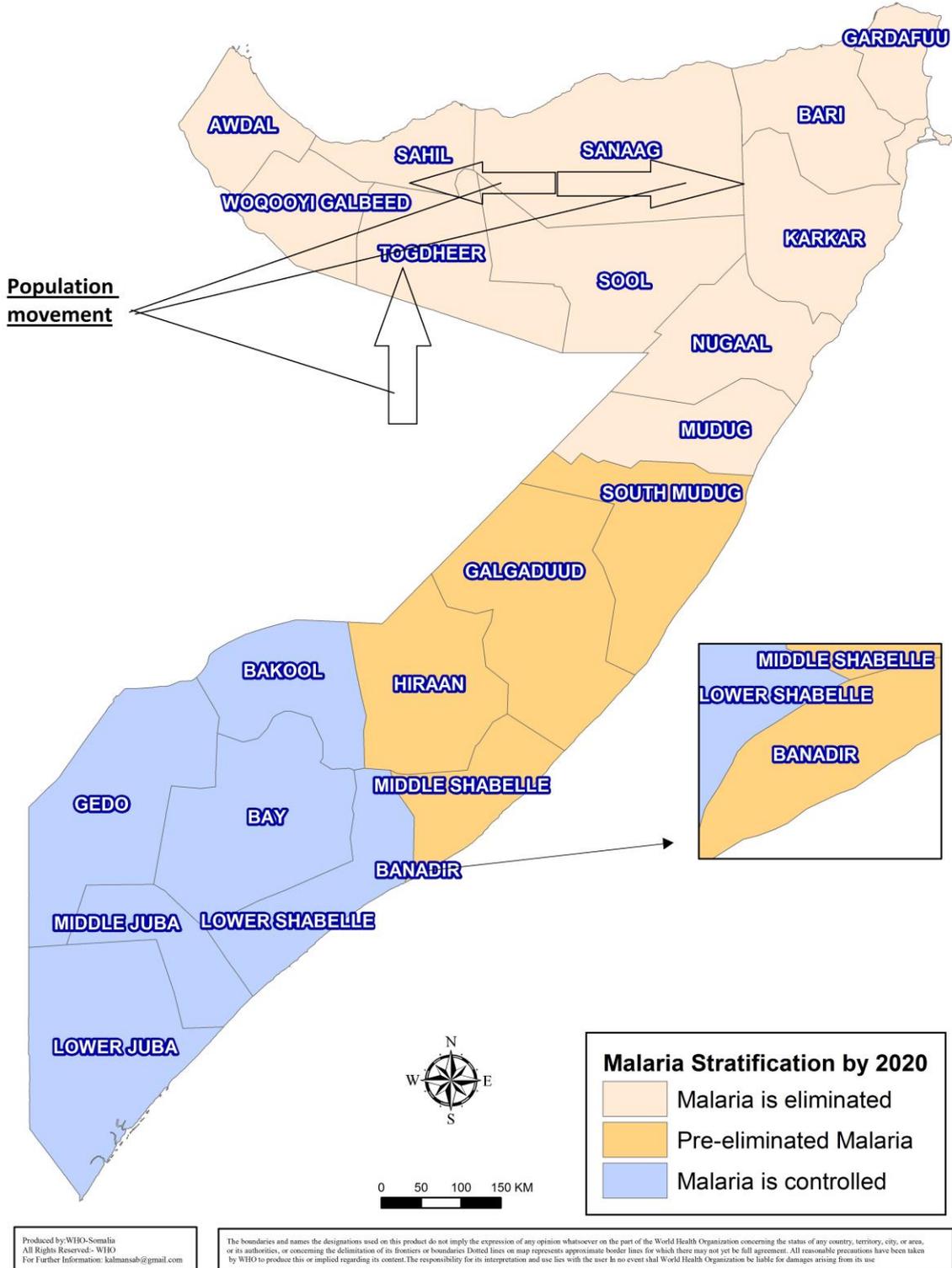


Figure 9b: Country stratification (epidemicity) of malaria risk by district

Enabling Behavioural Change through Information, Education and Communication

The current Malaria Communication Strategy will be updated shortly and endorsed by all NMCPs. Malaria control messages and IEC materials based on this strategy are available in Somali and provide a segmented approach (e.g. health facility users, pregnant females etc.) to target appropriate malaria related messages to different demographics of the Somali population. Within each MoH, a health promotion unit has been recently established to oversee health promotion activities. These units provide an excellent leveraging opportunity for the malaria program. There are multiple communication channels available with common Somali language, including Advocacy, Social mobilization and Communication (ASCM) messages. Somali community based organisations, with limited funding, have managed to implement various forms of IEC delivery and local advocacy. The 2014 MIS shows varying levels of knowledge related to malaria transmission, prevention and treatment. The percentage of people with no knowledge of malaria symptoms was 15.1% nationally varying from 7.2% in Puntland to 30.1% in Somaliland. The percentage of people who knew mosquitoes transmitted malaria ranged from 64.5% in SCS to 82.5% in Puntland. The percentage of people who knew that LLINs and IRS were main prevention strategies ranged from 57.9% in South Central to 82% in Puntland.

World Malaria Day celebrations and advocacy for political engagement to eliminate malaria is led by the NMCPs. As such, the Somali Health Authorities have prioritised malaria ASCM interventions through the HSSPs.

Programme Strengthening through Health System Developments and Strong Management Structures

There has been strengthened government support for malaria control activities and good will and commitment from partners. There are strong partnerships for malaria control including MoH, WHO, UNICEF, donors, implementing partners, L&INGOs and academic institutions. These partnerships have aided the development of a well-supported NMSP and Malaria M&E plan and supporting documentation. National Malaria Control Programs (NMCP) are established in Somaliland, Puntland and the Federal Government of Somalia under the auspices of the respective Ministry of Health. There are strong mechanisms in place for malaria coordination within the broader health sector. Malaria program implementation is now being delivered at all levels, including health posts and there is strong integration of malaria control within Primary Health Care units (PHC). Malaria capacity building is going to be integrated into academic and training institutes based on the National Malaria Curriculum that has been endorsed by Somali Health Authorities.

Program coordination is supported by key guidelines and strategies including the 2016 Malaria Treatment Guidelines, the 2013 Malaria Communication Strategy, 2015 IRS training manuals and 2015 EPR strategy. All partners are involved in quarterly review and planning meetings. Coordination is managed through the Malaria Technical Working Group (MTWG) led by NMCPs and supported by Malaria Stakeholders.

Efforts are underway to ensure adherence to international standards for commodities management. National supply chain managers have been appointed in each area. Somaliland and Puntland have some national storage facilities with the MoH responsible for commodity stocks. UNICEF and WHO provide overarching PSM support and central warehousing to MoH/NMCPs and implementing partner warehouses, then commodities are distributed directly to health facilities. Drug control labs (minilabs) are established in Hargeisa, Garowe and Mogadishu.

Significant investment has been channelled through the Health Systems Strengthening component of the Global Fund grants for the reintroduction of the HMIS in 2009 and ongoing strengthening and training for improved health sector reporting, including malaria indicators. Central and regional level staff have been trained in the HMIS and routine data collection is occurring, with the strongest implementation in northern regions. Further significant investment is required to ensure there is improved capture, quality and coverage of routine case reporting through the HMIS and to roll out and deploy DHIS2 routinely as the platform for HMIS data capture and reporting.

Somalia has a functioning sentinel site surveillance system (CSR), set up by WHO and integrated within the HMIS. The CSR collects data on 14 priority diseases including malaria. A total of 222 sentinel health facilities report weekly through this system, 123 from SCS, 45 from Puntland and 54 from Somaliland. CSR is integrated in the HMIS and uses the similar reporting channels, through regions to the MoHs. The participating facilities provide weekly reporting using standardised formats, using email with rollout of mobile phone reporting underway in Puntland and parts of Somaliland

From 2013, a bi-weekly publication called the *Somalia Emergency Weekly Health Update* provides data on completeness, timeliness and trends of 9 conditions under surveillance. The timeliness of CSR reporting by region ranges from 58-75% while completeness of reporting ranges from 42-100%. A MoH surveillance task force meets every week to review the surveillance information received and to determine if any actions are required. In Somaliland, the CSR also provides a report published daily called the *Good Morning Report*. It is compiled from data on nine priority diseases for surveillance from all MCH/OPD health centres and hospitals in Somaliland in the previous 24 hours. This report is shared with the Minister and Vice Minister for Health every weekday morning.

In 2013, WHO and the MoH launched a pilot electronic disease early warning and response system (eDEWS) in 25 facilities in Puntland. The objective of the project was to improve timeliness and accuracy of reported surveillance data thus enabling more timely responses to emergencies. Weekly surveillance reports are submitted to the eDEWS platform through mobile or desktop Internet. SMS alerts are automatically generated and sent to surveillance teams for immediate action.

A Malaria database has been developed with support from WHO and the Global Fund/UNICEF to capture all malaria related indicators, such as commodities (LLINS/IRS), operational research, household coverage, training, human resources, insecticide resistance rates and drug efficacy results etc. HMIS related indicators and inputs will feed into the

database to ensure that the NMCPs are pro-active in steering programme direction towards elimination based on a local evidence base.

Challenges Affecting Programme Outcomes and Impact

A multi-partner Malaria Program Review (MPR) was conducted in 2014 in which a SWOT analysis of the malaria situation and response to date was conducted. The limitations, barriers and challenges are outlined along with the necessary programme inputs that are required to assist the NMCPs in maximising potential to achieve programme outcomes and impact.

Malaria Prevention through Vector Control

Currently there is no strategy that is flexible enough to address the varying malaria burden and the reservoir of infection that is maintained by outdoor transmission with possibility of a shift from indoor to outdoor biting, early biting or change in biting preferences (animal), which LLINs and IRS have limited direct impact upon. Additionally, there are no supplementary vector control M&E guidelines. The entomological surveillance program, whilst being strengthened, remains insufficient to guide focal delivery of vector control, to ensure maximum impact at the most cost-effective level. Community participation in vector control planning, implementation and evaluation is low and likewise the feasibility of continued community involvement in sentinel site entomological surveillance has not been adequately addressed. Sustained entomological surveillance across several sentinel sites should provide more definitive evidence on the behaviour of local vectors across the country; this should drive an evidence based national vector control strategy which serves as guidance also on what type of alternative vector control interventions could be evaluated and piloted.

Current vector control operations focus on reducing indoor biting and resting mosquitoes. There is limited evidence that local species also exhibit exophagy and exophily.³⁰ As such, the program recognises the need to explore and pilot other options for vector control that target exophagic and exophilic vectors (Somaliland and Puntland) as part of an Integrated Vector Management (IVM) Strategy. Larval Source Management (LSM) with larvivorous fish was evaluated previously and there was a dramatic effect on reducing larvae during wet-seasons and parasite prevalence. Operationally, this is likely not a sustainable solution for vector control in Somalia.

Current vector control interventions may not be wholly suitable for special risk groups such as Semi-Nomadic Pastoralists who may not be adequately protected by LLINs when they are not residing in static settlements, or recently settled IDPs who may require emergency vector control protection if camps are rudimentary and do not support traditional methods or alternative personal protection measures that can be rapidly deployed as an interim measure prior to IRS or LLIN distribution.

A key challenge for vector control in Somalia is the high rate of population mobility. IDPs and Nomadic populations are less likely to have access to preventative commodities, and

³⁰ Diallo, M (2014) WHO Consultancy Report on The Study of Malaria Vectors Behaviour in Somalia (February – March 2014), October 10th 2014 Report.

are more difficult to target with prevention education. Ongoing political instability has resulted in pockets, particularly in southern Somalia, not being accessible for vector control implementation or evaluation. Global warming and ongoing environmental degradation in Somalia is impacting on climate conditions. Evidence is showing a growing problem with insecticide resistance. Whilst vector control is discussed at the Malaria Working Group, there is no technical working group for vector control.

MIS 2014 results show the percentage of households with universal access to coverage as being low with 4.3%, 6.0% and 15.5% respectively in SCS, Puntland and Somaliland. Similar coverage trends are also reflected at the regional level (Figure 10). Some underestimation of LLIN access may be present if the regional MIS sampling framework accounted for populations that were not targeted to receive LLINs; nonetheless, access and utilisation needs to be strengthened throughout 2016-2020.

The entomology labs are now partially functioning in Mogadishu, Garowe and Hargeisa but require further equipment and facilities to maintain mosquito colonies for bioassay and insecticide resistance monitoring work. The potential for insecticide resistance is concerning; as such, a National Insecticide Resistance Management Strategy needs to be developed.

Priority Development Areas:

- There is a need to strengthen the entomological laboratories/insectaries with additional equipment and logistical support to support integrated vector surveillance and insecticide resistance monitoring.

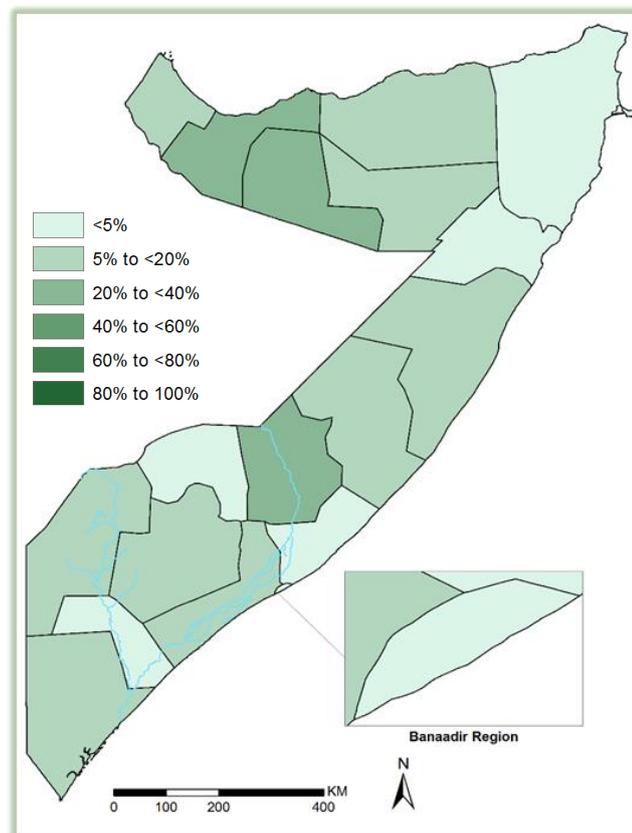


Figure 10: Estimated Regional LLIN Universal Access to Coverage, 2014³¹

- National Strategy documents need to be finalized for IRS, IVM and Insecticide Resistance Management including the judicious use of insecticides. The LLIN distribution guidelines and IRS implementation manual require translation into Somali.
- The LLIN distribution program should be enhanced as per the recently developed national LLINs strategy to achieve universal coverage for most at-risk populations in targeted districts in SCS. The use of continuous LLIN distribution and the appropriate route for delivery should be assessed for feasibility and options which target IDPs needs to be addressed.
- NMCPs should work with technical partners and SWALIM to better utilise known mapping locations of Berkads, Hand-dug wells and Ponds as a starting point for Larval Source Management as part of IVM and as a way of potentially using such locations as a way of reaching out to provide vector control options to Semi-Nomadic Pastoralists who may use such water providing spaces.
- The technical capacity of national partners involved in vector control needs to be strengthened through the NMCPs
- A legislative framework which supports the integration of IVM principles in-country development across multiple ministries needs to be drafted and supported with strong political will at the highest levels of government.

Effective Case Management through Early Diagnosis and Treatment

Integrated Community Case Management (iCCM) is a sustainable solution to extending health care to communities in remote areas, IDPs and those in which residents' movements are restricted by ongoing security threats. Whilst this program is a broader initiative outside of the NMCPs direct management, it is still limited in its coverage and will only cover 7% of the Somali population by 2017. Referral mechanisms between different levels of the healthcare system and from community partners to available health facilities remains weak. Most trained health professionals are stationed in urban areas which leads to inequitable health service delivery between urban and rural populations, and all the more reason the iCCM program needs to be extended to address this imbalance. There is limited capacity to deliver broad based health worker training on malaria diagnosis and treatment. As such malaria microscopy capacity is inadequate and cases are often reported as a mix of clinical and confirmed cases. There is inadequate drug quality surveillance and monitoring.

Over 70% of health services are delivered by an unregulated private sector who are not engaged in the delivery of malaria case management. It is suspected that there is widespread use of unapproved monotherapies for uncomplicated malaria in the private sector and more efforts are required to enhance legislative aspects to control this and to ensure enforcement

³¹WHO's Universal Access to Coverage Target is based on the principle of 1 net per 2 persons within each household. Universal Access is considered successful when 80% of households within the targeted population have reached or succeeded this principle. Regional coverage estimates are based on the 2014 MIS survey in which 16,442 respondents were surveyed in 5220 households covering 261 clusters nationally.

of national guidelines. Most facilities that report routinely are within the public health sector, yet only about 20% of the population are likely to seek treatment from this sector. Semi-Nomadic Pastoralists undoubtedly feature as part of the population that does not routinely access public sector services for treatment.

Many public health professionals work part time in the private sector to supplement incomes. Whilst there are strong results where microscopy and RDTs are available, there is still ongoing treatment of clinically suspected malaria cases and this needs to be eliminated. There is a lack of RDT quality assurance.

Approximately 40% of pregnant women receive trained ANC support during pregnancy and delivery. Pregnant women are not routinely screened for malaria at ANC facilities. There is no Malaria in Pregnancy (MIP) focal person within the NMCPs. The HMIS does not routinely capture MIP indicators, but this is in the new HMIS tools that are being finalized. There are no guidelines for the prevention and treatment of malaria in pregnant women. Whilst the MIS 2014 reported high rates of health worker contact by pregnant women this must be read with caution, as it is likely to relate to untrained health workers or possible traditional healers.

Priority Development Areas:

- Capacity building must be integrated into pre-service and in-service training programs and integration with EPHS and iCCM training programs, and new innovative ways are needed to build capacity of health and community workers.
- There is a substantial need for the NMCPs to effectively engage with the private sector and build on current pilot programs for quality assurance, capacity building and treatment guideline adherence. Phased inclusion for private facilities to report to the HMIS is a requirement to accurately depict a representative picture on the burden of disease. This is vital in elimination districts as cases will need to be notified for further investigation.
- A legislative enforcement framework needs long-term political investment to respond to the use of monotherapies in both the public and private sector.
- Malaria diagnosis and treatment (ACTs) according to the national guidelines needs to be extended to all facilities and to communities through the iCCM program and where feasible be supported in IDP camps. This expansion should be supported by a correlating training programme to different diagnostic and case management personnel. Supportive supervision and quality assurance needs to be expanded by the NMCPs, and as such there should be dedicated case management focal points in place.
- An IPTp3 impact assessment needs to be conducted to provide a local evidence base on which to support the implementation of this strategy, and in which ANC health facility catchment areas, the continuation of IPTp3 would be most beneficial (e.g. $\geq 10\%$ prevalence).
- There is a need to better define Semi-nomadic pastoralists movement to ensure they know about treatment availability and have the same level of access to effective case

management (e.g. through extension of community based treatment and surveillance). Semi-Nomadic Pastoralists may be a principal source of imported malaria in foci which may have achieved elimination but still holds local receptivity in which local transmission could restart.

Mitigating Epidemics through Preparedness and Response

In addition to the national EPR strategy, implementation guides need to be developed to ensure rapid assessment and outbreak/epidemic response is effective and timely. To put standardised implementation into practice will require continued investment to enhance the human resource capacity to maintain the required levels of support for supervision and monitoring, rapid assessment and outbreak/epidemic response. IRS to date has been conducted mainly based on historical risk and not current response. National capacity for EPR is weak. Significant challenges are faced for EPR due to the significant pastoral, economic and conflict driven mobility. Whilst CSR sentinel site surveillance systems exist, they are inadequate to effectively detect all malaria outbreaks/epidemics in Somalia.

Priority Development Areas:

- Build further the EPR capacity for annual planning, surveillance, preparedness and response and ensure that the planning aspects cover the maintenance of adequate equipment and stocks to initiate rapid focal IRS campaigns.
- Extension of the Integrated CSR surveillance sentinel sites to ensure representative national coverage covering various epidemic prone foci so as the NMCPs can mount rapid assessments and conduct timely response to emerging epidemics. Exploration of different reporting modalities (e.g. through SMS messages) is required to address the most-timely way to trigger outbreak assessments.
- Operational research and continual assessment of surveillance responsiveness needs to be addressed to improve strategic information on the risk factors that lead to epidemics.

Enabling Behavioural Change through Information, Education and Communication

Whilst there is strong political commitment for malaria related communication, no national funding is provided for advocacy, BCC or social mobilisation. There is a lack of broader ministerial involvement from cross-cutting areas such as education, religion, water and sanitation, social affairs and labour who have a role to play in behavioural change of the population with respect to malaria control and elimination. There are few materials and programs at community level, particularly in higher burden areas. There is no training provided to implementing partners to build capacity for advocacy, BCC and social mobilisation. Religious and traditional leaders are key gate keepers within communities, and routes to entry to mediate positive behavioural seeking traits for treatment and personal protection through the public sector, amongst IDPs and Semi-Nomadic Pastoralists. There has been no comprehensive evaluation or feedback of existing IEC/BCC programs to ensure implementation can be enhanced further and whether a segmented approach to program delivery at the local level - based on different transmission scenarios - would be more suitable.

Priority Development Areas:

- Maintain high-level political will and inter-ministerial support to provide national visibility for resource mobilisation to support the implementation of the Malaria Communication Strategy.
- Utilise opportunities with the MoH health promotion units for oversight of Communication for Development (C4D) activities.
- Leveraging of EPHS female community workers and other existing networks to support locally tailored BCC and social mobilisation activities based on a malaria transmission segmented approach (e.g. BCC for control and elimination settings).
- Address through either existing or newly designed BCC service delivery mechanisms, ways to engage IDPs and Semi-Nomadic Pastoralists to ensure they are aware of health equity through the public sector, to induce positive behavioural change to increase access and utilisation of case management, and preventative services.

Programme Strengthening through Health System Developments and Strong Management Structures

The malaria program remains predominantly dependent on Global Fund funding, with no national contributions to the response. Reliance on one donor has meant that funding and disbursement delays have immediate impact on the delivery of programs. Staff attrition remains a threat as it disrupts programme continuity but also presents as a loss of investment because of the need for repeated capacity training for newly recruited personnel. Ongoing conflict and insecurity means there is little access to key areas which impacts on the capacity for planning and implementation. The NMCPs have limited infrastructure and logistical support to effectively carry out their mandate. Transaction costs are exceptionally high with most international partners still based in Kenya. There are no malaria focal points at regional or higher burden district levels.

As the country reduces the transmission of malaria and moves towards elimination, the national surveillance system will require further strengthening to ensure it can depict changes in parasite species composition and the ratio between indigenous and imported caseloads. The system will need to provide timely reports for all regions and of the quality that is sufficient to form the basis to report on advances in sub-national elimination. A national HMIS strategy will ensure there is uniformity across the NMCPs to support the objectives outlined above and to propose the human resource capacity development plan within the public sector as well as provide inclusivity for reporting from the private sector. Whilst national surveillance systems are under development, the use of the malaria specific database will need to be utilised but extended to cover additional indicators (e.g. entomological parameters and intervention coverage).

There is a lack of operational research policies and guidelines that would support evidence building for an optimised elimination programme that is rooted in the local context. Outside of collaborative work with KEMRI, there is no national or international funding dedicated for research over the next 5 years. Under-investment for operational research and indeed for many aspects of programming is still linked to inherent security risks that pose a threat

throughout the country. Greater regional and cross-border collaboration (Yemen, Ethiopia, Djibouti and Kenya) is greatly needed to reduce the threats of imported malaria cases.

There is a lack of national medicines policies and procurement plans and the procurement process is still managed predominantly by external partners. The drug regulatory authority is under establishment and there is no legal framework to govern registration, import, pharmacovigilance, distribution and utilisation of drugs/commodities. Whilst this is problematic for the public sector, it is of great concern in the private sector as it minimises incentive for best treatment practice in non-public facilities. South Central has limited storage facilities and Puntland and Somaliland have limited warehouse capacity. There is little national human resource capacity for procurement supply chain management. Ongoing conflict and weak infrastructure regularly impact on the capacity to move commodities across the country and there is a reliance still on a 'push' system for commodities. This results in the over-stocking of many facilities, and increased waste of expired medicines which may not be disposed of appropriately.

Priority Development Areas:

- Increasing national program visibility and sustained political will for malaria elimination to diversify and increase the national and international funding portfolio, both for program implementation and operational research.
- Strengthening of the national integrated HMIS and Logistics Management Information Systems (LMIS) systems to support a program that is accelerating control efforts in the SCS but transitioning towards elimination through many parts of the country.
- Contribute further to the development of mechanisms and frameworks that enhance cross-border collaboration with Djibouti, Ethiopia, Kenya and Yemen. This will highlight any regional program successes that could be garnered in Somalia, but also enhance screening efforts to reduce malaria importation to Somalia and bordering countries.
- Introduce a legal framework to strengthen national drug regulation that can be enforced both within the public and private health sector.

Institutional Framework and Responsibilities

Policy Environment

The first Health Sector Strategic Plan (HSSP) 2013-2016 has been developed under a nationally uniform structure but adapted individually to complement the specific needs of Somaliland, Puntland and the Federal Government of the Somali Republic. The vision of respective HSSPs is based on ensuring that the health of the population is prioritised, to ensure the population itself, can further contribute to the development of Somalia. The HSSP is based on the WHO framework for a well-functioning health system and is undergoing renewal for 2017-2020.

Responsibilities

Full implementation of the HSSP requires active involvement and participation of all partners from national to community level. Overall, coordination of malaria activities is through the NMCPs through their respective MOHs, in collaboration with the partners (WHO, UNICEF, RBM). Strategic review is conducted through annual review meetings. They are a forum for MOH staff and partners 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); In some areas, Community Health Committees (CHCs), through health workers or volunteers, will undertake participatory education at community level which will serve to increase messaging regarding health seeking behaviour, services at health facilities, and vector control. Communities will identify personnel who will serve them either as committee members, or as health workers. As the programme moves forward to elimination, the integration of malaria case management will be increasingly devolved down to communities also and active case detection will feature as an additional layer of information that is reported as part of malaria surveillance.

Primary Health Units: Community Health Workers will be trained to manage fever cases at health post level. The malaria program is integrated into general health services. However, health facilities in areas of higher malaria transmission or focal areas will be the focus 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 determine 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 CHCs to reinforce oversight and quality at health facilities.

Central level: Central level health authorities are the main coordinators of the malaria programme. 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 areas into eco-epidemiological areas to allow for targeting of malaria control and prevention activities. The health offices also ensure the availability of manpower and equipment to the regions, and coordinate resources of the different partners. The 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. Health personnel are responsible for planning, monitoring and evaluating all health priorities in the areas.

Somali Ministries of Health and their partners have developed health policies and strategies including HSSP. 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 HSSP falls under the Health Sector Committee (HSC), which responds to the HAB. 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. Under general coordination of the HSC there are 11 technical working groups and taskforces, including one for malaria.

Private sector: Current access to Somali public health facilities 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 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 area of the country. However, what is possible is continued advocacy of the private sector, to provide them with national guidelines, and train them in diagnosis and case management of fever cases and malaria. The Global Fund has financed a national study on Private Health Facilities. This assessment along with the public sector health facility assessment will form a fertile ground to develop national public private partnership policy guidelines.

Malaria and the Broader Developmental Framework

Somalia Roll Back Malaria Partnership

Somalia is part of the WHO EMRO as well as under the umbrella of the recently conjoined East and Southern African Roll Back Malaria Network (EARN/SARN). 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 NMCP hold monthly technical meetings and the outcomes feedback into the RBM partnership for technical support on programme steering. RBM plays an active role in annual review meetings.

The HSSP and this NMSP harnesses the principles outlined in the RBM's Action and Investment to Defeat Malaria 2016-2030. In doing so, the programme commits through accelerated control and elimination of malaria that the country will be in a more favourable position to meet the Sustainable Development Goals (SDGs) (Table 2). Under the NMSP, equitable services will be maintained in all the population at risk by provision of treatment

and preventative services free of charge. Additionally, it will continue to collaborate with partners for the expansion of the health system infrastructure and referral systems to reduce severe and complicated illness.

Somalia and the WHO Global Technical Strategy

The Malaria NMSP 2016-2020 enshrines the values of the WHO Global Technical Strategy (GTS) for Malaria 2016-2030. Fitting global principles to the local context will undoubtedly contribute towards the vision outlined within the HSSP and ensure that Somalia meets its commitment towards malaria elimination. Under the NMSP, it is envisaged that Somalia will meet or exceed the 1st milestone outlined within the GTS, that is, to reduce malaria morbidity by 40% of the levels in 2015 by the end of this NMSP in 2020. Being under the EMRO region, Somalia will adopt the regional mortality reduction of 75% by 2020 based on levels in 2015.

Under this NMSP, Somalia will aim to address and align to the strategic framework that underpins the GTS for malaria. The framework is built on three pillars with two supporting elements that guide global efforts to move closer to malaria elimination. Somalia will aim to align efforts under this framework through the following; 1) Efforts to accelerate towards elimination will be through providing universal access to a combination of interventions tailored to the local transmission context. 2) Provide more country ownership and leadership, with involvement and participation of communities and the private sector to ensure a multi-sectoral approach to accelerated control and elimination. 3) Improve surveillance as an intervention, monitoring and evaluation, as well as updated stratification of the malaria burden to inform the basis on which to optimize the implementation of malaria interventions. 4) Maintain equity in access to health services, especially for the most vulnerable and hard-to-reach populations as a fundamental principle under the HSSP. 5) Finally, innovation in implementation approaches will be sought through the creation of an operational research framework which will maximise Somalia's progression along the path towards elimination.

The National Malaria Strategic Plan (NMSP)

Purpose

The purpose of this NMSP is to elaborate on country directions and implementation strategies to accelerate progress towards malaria elimination so that all efforts by partners are harmonised and tuned towards achieving the National, Regional and Global milestone targets. This NMSP 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 NMSP 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 emphasizes on the need to strengthen monitoring and evaluation (M&E) activities to complement the scale up of malaria interventions to measure the progress, effectiveness and impact of implemented activities.

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

For MOHs 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. MoHs and HSC will be responsible for advocating the National Malaria Strategic Plan (2017-2020).

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

WHO & Technical 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 operational 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 leaders and affected populations to actively pursue accelerated malaria control and Elimination.

Scope

This document includes the vision, mission, mandate, values, situation analysis, goals and strategic objectives in relation to all malaria prevention, treatment and elimination activities in Somalia for the period 2017-2020. 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, control and where applicable, elimination 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 include IEC and social mobilization, human resources development, M&E and operational research.

For each of the major and supporting strategies which are described separately, key components, specific objectives and underlying activities are indicated.

Caveat

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 country with minimum insecurity risks. Much 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 elimination, this is likely to happen with different speed in different

parts of the country. 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 area. The current strategy shall therefore be considered a set of tools to be used for the development of detailed implementation plans for Somaliland, Puntland and SCS.

Vision

A malaria free Somalia which contributes towards further social and economic development and growth across the nation.

Mission

Through an integrated health systems approach, the Malaria Control and Elimination programme with the involvement of communities and in coordination with all partners and relevant sectors, will expand and sustain and monitor implementation of high quality evidence based control and elimination interventions.

Goal

By 2020 and in line with the Regional Malaria Action Plan and Global Technical Strategy;

- 1. ensure there is interruption of local *Plasmodium falciparum* transmission in 25% of the regions;**
- 2. prepare 50% of regions for pre-elimination (malaria incidence <1 case per 1000) in which there has been historically low transmission; and**
- 3. reduce malaria case morbidity and mortality by 40% in endemic areas**

Approach of the National Malaria Strategic Plan (2017 – 2020)

Capacity building, strengthening surveillance and social mobilization of communities will be crucial attaining the strategic goal. Success in achieving objectives set out in this NMSP rests 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, take ownership, and participate in malaria prevention, treatment, and control. 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 and any community based surveillance measures. Thus, the overall approach during the lifetime of this NMSP should be to engage with and empower the community through dialogue and communication.

The previous National Strategic Plan (2011– 2015) continued to primarily focus on strengthening capacity at the Health Centres and Referral Health Centres as well as Hospital level. This NMSP will continue strengthening capacity at these levels, but will shift focus on augmenting health infrastructure at the community level while supporting and building capacity at the regional and lower levels. Emphasising quality of care at community levels will increase intervention access to broader segments of the rural population and coverage of malaria interventions. It will be a necessary pre-cursor in establishing localised treatment through active based and reactive based case detection surveillance in areas of low transmission that move towards elimination of malaria.

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 Primary Health Units to Health Centres and upwards in the health system structure. It is well known that implementation of malaria diagnosis and case management is challenging at community level. Thus, those activities will require ongoing supervisory support from the health authorities and other partners.

The approach to each component of the National Malaria 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 overall objectives of the 2017-2020 NMSP are:

- to consolidate the achievements of the previous NSPs
- to maintain and increase equitable coverage of interventions for all at risk populations including IDPs and mobile populations where geographically relevant; and
- to enhance national surveillance systems and community based case management to promote an enabling environment in which to move towards malaria elimination in areas of continually low transmission.

The NMSP Strategy based specific objectives are outlined within respective strategy areas. [Accompanying the NMSP is the National Monitoring and Evaluation Strategy 2017-2020](#). This outlines broader level Impact indicators and associated targets, as well as Outcome/Output Indicators and targets specifically associated with strategies and components; all to ensure the programme can track progress in achieving the goal of the NMSP. [Specific activities linked to strategy components are provided as part of a combined work plan and budget for the period 2017-2020 and serves as a complementary tool to the NMSP.](#)

The overall objective of the NMSP 2017-2020 will be attained through the following specific strategies, components and specific objectives:

Strategies and Component

Strategy 1: Prevention

Vector control interventions will be guided by Integrated Vector Management (IVM) approach, mainly as follows;

Guiding principles

Integrated Vector Management (IVM) emphasizes the importance of a rational decision making process to optimize the use of resources for vector control. IVM aims to reorient the way vector control programmes are planned, implemented and evaluated, to improve their efficacy, cost effectiveness, ecological soundness and sustainability. Given that Somalia is afflicted by several vector-borne diseases (malaria, dengue, chikungunya) which may escalate given the limitations in health service response and major population movement caused by the ongoing insecurities, an IVM approach is strongly justified due to resource constraints. This is further applicable given that *An. arabiensis*, the principal vector of malaria in Somalia, has a propensity to both bite and rest outdoors at times when persons at risk are not sleeping. This and other vector species also can breed in man-made larval habitats that are common throughout Somalia, such as Birkits, Wars, Bulleys and irrigation canals/wells. Current insecticidal based interventions therefore may have limitations in how well they prevent this vector from biting, as their mode of action (personal / community protection for LLINs) and mass-effect on indoor resting populations (IRS) relies on vectors coming into contact with the insecticide inside the house. Locally applicable or community based interventions should be addressed for their feasibility as part of an IVM strategy that provides impact on malaria but also other local vector borne diseases. Such interventions should also be evaluated for their suitability to provide personal protection for semi-nomadic pastoralists as they could be a driver for importing cases into receptive foci which may have interrupted local transmission

NMCPs including entomologists and technical partner agencies form the Malaria Technical Working Group (MTWG). It is in this forum that evolving operational research evidence and global/regional policy recommendations on Integrated Vector Management are reviewed for applicability to the country context for shaping national policy and vector control programme delivery. Only WHOPEs approved insecticides / products are endorsed for vector control purposes. In alignment with the Global Plan for Insecticide Resistance Management in Malaria Vectors, Routine longitudinal entomological surveillance and Insecticide Resistance Monitoring should underpin the selection of appropriate vector control interventions as part of Integrated Vector Management and the choice of WHOPEs approved insecticides.

To maximise and sustain impact from vector control, given the level of financial investment, Somalia adopts the principle of universal access to coverage to higher risk populations. The priority under this strategy should be in providing levels of access where universal coverage is achievable. The scale-back of vector control interventions in areas that have received

universal access is not recommended, even if transmission has declined, as discontinuation would confer a high risk of malaria resurgence. During the last five years, the country has adopted a Scaling Up for Impact (SUFi) approach to increase access; however, coverage levels remain low. This will be improved by both covering the existing gaps and geographically targeting households. There is a requirement for more robust linkage with BCC (Strategy 4) under this NMSP to ensure access equates more uniformly to coverage. Given the level of transmission across the country, the level of investment required to drive high quality Integrated Vector Management programmes and the current susceptibility profile of local vectors to pyrethroids, the NMSP does not recommend for the combination of LLINs and IRS together for large-scale programming until such a time as when robust insecticide resistance monitoring data indicates IRS with non-pyrethroids would be beneficial as part of an insecticide resistance management strategy. As such, the NMSP calls for the implementation of the following components for impact against vectors:

Component I: LLIN Distribution

A WHOPES approved LLIN should be utilised as part of the national net delivery programme. The National LLIN Strategy 2017-2020 serves as guidance, on which the targeted delivery of LLINs of preferable size/colour to districts with a continuous *P. falciparum* parasite prevalence of >1% will be based. The aim under this NMSP is to provide universal access to coverage of 1 LLIN per 2 persons. This will be achieved through 1) Community based free Mass-Distribution every 3 years (until such a time as to when LLIN longevity testing indicates a country specific operational effectiveness timeframe), 2) Continuous distribution through Antenatal clinics to mothers as part of their postnatal care package or a new for old replacement during any health visit. 3) Free distribution to newly established IDP camps and replenishment to long-standing camps.

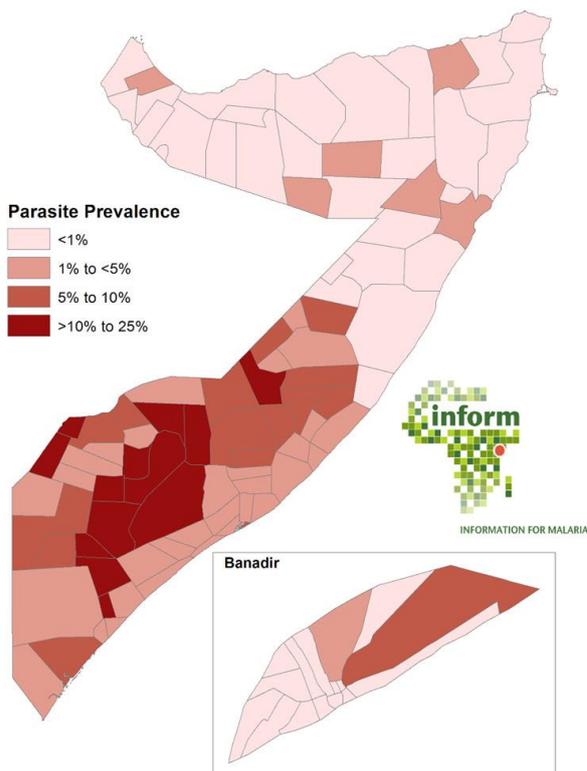


Figure 11: Districts targeted for LLINs and high alert for IRS

Component 2: Indoor Residual spraying

A WHOPEs approved efficacious insecticide will be utilised for IRS and the selection of insecticide class will be based on resistance profiles in vectors from sentinel site surveillance. Indoor Residual Spraying will be conducted reactively, keeping in mind that a response with IRS will be based on early signs of an outbreak (See Strategy 3). Health facility epidemic surveillance reporting from continual monitoring of vulnerability criteria outlined in the Somalia National Malaria Epidemic Detection, Preparedness and Response Strategy 2015-2020, should form the basis in which to mount a rapid IRS response within 2 weeks of detection. Village based risk assessments has mapped 57 villages in Somaliland, Puntland and Central parts of SCS that are continually prone to outbreaks and are vulnerable to epidemics. As such, local outbreak containment teams will be trained and resourced in the eventuality that a rapid IRS response is required. The districts in which these villages are located and are therefore on high-alert for annual IRS campaigns are highlighted in Figure 11. Standard Operating Procedures (SOPs) in accordance with the national IRS implementation guidelines and judicious use of insecticides will form the basis of mounting an effective IRS campaign. If an IRS response is required, at least 85% of targeted households will require spraying for the campaign to be effective. As such, IRS will need to be combined with community mobilisation as part of ongoing IEC campaigns (See Strategy 4) to ensure maximised compliance in foci that may have not received routine IRS previously.

Component 3: Integrated Entomological Surveillance

Capacity for entomological surveillance and vector control for all endemic and emerging vector borne diseases will be enhanced as well as planning and implementation of IVM at all levels. Strong inter- and intra-sectoral collaboration including community participation is needed for effective implementation of IVM.

Specific Objectives

- Ensure efficient utilisation of resources for implementation of IVM
- To provide access to 100% of the targeted population at risk with appropriate vector control interventions by 2020
- Ensure universal coverage in targeted areas with LLINs
- Strengthen the capacity for entomological surveillance and vector control for all endemic and emerging vector-borne diseases

Core Activities

- Conduct a National Level Intersectoral Workshop to mobilise traction behind implementation of an IVM strategy in Somalia and to provide an operational plan for its implementation between 2017 and 2020, to stimulate advocacy amongst regional donor partners.
- National guidelines for integrated vector surveillance and control of endemic and emerging vector borne diseases will be developed and their implementation supported at all levels of administrations.
- The capacity for longitudinal entomological surveillance (human resources, infrastructure and logistical support) and vector control for endemic and emerging vector borne diseases in the country will be enhanced at all levels.
- Further rehabilitation of insectaries/entomology laboratories to support vector surveillance and the use of reared mosquito colonies for more comprehensive insecticide resistance monitoring and detection of insecticide resistance mechanisms in addition to WHO bioassays.
- An integrated entomological surveillance system (adult and larval sampling) will be established in receptive and vulnerable areas for all vector borne diseases to determine seasonal population fluctuations as part of the emergency preparedness and response and develop distribution maps of major vector borne diseases. This will be achieved through a decentralised approach with use of CHWs and community members. Surveillance will be divided into three pillars, 1) Monthly Vector Bionomics (Adult/Larval) providing spatial / temporal feedback where routine vector control operations are ongoing. 2) Annual Insecticide Resistance Monitoring (including identification of insecticide resistance mechanisms) and Intervention Effectiveness (LLIN Longevity and IRS Wall Bioassays) will help guide the Insecticide Resistance Monitoring strategy, and 3) Stand-alone field-based entomological evaluations to pilot the effectiveness and potential for alternative vector control interventions that are locally applicable. Data from entomological surveillance should be integrated as a module into the National Malaria Database.

- Field-Based Entomological Assessment of alternative vector control strategies (chemical and non-chemical) will be a key component when framing the national operational research agenda for 2017-2020 and interventions which address residual transmission and personal protection for special risk groups such as IDPs in newly formed camps and semi-nomadic pastoralists should be piloted.
- Obtain universal coverage with LLINs by implementing LLIN Mass-Distribution every 3 years (until LLIN Longevity determines otherwise) and by maintaining coverage through the continual delivery of LLINs through post-natal care in targeted population risk groups (See Figure 11).
- Conduct Re-active based IRS campaigns in targeted districts (See Figure 11) based on strengthened surveillance measures that accurately capture vulnerability to potential outbreaks/epidemics, as outlined in the National Malaria Epidemic Detection, Preparedness and Response Strategy 2015-2020. Effective campaigns will rely on ensuring well-trained stand-by teams are in place, with proximity to at-risk villages and that $\geq 85\%$ of target households have been sprayed in accordance with SOPs.
- NMCPs should work with technical partners and SWALIM to better utilise known mapping locations of Berkads, Hand-dug wells and Ponds as a starting point for Larval Source Management as part of IVM and as a way of potentially using such locations as a way of reaching out to provide vector control options to Semi-Nomadic Pastoralists who may use such water providing spaces.
- Community mobilisation and awareness of malaria prevention (detailed activity will be linked to the BCC component of this strategy).

Strategy 2: Case Management

Guiding principles

The MoH and HSC are guided by the MTWG and are mandated to issue policies and guidelines regarding drug treatment and diagnostic protocols. **Treatment guidelines are updated based on results of drug efficacy monitoring using the WHO protocol to ensure treatment regimens remain effective under the threat of emerging resistance.** To effectively manage malaria infections and reduce exposure risk in pregnant women, the NMSP calls for the implementation of the following components:

Component I: Diagnosis

All malaria cases countrywide should be confirmed by either microscopy or RDT in public and selected private HFs. Microscopy remains the gold standard for diagnosis of malaria and will be made available at the health centre, referral health centre and hospital level. RDTs will be available at all levels including selected private sector laboratories, but will be prioritised for PHUs and CHWs as they will form the mainstay of diagnosis at this level and for surveillance detection programmes at community level (Active / Passive Case Detection) in areas with consistently low-levels of transmission (Incidence < 1 per 1000 population in the last 3 yrs.). Diagnostic capacity will be maintained through refresher training at previously trained facilities and enhanced training will be given to new facilities and extended

to PHUs and CHWs. Additionally, quality control laboratories will provide a feedback loop on cross-checked slides and conduct on-site guidance from routine facility visits during supervision using revised and updated quality control feedback tools.

Standardised Operating Procedures (SOPs) will be deployed with appropriate job aids, catering to the needs of diagnostic technicians at the hospital level down to CHWs attached to PHUs. Programmes will work with the private health sector to ensure that SOPs are being utilised in private laboratories in accordance with national guidelines.

Component 2: Treatment

An efficacious ACT will be used countrywide as per the national treatment guidelines for the 1st line antimalarial treatment of uncomplicated *P. falciparum* / *P. vivax* malaria. National Treatment Guidelines compliant with global recommendations based on clear country evidence and rationale from regular antimalarial efficacy monitoring, will also serve to guide for the appropriate management of severe malaria, treatment of pregnant females and any special risk groups such as Internally Displaced People / Semi-Nomadic Pastoralists. Additionally, the National Treatment Guidelines also recommend for the radical treatment of any confirmed *P. vivax* cases and the inclusion of an appropriate gametocytocidal therapy as part of case management; to reduce reservoirs of infection and limit receptivity in highly focal transmission settings.

Component 3: Selective IPTp3

Intermittent Preventive Treatment of pregnant women (IPTp) is included as part of focussed antenatal care, but, will be strictly limited in high endemic districts in SCS. Within the life-span of this NMSP, the intervention will be reviewed for its cost effectiveness in terms of the additional protective efficacy it brings to pregnant women in this transmission setting. WHO Recommendations³² will be adopted and cross-partner focus will prioritise increasing pregnant women contact with health-care providers during pregnancy (minimum of 8 contacts). It is envisaged increasing contacts will increase adherence to IPTp with sulfadoxine-pyrimethamine (SP) at least three times in the second and third trimester of pregnancy. The NMCP with technical partners will be responsible for updating guidelines and job aids on IPTp3, and provide orientation to health workers on updated IPT guidelines, producing integrated data collection tools for MIP, mobilizing communities to enhance antenatal care attendance in collaboration with partners (Linkage with Strategy 4).

Specific Objectives

- All suspected malaria cases in public health facilities countrywide are diagnosed using RDTs or microscopy and are reported through the HMIS.
- 100% of Malaria cases in public health facilities countrywide are treated according to the national treatment guidelines.
- At least 90% of targeted private health facilities countrywide are to provide effective case management according to the national treatment guidelines.
- At least 80% of pregnant women in targeted areas receive at least 3 doses of IPTp SP

³²WHO Recommendations on antenatal care for a positive pregnancy experience, WHO 2016.

Core Activities

- Procure and deliver approved quality assured RDTs (Pan specific for *P. f* & *P. v*) to public health centres, PHUs/community levels and selected private health centres, and microscopes/diagnostic reagents to newly established health centres and hospitals, as part of a continuous integrated LMIS supply chain.
- Procure and deliver approved quality assured ACTs and other antimalarials for the treatment of uncomplicated/severe malaria to public health facilities and health centres as part of a continuous integrated LMIS supply chain. Procurement should be inclusive of a gametocytocidal drug for elimination designated communities and an antimalarial for the radical treatment of *P. vivax* confirmed cases.
- Conduct routine antimalarial efficacy studies based on WHO protocols in functional sentinel sites for currently recommended antimalarials and any viable alternatives, given a scenario when resistance is a growing threat. Collaborate with a regional WHO collaborating centre to ascertain PCR-corrected treatment failure and to ascertain any molecular markers associated with resistance.
- Provide annual Training of Trainers (as part of an integrated training package) on malaria case management, diagnosis and microscopy based quality control.
- Cascade annual training / refresher training for health cadres across the range of public health facilities on case management (uncomplicated and severe malaria), diagnosis and microscopy based quality control.
- Engage with selected private sector pharmacies and clinics to advocate and train for increased quality of diagnosis and treatment of malaria in accordance with national guidelines.
- An IPTp3 impact assessment needs to be conducted to provide a local evidence base on which to support the implementation of this strategy, and to determine in which ANC health facility catchment areas the continuation of IPTp3 would be most beneficial (e.g. $\geq 10\%$ prevalence).
- An assessment to define the movement of semi-nomadic pastoralists would provide groundwork in knowing how to provide diagnostic screening outreach services to increase access to treatment in this specific at-risk group (potentially linked as an extension to community based treatment programmes). This would potentially limit the introduction of new foci of local transmission in areas of elimination as imported cases from this population group would be reduced.

Strategy 3: Epidemic Preparedness, Detection and Response

Guiding principles

There is an inverse relationship between malaria transmission intensity and epidemic risk. Risk potential has now been mapped in Somalia, which broadly demarcates which districts and even settlements are most at risk from outbreaks or true epidemics. While there is

some level of risk throughout the country, the highest probability for outbreaks / epidemics to occur is in the northern parts of Somaliland and Puntland. Some villages in SCS are also at high risk, mainly around the Juba and Shabelle rivers. Mapping risk has broadly established where resources, both in terms of human, and response based commodities (LLINs or Insecticides for spraying) would need to be stationed if a rapid response is to effectively contain outbreaks / epidemics. Risk potential is dynamic, in that both spatial and temporal fluctuations will occur seasonally and annually; as such, defining greatest risk across the country should be a continual exercise. [The Somalia National Malaria Epidemic Detection, Preparedness and Response Strategy 2015-2020](#) outlines how to define and measure risk and the pre-requisite measures required to mount an efficient and effective rapid response. This Strategy broadly covers the two following components:

Component 1: Epidemic Detection

[A reliable early warning system that triangulates data from numerous sources and from surveillance linked to other strategies, needs to be strengthened and coordinated more effectively under this NMSP.](#) Vulnerability risk indicators will require an inter-organisational approach in which malnutrition, migration and infrastructure programmes will provide data to the NMCP when anomalies arise. Malaria epidemics may be defined as a situation when the number of malaria cases are in excess of the normal number at a specific period of time and place. Pre-epidemic threshold curves will be developed by taking malaria case data from several years previous. [Continued collaboration with SWALIM is vital as graphical representation of meteorological anomalies \(predominantly precipitation levels\) will signal the potential for epidemics.](#) The principal data source underpinning the detection of an epidemic is confirmed malaria cases and case fatality rates. To ensure the timely detection of potential outbreaks / epidemics, the CSR is currently in place needs to be strengthened to ensure accurate, complete and representative data in a responsive manner (weekly) with the deployment of mobile phone SMS network reporting. [Considering the risk potential stratifies the country, the early warning detection system needs to have representative granularity with immediate reporting of an epidemic to the higher health service levels including the sector malaria office.](#) The frequency and chains of reports and feedback will be given in the subsequent section. The epidemic monitoring system should be strengthened through building capacity of peripheral health service units in detecting the likelihood of epidemic situations from their basic day-to-day collection of information. An effective surveillance system should also be set up at all levels. However, emphasis should be placed on enabling the lower levels of the health service system to detect epidemics early so that timely control measures can be taken by the same level or in close cooperation with higher levels through an effective reporting system.

Component 2: Epidemic Response

Containment of outbreaks / epidemics will require continuous preparedness. To ensure an adequate response can be mounted, [contingency funding that is weighted according to the number of high risk districts within NMCPs needs to be in place.](#) Funding needs to account for a rapid assessment whenever environmental changes and vector density increase, as well

as for holding commodities in which to mass test and treat and to roll-out focused IRS spraying, or the distribution of LLINs, if the target population is sufficiently small. A feedback loop as part of a post-epidemic evaluation is a vital part of the response itself, as it guides communities, health centres, district and regional health offices and NMCPs/MoHs on how to, 1) Further mitigate against future epidemic occurrences, and 2) Strengthen future responses.

Specific Objectives

- To provide risk assessments to all potential outbreaks and conduct a rapid response to actual outbreaks/epidemics within two weeks of on-set

Core Activities

- Conduct periodical review of the country malaria risk stratification to ensure appropriate granularity of sentinel sites deployed for early warning detection.
- Sustain and enhance inter-organisational collaboration to ensure timely access to vulnerability and meteorological indicator outputs.
- Establish functioning EPR units within the MoHs and ensure trained capacity is in-situ to lead response teams.
- Facilitate rapid assessments in response to potential outbreaks and ensure reactive based entomological surveillance and population migration assessments are inclusive to the assessment overall.
- Procure buffer stocks of RDTs and Antimalarials and other required commodities to mount effective epidemic responses (IRS related commodities will be procured under Strategy 2, Component 2).
- Ensure that focal response teams are adequately and routinely trained in components of the response according to national guidelines and SOPs (Spray teams for IRS will be trained under Strategy 2, Component 2)
- Ensure that SOPs for reporting, collating and analysing malaria data for anomalies are updated for health personnel.
- Strengthen the operation of a reliable Early Detection System (EDS) and ensure that sentinel site granularity is representative for the number of districts with the most risk of epidemics. In newly established sentinel sites, ensure morbidity / mortality data can be retrospectively collected to establish a baseline on which to monitor against. Integrate the use of mobile phone SMS network reporting to ensure real-time reporting and quicker response times for completion of rapid assessments.
- Conduct operational research and continual assessment of surveillance responsiveness to improve strategic information on the risk factors that lead to epidemics.

Strategy 4: Advocacy and Behavioural Change Communication

Guiding principles

Despite the scale-up of service delivery under the previous NMSP 2011-2015, accessibility is not necessarily equating to coverage in many areas targeted for support. Numerous communication issues which adversely affect programme impact remain. There is often a low risk perception amongst low transmission areas despite such populations being vulnerable to outbreaks, if not, epidemics. This can lead to poor health seeking behaviours, ineffective management of infections and low uptake of LLINs. A concerted effort is required between 2017 and 2020 to draw further on implementing the conceptual framework outlined in the current Malaria Communication Strategy for Somalia 2013-2016 whilst looking further to develop an updated, evidenced based strategy for 2017-2020. Communication interventions will support adoption of appropriate and sustained practices amongst the population, and in doing so, will maximise the potential impact from investment in other NMSP strategies. The following components will both support effective BCC countrywide:

Component I: Higher Level Advocacy for Malaria

If the expectation is that communities and individuals should adopt evidence based practices and utilisation of malaria prevention interventions, this needs to be resonate at all levels (See Figure 12). More political commitment and higher level visibility needs to be attached to control and elimination of malaria in Somalia, and the benefits this can bring to country development overall. There needs to be an organizational structure that supports this endeavour to ensure that there is a multi-sectoral approach that translates the vision of a malaria free Somalia to the population.

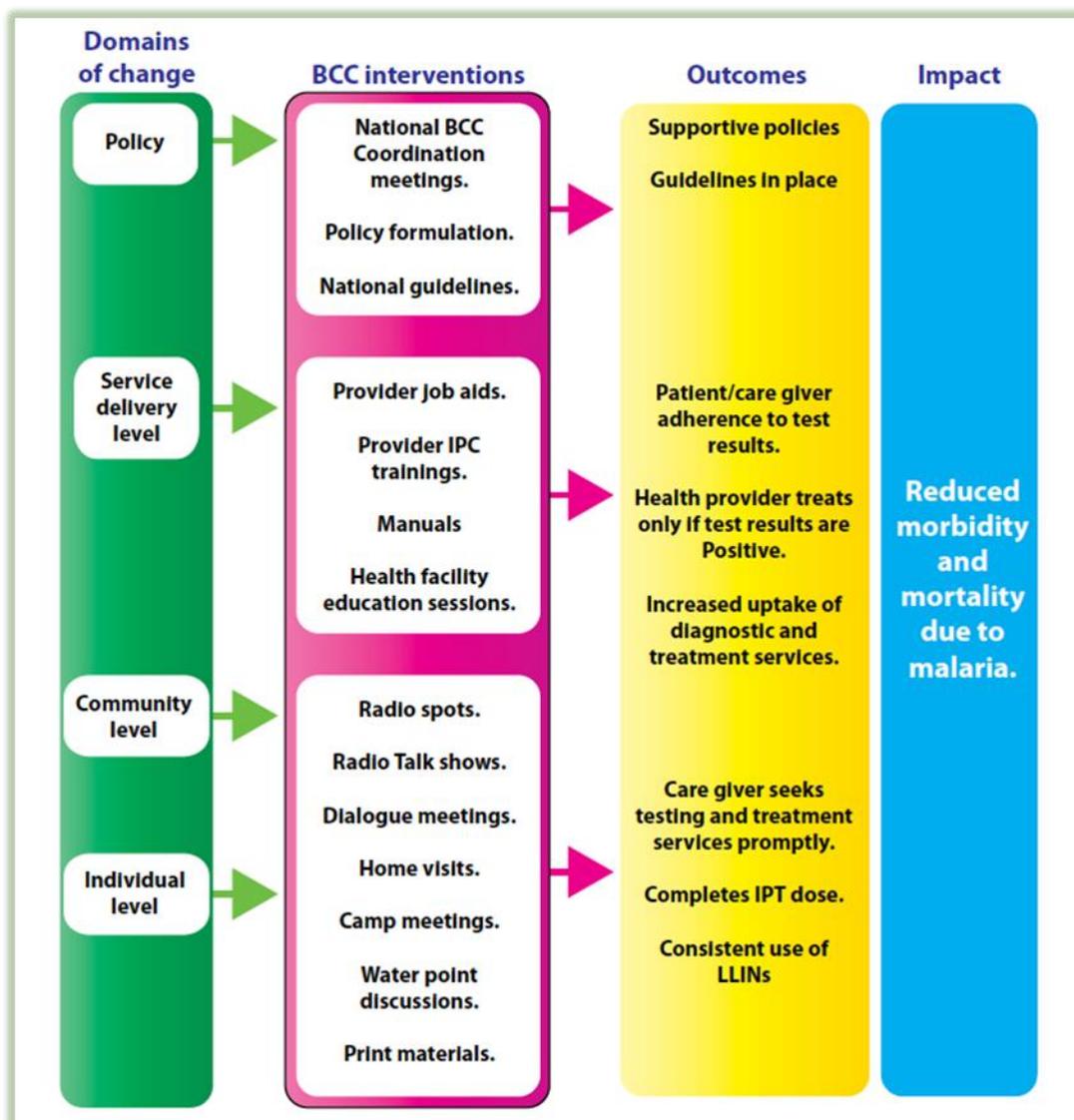


Figure 12: National Communication strategy for BCC and Impact on Malaria

Component 2: Mass Media & Community Based Interventions

Somalia has a young and dynamic population. There is a broad socio-economic demographic, with those in urbanised areas who are literate and social media adept, to rural populations with a low literacy rate. As such, the communication strategy for BCC needs to use a multichannel approach. Further, under a multi-partner collaboration, the successive communication strategy 2017-2020 also needs to explore more the variance in transmission across different parts of the country and the risk this implies from an individual perspective against the actual risk, and address more nuanced messaging in a segmented way to target audiences (e.g. messages to riverine populations in SCS would be different to Semi-nomadic pastoralists in the epidemic prone areas in the North).

Mass media should continue to play an integral part in communication dissemination and NMCPs/Partners should explore further the role of mobile phone networks for SMS push notifications as well as targeted radio spots and graphic/basic text visuals in a range of public meeting localities and mosques. Print messaging should also be included into integrated

health training packages; this will enhance health practitioner communication at the point of health care delivery, not only in the case management of malaria but for general health visits that are indirectly associated with malaria (e.g. ANC/Post-natal appointments, Nutrition linked consultations).

Given the remoteness and the vulnerable security situation across many settlements in Somalia, **village based initiatives for BCC should be promoted as they are locally owned and locally delivered.** They can offer a sustainable solution (when coordinated efficiently) for effective communication as they are peer-based, thereby likely increasing uptake for positive behavioural changes. A range of interactive sessions, including community focus-group discussions, home visits, water-point discussions and drama sessions, should be implemented on a continual basis and should be appropriately timed to intervention delivery (e.g. LLIN Community Mass Distribution).

Specific Objectives

- At least 90% of the population seek diagnosis and treatment within 24 hours following fever onset
- At least 90% of the population is utilising appropriate vector control measures.

Core Activities

- Update the current communication strategy through multi-sectoral consultation and endorse a new National Malaria Communication Strategy for 2017-2020 that explores further segmented messaging for various transmission settings for various domains of change.
- Media tools need to be developed and utilised as an integrated component of national surveys that will evaluate progress towards Malaria Elimination, both as a tool to captivate citizen inclusion and also promote individual and community ownership over local elimination.
- Establish a Malaria Technical Working Group for BCC with an inter-sectoral membership from a range of ministries and technical partners.
- The BCC technical working group to be established should take responsibility for raising the national profile of malaria and more importantly its elimination and seek higher level political commitment and attach good-will ambassadors to the cause, including well-respected Somali public figures.
- Participate in World Malaria Day Commemoration.
- Conduct an annual stakeholder mapping exercise to identify current international and national organisations that provide facility and community based BCC to ensure there is no overlap or conflict in service delivery and to provide adequate coverage in areas in which no BCC is currently being delivered. This can form the basis in which NMCPs can further advocate for national/international funding.
- In line with a newly developed National Malaria Communication Strategy for 2017-2020, develop a suite of complementary IEC materials based on the target delivery (e.g. job aids / guidelines for health facility personnel, posters for health facilities / public spaces and buildings).

- Conduct training / refresher training in collaboration with other joint health programmes to ensure that health personnel (public and private sector), community educators and CHWs are providing updated IEC messages in accordance with the national strategy and the segmented communication approach based on the local transmission setting.
- Conduct regular Mass Media communication delivery through a multichannel approach (e.g. Mobile Phone Networks, Social Media Platforms, Radio Spots and Printed Visuals). These should be more frequent prior to and during the wet season and at times when LLINs are about to be distributed to communities as part of the mass distribution programme.
- Conduct regular community-based communication delivery through a multichannel approach (e.g. community focus-group discussions, home visits, water-point discussions and drama sessions). These should be more frequent prior to and during the wet season and at times when LLINs are about to be distributed to communities as part of the mass distribution programme. As part of community-based delivery, local partners should explore ways in which to engage IDPs and Semi-Nomadic Pastoralists to ensure they are aware of health equity through the public sector, to induce positive behavioural change and to increase access and utilisation of case management and preventative services.

Strategy 5: Surveillance, Monitoring and Evaluation

Guiding principles

Strengthening national surveillance systems and monitoring evaluation capacity will enhance the availability of strategic information which is vital to ensure the national malaria control is being implemented effectively, and that it can respond more effectively to changing contexts and to transition districts to the elimination pathway. An accompanying robust National Malaria Monitoring and Evaluation Strategy 2017-2020 provides a framework in which the country can objectively measure progress with respect to the outcome of implementing strategy linked interventions, and measure the impact associated with their delivery. Currently, limitations in the spatial coverage and granularity of the surveillance systems, as well as the level of functioning to obtain and report quality and representative data trends, remain. It is expected that under this NMSP, the monitoring and evaluation of the programme will be enhanced and surveillance systems will be strengthened further, especially with their extension to the PHU and community level. This will ensure the country is adequately equipped to assess longitudinal trends with more certainty, and also transition more effectively towards elimination, in areas of historically low transmission, whilst maintaining that status in areas with no local transmission. The following components should synthesise sufficient data to do this:

Component I: Monitoring and Information System

There is a need to contribute in further strengthening the existing HMIS/DHIS2 and to address the granularity of reporting. Full extension to SCS health facilities and to PHU level countrywide as this will ultimately guide the pathway to elimination within districts. Further investment will be prioritised in human resources, to ensure there is functioning quality control mechanisms and coordination, in producing timely and quality driven data reporting. Dedicated HMIS units will oversee reporting and training of HMIS officers at the regional level and below. Whilst the HMIS/DHIS2 captures key malaria indicators and broader health impact indicators that are indirectly associated with malaria, further refinement of such indicators to account for gender and age disaggregation will be introduced under this NMSP.

The national HMIS/DHIS2 is not a malaria specific surveillance tool. Whilst it provides indicative measures of the disease burden at the public health facility level, the NMCPs need a more dynamic system by which to triangulate many sources of malaria information if they are to adequately address the shifting priorities of the programme. A dedicated malaria database has been designed for this purpose and is fully operational. The malaria database will integrate relevant HMIS/DHIS2 and early warning detection surveillance system (Strategy 3, component 1) indicators, as well as integrate routine antimalarial efficacy monitoring (Strategy 1, Component 2), insecticide resistance monitoring (Strategy 2) and outcome indicators associated with vector control intervention delivery (Strategy 2). The database will be DHIS2 compliant as the country transitions to that system for its national surveillance requirements.

For low transmission areas, the country needs to align surveillance systems for a paradigm shift towards elimination. This needs to be backstopped with indicators that support such endeavours within the HMIS and the malaria database, in combination with extended case management (Strategy 1) at the community level through iCCM. In districts in which incidence consistently (e.g. previous 3 yrs.) remains low (<1 case per 1000 of the population), indicators will need to capture species type and source of infection (e.g. indigenous or imported). Beyond the introduction and extension of CHW delivered active case detection in communities across the country, NMCPs (especially Somaliland and Puntland) will phase in re-active based case detection measures (foci with <1 case per 1000 of the population). This will link screening of a proportion of individuals in a community, with a confirmed index case (presented to the CHW or at the PHU or Health Centre) who resides in the same area. This will provide enhanced targeting of malaria “hot-spots” in an environment in which transmission is becoming increasingly heterogeneous. In areas with very low (0-0.1 case per 1000 of the population) or no active indigenous transmission foci (but continued receptivity), a vigilance system will be developed to ensure prevention of the re-introduction of active transmission or mitigation of imported cases. Foci-investigations will be conducted in response to any confirmed cases in the locality. If indigenous cases are confirmed during the investigation, then an intervention led response at the community level, consisting of treatment according to national guidelines and IRS/LLIN distribution, will be triggered.

Component 2: Early Warning Disease Surveillance System

The early warning disease surveillance system will be strengthened further as part of Epidemic Preparedness, Detection and Response (See Linkage with Strategy 3, Component 1).

Component 3: Impact and Outcome Surveys

Periodic data collection systems will include the Malaria Indicator Survey (MIS), FSNAU, and health facility assessment. The MIS is instrumental in measuring progress on coverage and utilization outcomes after delivery of malaria control interventions. As such, it will be adequately timed to assess retention following mass LLIN distribution and a sampling frame will be developed to accurately assess universal access to coverage in populations targeted for the intervention and not just within the overall population. Whilst *Plasmodium falciparum* and *P. vivax* prevalence will be assessed, the accuracy of detection in a low transmission setting has limitations. As such, a modified survey sampling frame will be developed to provide best estimates of prevalence, although, progress towards elimination will be based on strengthened HMIS data (See Component 1).

The FSNAU will also measure outcome coverage indicators and determinants of health seeking behaviour. This will serve as a bridging interval between MIS surveys to look at retention of LLIN coverage/utilisation etc. Health facility surveys will provide assessment on the level and quality of malaria case management service delivery in the public and private sector as part of an integrated health system. They will highlight impediments to successful programming which the NMCPs and MOHs can address.

Component 4: Operational Research

A strong local evidence base will be required to adopt new interventions, pilot new mechanisms of programme delivery and look at cost effectiveness of current and new tools in a range of varying transmission settings across the country. Operational research will form a foundation in escalating the transition from enhanced control to elimination. A dedicated partner forum will be established to address the operational research needs within the first year of this NMSP, whilst conducting a landscaping exercise for potential local and regional collaboration and potential funding streams. Research themes will be grouped based on NMSP strategies and associated TWGs can formulate respective prioritisation listings. National plenary sessions and research units in MOHs can serve to finalise the expected operational research agenda according to priority. A key operational research focus area is to address issues of service delivery extension (cross-cutting over Strategies 1, 2 and 4) to IDPs and Semi-Nomadic Pastoralists.

Specific Objectives

- To have functioning surveillance, monitoring and evaluation systems and a prioritised operational research agenda in place, collecting representative and quality data, to drive national and sub-national malaria and elimination programming in Somalia, from a sound local evidence base.

Core Activities

- A national M&E cross-partner technical working group needs to be established that covers technical partners working in malaria programming as well as broader health related surveillance. This will help facilitate the strengthening of integrated health surveillance systems while ensuring that the needs of the malaria programme is accounted for.
- Continue strengthening the quality of reporting (standardisation through development of national SOPs and reporting tools) within the HMIS and ensure that its reach is extended to all public health facilities, and it incorporates reporting down to CHW level with the phased-in ability to track elimination based surveillance programmes at the community level.
- Provide adequate Human Resource capacity to ensure effective oversight and quality control within the HMIS and to provide annual refresher training of health personnel at all levels (inclusive of the private sector) who provide regular HMIS reports.
- Additional training and SOPs will be required in selected areas to cover active based case detection, reactive based case detection and foci-investigations as part of a vigilance system in transmission free foci.
- Participate in quarterly HMIS review meetings for system development and troubleshooting.
- Launch a HMIS/DHIS2 compliant Malaria Database which provides dashboard reports triangulating different malaria specific data outputs at the impact level and also tracks programme delivery through coverage outcomes and integrates routine clinical antimalarial efficacy monitoring (Strategy 1, Component 2) and Insecticide Resistance / entomological surveillance monitoring (Strategy 2).
- Strengthen the Early Warning Disease Surveillance System and provide adequate spatial coverage to support outbreak/epidemic detection (Linkage with Strategy 03, component 01).
- Conduct routine antimalarial efficacy monitoring (Linkage with Strategy 01, Component 02), Insecticide Resistance Monitoring (Linkage with Strategy 02) and a MIS in 2017. Collaborate with other technical partners to ensure there is adequate malaria components in FSNAU and Health Facility Assessments.
- An operational research partner forum in collaboration with MOH Research Units needs to be established, to prioritise a NMSP linked research agenda for 2016-2020, so a local evidence base can drive programming and intervention delivery. Annual meetings should be conducted to track operational research milestone progression and make provision for results dissemination to stakeholders. Coordinating dissemination meetings with national and regional collaborators will allow for non-duplicitous research efforts whilst using the platform to assess future funding accessibility.

- Ensure that all Operational Research evaluations have NMCP / MoH involvement or co-investigation to ensure the national capacity to undertake future evaluations is enhanced.
- Conduct pilot studies to select/determine the most appropriate malaria interventions in selected areas/districts and to provide data where gaps exist.

Strategy 6: Programme Management and Coordination

Guiding principles

Coordination and partnership under the previous NMSP improved, with further reform coming from the development of HSSPs for broader health system strengthening that benefits malaria control. There is a dedicated network of organisations that work with the NMCPs to assist in programme delivery and provide technical guidance. Funding sustainability remains a continued threat to reversing programme successes, especially now, given the programme will need to invest more heavily in surveillance systems to successfully follow the path towards elimination. Implementation is predominantly funded by one external donor currently. A more diverse funding portfolio is required for programme security, and a phased increase in national health budget expenditure towards malaria would contribute to overall country development with cross-linkage to all but one of the Sustainable Development Goals 2016-2030 (See Figure 12). Despite organisational structures being developed for the NMCPs under respective MoHs, positions remain vacant owing to funding limitations and current posts are funded from external resources. The recruitment of personnel at the national, regional, district and extension to communities, is critical for the overall success of the programme, even more so for a country embarking on the path towards elimination. Human resource capacity is also linked with the effective supply of commodities that yield programme impact, as is the supply chain management system itself, which requires strengthening to ensure nobody is left untreated for malaria. It is envisaged that the following components will address current weaknesses in overall programme management and coordination.

Component I: Partnership and Coordination

The NMCPs are mandated to coordinate all malaria control and malaria elimination efforts and ensure that there is standardisation within respective programmes to present a unified and cohesive national strategy. To ensure the programme overall offers value for money and maximum impact, an updated partner mapping exercise (inclusive of the private sector) will be conducted in the first year of the NMSP. This will define geographical scope and technical capacity of all stakeholders/technical partners to avoid duplication of programme implementation.

NMCPs will ensure that they lead respective malaria working group meetings. Any strategy based technical working groups that are not yet functioning will be established and will provide feedback loops into the broader malaria working group meetings. Meeting outcomes should be published to increase programme visibility and transparency and should

feature in an NMCP section component on the respective MoH website. Information at this level should be funnelled up into national quarterly and annual review meetings as well as RBM partnership meetings. Beyond national coordination, the NMCPs will actively work within the regional context to seek opportunities for cross-border collaboration and to learn of programme successes elsewhere that could be applicable in Somalia. NMCPs will be responsible for coordinating and leading all research and surveys for malaria and related areas.

The NMCPs commit to spearhead a strong partnership through coordination meetings with the private sector, specifically, to address effective malaria treatment, prevention strategies and quality data reporting. To maximise integration of malaria control and elimination into broader health systems, coordination meetings and joint assessments with other ministries and government departments including implementing partners will be conducted.

Component 2: Human Resource Development

Human resource capacity, both in terms of spatial coverage and in quality based on the training background and relevant experience, is still an obstacle to overcome when recruiting health personnel. This is further complicated by high attrition, and conflict, often resulting in displacement. The focus of this NMSP will be on recruitment of technical teams at regional level, and functioning community health committees and through partners, 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 delivery of activities are sustained with minimum disruption.

Component 3: Logistical Management

Efficient procurement and supply chain management (PSCM) is essential for the uninterrupted supply of malaria commodities. This will be continually strengthened in line with the national strategy on PSCM. As a country emerging from years of conflict, the national procurement and supply chain system was severely affected. The National Supply Management Teams will be expanded to support logistics with locally positioned supply officers that communicate with a national supply coordinator. The LMIS for the health sector will be enhanced further to include integration with the HMIS (Strategy 5, Component 1). Design of standardised forecasting tools, supported by training on their use at health facilities, will ensure there is a “pull” system for commodity requests based on local demand. System troubleshooting will be addressed by quarterly supply chain management working group (SCMWG) meetings.

External technical assistance will be sourced to address issues with PSCM systems, essential medicines lists and auditing. This will be key to address shortcoming in stock management, forecasting and aims to reduce stock-outs and improve reporting at the health facility level. The country has a nascent National Drug Regulatory Authority (NDRA), has basic drug quality assurance systems and legislation to support regulation and quality assurance. The national federal health policy framework 2012-2017 proposes to strengthen PSCM systems through the development of appropriate legislation, policies and private public partnerships

for supply, distribution and quality assurance. The NMCPs will actively contribute to the further development of such systems from the malaria perspective.

Specific Objectives

- To strengthen coordination mechanisms at the national and other levels, encompassing relations with the private sector, to drive effective programme delivery.
- By 2017, all human resource capacity within the NMCPs is developed to ensure effective planning, implementation and evaluation of the malaria programme.
- By 2020, 80% of Regional and District level personnel can effectively plan, implement and evaluate relevant strategies within the malaria programme.
- To ensure that logistical supply chain systems are functioning effectively, to provide approved quality malaria commodities to all public and selected private health facilities, in a timely manner to avoid any stock-outs.

Core Activities

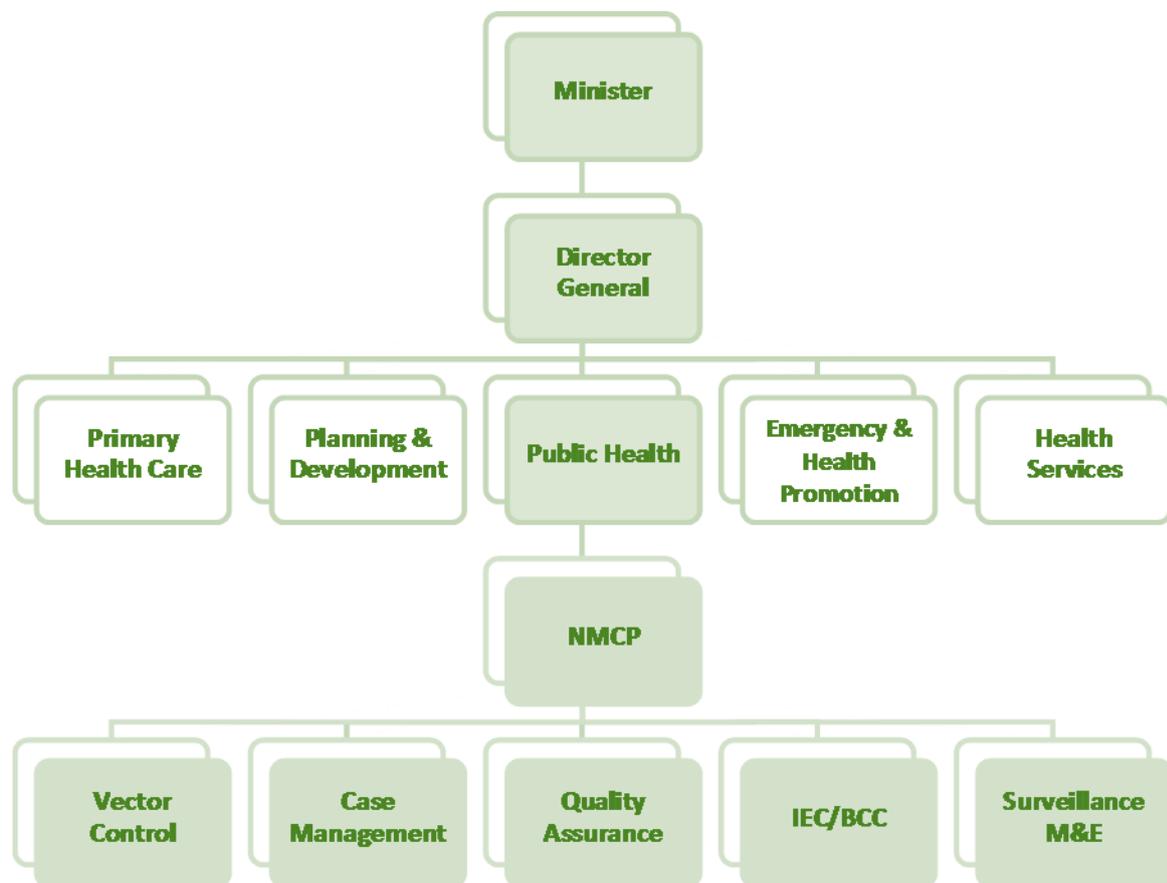
- Update the stakeholder mapping, inclusive of the private sector, to ensure maximum impact can be achieved with greatest value for money without duplicitous implementation from partners.
- Ensure that all thematic technical working groups are established and meet bi-annually, and updated information is fed into monthly malaria working group meetings, quarterly and annual review meetings. Other sectors/ministries that have indirect association with programme impact should be actively involved in such meetings. Likewise, NMCPs should also participate in any associated health/surveillance related meetings.
- The NMCPs will take the lead on all malaria and related surveys and operational research.
- Supervise all malaria activities.
- Participate in WHO and RBM and regional collaborative review meetings and utilise such platforms as a route to expand external funding expansion and diversity.
- The NMCPs should develop a web-presence through respective MoH sites and play a more active role in social media platforms (linkage with Strategy 4, Component I) to increase visibility and transparency.
- Review the Human Resource Plan (National, Regional and District) and conduct a needs assessment.
- Extend the network of Community Health Committees.
- Facilitate training of recruited technical staff in WHO/National annual regional courses (e.g. case management, vector control, Malaria QC and QA, Programme Management and Planning etc.).
- The NMCPs to participate in quarterly Supply Chain Management Working Group (SCMWG) meetings.

- Institutionalise regular drug quality testing and expand sampling to regions beyond the capital cities. Ensure availability of reagents for minilabs and introduce a quality assurance testing system for RDTs.
- Develop and disseminate guidelines on quality assurance of malaria commodities in collaboration with the Essential Medicines Program (EMP) on pharmacovigilance and include modules on commodity management and pharmacovigilance in the case management trainings for health workers (See Linkage with Strategy 01, Component 02).

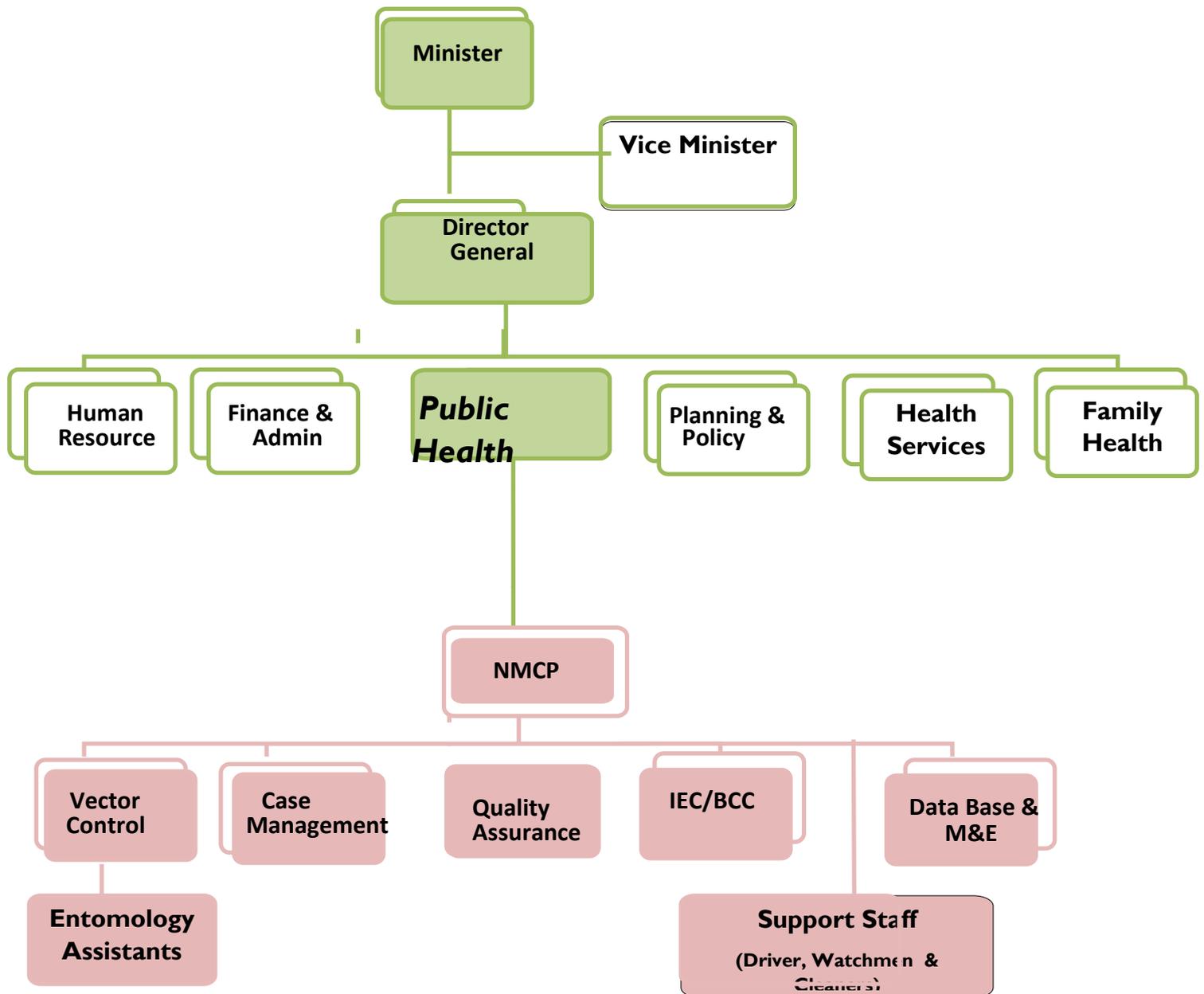
Annex I: The table below summarizes the Population Estimate Survey of Somalia (PESS) conducted by the Ministry of Planning with facilitation by UNFPA at country level during 2014.

Region	Urban	Rural	Nomads	IDP	Total
Awdal	287,821	143,743	233,709	7,990	673,263
Woqooyi Galbeed	802,740	138,912	255,761	44,590	1,242,003
Togdheer	483,724	57,356	154,523	25,760	721,363
Sool	120,993	13,983	187,632	4,820	327,428
Sanaag	159,717	30,804	352,692	910	544,123
Bari	471,785	65,483	133,234	49,010	719,512
Nugal	138,929	31,047	213,227	9,495	392,698
Mudug	381,493	79,752	185,736	70,882	717,863
Galgadud	183,553	52,089	214,024	119,768	569,434
Hiraan	81,379	135,537	252,609	51,160	520,685
Middle Shabelle	114,348	249,326	100,402	51,960	516,036
Banadir	1,280,939			369,288	1,650,227
Lower Shabelle	215,752	723,682	159,815	102,970	1,202,219
Bay	93,046	463,330	195,986	39,820	792,182
Bakool	61,928	134,050	147,248	24,000	367,226
Gedo	109,142	177,742	144,793	76,728	508,405
Middle Juba	56,242	148,439	131,240	27,000	362,921
Lower Juba	172,861	161,511	124,335	30,600	489,307
Total	5,216,392	2,806,786	3,186,966	1,106,751	12,316,895

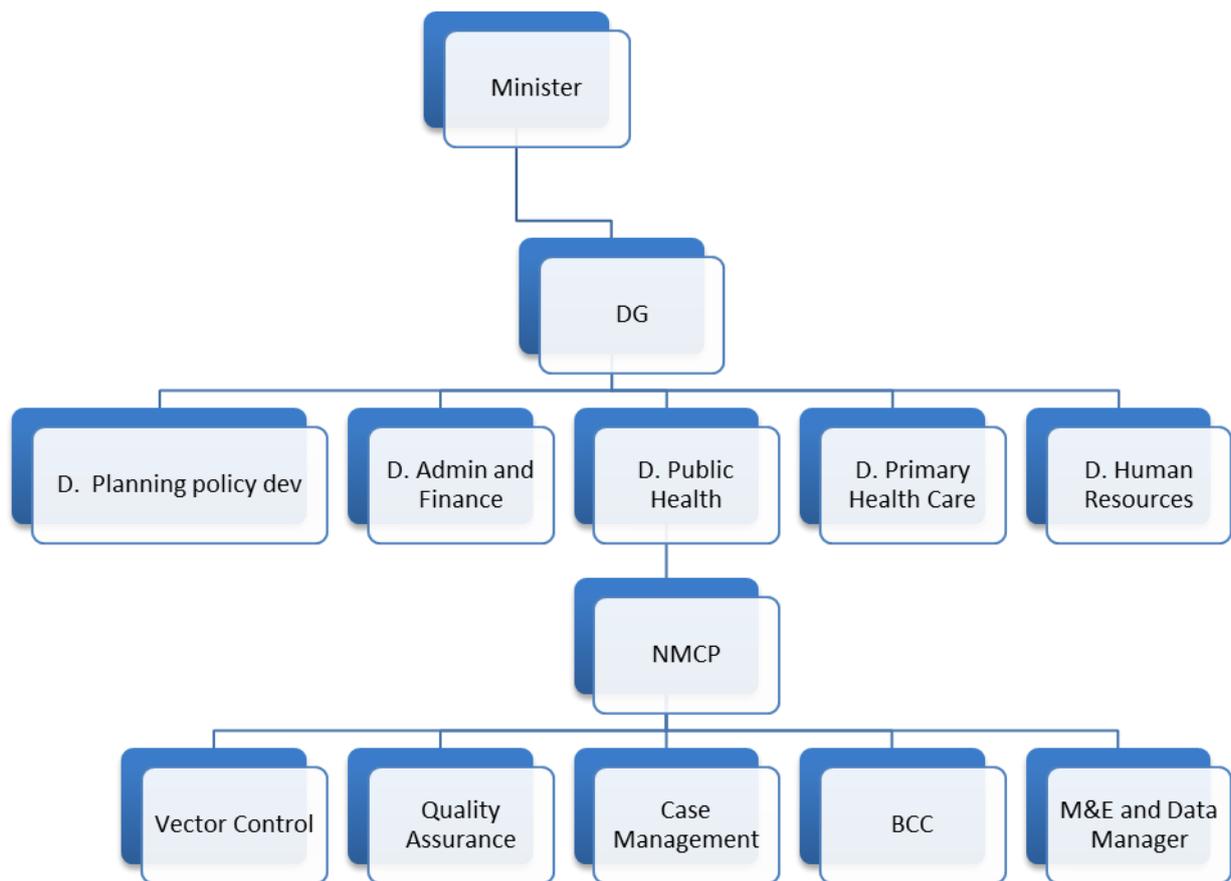
Annex 2: MoH and NMCP Organisational Structure (Federal Government of the Somali Republic)



Annex 2: MoH and NMCP Organisational Structure (Somaliland)



Annex 2: MoH and NMCP Organisational Structure (Puntland)



Conduct a national level insectorial workshop on IVM strategy					x			WHO, NMCPs	116,911
Develop national guidelines for integrated surveillance and control	x	x	x	x	x	x	x		
Enhance capacity for longitudinal entomological surveillance (HR, infrastructure and logistics capacity)	x	x	x	x	x	x	x		
Further rehabilitation of insectaries/entomology laboratories					x				
Establish/strengthen an integrated entomological surveillance system	x	x	x	x	x	x	x		
Undertake field based entomological assessment of alternative vector control strategies	x				x	x	x		
Ongoing collaboration with SWALIM and other partners to better utilize mapping locations of berkads, hand-dug wells and ponds in malaria response	x	x	x	x	x	x	x		
Strategy 2: Case Management									
<i>Treatment of malaria using ACTs</i>									
Procure, transport and store ACTs	x	x	x	x	x	x	x	UNICEF, NMCPs	645,976
Distribute of ACTs to public health facilities on a continuous basis	x	x	x	x	x	x	x	NMCPs	
Ongoing treatment of patients with malaria using ACTs following National Treatment Guidelines	x	x	x	x	x	x	x	MOHs, partners	
Conduct routine antimalarial efficacy studies based on WHO protocols in functional sentinel sites	x	x	x	x	x	x	x	NMCPs, partners	
<i>Diagnosis of malaria using RDTs</i>									
Procure, transport and store RDTs	x	x	x	x	x	x	x	UNICEF, NMCPs	1,766,319
Distribute of RDTs to public health facilities	x	x	x	x	x	x	x	NMCPs	
Ongoing diagnosis of malaria using RDTs following National Treatment Guidelines	x	x	x	x	x	x	x	MOHs, partners	
<i>Treatment of Severe Malaria</i>									
Procure, transport and store severe malaria drugs	x	x	x	x	x	x	x	WHO	705,533
Procure, transport and store severe malaria commodities (eg. Lab commodities)	x	x	x	x	x	x	x	WHO	
Distribute of severe malaria drugs to public health facilities	x	x	x	x	x	x	x	WHO, NMCPs	
Ongoing treatment of patients with severe malaria following National Treatment Guidelines	x	x	x	x	x	x	x	MOHs, partners	
<i>Provision of Malaria in Pregnancy Services (IPTp)</i>									

Procure, transport and store IPT drugs	x	x	x	x	x	x	x	WHO	121,013
Distribute of IPTp to targeted Health Facilities in targeted districts, according to National Treatment Guidelines	x	x	x	x	x	x	x	NMCPs	
Conduct an impact assessment of IPTp3 to provide local evidence base for support of implementation of the IPTp3 strategy							x	NMCPs	
Engage in case management training									
Training of trainers on malaria case management		x			x	x	x	NMCPs, WHO	13,899,705
Ongoing training of different cadres of public health care providers and microscopists on case management of malaria based on National Treatment Guidelines	x	x	x	x	x	x	x		
Ongoing training of selected private health care providers and microscopists on case management of malaria based on National Treatment Guidelines	x	x	x	x	x	x	x		
Participate in relevant EMRO/WHO courses					x	x	x		
Strategy 3: Epidemic Preparedness and Response									
Ongoing investigation of possible outbreaks, according to the National Malaria EPR strategy	x	x	x	x	x	x	x	NMCPs, WHO	53,662
Sustain/enhance inter-organizational collaboration to ensure timely access to vulnerability and meteorological indicator outputs	x	x	x	x	x	x	x	NMCPs	
Procure buffer stocks of RDTs and ACTs to mount a response to any outbreak	x	x	x	x	x	x	x	NMCPs, WHO	
Conduct a periodic Review of Malaria Stratification						x		NMCPs	
Establish/strengthen functioning EPR Units in MOH	x							EHA/WHO, MOHs	
Ensure that focal response teams are adequately and routinely trained in terms of national guidelines	x	x	x	x	x	x	x	MOHs	
Development/review of SOPs for reporting, collating and analyze malaria data	x				x			MOHs (HMIS)	
Ongoing strengthening of a reliable Early Warning System	x	x	x	x	x	x	x	MOHs, EHA/WHO	
Strategy 4 : Advocacy and BCC									
Update the current communication strategy through multi-sectoral consultation and endorsement of a new strategy for 2017-2020	x							NMCPs	3,822,383

Develop media tools that will be utilized as an integrated component of national surveys that will evaluate progress towards malaria elimination					x			NMCPs	
Establish a malaria technical working group on BCC with inter-sectoral membership					x			NMCPs	
Malaria technical working group on BCC to continue to raise the profile of malaria and seek higher level political commitment					x	x	x	NMCPs	
Conduct an annual stakeholder mapping to identify current international and national organizations that provide BCC			x		x	x	x	NMCPs	
Training of trainers on BCC		x			x	x	x	NMCPs	
Cascaded training of community educators on malaria IEC		x	x	x	x	x	x	NMCPs, partners	
Implementation of community education on malaria at community level through trained community workers and other multichannel approaches (home visits, water point discussions, drama sessions etc)		x	x	x	x	x	x	Partners, community educators	
Engage in World Malaria Day commemoration at community level		x			x	x	x	MOHs	
Engage in World Malaria Day commemoration at national levels		x			x	x	x	MOHs	
Develop a suite of complementary IEC materials in line with the National Communication strategy				x				NMCPs	
Conduct regular mass media communication delivery through a multichannel approach	x	x	x	x	x	x	x	NMCPs	
Strategy 5: Surveillance and M&E									
Establish a national M&E cross-partner technical working group that covers technical partners working in malaria programming and broader health surveillance					x			NMCPs	
Establish an operational research partner forum in collaboration with MOH Research Units				x				NMCPs, MOHs	
Continue strengthening of HMIS (SOPs and reporting tools) and roll out to community level	x	x	x	x	x	x	x	MOHs	6,119,286
Provide adequate Human Resources to strengthen HMIS	x	x	x	x	x	x	x	MOHs	
Training and refresher training on HMIS for health care providers			x		x	x	x	MOHs	
Training and SOPs in selected areas to cover active based case detection, reactive based case detection and foci-investigations			x		x	x	x	NMCPs, WHO	
Participate in quarterly HMIS meetings	x	x	x	x	x	x	x	NMCPs	

Engage in ongoing NMCP/MOH supervision (monthly)	x	x	x	x	x	x	x	NMCPs, MOH	
Conduct malaria technical working group meetings (monthly)	x	x	x	x	x	x	x	NMCPs, partners	
Conduct Malaria Indicator Survey				x		x		NMCPs, WHO	
Conduct Operational Research (use vs ownership of LLINs, parasite prevalence, malaria and nomadic pastoralists, malaria and IDPs, malaria in pregnancy, integrated vector management, G6PD)					x			NMCPs, WHO	
Ensure all operational research have NMCP/MOH involvement or co-investigation to ensure ongoing capacity building	x	x	x	x	x	x	x	NMCPs, MOH	
Conduct Operational Research on Drug Efficacy					x		x	NMCPs, WHO	
Engage in LLIN Tracking Survey as well as post LLIN campaign surveys	x	x	x	x	x	x	x	NMCPs	
Conduct pilot studies to select/determine the most appropriate malaria interventions in selected areas/districts and to provide data where gaps exist				x	x	x	x	NMCPs	
Ensure ongoing pharmacovigilance	x	x	x	x	x	x	x	WHO, MOHs	
Conduct malaria program review						x		NMCPs	
Engage in malaria database refresher training		x			x	x	x	WHO, NMCPs	
Ensure data entered regularly in malaria database and reports produced	x	x	x	x	x	x	x	NMCPs, WHO	
Strategy 6: Program Management and Coordination									
Update stakeholder mapping, including private sector			x					NMCPs	
Ensure relevant technical working groups are established and meeting regularly	x	x	x	x	x	x	x	NMCPs, MOHs	
Participate in all relevant WHO, RBM and regional meetings	x	x	x	x	x	x	x	NMCPs	
Review human resources plan and conduct a needs assessment				x				NMCPs	
Participate in supply management working group meetings	x	x	x	x	x	x	x	NMCPs	
Ongoing human resources	x	x	x	x	x	x	x	NMCPs	
Ongoing technical assistance		x			x	x	x	NMCPs	
Training and capacity building	x	x	x	x	x	x	x	NMCPs, partners	
Procure infrastructure and equipment	x	x	x	x	x	x	x	NMCPs	
Operational costs	x	x	x	x	x	x	x	NMCPs	
Ongoing M&E and supervision	x	x	x	x	x	x	x	NMCPs/MOHs	
Conduct annual review				x	x	x	x	NMCPs	
TOTAL									107,948,456

Annex 4: NMSP Financing Overview

Activity	2017	2018	2019	2020	TOTAL
Strategy 1: Prevention					
LLINs (Nets only)	13,212,896	2,804,017	3,522,229	16,478,553	36,017,694
LLINs activities (excluding nets)	9,865,629	2,376,224	3,360,273	17,578,506	33,180,632
IRS	216,835	429,294	262,370	499,337	1,407,836
IVM		116,911			116,911
Strategy 2: Case Management					
ACTs	156,908	168,896	163,620	156,551	645,976
RDTs	394,075	424,182	456,589	491,473	1,766,319
Severe Malaria	165,303	172,468	179,962	187,801	705,533
IPTp	26,999	29,061	31,282	33,671	121,013
Training for case management	2,924,373	3,315,810	3,647,391	4,012,130	13,899,705
Strategy 3: Epidemic Preparedness and Response					
Outbreak response	11,563	12,719	13,991	15,390	53,662
Strategy 4 : Advocacy and BCC					
See detailed assumptions	823,612	905,973	996,571	1,096,228	3,822,383
Strategy 5: Surveillance and M&E					
See detailed assumptions	979,390	1,767,329	1,948,999	1,423,568	6,119,286
Strategy 6: Program Management and Coordination					
See detailed assumptions	2,256,933	2,350,626	2,639,689	2,844,258	10,091,506
TOTAL	31,034,514	14,873,510	17,222,966	44,817,466	107,948,456

Annex 5: Regional SWOT Outline Affecting Malaria Control & Elimination

The Reconstruction and Development Programme (RDP) 2008-2013 recognised the different stages at which Somaliland, Puntland and South Central Somalia were in the process of state building and that there is no ‘one size fits all’ formula for development in Somalia. The political and institutional development characteristics (Table A1) of each region remain relevant today, in highlighting the range and type of support necessary to further national recovery, reconstruction and development and what barriers may be an impediment to malaria control and elimination programming.

Regional	Barriers/Opportunities for Effective Integrated Malaria Control / Elimination Programming
Central South	<ul style="list-style-type: none"> • Complex emergency • Dependence on Humanitarian assistance • Access Issues and High Security/Threat Environment • Increased IDPs • Food insecurity • Minimal quality frameworks
Puntland	<ul style="list-style-type: none"> • Relative stability • Functional regional and administrative institutions • Early stages of recovery • Disruption of Livelihoods • Access issues: Sool and Sanaag • Emerging quality assurance frameworks • Incipient government presence • Limited Institutional Capacity
Somaliland	<ul style="list-style-type: none"> • Relative political stability and social opportunity

	<ul style="list-style-type: none"> • Early stages of development • Functioning parliament / Viable Government Role • Functioning regional administrative institutions • Disruption of livelihoods • Access issues: Sool and Sanaag • Growing quality assurance framework • Lack of sustainability or institutional capacity • Strong private sector participation
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Table A1: Barrier/Opportunity Matrix for Effective Integrated Malaria Control / Elimination Programming