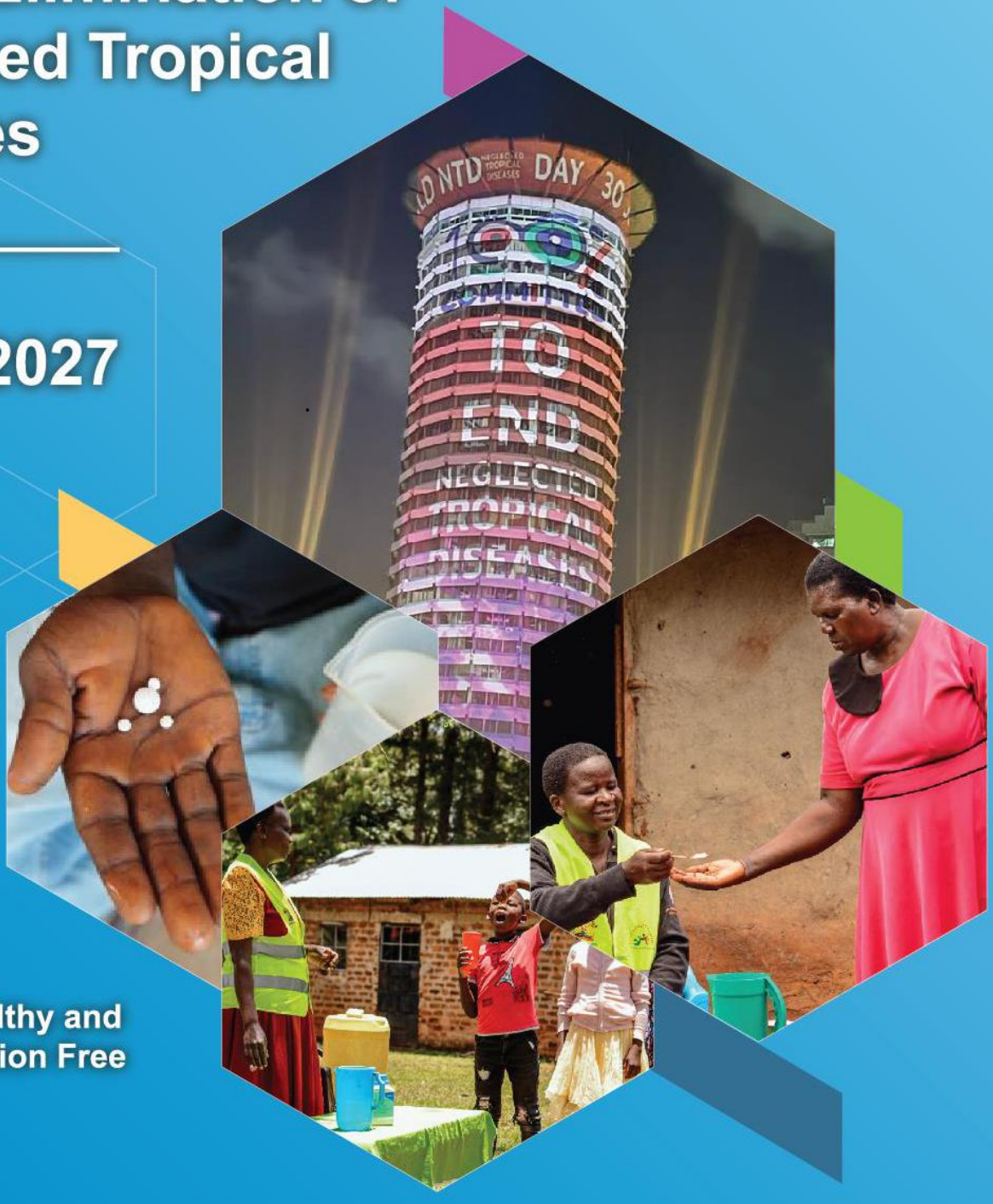
Kenya National Master Plan for the Elimination of Neglected Tropical Diseases

2023 – 2027



Towards a Healthy and Productive Nation Free from NTDs

Nairobi, November 2022

Kenya National Master Plan for the Elimination of Neglected Tropical Diseases, 2023 - 2027
DEVELOPED BY THE DIVISION OF VECTOR BORNE AND NEGLECTED TROPIAL DISEASES - MINISTRY OF HEALTH

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ABBREVIATIONS AND ACRONYMS

ACCIH	African Centre for Community Investment in Health
ACSM	Advocacy, Communication and Social Mobilization
AIHD	African Institute for Health and Development
AMREF	African Medical and Research Foundation
APOC	African Programme for Onchocerciasis Control
ASCEND	Accelerating the Sustainable Control and Elimination of
NTDs	Neglected Tropical Diseases
BCC	Behavior Change Communication
BTS	Breaking Transmission Strategy
CBO	Community-Based Organization
CDD	Community Drug Distributors
CESR	Centre for Economic and Social Research
CE	Cystic Echinococcosis
CHA	Community Health Assistant
CHMT	County Health Management Team
CHS	Community Health Services
CHU	Community Health Unit
CHV	Community Health Volunteer
CL	Cutaneous Leishmaniasis
DBS	Dry Blood Spot
DEC	Diethylcarbamazine citrate
DENV	Dengue Fever Virus
DFID	UK Department for International Development
DHIS2	District Health Information System 2
DNDi	Drugs for Neglected Diseases Initiative
DVBNTD	Division of Vector Borne and Neglected Tropical Diseases
ELISA	Enzyme Linked Immunosorbent Assay
FBT	Food Born Trematode
FCDO	Foreign Commonwealth Development Office
FIND	Foundation for Innovative New Diagnostics

GOK	Government of Kenya
GSK	GlaxoSmithKline
GWD	Guinea Worm Disease
HAI	Health Action International
HAT	Human African Trypanosomiasis
HCWs	Health Care Workers
HKI	Helen Keller International
HMIS	Health Management Information System
HSS	Health Systems Strengthening
IEC	Information, Education and Communication
ICIPE	International Centre of Insect Physiology and Ecology
ICT	Information, Communication and Technology
IDA	Ivermectin, Diethylcarbazine citrate and Albendazole
IDSR	Integrated Diseases Surveillance and Response
IHR	International Health Regulations
IPR	Institute of Primate Research
IT	Information Technology
ITI	International Trachoma Initiative
ITNs	Insecticide Treated Nets
IU	Implementation Unit
IVM	Integrated Vector Management
JKUAT	Jomo Kenyatta University of Agriculture and Technology
KEPH	Kenya Essential Package for Health
KEMRI	Kenya Medical Research Institute
KEMSA	Kenya Medical Supplies Authority
KHIS	Kenya Health Information System
KHSSP	Kenya Health Sector Strategic Plan
KSRIC	Kenya Snakebite Research and Intervention Centre
KTEP	Kenya Trachoma Elimination Programme
LF	Lymphatic Filariasis
MCL	Muco Cuteneous Leishmaniasis

M&E	Monitoring and Evaluation
MDA	Mass Drug Administration
MOE	Ministry of Education
MOH	Ministry of Health
MMDP	Morbidity management and disability prevention
MOU	Memorandum of Understanding
NCD	New Case Detection
NGO	Non-Governmental Organization
NRECC	National Rabies Elimination Coordination Committee
NSP	National Strategic Plan
NSSRH	National Sleeping Sickness Referral Hospital
NTLD-P	National Tuberculosis, Leprosy and Lung Disease Program
NTD	Neglected Tropical Diseases
ODK	Open Data Kit
OV16	Random Diagnostic Test
PC	Preventive Chemotherapy
PEP	Pre-Exposure Prophylaxis
PHC	Primary Health Care
PKDL	Post-Kalazar Dermal Leishmaniasis
Pre – TAS	Pre-Transmission Assessment Surveys
PTSD	Post-Traumatic Stress Disorder
SAC	School Aged Children
SAFE	Survey, Antibiotics, Facial Cleanliness and Environmental Improvements
SARE	Stepwise Approach to Rabies Elimination
SBE	Snakebite Envenoming
SCH	Schistosomiasis
SDGs	sustainable development goals
SLTS	School-led Total Sanitation
STH	Soil Transmitted Helminths
SWOT	Strengths, Weaknesses, Opportunities and Threats

TAC	Technical Advisory Committee
TAS	Transmission Assessment Survey
TF	Trachomatous Inflammation-Follicular
TOTs	Trainers of Trainees
TT	Trachoma Trichiasis
TWG	Technical Working Group
UHC	Universal Health Coverage
UON	University of Nairobi
VBDCU	Vector Borne Disease Control Unit
VHC	Village Health Committee
VL	Visceral Leishmaniasis
WASH	Water Sanitation and Hygiene
WHO	World Health Organization
ZDU	Zoonotic Disease Unit

FOREWORD

Eleven years have elapsed since the Kenya Ministry of Health published its first National Multi-year Strategic Plan of Action for Control of Neglected Tropical Diseases (NTDs). Between 2016 and 2022, Kenya, with the support of donors and partners, successfully implemented its second Master Plan for Elimination and Control of NTDs. During this period, the Government of Kenya provided exemplary leadership and support for the programme that led to certification of elimination of Guinea Worm Disease by WHO in 2018 and preparation of a draft dossier for certification of elimination of Human African Trypanosomiasis (HAT) as a public health problem. Kenya remains on track to interrupt transmission of onchocerciasis and eliminate Lymphatic Filariasis, Trachoma, and Schistosomiasis, Soil Transmitted Helminths (STH) as public health problems.

However, despite this remarkable success, much remains to be done to reduce the overall burden of NTDS in Kenya. The Ministry of Health is pleased to present this NTD Master Plan 2023 – 2027 to guide a multi-sectoral collaborative effort to make Kenya a *healthy and productive nation free from NTDs.* The Master Plan builds on past lessons and experiences as reference to accelerate our efforts and address emerging challenges. The Master Plan is aligned with the following documents:2010 Constitution of Kenya, in particular Article 43 which guarantees the highest attainable standard of health, including the right to healthcare service, the Kenya Health Policy 2014 – 2030, and the WHO Road Map for Neglected Tropical Diseases 2021–2030.

In the next five years, Kenya will move from a disease-specific to integrated interventions approach that optimizes the use of resources and reduces duplication of effort. The Ministry of Health calls upon the county governments, donors, partners, communities, and individuals to work together to control and eliminate NTDS that are endemic in different parts of Kenya. The Master Plan has identified the key strategies, interventions, targets, roles and responsibilities of different actors to support a coordinated and effective approach to prevention, control, and elimination of NTDS.

To promote country ownership and leadership, the Ministry of Health, in collaboration with partners, will support the development and deployment of new tools for prevention, diagnosis and treatment of NTDs and appeals to county governments to invest in the elimination and control of NTDS that are endemic in their counties. To achieve our targets, the Ministry of Health will work with other governments departments to provide and enhance coordination mechanisms across programmes and sectors to optimize on our impact.

The Master Plan is our national collective vision towards achieving a nation free of NTDs and the Ministry of Health is committed to working with every county, donor, partner, and communities to intensify cost-effective NTD interventions and fast track implementation efforts towards achieving Global 2030 NTD targets. Together, we shall end NTDs.

CABINET SECRETARY
MINISTRY OF HEALTH

EXECUTIVE SUMMARY

Neglected tropical diseases (NTDs) are diseases that cause human suffering, devastating social and economic burden among the poor and marginalized people in our country. NTDs are a diverse group of diseases that include bacterial, viral, parasitic, fungal, and noncommunicable conditions. Despite the health and economic burden they cause on disadvantaged communities, there are tools and effective interventions for control and elimination of NTDs. Globally, as of 2020, there were 42 countries, territories and areas that have eliminated at least one NTD.

Kenya has successfully implemented two previous NTD Master plans (2011 - 2015 and 2016 - 2020), leading to elimination of Guinea Worm Disease and interrupting transmission of Onchocerciasis and Human African Trypanosomiasis. The development of the 3rd NTD Master Plan (2023 – 2027) is part of Government's efforts to build on the progress made so far, utilize lessons learned to address current challenges and commit to new NTD elimination targets. The Ministry of Health and partners have adopted the **vision** of *A healthy and productive nation free from NTDs* for this Master Plan. This will be achieved by the stated **mission** of *accelerating the prevention, control, elimination, and eradication of targeted NTDs in Kenya*. Key achievements during the implementation of this Master Plan are certification of elimination (interruption of transmission) of Onchocerciasis and Human African Trypanosomiasis by 2025 and elimination of Lymphatic Filariasis, Trachoma, Rabies, Soil Transmitted Helminths and Schistosomiasis as public health problems by 2027.

The NTD Master Plan 2023 – 2027 is a comprehensive multi-year plan which provides strategic direction and guidance to all partners in the health and related sectors (education, agriculture, water, and sanitation) on the control, and elimination and eventual eradication of all NTDs that are relevant in Kenya. It will also be used as a management and coordination tool by the Ministry of Health, counties, and partners to support one another and hold each other accountable. The Master Plan is well aligned to the *Kenya Health Policy 2014 – 2030*, the *2012 London Declaration on NTDs*, *WHO Ending the*

neglect to attain the Sustainable Development Goals – A road map for Neglected Tropical Diseases 2021 – 2030.

The development of the NTD Master Plan 2023-2027 was a culmination of various initiatives including meetings, workshops to comprehensively review the 2nd Kenya National Strategic Plan for Control of NTD 2016-2020 to document successes, lessons learned and challenges and develop content for the new Master Plan. This was achieved through desk review of NTD documents and reports, convening review meetings with NTD focal points and convening workshops with key stakeholders, including donors, implementing partners and focus counties.

For Kenya to be successful in accelerating progress towards prevention, control, elimination, and eradication of NTDs, four strategic pillars were identified. These strategic pillars are key focus areas for the NTD programme to intensify action again NTDs. These include, To,

1. accelerate programmatic action
2. intensify cross-cutting approaches
3. enhance resource mobilization, advocacy, and sustainability, and
4. strengthen leadership, capacity, communication, and collaboration for the elimination of NTDs.

Overall, the NTD Master Plan 2023 – 2027 places emphasis on the following:

- Scaling up prevention, control, and elimination of neglected tropical diseases prevalent in Kenya,
- Outlining specific, measurable targets up to 2027 for the eradication, elimination, and control of all NTDs endemic in Kenya,
- Providing the basis for integration or linkage of NTD activities by GOK, partners, and counties,
- Engage and empower individuals and communities to play an active role in prevention and treatment of NTDs,

- Provide a forum for the media, private sector, and the academia to contribute to the NTD elimination agenda,
- Provide a coordination mechanism with other sectors such as WASH, Agriculture, Education, etc. to play a key role in NTD elimination.

The National NTD Master Plan is organized into four main parts:

Part I – Situation Analysis
This includes the country context, health system situation analysis and the NTD situational analysis.

Part II – Strategic Agenda – Purposes and Goal
This articulates the NTD programme mission, vision, guiding principles and the strategic pillars, priorities, and initiatives.

Part III – Operational Framework
This outlines the framework for implementing the strategic plan.

Part IV – Budget
This provides detailed multi-year budget estimates and budget justification.

The implementation of this Master Plan is critical and will involve all stakeholders – several government ministries, various divisions of the Ministry of Health, county governments, other sectors (education, agriculture, WASH, etc.), donors, implementing partners, NTD clients, communities, civil society groups, academia, media, and the private sector. We have laid out the plan and we have the tools and the political will, together, let us eliminate NTDs.

Dr. Patrick Amoth, EBS
Ag. Director General for Health

ACKNOWLEDGEMENT

The development of the Kenya NTD Master Plan 2023 – 2027 was a consultative and collaborative process between the Ministry of Health together with NTD focus counties, several stakeholders, and partners. The process started with the review of the previous NTD Master plan 2016 - 2020 whereby successes, challenges and lessons learned were documented. Thereafter, several meetings were held to obtain contributions from stakeholders and develop content for the new master plan. The new Master plan relied heavily on WHO framework for development of country master plans and the WHO road map for neglected tropical diseases 2021–2030. The Division of Vector Borne and Neglected Tropical Diseases (DVBNTD) would like to thank all the individuals and organizations that contributed to the review and development process.

In particular, the unit would like to thank: Dr Daniel Langat (Head, Department of Disease Surveillance and Response), Stephen Macharia (Director Planning), Dr. Sultani Matendechero (Head, Kenya National Public Health Institute) and Dr. Francis Kuria (Director of Public Health) for their leadership and guidance. In addition, we extend our appreciation to the County Health Management Teams, communities and NTD beneficiaries who contributed to this process.

We extend our gratitude to the members of the Expert Committee for Elimination and Certification of Elimination of NTDs: Prof Benson Estambale, Prof Njeri Wamae, Prof. Sammy Njenga, Prof. Ephantus Kabiru, Prof. Jefitha Karimurio, Prof. Edwin Murungi, Prof. Phoebe Josiah, Dr Jimmy Kihara, Dr. Dunstan Mukoko, Dr. Pamela Olet, the Late Dr. Francis Dikir, Dr. Joyce Onsongo, and Dr. Peter Cherutich for their invaluable contribution.

Special thanks to Dr. Isaac Malonza (URADCA), Prof. Urbanus Kioko (UoN), Dr. Raymond Mutisya (URADCA), and Mr. Wesley Rotich (CESR), the consultants who facilitated the review process and development of the Master Plan.

The Ministry of Health would like to extend a special appreciation to WHO for proving technical assistance, strategic planning tools and reference materials for the development of the Master Plan. In addition, the Ministry of Health hereby acknowledges contributions of our NTDs partner organizations: AMREF, ARISE, AIHD, CESR, CHAI, DNDi, End Fund, Evidence Action, KRCS, Merck, MSF, Nagasaki University, Sight-savers, and URADCA for their technical support. Special thanks to End Fund and WHO for their financial support in the development of the Master Plan.

Dr. Sultani Matendechero
Head, Kenya National Public Health Institute

KEY DEFINITIONS

Control: Reduction of disease incidence, prevalence, morbidity and/or mortality to a locally acceptable level because of deliberate efforts; continued interventions are required to maintain the reduction. Control may or may not be related to global targets set by WHO.

Elimination (interruption of transmission): Reduction to zero of the incidence of infection caused by a specific pathogen in a defined geographical area, with minimal risk of reintroduction, as a result of deliberate efforts; continued action to prevent re-establishment of transmission may be required. Documentation of elimination of transmission is called verification.

Elimination as a public health problem: A term related to both infection and disease, defined by achievement of measurable targets set by WHO in relation to a specific disease. When reached, continued action is required to maintain the targets and/or to advance interruption of transmission. Documentation of elimination as a public health problem is called validation.

Eradication: Permanent reduction to zero of the worldwide incidences of infection caused by a specific pathogen, as a result of deliberate efforts, with no risk of reintroduction.

Hygiene: Conditions or practices conducive to maintaining health and preventing disability.

Integration: the process by which disease control activities are functionally merged or coordinated within multifunctional health-care delivery.

Integrated vector management: A rational decision-making process to optimize the use of resources for vector control.

Mass drug administration: Distribution of medicines to the entire population of a given administrative setting (for instance, state, region, county, subcounty, ward or village), irrespective of the presence of symptoms or infection; however, exclusion criteria may apply. (In this document, the terms mass drug administration and preventive chemotherapy are used interchangeably)

Morbidity: Detectable, measurable clinical consequences of infections and disease that adversely affect the health of individuals. Evidence of morbidity may be overt (such as the presence of blood in the urine, anaemia, chronic pain or fatigue) or subtle (such as stunted growth, impeded school or work performance or increased susceptibility to other diseases).

Monitoring and evaluation: Processes for improving performance and measuring results in order to improve management of outputs, outcomes and impact.

Platform: Structure through which public health programmes or interventions are delivered.

Preventive chemotherapy: Large-scale use of medicines, either alone or in combination, in public health interventions. Mass drug administration is one form of preventive chemotherapy; other forms could be limited to specific population groups such as school-aged children and women of childbearing age. (In this document, the terms preventive chemotherapy and mass drug administration are used interchangeably).

INTRODUCTION

Neglected tropical diseases (NTDs) are a diverse group of conditions of bacterial, viral, parasitic, fungal, and noncommunicable in origin. Despite their diversity, NTDs share a common geographical and social context: their burden is predominantly located in tropical areas across the globe, and they mainly affect resource poor communities.[1] The African Region bears close to 40% of the global burden of Neglected Tropical Diseases (NTDs). All the 47 countries in the African Region are endemic for at least one NTD, and 36 of them (78%) are co-endemic for at least five of these diseases. By impairing the physical and intellectual capacities of the affected persons and because they thrive in areas where access to quality healthcare, clean water and sanitation is limited, NTDs perpetuate a cycle of poverty. Three out of six countries in sub-Saharan Africa with the highest NTD prevalence have an ongoing violent conflict.[2] This holds for the Central African Republic (CAR), endemic for Human African Trypanosomiasis (HAT), South Sudan for visceral leishmaniasis and leprosy, and Ethiopia for trachoma.[3] In 2022, and in order of their league table ranking in fighting NTDs, Burundi, Mali, Burkina Faso, Somalia, Rwanda, Togo, Mauritania, Benin and Malawi all reached the 75% average target.[4] Impressive strides have been made in Sub-Saharan Africa countries with Togo eliminating lymphatic filariasis in 2017 as a public health problem, and Ghana eliminating trachoma in May 2018.[5] In 2022, the WHO certified Malawi to have eliminated Lymphatic filariasis and trachoma as public health problems. In Kenya, 18 out of the 20 NTDs listed by the WHO are suspected, confirmed, or endemic to the country.[6] In February 2018, Kenya became the 41st country out of the 47 Member States in the African Region to be certified free of Guinea worm disease while Leprosy is being eliminated as a public health problem, and Human African Trypanosomiasis is moving steadily towards elimination.[5]

[1] https://www.who.int/publications/i/item/who-wer9738-465-480
[2] GPI GP. Global peace index 2016.
[3] Ochola EA, Karanja DMS, Elliott SJ (2021) The impact of Neglected Tropical Diseases (NTDs) on health and wellbeing in sub-Saharan Africa (SSA): A case study of Kenya. PLoS Negl Trop Dis 15(2): e0009131. https://doi.org/10.1371/journal.pntd.0009131.
[4] https://unitingtocombatntds.org/africa/
[5] https://www.afro.who.int/media-centre/statements-commentaries/africa-elimination-neglected-tropical-diseases-finally-within.
[6] Kenya National Strategic Plan For control of neglected tropical diseases. 2016–2020.

The NTD programme contributes to Sustainable Development Goals (SDGs 3.3 and 3.8) i.e., SDG 3.3: end the epidemics of AIDS, tuberculosis, malaria and NTDs and SDG 3.8: achieve universal health coverage, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all. This is also supported by several declarations including: the Addis Ababa NTD Commitment (2014) by African health ministers to "work to increase our domestic contribution to the implementation of NTD programs"; ending the neglect to attain the Sustainable Development Goals; WHO road map for neglected tropical diseases 2021–2030 and the 2012 London Declaration on NTDs.

Prior to development of the new Kenya NTD Master Plan, the Ministry of Health (MOH) Division of Vector Borne and Neglected Tropical Diseases (DVBNTD), in collaboration with WHO and key stakeholders, conducted a review of implementation of the previous Master Plan. The goal was to conduct a comprehensive review of the 2nd Kenya National Strategic Plan for control of Neglected Tropical Diseases 2016-2020 to determine and document successes, lessons learned and challenges. This was achieved through desk review of NTD documents and quarterly and annual reports; convening review meetings with NTD focal points; and convening review meetings with key stakeholders, including donors, implementing partners and focus counties.

Comprehensive multi-year plans for the control, and elimination and eventual eradication of all NTDs that are relevant in the country, known as NTD Programme Master Plans, are essential strategic documents for governments to effectively plan and implement sustainable NTD programmes in the African region. Each national NTD programme's comprehensive multi-year plan (the NTD Master plan) provides programme goals, objectives and year strategy based on extensive situation analysis, and addresses all components of the NTD programmes relevant to the country. It enhances synergies among various NTD initiatives, provides the basis for integrated or linked NTD project plans and includes costing and financing requirements for effective NTD programme performance. The country NTD Master plan will also form the basis for harmonized implementation and performance monitoring of all NTD interventions in a country.

The proposed NTD Master Plan (2023-2027) governs the prevention, control and, where feasible, elimination and eradication of neglected tropical diseases. It aligns with the WHO NTD Roadmap 'Ending the neglect to attain the Sustainable Development Goals - A road map for neglected tropical diseases 2021–2030.[7] The aim of the Master Plan is to be a tool for the government to plan for all NTD programmes in the country and facilitate alignment among partners and stakeholders for a joint and complementary support to counties and to accelerate progress towards the prevention, control, elimination and eradication of all relevant NTDs in the country.

The Master Plan outlines specific, measurable targets up to 2027 for the control, elimination and eradication of all NTDs endemic in the country, as well as cross-cutting targets aligned with WHO's Thirteenth General Programme of Work 2019-2023,[8] and the SDGs. It includes the strategies and approaches for achieving these targets, with cross-cutting themes for several diseases.

Progress in implementing planned activities as well as the programme performance and outputs will be monitored regularly and evaluated at appropriate intervals by the ministry of Health (DVBNTD). The master plan will be the framework for coordination, harmonization, and alignment of both central and sub-national governments, as well as partners. Therefore, consensus on the content will enhance commitment and accountability of all stakeholders for success in resource mobilization. The integration of NTDs into the national health system is critical, therefore a proposal that the NTD Master Plan should be integrated and reflected into the national health development plans should be considered.

[7] WHO. Ending the neglect to attain the Sustainable Development Goals: a road map for neglected tropical diseases 2021–2030. Available at https://www.who.int/neglected_diseases/Revised-Draft-NTD-Roadmap-23Apr2020.pdf. Accessed on July 21, 2020

[8] WHO. The Thirteenth General Programme of Work, 2019–2023. Available at https://apps.who.int/iris/bitstream/handle/10665/324775/WHO-PRP-18.1-eng.pdf. Accessed on August 1, 2020

The National NTD Master Plan is organized into four main parts. Part I - Situation Analysis, which includes the country context, health system situation analysis and the NTD situational analysis. Part II -describes the strategic agenda, which articulates the NTD programme mission, vision, guiding principles and the strategic pillars and priorities. Part III - outlines the operational framework for implementing the strategic plan and Part IV - provides a detailed multi-year budget estimates and budget justification

Stakeholder Workshop held for development of the Master Plan, Naivasha 28 Feb – 4 Mar 2022

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PART 1: SITUATION ANALYSIS

1.1 Country Context

Geography, socio-economic status and administrative structures

The Republic of Kenya lies in East Africa and covers approximately 582,646 km^2. About 80% of its land is arid or semi-arid and sparsely populated[9] and it is administratively divided into 47 counties.[10] Each county is further divided into sub-counties, wards, locations, sub-locations, and villages. Based on the 2019 census, the estimated population of Kenya stood at 47,564,296, comprising 23,548,056 males, 24,014,716 females and 1,524 intersex.[11] The life expectancy as of 2017 was 63.4 years (KHSSP 2018-2022). The country's nominal Gross Domestic Product was Ksh 9,740.4 million in 2019, while the GDP per capita was Ksh. 204,783 in 2019.[12] Approximately 36% of the population live below the national poverty line[13] and the literacy rate for those aged 15 years and above is 84.8%.[14]

1.2 Health Systems Situation Analysis

Organization of Kenya's health system

Kenya has a devolved system of governance established by the Constitution of Kenya 2010. The National Government is responsible for the development of health policies, regulations, capacity building, national referral health facilities and providing technical assistance to counties. The county governments are responsible for county health facilities and pharmacies, ambulance services, promotion of primary health care, and licensing and control of undertakings that sell food to the public, among other functions. The Kenya

[9] National Council for Population and Development (NCPD). Kenya Population Situational Analysis 2013. FINALPSAREPORT_0.pdf (unfpa.org). Accessed on 26 February 2022.

[10] Government of Kenya. National Council for Law. Constitution of Kenya 2010.

[11] Kenya National Bureau of Statistics (KNBS). Kenya Population and Housing Census Volume I: Population by County and SubCounty, 2019. https://www.knbs.or.ke/?wpdmpro=2019-kenya-population-and-housing-census-volume-i-population-by-county-and-sub-county

[12] Kenya National Bureau of Statistics (KNBS). Economic Survey 2020.

[13] Kenya National Bureau of Statistics (KNBS). Basic Report on Well-being in Kenya - KIHBS 2015/16, 2017. https://www.knbs.or.ke/?wpdmpro=basic-report-well-kenya-based-201516-kenya-integrated-household-budget-survey-kihbs

[14] Kenya National Bureau of Statistics (KNBS). Kenya Integrated Household Budget Survey, 2018. https://www.knbs.or.ke/?wpdmpro=highlights-201516-kenya-integrated-household-budget-survey-kihbs-reports

Health Policy 2014-2030 defines Kenya's healthcare system in a hierarchical manner beginning with community health services, then progressing to primary care services, county referral services and national referral services. The health delivery system defines six levels of hierarchy in four tiers of services which includes government as well as private, faith-based and NGO health facilities.

TABLE 1: TIERS AND LEVELS OF CARE

Policy tiers of care	Corresponding levels of care at beginning of policy	Desired levels of care by end of policy
Tier 1: Community	Level 1: Community	Level 1: Community
Tier 2: Primary care	Level 2: Dispensaries and Clinics Level 3: Health centres	Level 2: Primary care facilities
Tier 3: Secondary referral	Level 4: Primary care hospitals Level 5: Secondary care hospitals	Level 3: County hospitals
Tier 4: Tertiary referral	Level 6: Tertiary care hospitals	Level 4: National referral hospitals

Tier 1: This level is aimed at operationalizing a robust community strategy through which effective Primary Health Care (PHC) interventions can be rolled out. Under this strategy, it is appreciated that the lowest unit of community aggregation is the household. It is estimated that each household has an average of 5 members. Twenty households are placed under a Community Health Volunteer (CHV), who is in turn supervised by a Community Health Assistant (CHA), such that one CHA has between 10-20 CHVs under their supervision. The Community Health Units (CHUs) so formed will be linked to the Tier 2 (Primary care) facility within whose catchment area they fall, by the CHA who is a trained health worker. Where CHUs are not yet activated/functional, villages will be used as units of service delivery. Village Health Committees (VHCs) will be formed to serve the purpose of facilitating the process.

The first Kenyan Community Health Strategy (CHS)[15] was launched in 2006 to deliver the Kenya Essential Package for Health (KEPH). The KEPH introduced six-level cohort of health service provision, with level 1 being the Community Unit and level 6 being referral hospitals. It has since then been restructured under the latest Kenya Health Sector Strategic and Investment Plan (KHSSP) in a five-life cycle cohort model to correspond with the devolved four tier health services delivery model. The 2006 strategy was revised in 2013 to reflect devolution of health services. Under the revised strategy, counties are responsible for delivering health services and implementing health programmes including community health services.

An evaluation of Community health services in 2018 showed that there were 6,087 CHUs out of an expected 10,375 CHUs leaving a gap of 4,292 (41%).[16] This means that the current coverage of community health services in Kenya is 59%. On community health personnel, it was documented that Kenya has 1,569 CHAs compared to the expected 10,379 CHAs, leaving a gap of 8,810 (85%). On CHVs, the country currently has 86,025 out of an expected 103,783 CHVs giving a gap of 17,763 (17%). However, the CHVs documented here were not verified as active or functional.[8]

Tier 2: The primary care services comprise all dispensaries, health centres, and maternity homes in both public and private sectors. It is envisaged that by the end of the policy period, the health centre will be the lowest level of a health facility.

Tier 3: The county referral services include hospitals operating in and managed by a given county. These consist of all the former level 4 and level 5 hospitals in the county-government and private. Together, all these hospitals in each county form the county referral system, with specific services shared among the existing county referral facilities to form a virtual network of comprehensive services.

[15] Ministry of Health, Kenya. Community Strategy Implementation Guidelines for Managers of the Kenya Essential Package for Health at the Community Level 2007.

[16] Ministry of Health, Kenya. Kenya Community Health Policy 2020 – 2030.

Tier 4: The national referral services include the service units providing tertiary/highly specialized services, including specialist medical care, laboratory support, blood transfusion services, and research. The units include national-level semi-autonomous agencies and operate under a defined level of self-autonomy from the national health ministry, allowing for self-governance.

Health Financing

The Government of Kenya allocates between 6 and 8 per cent of its total government expenditures to health. This has remained constant over the last decade. However, health expenditures as a proportion of GDP increased from 5.1% to 5.4% while public expenditures as a proportion of general government expenditures have been reduced from 8.0% to 4.6% during the same period. The health sector continues to be predominantly financed by private sector sources (including by households' out-of-pocket (OOP) spending). The private sector share of total health expenditure has decreased from a high of 54 per cent in 2001/02 (of which 44.8% constitutes OOP expenditure) to 37 per cent in 2009/10, (of which 24% constitutes OOP expenditure). This decrease in OOP was primarily driven by increases in government and donor resources. Public sector financing has also remained constant over the last decade, at about 29 per cent of total health expenditure, whereas donors' contribution has more than doubled, from 16 per cent in 2001/02 to 35 per cent in 2009/2013.[17]

Health Workforce

For effective delivery of healthcare services, Kenya requires adequate, productive, motivated, and equitably distributed pool of health workers. The number of healthcare personnel has increased over the years to peak at an average of 20.7 doctors and 159.3 nurses for every 100,000 persons by 2013.[18] However, this is below the WHO-recommended average of 21.7 doctors and 228 nurses per 100,000 people. There is also a skewed urban-rural distribution of staff, with the urban areas having the highest

[17] 2001/02, 2005/06, and 2009/10 National Health Accounts

[18] Economic Surveys 2012, 2013, 2014

proportions of staff at the expense of rural and remote areas where 70% of the population lives. The main reasons for the skewed distribution are 1) insufficient resources, 2) poor human resources planning and management practices and structures, and 3) unsatisfactory working conditions. The Government of Kenya has established the Integrated Human Resource Information System (iHRIS) that captures all data for public health workers at both national and county level.

Leadership and Governance

The Constitution of Kenya 2010 introduced a devolved system of government comprising national government and county governments. Each level of government has distinct responsibilities as assigned by the constitution. The national government provides leadership of health policy development; management of national referral health facilities; capacity building and technical assistance to counties; and consumer protection, including the development of norms, standards, and guidelines. County governments are responsible for county health services, including county health facilities and pharmacies; ambulance services; promotion of primary healthcare; licensing and control of undertakings that sell food to the public; cemeteries, funeral parlours and crematoria; and refuse removal, refuse dumps, and solid waste disposal.

The Cabinet Secretary (CS) is the head of the Ministry of Health (MOH). He or she is responsible to the president for the exercise of the power and performance of ministerial functions. The Principal Secretary (PS) is responsible for the day-to-day operations of the ministry. The Director General of Health (DG Health) is the Head of Technical Services and Technical Advisor to the Cabinet Secretary (CS). The NTD Programme falls under the Department of Disease Surveillance and Response, which in turn falls under the Directorate of Public Health.

Health Information

The Health Management Information System (HMIS) department in the MOH receives routine data on the causes of outpatient and in-patient morbidity and mortality from government health facilities across the country. Data for Soil Transmitted Helminths (STH),

Schistosomiasis (SCH), Guinea Worm Disease (GWD) and Leprosy is captured at the peripheral facilities level. However, some of the NTDs including Lymphatic Filariasis (LF), Cystic Echinococcosis (CE), Taeniasis, Foodborne Trematode (FBT) and Onchocerciasis are not incorporated in the health facility register and in the HMIS. They are either lumped up with other similar conditions or categorized as "others". There is a need to include all NTDs in the HMIS register to capture all cases reported in the country. The HMIS register needs to be reviewed to include all NTDs in the country. In addition, the Integrated Disease Surveillance and Response Unit (IDSRU) implements Integrated Disease Surveillance. The Unit carries out surveillance on Diseases of public health importance affecting the Country including the emerging and re-emerging diseases.

Health Products

Provision of health products in Kenya is governed by the Sessional Paper No. 4 of 2012 on National Pharmaceutical Policy, 2012[19] and Health Products and Technologies Supply Chain Strategy, 2020 – 2025.[20] The purpose of the policy is to ensure equitable access to Essential Health Products and Technologies for all Kenyans. Medicines and medical products for the public sector are procured by the Kenya Medical Supplies Agency (KEMSA), established through Legal Notice No. 17 of February 2000, with the mandate to develop and operate a viable commercial service for the procurement and sale of drugs and medical supplies. The private sector receives its medical supplies from Mission for Essential Drugs and Supplies (MEDS), a Christian not-for-profit organization, and commercial wholesalers. NTD drugs are included in the Kenya Essential Medicines List, which is updated and published from time to time.[21]

1.3 NTD Situational Analysis

Epidemiology and Burden of NTDs in Kenya

[19] ttps://www.health.go.ke/wp-content/uploads/2020/11/Sessional-Paper-No.-4-of-2012National-Pharmaceutical-Policy-NPP.pdf

[20] HPT-Supply-Chain-Strategy-2020-2025.pdf (health.go.ke)

[21] Kenya-Essential-Medicines-List-2019.pdf (health.go.ke)

Kenya has a significant burden of NTDs. The NTD distribution mapping conducted between 2000-2011, identified populations with >1% NTD prevalence based on the WHO's definition prevalence of public health importance. Parasitic infections including SCH, STH, LF, leishmaniasis and bacterial infection which includes Trachoma, are endemic in several counties of Kenya. Onchocerciasis, another parasitic infection, has a very low prevalence (<1%) in Kenya, and therefore of no public health importance. Zoonotic diseases of importance are Rabies, Human African Trypanosomiasis (HAT), and Echinococcosis (hydatid) although Hydatid disease and HAT are on the verge of elimination.

Kenya's commitment to achieving the global and national goals of control and elimination of four Preventive Chemotherapy (PC) NTDs endemic in the country – STH, SCH, LF and Trachoma – is reflected in the Breaking Transmission Strategy 2018 – 2023.[22] This aims at reducing the level of infection, both prevalence and intensity, to a point where it is no longer possible for the diseases to be transmitted from one person to another. Kenya aims to eliminate LF and Trachoma by 2025 and submit the dossier by 2026. The country will apply for certification of elimination of Onchocerciasis and validation of elimination of HAT as a public health problem by 2025. Kenya has already eliminated Guinea Worm Disease (GWD).

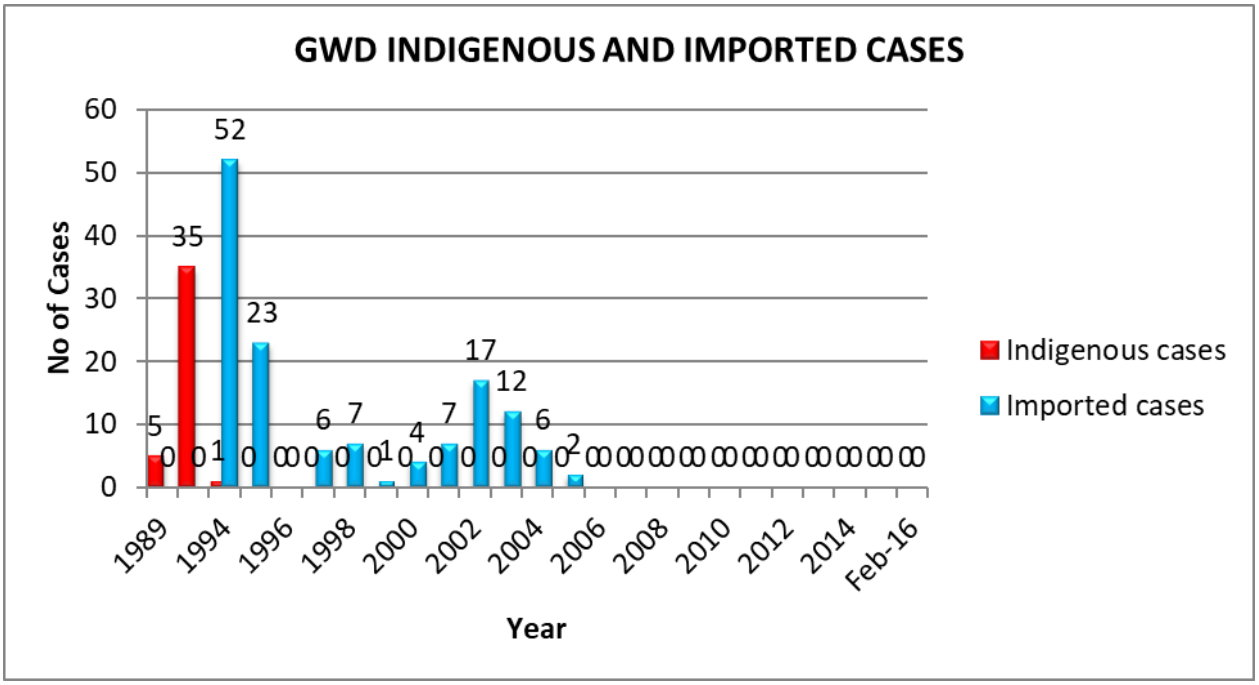
Guinea Worm Disease

Guinea Worm Disease (GWD) is a debilitating parasitic disease which is caused by a worm of the *Genus Dracunculus medinensis*. Infection is by the consumption of water contaminated with Cyclops (water fleas) that have infective larvae of Guinea worm.

Kenya was certified GWD free by WHO in February 2018 and a certificate awarded by WHO after being evaluated by International Certification Team (ICT) between November and December 2017. The last case of GWD in Kenya was reported in 1995 in Turkana County.

[22] Kenya Breaking Transmission Strategy for NTDs_Final PDF.pdf (eliminateschisto.org) accessed 24 June 2022

FIGURE 1: ANNUAL GWD CASES FROM 1989 TO 2016



Source: KGWEP consolidated surveillance Reports

As recommended by the WHO, the Kenya achieved 70% level of awareness on GWD in 2017 which was confirmed by the WHO International Certification Team. This also included proper documentation, timely investigation of GWD rumors and a sensitive disease surveillance system which were requirement for certification.

As recommended by WHO, the country through the DVBNTD conducts Post certification Guinea worm surveillance and reporting until all countries are certified GWD free. In addition, WHO recommended as follows:

1. The country to continually increases safe water supplies.
2. Continue documentation of rumors which must be investigated within 24 hours of notification and a definite diagnosis given if it is not guinea worm. The investigation is conducted by the Sub-County Disease Surveillance Officers in collaboration with the National GWD Coordination office.
3. Continue awareness creation on the Ksh. 100,000 cash reward to the reporter on any case confirmed to be Guinea worm.

4. Continue to increase guinea worm awareness among health workers and community.
5. Continue cross border surveillance to prevent reintroduction of cases from neighboring countries of South Sudan and Ethiopia which are still reporting cases.
6. Annual and Quarterly year reports summarizing GWD activities to be submitted to WHO electronically.

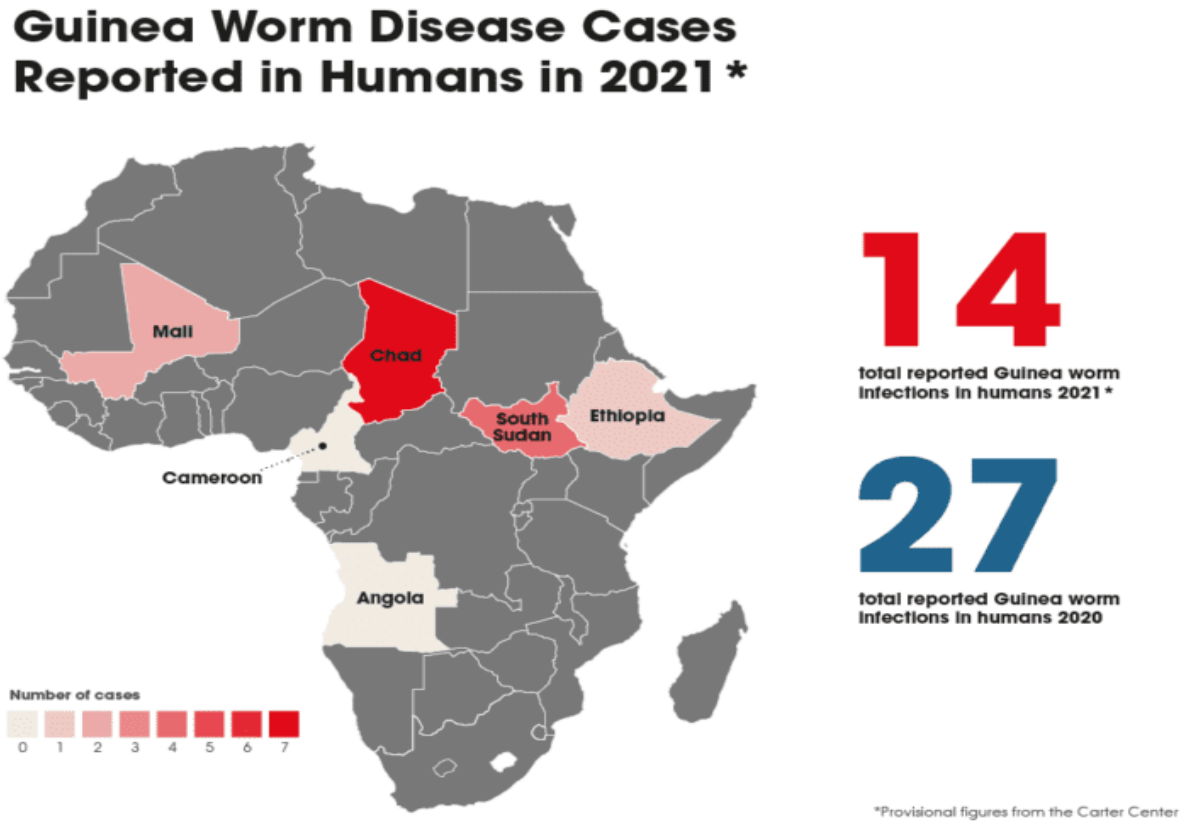
TABLE 2: SUMMARY OF GUINEA WORM RUMORS REPORTED AND STATUS

Year	Number of rumors reported	Number of rumors reported but not investigated within 24hrs	Number of rumors not completely investigated	Counties that reported rumors
2018	4	0	0	Nyamira/Nairobi/Kajiado/ Kilifi/Kitui
2019	2	0	0	Samburu/Murang'a
2020	2	2	2	Kajiado/Bungoma
2021	4	4	1	Makueni/Siaya
2022	4	4	3	Nakuru/Kisumu/Narok/Uasin Gishu

In addition, other Guinea Worm post certification activities conducted:

1. Guinea worm post certification support supervision and sensitization of county leadership, health workers and communities in 2019 in Turkana, Trans Nzoia, West Pokot, Narok and Nakuru Counties.
2. Presentation during the Neglected Tropical Disease Conference in November 2019 on achieving certification.
3. National annual meeting of all disease surveillance officers on Guinea worm disease post certification.
4. Ongoing guinea worm disease post certification activities in formerly endemic counties.
5. Zero reporting of cases within the Ministry reporting system (IDSR 505).

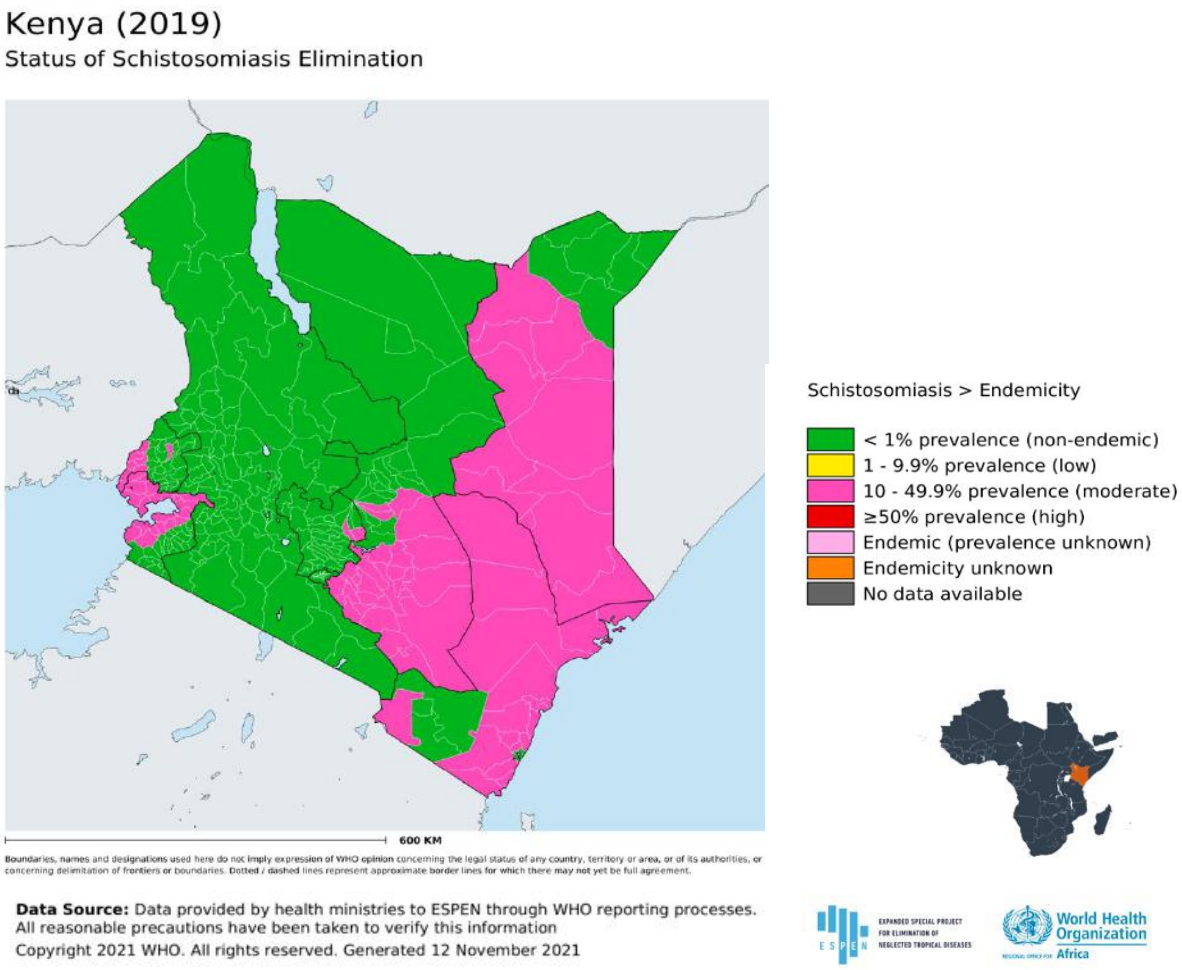
During the 59th Madaraka day celebration, four members of the Kenya National Guinea Worm Certification Committee (KNGWECC) were awarded Presidential Honors for their effort in steering the process towards elimination of GWD in the Country. The map below shows the GWD cases reported in Human in Africa in 2020 and 2021



Schistosomiasis (SCH)

An estimated 207 million people in 74 countries are infected by parasitic worms of the genus *Schistosoma* which causes schistosomiasis (bilharzia) with the bulk of the global prevalence (90%) occurring in sub-Saharan Africa. There are two forms of SCH which include Intestinal and urogenital SCH. Both the intestinal form (caused by *S. mansoni*) and urogenital form (caused by *S. haematobium*) are known to occur in Kenya, with approximately 9 million people estimated to be infected and approximately 17.4 million at risk (WHO.,2013). SCH is a focal disease, and three major endemic areas for SCH are recognized in Kenya i.e., Coastal region (mainly *S. haematobium*), parts of Central and Lower Eastern areas (both S. haematobium & *S. mansoni*) and the Lake Victoria basin (mainly *S. mansoni*). However, there are pockets of SCH transmission in the central,

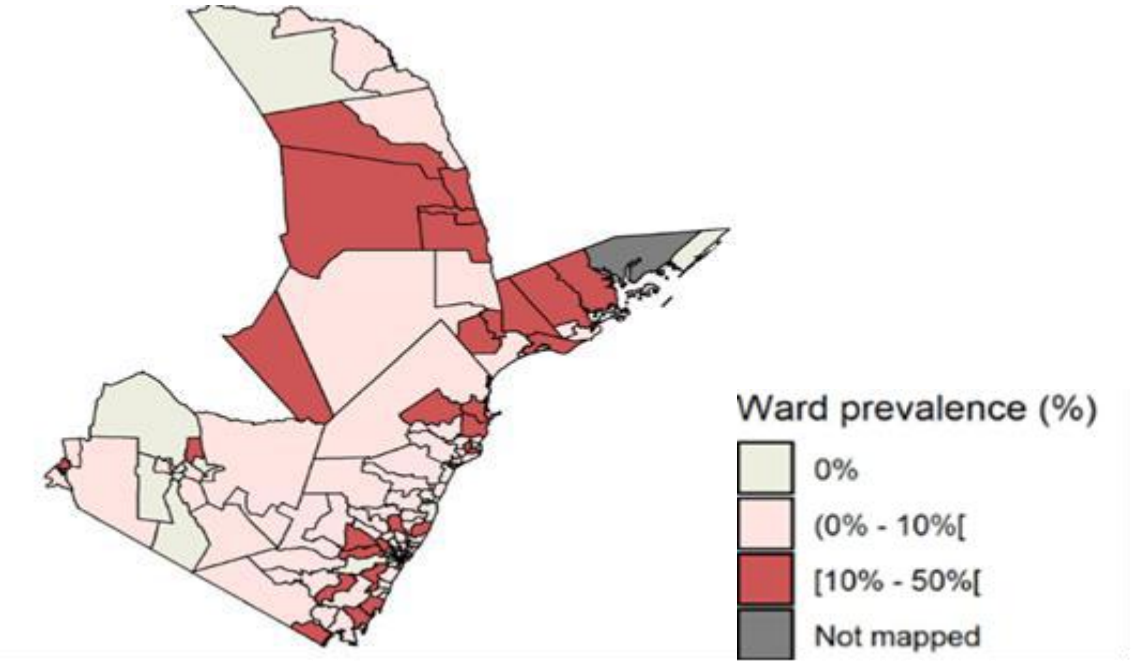
Western and Northeastern region. The map below shows the endemicity of SCH in Kenya in 2019



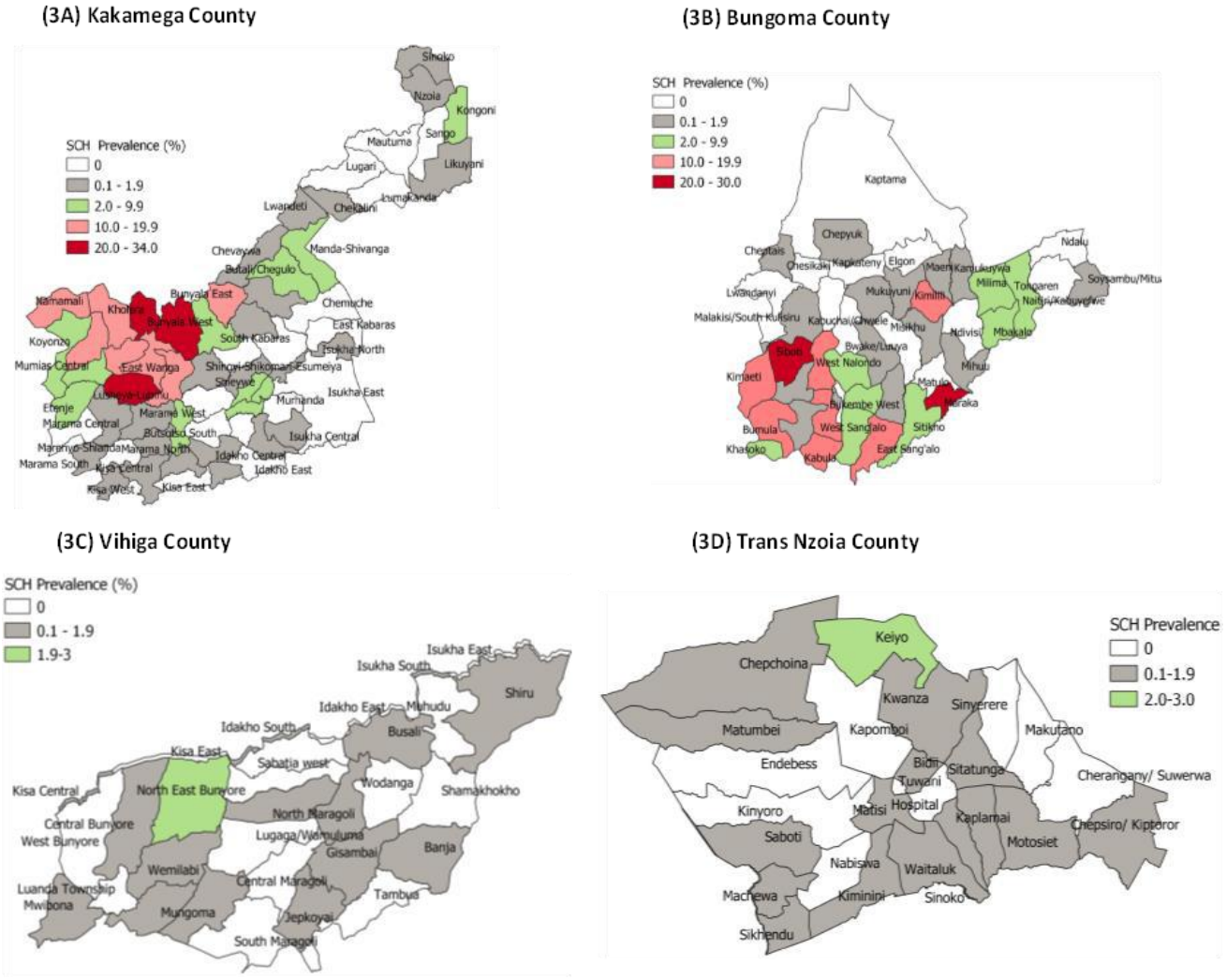
The cornerstone of current SCH control is preventive chemotherapy (PC) with praziquantel, targeted towards school-age children (SAC), with the frequency of treatment determined by the disease endemicity within a subset of surveyed schools, which are classified using parasitological prevalence and intensity of infections. Based on the current WHO recommended mapping design for SCH, the district (currently sub-County in Kenya) is the implementation unit, and a subsample of five to fifteen schools are generally selected for the surveys. Due to the high focality of SCH transmission, administrative unit below the sub-District (currently Wards in Kenya) may be considered in certain circumstances. However, due to financial resources constraints, not every Ward in a sub-District can be mapped independently. The mapping design combines several sub-Districts into mapping

units, where transmission is likely to be similar, according to ecological factors affecting SCH transmission. This may lead to uncertainties if the site selection and sample size calculations are not properly undertaken. The program conducts granular mapping to address this challenge. 'Granular mapping' in this context is defined as conducting sampling at a much finer geographical resolution, examining a higher number of purposively selected schools or villages within lower-level administrative units (Wards) below each implementation unit (currently sub-County) to address the variability in prevalence attributable to the focal nature of SCH. Up to date, Granular mapping has been conducted in the Coast (2020) and Western regions (2021). See below maps that demonstrate the variance of endemicity of SCH in the same district after granular mapping (at ward level).

Prevalence of Schistosomiasis among Coastal Counties (Kwale, Kilifi, Taita Taveta, Mombasa, Lamu, and Tana River) in 2020.



Endemicity of Schistosomiasis at ward level after precision mapping in Western region (Kakamega, Trans Nzoia, Vihiga, Bungoma) in 2021



Prevention and control measures

The WHO has recommended preventive chemotherapy as a strategy for morbidity control that will help lessen the occurrence, extent, and severity of the consequences of infection. The MOH launched the Breaking Transmission Strategy (BTS) 2019-2023 which is aligned to the WHO-NTD guidelines and 2021-2030 elimination goals. The BTS strategy, supported by several partners aims to increase access to all essential public health interventions, with a focus on increasing coverage of mass drug administration (MDA) geographically and therapeutically leading to rapid reduction in prevalence and intensity of the disease. Praziquantel, a pyrazinosoquinolone derivative, is the anthelminthic drug of choice for SCH

which also targets a broad range of parasitic infections. It is advocated by WHO for population-based mass chemotherapy. The WHO treatment guideline (2017) guides on the use of multiple interventions and the targeted population including: preschool-age children; school-age children; adults considered to be at risk, including groups with occupations involving contact with infested media (mainly soil and water), such as farmers, fishermen, irrigation workers, or women performing domestic tasks; women of childbearing age; and entire communities living in highly endemic areas.

TABLE 3: TARGETS FOR THE SCH

Targets	Indicators
Elimination and control by 2027	• 100% geographical coverage • At least 75% therapeutic coverage • Prevalence < 2% • Elimination can be achieved in Western, Eastern and Central regions if preventive chemotherapy, health education and control of snail vectors. In Nyanza and Coastal regions, where the infections occur at focal points, the focus will be on coordinated efforts with other stakeholders

Community-based treatment

Studies conducted by KEMRI indicated that the gains of school-based approach were quickly eroded sine the approach only targeted school aged children leaving out a huge population who need PC in endemic regions.

TABLE 4: CBD TREATMENT FOR SCH, 2019 – 2022

Targets	Year 2019 SCH	Year 2020 SCH	Year 2021 SCH	Year 2022 SCH
Homabay	263,340 (77%)	141,889 (82%)	-	-
Migori	118,771 (127%)	226,912 (93%)	-	-
Kilifi	-	-	661,451 (106.7%)	-

Targets	Year 2019 SCH	Year 2020 SCH	Year 2021 SCH	Year 2022 SCH
Kwale	-	-	559,892 (98%)	-
Lamu West	-	-	60,429 (90.5%)	-
Mombasa	-	-	308, 309 (78.1%)	-
Taita Taveta	-	-	101, 537 (126%)	-
Tana River	-	-	188,212 (81.2%)	-
Kakamega	-	-	-	644,278 (104.65%)
Bungoma	-	-	-	594,702 (105.7%)
Transzoia	-	-	-	40,822 (108.9%)
Vihiga	-	-	-	27,388 (94.9%)

Community-based survey

Community based distribution has been used as the platform for expanded MDA implementation. These include house-to-house distribution and fixed-point distribution for people who may not be at home during the MDA. The fixed service delivery points include schools and other training institutions, health facilities, marketplaces, beach halls, among other venues that are considered socially and culturally appropriate by the local people. All distributions are given by Directly Observed Treatment (DOT).

Snail Control

The lifecycle of the schistosomes involves human beings and freshwater snails as intermediate hosts. Control of snails and improving sanitation are important methods for sustainable prevention of the disease[23]. The control of snail is however not properly coordinated in Kenya.

Soil Transmitted Helminths (STH)

Soil Transmitted Helminthes (STH) primarily *Ascaris lumbricoides*, *Trichuris trichuria* and the hookworms (*Ancytoloma duodenale*) are among the most neglected infections globally, affecting more than 1.5 billion people each year. Global efforts to combat NTDs were

[23] https://www.who.int/teams/control-of-neglected-tropical-diseases/interventions/strategies/vector-control

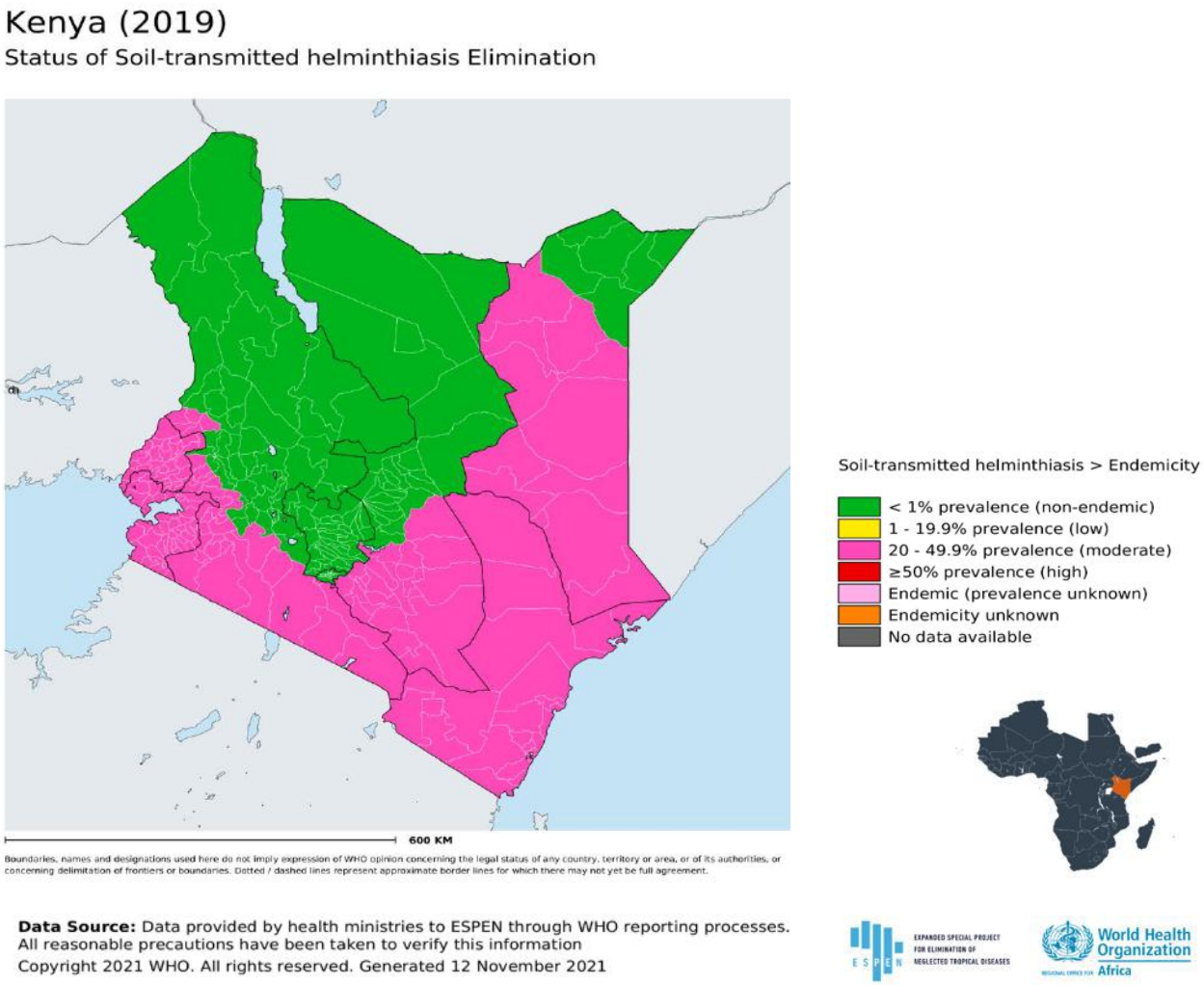
renewed in 2012 following the launch of NTD Roadmap in London.

TABLE 5: SCHOOL-BASED TREATMENT FOR STH, 2017 - 2020

Overall ADULT and SAC Treated				
County	**Oct – 2017**	**Nov – 2018**	**Jan – 2020**	**Sep - 2020**
Bomet	263,731	265,736	238,781	249,497
Bungoma	505,942	524,388	510,536	-
Busia	275,116	272,292	255,297	268,007
Homa Bay	331,803	342,451	310,960	-
Kakamega	585,871	603,352	580,414	-
Kericho	262,895	261,058	250,333	241,795
Kilifi	308,991	340,360	351,354	-
Kisii	382,441	385,495	353,940	384,012
Kisumu	275,282	290,101	284,069	300,481
Kwale	-	194,413	187,947	-
Lamu	26,677	32,121	31,056	-
Migori	348,914	369,708	356,613	-
Mombasa	179,931	209,786	195,270	-
Nandi	124,058	112,377	109,364	108,707
Narok	101,626	102,824	94,046	106,425
Nyamira	175,240	174,639	162,057	167,168
Siaya	263,131	266,357	256,768	273,574
Taita Taveta	73,131	75,406	73,371	-
Tana River	54,311	58,975	56,093	
Trans Nzoia	289,502	285,155	288,320	300,428
Vihiga	179,190	154,047	178,952	184,077
Garissa	792	9,810	698	-
Kirinyaga	43,983	46,220	46,190	-
Kitui	237	1,295	170	357
Machakos	199	4,700	-	2,832
Makueni	397	5,924	411	2,388
Wajir	412	6,820	269	-
Total	**5,053,803**	**5,395,810**	**5,173,279**	**2,589,748**

Endemicity of Soil Transmitted Helminthiasis in Kenya

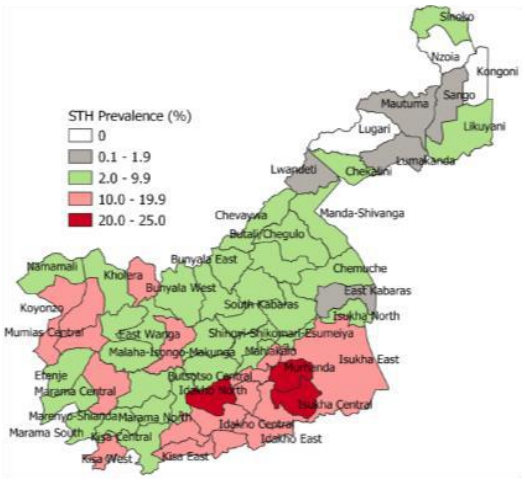
STH infections are widely distributed in Kenya with more than 10 million people infected and approximately 16.6 million people at risk (MOH, 2016).



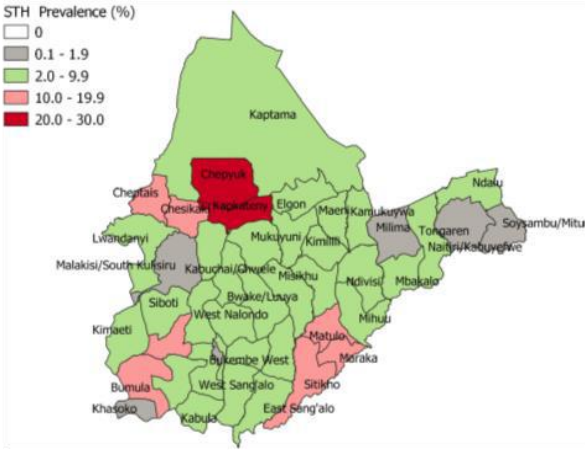
To achieve the 2030 goal of elimination of STH, there is a need for localized up-to-date epidemiological data on STH infections. The figures below show the prevalence of STH in the coast and western regions in Kenya.

STH Prevalence among Western Counties (Kakamega, Bungoma, Vihiga, and Trans Nzoia) in 2021

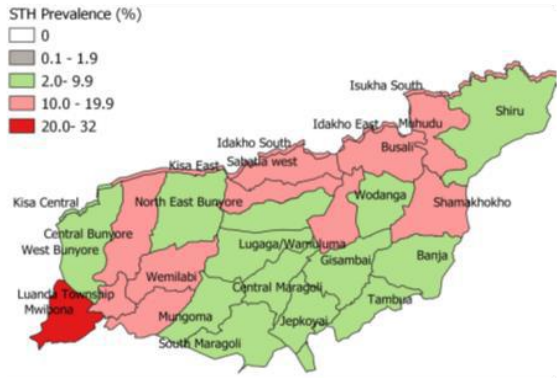
(5A) Kakamega County



(5B) Bungoma County

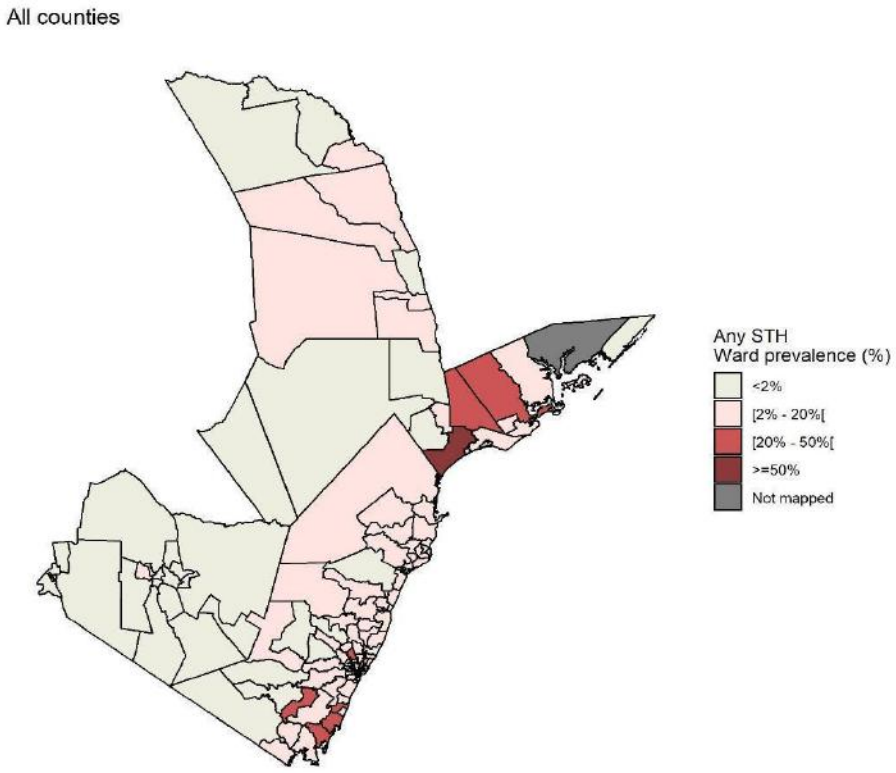


(5C) Vihiga County



(5D) Trans Nzoia County

Endemicity of STH at ward level after precision mapping in coast region (Taita Taveta, Tana River, Kwale, Kilifi, Lamu, Mombasa) in 2020



Preventive and control strategies for STH Treatment

Currently, administration of mass chemotherapy using Albendazole/Mebendazole is the mainstay strategy in combating STH. This is carried out through the National School-Based Deworming Program whose focus is to reduce disease burden levels in school age children. However, surveys conducted by the Kenya Medical Research Institute (KEMRI) indicate that these gains are easily eroded soon after the treatment. As such, there is need to expand treatment to other populations who live within the endemic regions but miss out on treatment especially the vulnerable groups including adults and non-enrolled children.

TABLE 6: OVERALL ADULT AND SCHOOL-AGED CHILDREN TREATED FOR SCHOOL-BASED TREATMENT

Overall Adult and SAC Treated				
County	**Oct-2017**	**Nov-2018**	**Jan-2020**	**Sep-2020**
Bomet	263,731	265,736	238,781	249,497
Bungoma	505,942	524,388	510,536	-
Busia	275,116	272,292	255,297	268,007
Homa Bay	331,803	342,451	310,960	-
Kakamega	585,871	603,352	580,414	-
Kericho	262,895	261,058	250,333	241,795
Kilifi	308,991	340,360	351,354	-
Kisii	382,441	385,495	353,940	384,012
Kisumu	275,282	290,101	284,069	300,481
Kwale	-	194,413	187,947	-
Lamu	26,677	32,121	31,056	-
Migori	348,914	369,708	356,613	-
Mombasa	179,931	209,786	195,270	-
Nandi	124,058	112,377	109,364	108,707
Narok	101,626	102,824	94,046	106,425
Nyamira	175,240	174,639	162,057	167,168
Siaya	263,131	266,357	256,768	273,574
Taita Taveta	73,131	75,406	73,371	-
Tana River	54,311	58,975	56,093	
Trans Nzoia	289,502	285,155	288,320	300,428
Vihiga	179,190	154,047	178,952	184,077
Garissa	792	9,810	698	-
Kirinyaga	43,983	46,220	46,190	-
Kitui	237	1,295	170	357
Machakos	199	4,700	-	2,832
Makueni	397	5,924	411	2,388
Wajir	412	6,820	269	-
Total	**5,053,803**	**5,395,810**	**5,173,279**	**2,589,748**

Community based deworming

Consequently, since 2019, the Program has provided treatment using community-based approach in Homabay, Migori, Taita Taveta, Tana River, Kwale, Kilifi, Mombasa, Lamu, Bungoma, Kakamega, Trans Nzoia and Vihiga counties. The results of these MDA rounds are summarized below

TABLE 7: COMMUNITY BASED DEWORMING FOR STH, 2019 – 2022

County Name	Year 2019 STH	Year 2020 STH	Year 2021 STH	Year 2022 STH
Homabay	630,541 (86%)	-	-	-
Migori	558,584 (89%)	-	-	-
Kilifi	-	-	654,950 (89.3%)	-
Kwale	-	-	621,697 (92.8%)	-
Lamu West	-	-	67,145 (85%)	-
Mombasa	-	-	424,396 (90.9%)	-
Taita Taveta	-	-	77,196 (81%)	-
Tana River	-	-	224,162 (81.8%)	-
Kakamega	-	-	-	1,718,747 (103.1%)
Bungoma	-	-	-	1,617,911 (104.2%)
TransNzoia	-	-	-	988,088 (105.1%)
Vihiga	-	-	-	616,282 (103.2%)
Homabay	630,541 (86%)	-	-	-
Migori	558,584 (89%)	-	-	-
Kilifi	-	-	654,950 (89.3%)	-
Kwale	-	-	621,697 (92.8%)	-
Lamu West	-	-	67,145 (85%)	-
Mombasa	-	-	424,396 (90.9%)	-
Taita Taveta	-	-	77,196 (81%)	-
Tana River	-	-	224,162 (81.8%)	-
Kakamega	-	-	-	1,718,747 (103.1%)
Bungoma	-	-	-	1,617,911 (104.2%)
TransNzoia	-	-	-	988,088 (105.1%)
Vihiga	-	-	-	616,282 (103.2%)

Advocacy

It is notable that WASH is a fundamental determinant of STH and SCH transmission. However, at national level, WASH provision is separate from NTD control implying that better coordination and collaboration coupled with NTD guidance to the WASH sector are required to inform planning, resourcing, and targeting services in endemic areas. The need to focus on multiple interventions is further justified by the recognition that long-term solutions to STH require improvements in WASH.

Multisectoral meetings with stakeholders including county officers and support to Water and Environmental Sanitation Coordination (WESCOOD) are important in coordinating control strategies for STH.

Health Education

Heath education forums are important in increasing awareness and knowledge on STH. This involves social mobilization to redevelop tailored messages for community-based treatment of STH and SCH and awareness creation on female genital schistosomiasis. The table below shows health education forums held in Homabay and Kwale counties.

TABLE 8: NUMBER OF PEOPLE SENSITIZED ON STH/SCH IN HOMABAY AND KWALE COUNTIES

Region	Strategy	No. of people sensitized
Homabay	Focus Group discussion	1700
Homabay	Key in-depth interview	14
Homabay	Advocacy meeting	70
Kwale	Focus Group Discussion	8
Kwale	Community Dialogue	1586
Kwale	Advocacy meeting	171

Additionally, the programme uses different channels including the local radio stations, newspaper advertisements, posters, brochures, job Aids, puppetry, card games and sensitization of teachers for communication.

Capacity Building

This involves training of frontline healthcare workers, community drug distributors (CDDs) and CDD supervisors on serious adverse events, Advocacy, Communication and Social Mobilization (ACSM), MDA, Standard Operating Procedures. The table below shows the various cadres of health care workers trained on prevention and control of STH/SCH in the affected Counties.

TABLE 9: NUMBER OF HEALTH CARE WORKERS TRAINED ON STH/SCH IN SIAYA, COAST AND WESTERN KENYA

Region	Year	Trainer of Trainers (Health care workers)	Community Drug Distributors Supervisors	Community Drug Distributor
Homabay and Migori	2019	52	253	5,000
Homabay and Migori	2020	15	57	976
Coast	2021	98	265	4,827
Western	2021	148	508	10,047

Region	Year	Trainer of Trainers (Health care workers)	Community Drug Distributors Supervisors	Community Drug Distributor
Totals		313	1083	20,850

Lymphatic Filariasis (LF)

Lymphatic Filariasis (commonly known as elephantiasis) is caused by infection with parasites classified as nematodes (roundworms) of the family *Filariodidea*. There are 3 types of filarial worms:

- *Wuchereria bancrofti*, which is responsible for 90% of the cases
- *Brugia malayi*, which causes most of the remainder of the cases
- *Brugia timori*, which also causes the disease.

Adult worms' nest in the lymphatic vessels disrupts the normal function of the lymphatic system. The worms can live for approximately 6–8 years and produce millions of microfilariae (immature larvae) that circulate in the blood. Mosquitoes are infected with microfilariae by ingesting blood when biting an infected host. Microfilariae mature into infective larvae within the mosquito. When infected mosquitoes bite people, mature parasite larvae are deposited in the skin and migrate to the lymphatic vessels where they develop into adult worms, thus continuing the cycle of transmission. Lymphatic filariasis is transmitted by different types of mosquitoes i.e. Culex mosquito, widespread across urban and semi-urban areas, Anopheles, mainly found in rural areas, and Aedes, mainly in endemic islands in the Pacific.

Symptoms

LF infection involves asymptomatic, acute, and chronic conditions. Majority of infections are asymptomatic, showing no external signs of infection while contributing to transmission of the parasite. These asymptomatic infections cause damage to the lymphatic system, the kidneys and alter the body's immune system.

Acute episodes involve local inflammation of skin, lymph nodes and lymphatic vessels and often accompanied by chronic lymphoedema or elephantiasis. Some of these episodes are caused by the body's immune response to the parasite and secondary bacterial skin infection where normal defenses have been partially lost due to underlying

lymphatic damage. These acute attacks are debilitating and may last for weeks and are the primary cause of lost wages among people with LF.

When LF develops into chronic conditions, it leads to lymphoedema (tissue swelling) or elephantiasis (skin/tissue thickening) of limbs and hydrocele (scrotal swelling). Involvement of breasts and genital organs is also common. Such body deformities often lead to social stigma and sub-optimal mental health, loss of income-earning opportunities and increased medical expenses for patients and their caretakers. The socioeconomic burden of isolation and poverty are immense.

LF mapping conducted in 2000 showed that the disease is endemic in all the six coastal counties (Lamu, Mombasa, Taita Taveta, Tana River, Kilifi, and Kwale). A national remapping was conducted in 2019 which confirmed that the disease is endemic in the coastal region. The map below shows the endemicity of LF in Kenya.

Endemicity of Lymphatic Filariasis

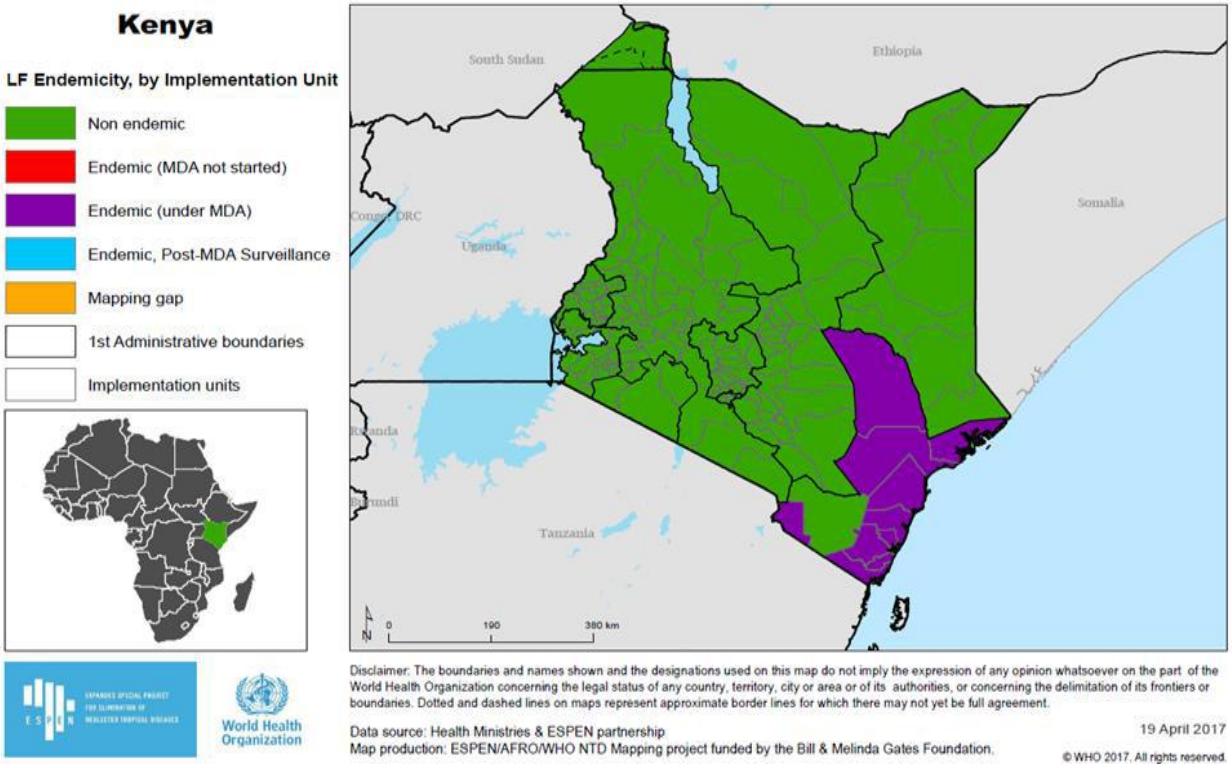


Table 10 below shows the baseline prevalence of LF infection in sentinel sites before implementation of MDA.

TABLE 10: PREVALENCE OF LF IN SENTINEL SITES BEFORE MDA

County	Subcounty (IU)	Site	Year		
			2000 (Mf)	2005 (Ag)	2011 (Ag)
Kilifi	Ganze	Jaribuni (SS)	14.4	-	-
		Mitsemerini (SS)	1.8	-	-
	Magarini	Masindeni (SS)	14.2	-	-
		Singuaya (SS)	5.9	-	-
Kwale	Lungu Lunga	Majoreni (SS)	5.9	-	-
		Makwenyeni (SS)	15.7	-	-
Lamu	Lamu East	Ndau (SS)	-	-	11.6
	Lamu West	Mkunumbi (SS)	-	-	0.9
Mombasa	Jomvu	Miritini	-	-	2
	Kisauni	Kisauni	-	-	4.2
		Bamburi	-	-	2.9
	Likoni	Likoni	-	-	4.1
	Mvita	Majengo	-	-	3
Taita Taveta	Taveta	-	-	2	-
Tana River	Galole	Wenje (SS)	0	-	-
	Garsen	Kipini (SS)	1.4	-	-

**Key: SS – Sentinel Site; Mf – Microfilaria; Ag - Antigenemia*

The Kenya National Breaking Transmission Strategy (2019 - 2023)[24] envisioned that all coastal LF endemic counties will receive 4-6 effective rounds of MDA using diethylcarbamazine citrate (DEC) and albendazole as per the WHO requirements. Triple-therapy MDA consisting of ivermectin, DEC and albendazole (IDA) were administered for two years (2018 and 2019) in two IUs in Lamu county (Lamu East and Lamu West) and Jomvu sub county in Mombasa County. The preliminary results of impact assessment conducted in 2021 in the two areas showed that the prevalence of infection reduced below

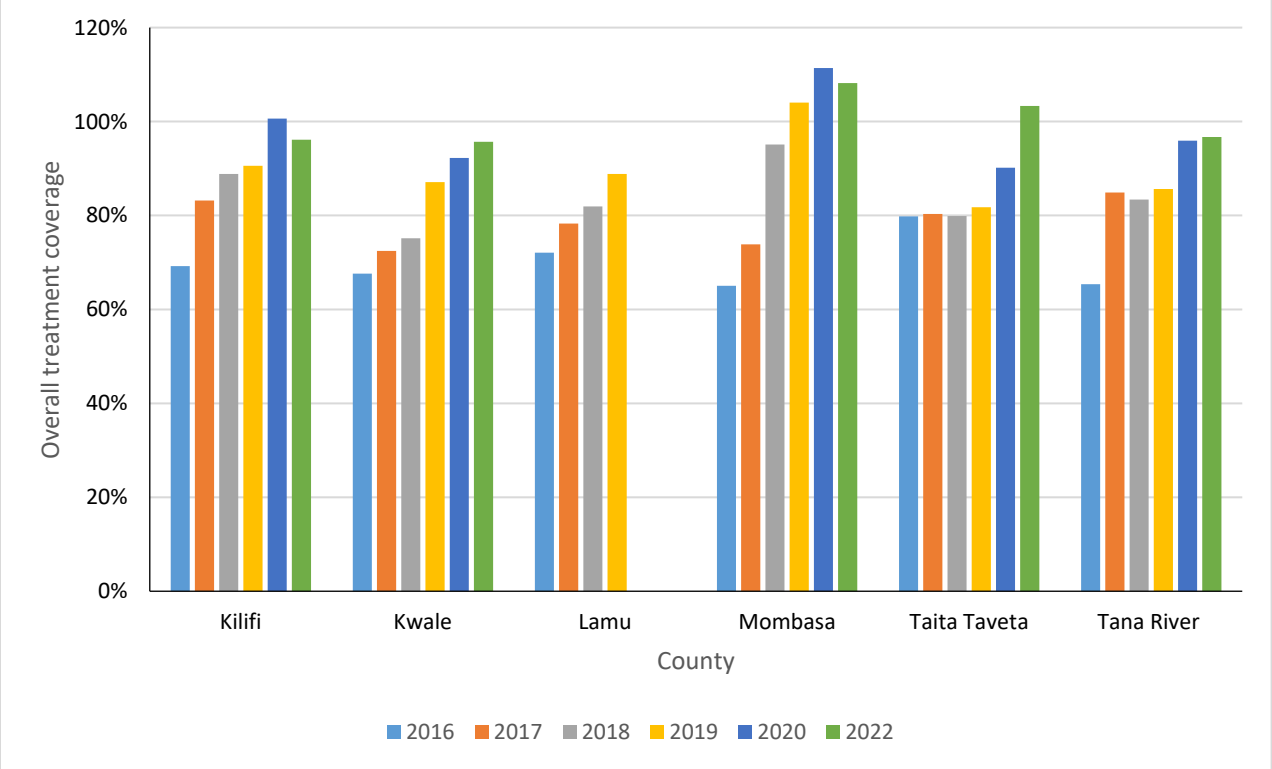
[24] https://www.eliminateschisto.org/sites/gsa/files/content/attachments/2019-07-07/Kenya%20Breaking%20Transmission%20Strategy%20for%20NTDs_Final%20PDF.pdf

the transmission assessment survey (TAS) target thresholds recommended by WHO and thus MDA was stopped.

Mass treatment to eliminate LF as a public health problem

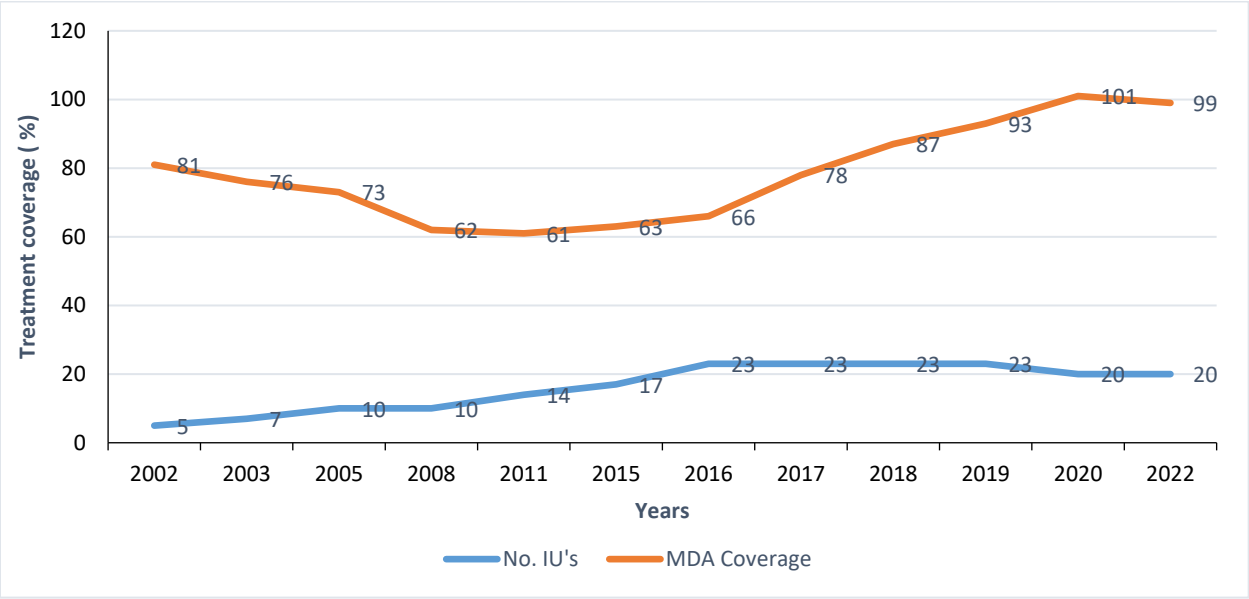
The National Programme for Elimination of LF (NPELF) was launched in 2002 when MDA using DEC and albendazole was distributed in the then Kilifi district. Thereafter, the MDA was scaled up to include Kwale and Malindi districts in 2003. Another two rounds of MDA were conducted in these districts in March 2005 and December 2008 and a further round was conducted in December 2011, when MDA was extended to Tana River and Lamu counties. The MDA campaigns were however not conducted again until 2016 following remapping in 2015. With commitment from the MOH and support from partners, the NPELF programme has successfully conducted effective rounds of MDA from 2016. The figure below shows the overall treatment coverage (65% and above) in all the six counties in the coastal region. Additionally, the treatment coverage has gradually increased over the years.

FIGURE 2: PROGRESS OF MDA FROM 2016 TO 2022 IN ENDEMIC COASTAL COUNTIES



The figure below shows a of the MDA provided in the various implementation units (IU's) from 2002 to 2020. All the 23 IUs in the six counties received MDA with DEC and albendazole from 2016 to 2020. However, Jomvu in Mombasa and the two sub-counties of Lamu (Lamu East and Lamu West) received the triple drug regimen consisting of ivermectin, DEC and albendazole (IDA) in 2018 and 2019.

FIGURE 3: PROGRESS OF LF MDA NATIONAL COVERAGES FROM WHEN THE PROGRAMME STARTED IN 2002 TO 2022



The MDA round conducted in 2022 round achieved 100% geographical coverage and an epidemiological coverage of 99% (overall). The target population for treatment was 4,095,762 of which 4,077,305 people were treated.

Morbidity Management and Disability Prevention (MMDP)

The key goal of the Global Programme to Eliminate Lymphatic Filariasis (GPELF) is Morbidity Management and Disability Prevention (MMDP). Kenya has contributed towards this goal through the National Plan for Elimination of Lymphatic Filariasis (NPELF) by conducting hydrocele surgeries / rehabilitation at the local hospitals and

building capacity of county and sub-county healthcare workers on hydrocelectomy and lymphoedema management after cessation of the MDA campaigns. The table below shows the number of hydrocele and lymphoedema cases reported between 2016 and 2020.

TABLE 11: HYDROCELE AND LYMPHOEDEMA CASES REPORTED BETWEEN 2016 TO 2020

Year	2016			2017			2018			2019			2020			2022		
County	**H**	**E**	**B**	**H**	**E**	**B**	**H**	**E**	**B**	**H**	**E**	**B**	**H**	**E**	**B**	**H**	**E**	**B**
Kilifi	1467	460	115	370	204	28	335	153	16	365	136	22	613	319	27	448	181	25
Kwale	434	132	50	1044	401	86	929	285	33	947	321	29	821	272	67	815	403	37
Lamu	30	30	3	13	13	1	44	22	0	18	21	0						
Mombasa	467	305	34	44	32	4	122	54	3	108	45	4	89	47	1	37	25	2
Tana River	112	106	5	36	12	1	31	31	1	35	22	1	29	19	0	33	25	1
Taita Taveta	18	36	0	14	4	0	11	5	0	7	5	0	9	7	0	10	6	0
Totals	**2528**	**1069**	**207**	**1521**	**666**	**120**	**1472**	**550**	**53**	**1480**	**550**	**56**	**1561**	**664**	**95**	**1343**	**640**	**65**

Key: H= Hydrocele, E= Elephantiasis, B= Both hydrocele and elephantiasis

About 1,079 hydrocelectomy surgeries were conducted from 2018 to 2021 as shown in the table below.

TABLE 12: HYDROCELE SURGERIES CONDUCTED IN 2018, 2019 AND 2021 IN THE COUNTIES

LF Hydrocele surgeries conducted				
County	**2018**	**2019**	**2021**	**Totals**
Mombasa	34	8	30	72
Kilifi	147	84	295	526
Tana River	62	3	20	85
Taita Taveta	6	0	0	6
Kwale	103	0	249	352

LF Hydrocele surgeries conducted				
County	**2018**	**2019**	**2021**	**Totals**
Lamu	25	2	11	38
Totals	**377**	**97**	**605**	**1079**

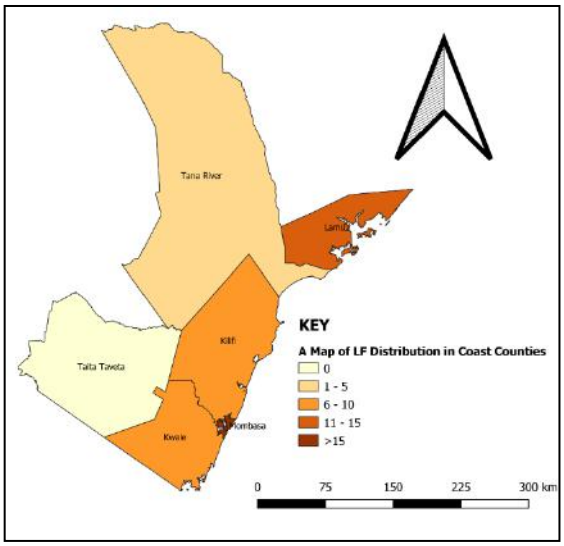
LF surveys

LF surveys are conducted to confirm whether transmission of infection is interrupted during the MDA phase or not. The Pre-Transmission Assessment Surveys (Pre-TAS) and TAS1 impact assessment surveys were conducted in Tana River and Taita Taveta counties in 2019 and 2021. The results showed that MDA was effective in reducing LF infection to a level where its transmission may have been interrupted. By 2022, the NPELF conducted pre-TAS in all the 23 IUs and all passed. Additionally, TAS surveys have been done in 18 IUs out of the total 23 IUs and all passed. Pre -TAS target the community while TAS target children 6-7 years in LF endemic areas. The programme plans to conduct TAS1 surveys in remaining five IUs in Mombasa. Upon successful passing of TAS1, NPELF will focus on conducting post-treatment surveillance in areas that qualify for MDA stoppage. The programme will conduct TAS1 survey in Mombasa County (5 IUs) and TAS2 surveys in Tana River (3 IUs), Taita Taveta (1 IU), Lamu (2 IUs) and Mombasa (Jomvu sub county) in 2023. The programme will prioritize preparation of LF elimination dossier as a key programme activity in 2023.

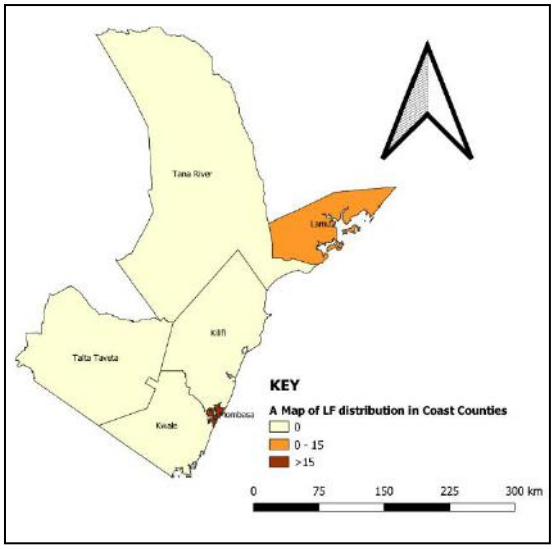
The tables and maps below provide information on the surveys conducted in all the six counties in the coastal region.

LF Surveys

Map 1 (2018)



Map 2 (2021)



The maps below show the trend in the reduction of LF prevalence as indicated by surveys conducted in the years following mapping of the disease.

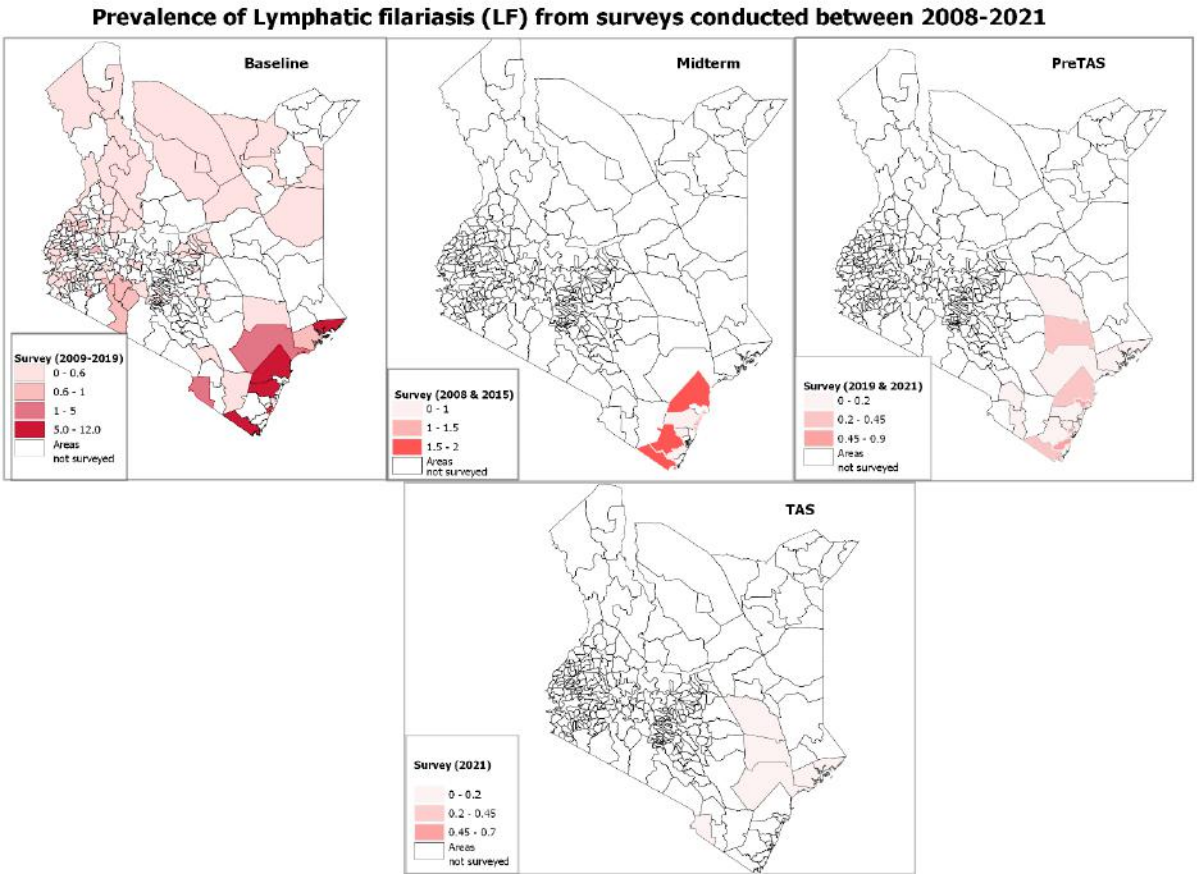


TABLE 13: IMPACT OF LF TREATMENT KILIFI COUNTY

LF Prevalence's (mf [2000] Ag [2008, 2015, 2021])						
County	**Subcounty (IU)**	**Site**	**Baseline**	**Midterm**		**Pre TAS**
			2000	**2008**	**2015**	**2021**
Kilifi	Ganze	Jaribuni (SS)	14.4		0.7(2/298)	0(0/294)
		Mitsemerini (SS)	1.8			
		Magundho				0(0/294)
	Kaloleni	Kinarani		2	0.3(1/307)	
		Kidzini				0(0/302)
		Kironga				0(0/300)
	Kilifi North			3		
		Konjora				0(0/280)
		Majajani				0.4(1/278)
	Kilifi South					
		Dzitsoni				0(0/310)

LF Prevalence's (mf [2000] Ag [2008, 2015, 2021])						
County	**Subcounty (IU)**	**Site**	**Baseline**	**Midterm**		**Pre TAS**
			2000	**2008**	**2015**	**2021**
		Mwatundo				0(0/299)
	Magarini	Masindeni (SS)	14.2		1.7(5/306)	0.3(1/294)
		Singuaya (SS)	5.9			
		Mbaoni				0.3(1/323)
	Malindi			3		
		Mkondoni				0.4(1/282)
		Nyamala				0.7(2/272)
	Rabai	Jimba A				1(3/282)
		Pwani				0.3(1/295)

**Key: SC – Spot Check; SS – Sentinel Site; Mf – microfilaria; Ag - Antigen*

TABLE 14: IMPACT OF LF TREATMENT IN KWALE COUNTY

LF Prevalence's (mf [2000] Ag [2015, 2021])					
County	**Sub county (IU)**	**Site**	**Baseline**	**Mid-term**	**Pre-TAS**
			2000	**2015**	**2021**
Kwale	Kinango	Mwadimu (SC)		1.7(5/290)	
		Fulugani			0(0/303)
		Mteza A			0.3(1/301)
	Lungu Lunga	Majoreni (SS)	5.9		
		Makwenyeni	15.7	1.7(5/295)	0.3(1/300)
		Mamba			0.3(1/308)
	Matuga	Mirihini (SC)		0(0/290)	
		Lunguma			0.7(2/295)
		Mrera			1(3/302)
	Msambweni	Mabokoni			0(0/298)
		Masindeni			0.4(1/259)

**Key: SC – Spot Check; SS – Sentinel Site; Mf – microfilaria; Ag - Antigen*

TABLE 15: IMPACT OF LF TREATMENT IN TAITA TAVETA COUNTY

LF Prevalence's ([2004, 2015, 2019])						
County	**Subcounty (IU)**	**Site**	**Baseline**		**Pre TAS**	**TAS**
			2004	**2015**	**2019**	**2021**
Taita Taveta	Taveta		2			0(0/1,383)
	Kimorigo			0(0/275)	0(0/305)	
	Mboghoni				0(0/300)	

**Key: SC – Spot Check; SS – Sentinel Site; Mf – microfilaria; Ag - Antigen*

TABLE 16: IMPACT OF LF TREATMENT IN TANA RIVER COUNTY

LF Prevalence's (mf [2000] Ag [2015, 2019])						
County	**Subcounty (IU)**	**Site**	**Baseline**		**Pre TAS**	**TAS**
			2000	**2015**	**2019**	**2021**
Tana River	Bura	Shikaadabu			0.3(1/301)	0(1.364)
		Wades			0(0/309)	
	Galole	Wenje	0		0(0/240)	0(1,394)
		Bondeni			0.7(2/287)	
		Mikinduni (SC)		0(0/294)		
	Garsen	Kipini (SS)	1.4	0(0/299)	0.3(1/311)	0(0/1,548)
		Isowe			0(0/308)	

**Key: SC – Spot Check; SS – Sentinel Site; Mf – microfilaria; Ag - Antigen*

TABLE 17: IDA TREATMENT IMPACTS IN LAMU AND MOMBASA COUNTIES

County	**Subcounty (IU)**	**Site**	**Baseline**		**Pre TAS**	**TAS**
			2011	**2015**	**2018**	**2021**
LF Prevalence's (Ag [2011,2015,2018,2021)						
Lamu	Lamu East	Ndau (ss)	11.6	6.3 (20/320)	0.5(15/3096)	0.2(12/5237)
	Lamu West	Mkunumbi	0.9			

		(SS)				
LF Prevalence's (Ag [2011,2016,2018,2021)						
County	**Subcounty (IU)**	**Site**	**Baseline**		**Pre TAS**	**TAS**
			2011	**2016**	**2018**	**2021**
Mombasa	Jomvu	Miritini	2	6.7(20/300)	1.4(48/3464)	0.7(36/5464)

**Key: SC – Spot Check; SS – Sentinel Site; Mf – microfilaria; Ag - Antigen*

Vector control

There has been little or no active work done on vector (mosquito) control and health promotion specifically for LF control and elimination. It is envisaged that from 2023 the NPELF will actively liaise with relevant government departments and partners to strengthen efforts for mosquito control through integrated vector management (IVM) approach. However, it is important to note that the national malaria control programme has been indirectly contributing to LF control and elimination through distribution of long-lasting insecticidal treated nets (LLINs). Previous research revealed that LLINs might have stopped resurgence of the disease when MDA was discontinued (Njenga et al., 2011).

Trachoma

Trachoma is an infectious blinding disease caused by *Chlamydia trachomatis*. The disease is prevalent in dry areas with poor hygiene. The active disease occurs in children and potentially blinding disease in adults. The recommended monitoring indicators for active trachoma is trachomatous inflammation-follicular (TF) in children aged 1-9 years while the indicator for potentially blinding trachoma is trachomatous trichiasis (TT) in adults aged 15 years and above.

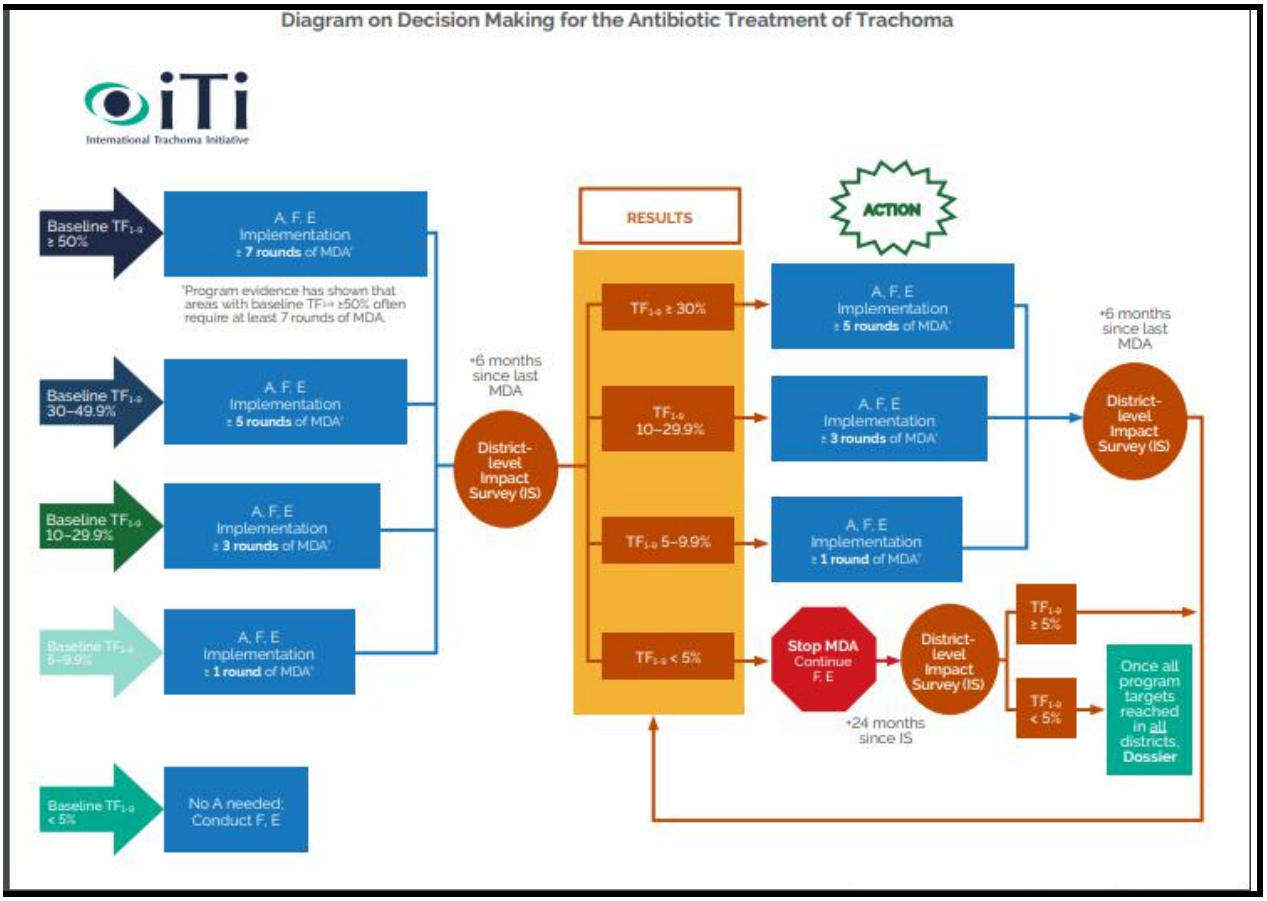
MOH reports indicate that by 2020, Kenya had about 11 million people living in 12 trachoma endemic counties of Baringo, West Pokot, Turkana, Narok, Kajiado, Samburu, Laikipia, Marsabit, Meru, Embu, Isiolo and Kitui. An estimated 53,200 have already been blinded by the disease.

Initial trachoma surveys in Kenya were conducted in administrative districts. In 2010 administrative districts were replaced with administrative counties. From 2010 to date, trachoma surveys are conducted in the WHO recommended implementation units (IUs) with population of between 100,000 and 250,000 people each. Counties are sub-divided to create the IUs. Trachoma impact surveys have been conducted after every 1 to 5 years of project implementation depending on the endemicity of active trachoma (TF) as guided in the decision-making diagram for Trachoma MDA in figure 2. Surveillance surveys are conducted after 24 months after elimination of TF as a public health problem.

The first set of 6 district-based baseline surveys to generate data for the implementation of WHO recommended Surgery, Antibiotic Treatment, Facial cleanliness, and Environmental improvement (SAFE strategy) was conducted in 2004 under the Global Elimination of Trachoma program. The districts were Kajiado, Narok, West Pokot, Baringo, Samburu and Meru North. Additionally, Laikipia baseline survey was conducted in 2007 and Turkana in 2010. Baseline surveys in the other suspected endemic areas were conducted between 2011 and 2022. The latest baseline survey (2022) was in two implementation units in Garissa County. Kenya has 54 IUs.

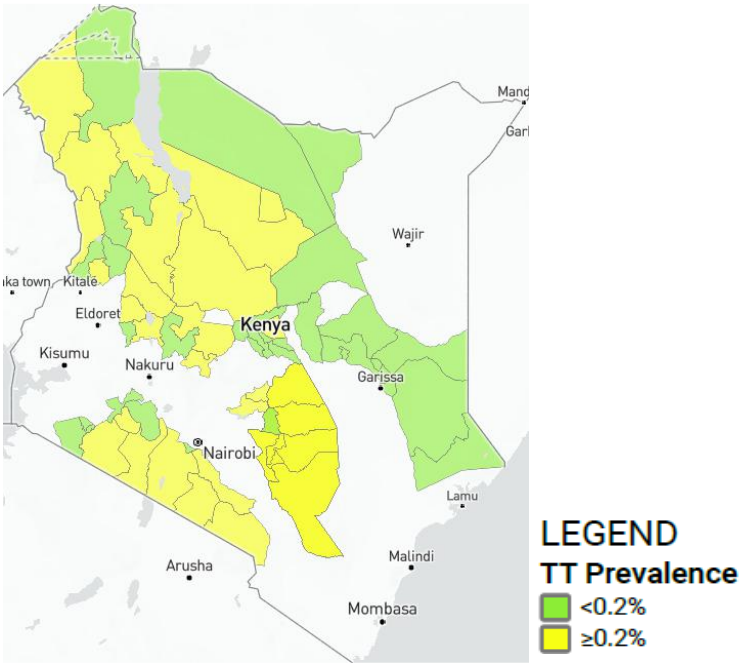
Trachoma is expected to have been eliminated as a public health problem when the prevalence is below 5% in children aged 1-9 years at surveillance survey and prevalence of TT below 0.2% in adults 15 years and above. Once all programs' targets are achieved the country is expected to prepare and submit a dossier.

FIGURE 4: DECISION MAKING FOR THE ANTIBIOTIC TREATMENT OF TRACHOMA

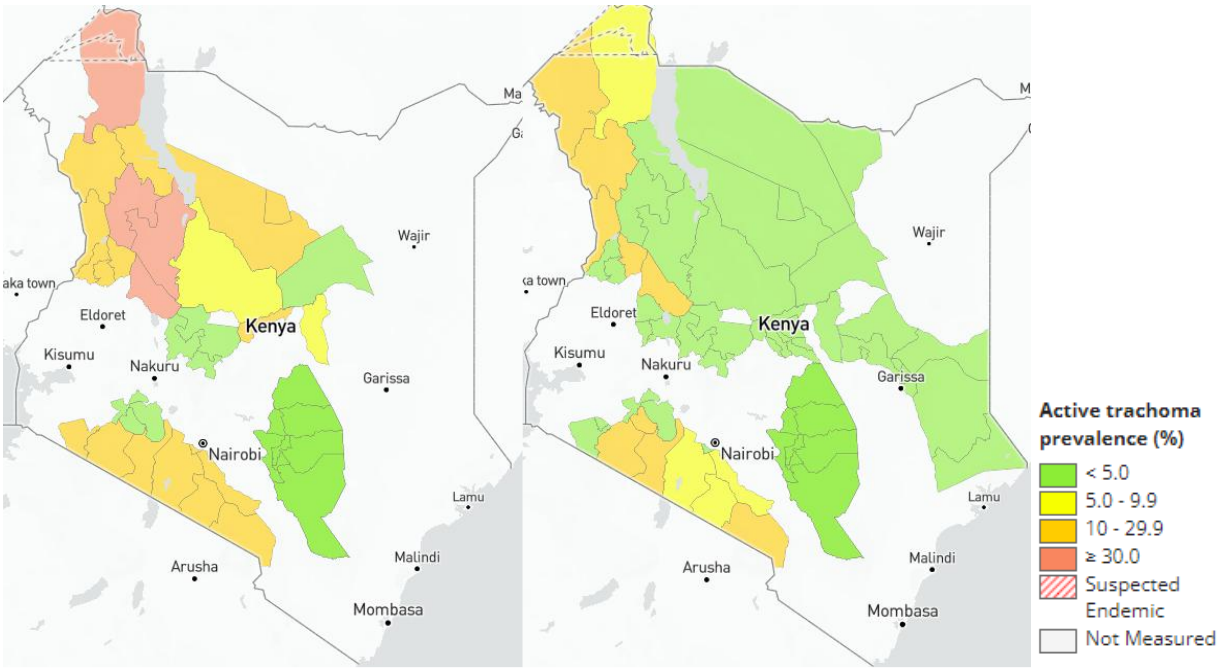


The maps below show the prevalence of active and potentially blinding trachoma in Kenya in 2016 and 2022.

Prevalence of TT in 2022



Comparison of TF in 2016 and 2022.



Below is a summary of Trachoma MDA therapeutic from 2016 to 2021 period.

TABLE 18: TRACHOMA MDA THERAPEUTIC COVERAGE 2016-2021 (MOH DATA)

Year	Target	Treated	Coverage %
2016	1,370,908	1,176,149	85.8
2017	508,614	395,962	77.9
2018	52,559	42,789	81.4
2019	1,761,573	1,462,104	82.9
2020	1,381,486	943,317	68.28
2021	2,559,126	2,044,807	80
Total	**7,634,266**	**6,065,128**	**79.38**

The TT surgeries conducted in the previous plan period were 17,564 as shown in the table below. The backlog of TT in 2016 was estimated to be 18,364 cases and 800 cases early 2022.

TABLE 19: NUMBER OF TT SURGERIES PERFORMED 2016 – 2021 (MOH DATA)

Year	TT Surgeries Performed
2016	8,996
2017	3,585
2018	2004
2019	755
2020	416
2021	1808
TOTAL	**17,564**

Under the Agenda for Kenya Trachoma Elimination Program, it is envisioned that following activities will be undertaken: Clear the remaining TT Backlog; Accelerate MDAs in the remaining endemic areas by conducting bi-annual treatment where indicated; Intensified WASH interventions and BCC; Mainstreaming all components of SAFE strategy into the National Health system for sustainability and develop and submit the Country Elimination Dossier to WHO by 2026.

Leishmaniasis

The leishmaniases are caused by a protozoa parasite from over 20 Leishmania species which are transmitted by the bite of infected female phlebotomine sandflies. Over 90 sandfly species are known to transmit Leishmania parasites.[25] Leishmaniasis is classified either as anthroponotic or zoonotic depending on whether the natural reservoir of the parasite is human or animal. Leishmaniasis is a highly focal disease with widely scattered foci. The disease affects some of the poorest people on earth and is associated with malnutrition, population displacement, poor housing, a weak immune system and poor health systems. The disease has four main forms, depending on the parasite species and the cellular immune system of the patient: Visceral leishmaniasis (VL), Mucocutaneous leishmaniasis, Cutaneous leishmaniasis and Post kala azar dermal leishmaniasis.

Visceral Leishmaniasis

Visceral leishmaniasis (VL), also known as Kala-azar, is a chronic and potentially fatal disease of the viscera (particularly the liver, spleen, bone marrow and lymph nodes) due to infection by the Leishmania parasite. VL attacks vital internal organs leading to their failure.[26] The case fatality rate, usually within 2 years, approximates 95% if the disease is left untreated. Death is mainly due to organ failure, anemia, or secondary bacterial infections.[27] In Kenya majority of patients are children living in rural areas (at least 50% are children <15 years). Males predominate (with a male to female ratio of 2:1). Factors that increase the risk of developing the disease include youth age, malnutrition, immunosuppressive diseases such as HIV, malignancies, and organ transplantation. Visceral leishmaniasis has caused epidemics with high case fatality due to accumulation of risk factors such as civil unrest, disruption of health systems, malnutrition, underlying diseases and absence of diagnostic facilities and first-line drugs at the local level.

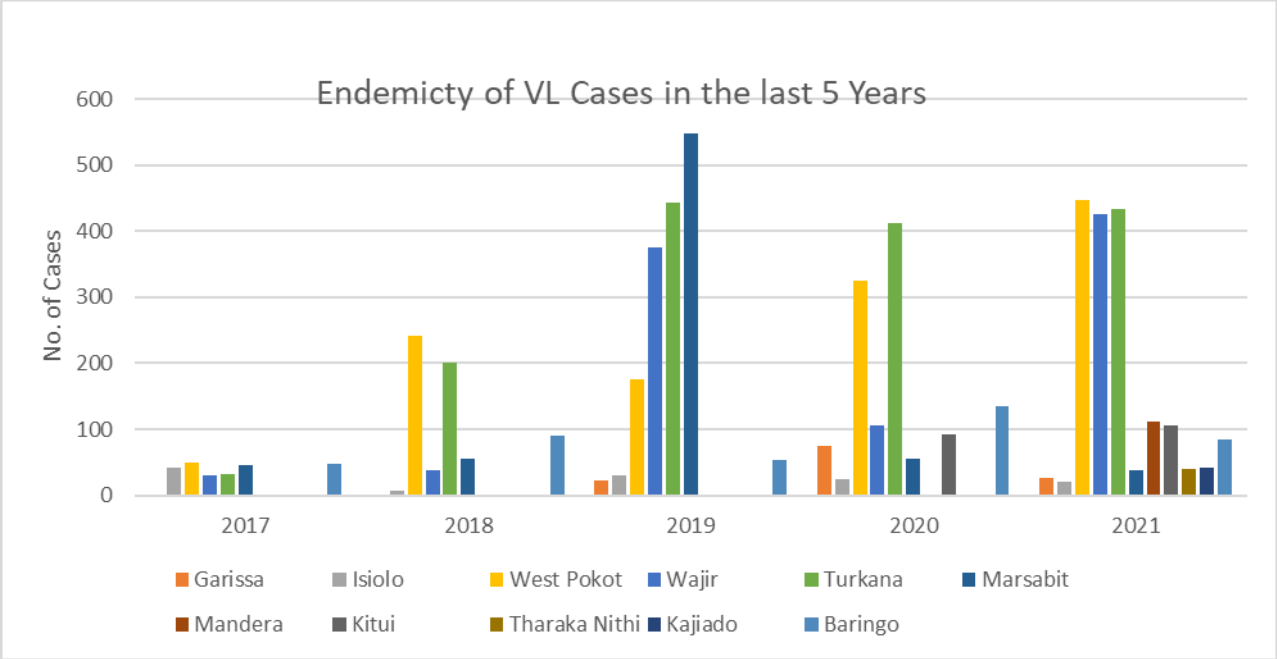
[25] World Health Organization. Control of the leishmaniases. World Health Organ Tech Rep Ser. 2010;(949):22-26. doi:10.1038/nrmicro1766.

[26] Wamai RG, Kahn J, McGloin J, Ziaggi G. Visceral Leishmaniasis: A Global Overview. J Glob Health Sci. 2020;2:e3

[27] World Health Organization. Control of the leishmaniases. World Health Organ Tech Rep Ser. 2010;(949):22-26. doi:10.1038/nrmicro1766.

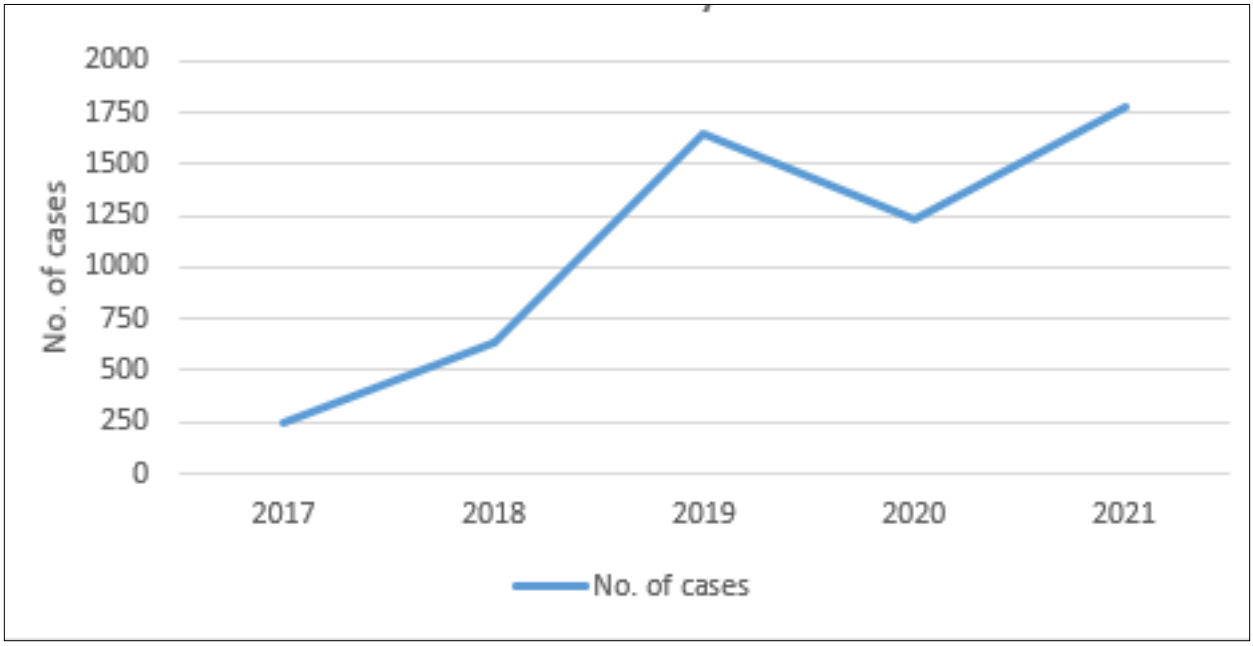
Visceral leishmaniasis in Kenya is endemic in 11 counties that include Baringo, West Pokot, Turkana, Marsabit, Isiolo, Garissa, Wajir, Mandera, Kitui, Tharaka Nithi and Kajiado (Figure 5). The disease foci in Kenya are changing to areas previously not known to be endemic as a result of climate change and population movements.

FIGURE 5: ENDEMICITY OF VL FROM 2017 TO 2021



The counties that reported the highest burden of leishmaniasis in 2021 are West Pokot, Turkana and Wajir. Figure 6 shows the number of cases reported between 2017 and 2021.

FIGURE 6: TREND OF VL CASES REPORTED IN THE LAST 5 YEARS



1.2 Mucocutaneous Leishmaniasis (MCL)

Mucocutaneous leishmaniasis causes partial or total destruction of mucous membranes of the nose, mouth, and throat. Like other disfiguring diseases, MCL not only affects the physical well-being of the individual but also significantly affects their psychological, social and economic well-being. Hence, reconstructive surgery of deformities is an important part of therapy. The characteristics of the lesions and the clinical management depend on the immune status and the age of the patients. Currently no Mucocutaneous case has been documented in Kenya.

1.3 Post –Kala-azar Dermal Leishmaniasis (PKDL)

Post-kala-azar dermal leishmaniasis (PKDL) is a skin condition that occurs after treatment for VL in 5 to 20% of cases and less frequently in individuals who report no history of prior VL. It is characterized by skin lesions of differing severity and parasite load, ranging from macules and papules (least severe, lowest load) to nodules (most severe, highest load), usually on the face, upper arms, trunks and other parts of the body.[21] The clinical manifestations are driven by the immune response to the parasite. PKDL usually appears six months to one or more years after kala-azar has been cured and in Kenya follow up

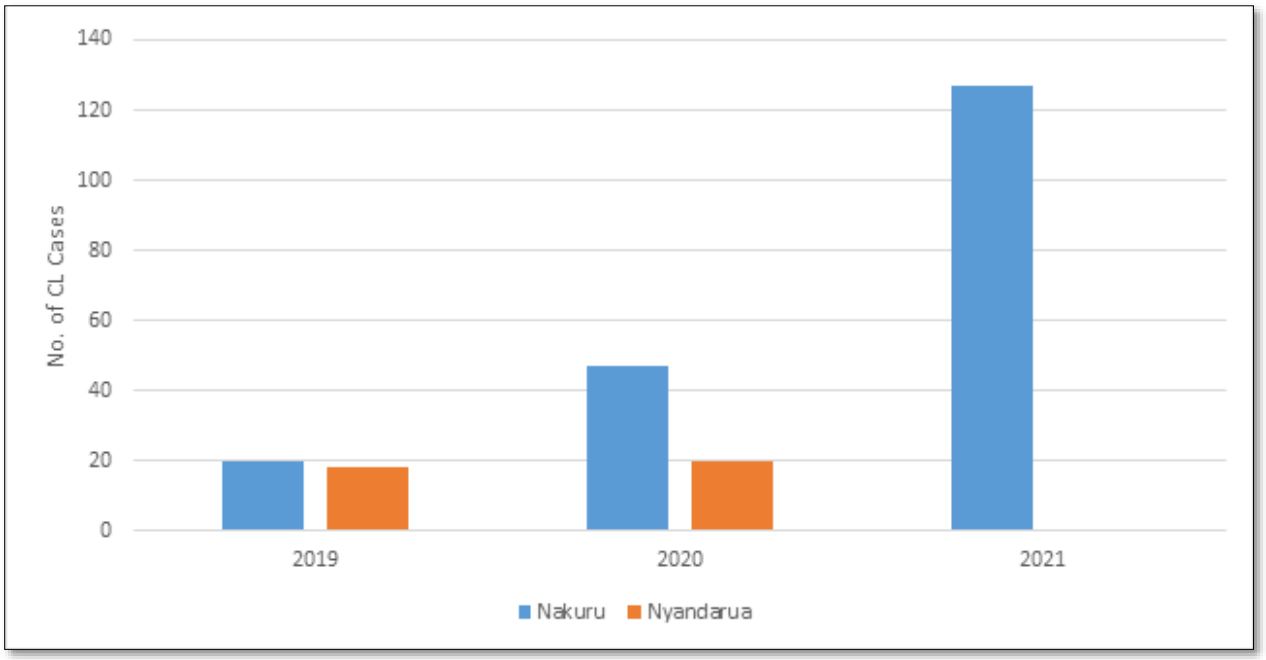
of the VL patients after treatment where most of the cases can be diagnosed remains low. Only 5 cases of PKDL have been documented in Kenya.

1.4 Cutaneous Leishmaniasis (CL)

Cutaneous leishmaniasis (oriental sore), is a neglected tropical immune-mediated skin pathology caused by the bite of sandflies infected with the Leishmania parasite. It is characterized by ulcerative skin lesions and occasionally nodular, psoriasiform, and verrucous lesions. CL is the most common form of leishmaniasis globally.[28] In Kenya it is represented in three different forms; localized CL, disseminated CL and cutaneous *leishmaniasis recidivans*. It is a disfiguring and stigmatizing disease with skin lesions, mainly ulcers, occurring on exposed parts of the body predominantly the face, leaving life-long scars and serious disability. Cutaneous leishmaniasis interventions in Kenya take the approach of case management and health promotion with minimal activities on vector control and surveillance. Current treatments are by the pentavalent antimonials which are costly and often require weeks of painful injections of toxic drugs. Cutaneous leishmaniasis is endemic in Nakuru and Nyandarua counties (Figure 7) and most recently cases have been reported in Kajiado county.

[28] World Health Organization. Control of the leishmaniases. World Health Organ Tech Rep Ser. 2010;(949):22-26. doi:10.1038/nrmicro1766

FIGURE 7: ENDEMICITY OF CL FROM 2019 TO 2021



In 2016 an outbreak was reported in Nakuru and Nyandarua counties and over 500 cases were identified of which 55.7% of the cases were females. Villages bordering rocky cliffs infested with rock hyrax were the most affected.[29]

DVBNTDs together with partners revised the diagnosis and treatment guidelines for Visceral Leishmaniasis in 2016 for health workers and rolled out the DHIS 2 reporting system for health workers in 2017 at treatment centres across the country which improved on reporting. Health workers training has been conducted in endemic areas although the number of trained health workers needs to be increased. New treatment centres need to be opened due to the geographical expansion of the disease to new areas that had not previously reported cases.

In 2021, the Ministry of Health launched the first National Strategic Plan for Control of Leishmaniasis 2021-2025. The main strategic approaches in the Strategic Plan will focus on the rapid scale-up of access to interventions, enhanced planning for results, resource

[29] A new perspective on cutaneous leishmaniasis implications for global prevalence and burden of disease

mobilization and financial sustainability. Other strategic approaches will be strengthening advocacy, coordination, national ownership, improved monitoring and evaluation, surveillance and research.

Progress towards Control of leishmaniasis

Through the support from WHO and partners the leishmaniasis program has been able to train health workers on Leishmaniasis diagnosis, case management and DHIS 2 system for reporting leishmaniasis cases. Due to these efforts, the Country has been able to achieve several milestones on leishmaniasis control, however in the recent past the disease has spread to new areas which were not covered in previous interventions.

The country has been characterized with frequent outbreaks of the disease. In 2021, several outbreaks were reported with the most recent outbreaks occurring in Mandera in March 2021, Kajiado county in May 2021 and Tharaka Nithi county in September 2021. The upsurges are likely to be exacerbated by the drought and regional population movement patterns.

The MOH together with partners revised guideline for Diagnosis, Treatment and Prevention of Visceral Leishmaniasis (Kala Azar) in 2017. The revised Guidelines play an important role in guiding health workers and other partners in diagnosis, treatment and prevention of the Kala azar in endemic areas. The MOH recommends the use of combination therapy (Sodium Stibogluconate [SSG] + Paromomycin [PM]) as the first line of treatment of visceral leishmaniasis as it reduces treatment period from 30 days to 17 days. The Ministry also recommends use of rapid diagnostic test kits that can be used by health workers with limited training to help in case diagnosis even at the lowest health facility level.

In June 2021, Kenya launched the first National Strategic Plan for Control of Leishmaniasis 2021- 2025. It aligns to the 2021-2030 WHO NTD roadmap for elimination of NTDs. The main goal of the strategic plan is to reduce morbidity due to leishmaniasis in Kenya by 60% in 2025 and reduce the occurrence of leishmaniasis outbreaks in Kenya by 50% and reduce case fatality rate due to visceral leishmaniasis to less than 1% in

2025. The strategy will guide the control and management of leishmaniasis with a focus on disease ecology and mapping, case identification and management, health systems strengthening, surveillance and vector control.

Envisaged strategies towards elimination of leishmaniasis as public health problem.

1. Improved case management for CL and VL

Proper diagnosis and prompt management of leishmaniasis cases are crucial in achieving the goal of elimination. The leishmaniasis programme will focus on developing and reviewing guidelines for the management of VL and CL, equipping health care workers with the relevant knowledge and skills, laboratory quality assurance and efficacy testing of medicines. Capacity building of more health workers and establishing more diagnosis and treatment centres. This will ensure early and prompt treatment of cases.

2. *Improving testing capacity to quickly identify and treat latent cases of VL in the* community

The current VL control/elimination strategy relies on a test-and-treat approach, with passive case detection in health facilities. Early diagnosis leads to early treatment and improved prognosis. This strategy, though effective in addressing late stages of the disease, misses the early-stage cases in the community that may persist for months undetected or confounded by other diseases with similar symptoms such as malaria. The existence of early cases in the community may also serve as sources of transmission. Identifying and treating the early cases will improve treatment outcome and help in breaking transmission.

3. Mapping new VL hotspots

This will involve mapping high risk areas of transmission of VL in the country and develop risk maps. Both vector surveillance and active case searches in counties bordering endemic areas will be done. The mapping will help identify VL hotspots in endemic areas and early control measures instituted.

4. Strengthened supply chain management system for VL and CL

In this strategy, the programme aims at ensuring correct quantification and an adequate supply of leishmaniasis medical commodities (drugs and diagnostics). This will be achieved by employing various methods that include building capacity in endemic

counties on quantification and forecasting, strengthening reporting for stock and adoption and use of KEMSA e-LMIS system to integrate leishmaniasis medicines and diagnostics. This will allow regular delivery of supplies through the standard health product ordering and delivery system. The programme will engage KEMSA to provide adequate logistic support from national to county level for delivery of medicines and diagnostic materials at affordable costs.

5. *Enhanced vector control mechanisms to reduce leishmaniasis transmission*

Vector management is key in leishmaniasis transmission control. In Kenya, Phlebotomus sandflies are the main vectors known to transmit leishmaniasis. Sandflies, unlike mosquitoes, have poorly defined breeding areas and do not aggregate as juveniles that are amenable to environmental management. This strategy will target protecting persons against sandfly bites, controlling vector densities, and monitoring the occurrence and distributions of the sandflies in Kenya.

6. *Strengthened surveillance, monitoring and evaluation, and operational research for informed decision making*

Surveillance, monitoring, evaluation, learning, and research will be key processes in the leishmaniasis control strategy. These processes will enable the programme to generate strategic information for; tracking the progress of set targets, demonstrating if the programme has contributed to desired outcomes, Learning and adaptive management that provide answers to research questions where there are information gaps.

7. *Strengthened Epidemic Response (EPR) for leishmaniasis*

This strategy aims at ensuring early detection and treatment of new cases and prevent the spread of the epidemic. Key activities to be implemented include increasing alerts, prompt investigation of validated alerts and cases, active case finding both in the health structures and in the community, particularly around new cases.

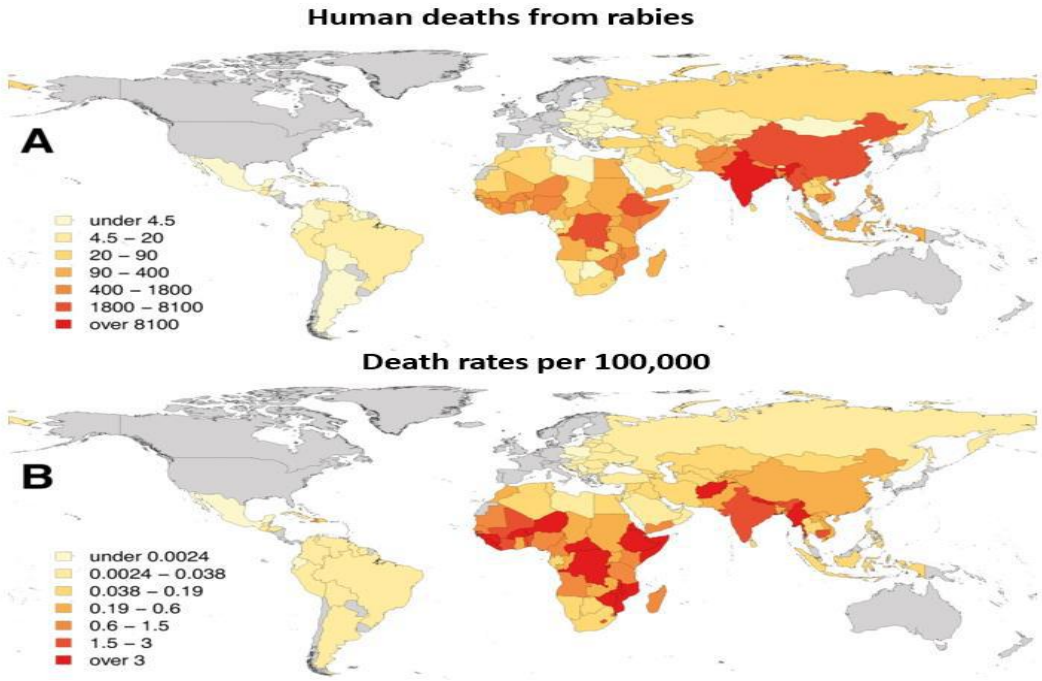
8. *Enhance Advocacy, Communication, and social mobilization activities*

This strategy will embrace policy change, sustained political, financial, and social commitment towards leishmaniasis control. This will involve high level advocacy at counties to set aside budgets to support control activities. It will also involve community sensitization on the control and prevention measures of the disease.

Rabies

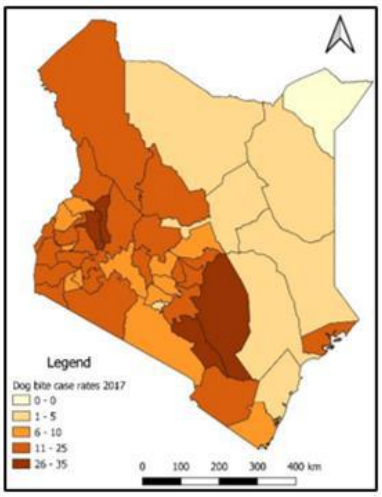
Rabies is a neglected zoonotic disease which is almost invariably fatal in humans, livestock, and other mammals. It kills up to 60,000 people a year, most of them (95%) in Africa (43.6%) and Asia (56%). This translates to one death due to rabies every 10 minutes in the two continents. The map below shows the global burden of dog-transmitted human rabies deaths, countries shaded in grey are free from canine rabies.

Global Burden of Dog-Transmitted Human Rabies Deaths

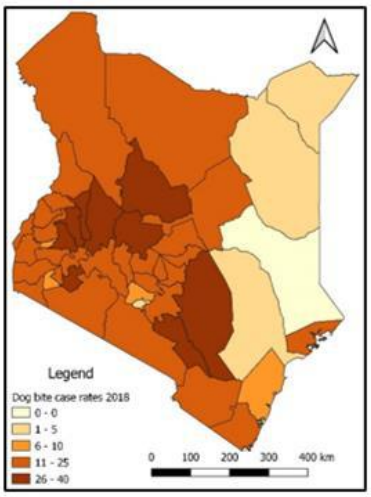


In Kenya, rabies is endemic across the country and has been ranked as one of the top five priority zoonotic diseases with the goal of eliminating human dog-mediated rabies. Surveillance data of dog-bite injuries is used as a proxy to estimate region-specific rabies burden. The map below shows the distribution of dog-bite injuries reported between 2017 and 2021. It is estimated that up to 2,000 human deaths due to rabies occur annually in Kenya.

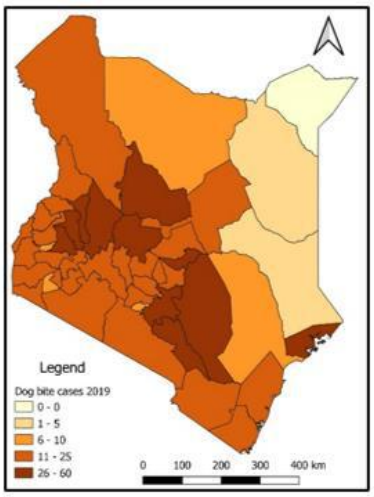
Distribution of dog-bite injuries reported between 2017 and 2021in Kenya



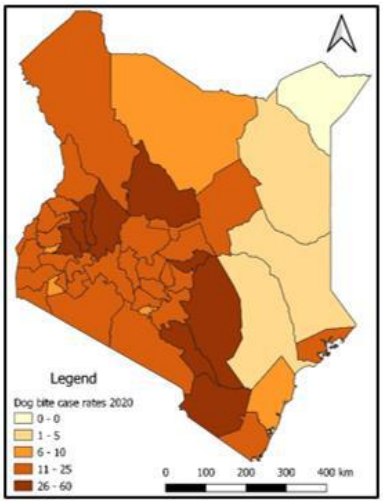
Year: 2017



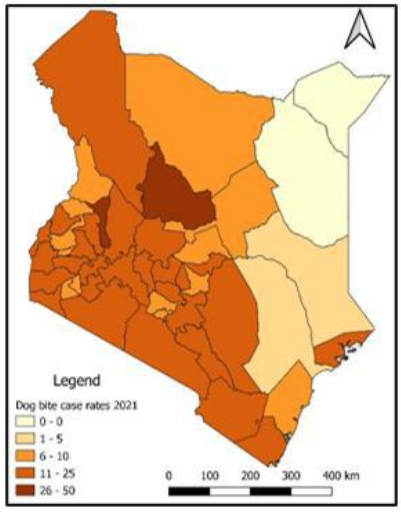
Year: 2018



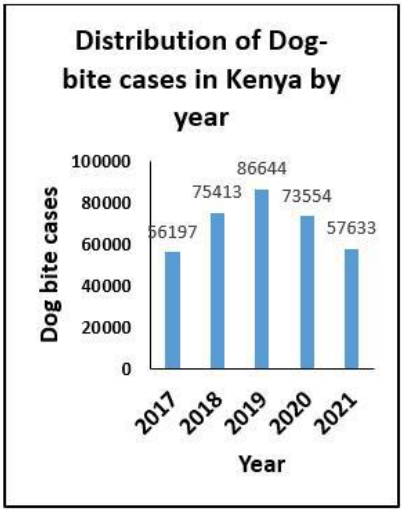
Year: 2019



Year: 2020



Year 2021



Year: 2017-2021

In addition to human mortality, the economic burden attributable to rabies is significant. At the household level, costs of post-exposure prophylaxis (PEP) arise directly from anti-rabies vaccines and indirectly from costs associated with travel, medical fees, and income loss. The indirect household losses represent more than 50% of total costs. The total PEP costs have been estimated at US$40 per patient in Africa and US$ 49 in Asia, accounting for 6% and 4% of annual per capita Gross National Income, respectively. In Kenya, the direct medical cost associated with a complete regime of PEP is estimated at $85 per person. Poor households face difficulties paying for PEP, which results in considerable financial hardship and substantial delays or failure in receiving the PEP. Shortages of

PEP are also common, further increasing the costs as victims are forced to travel to far flung centres to obtain treatment.

Success in rabies elimination has been demonstrated in many countries, including in developing countries where sustained mass vaccination of dogs has been shown to be the single most cost-effective intervention to control and eliminate canine rabies and consequently human rabies. Successful elimination of human rabies requires a multi-sectoral and collaborative approach. Prevention of dog rabies, effective surveillance in humans and animals, better public awareness, appropriate case management and improved access to human rabies vaccines and immunoglobulins, are essential for the elimination of human rabies.

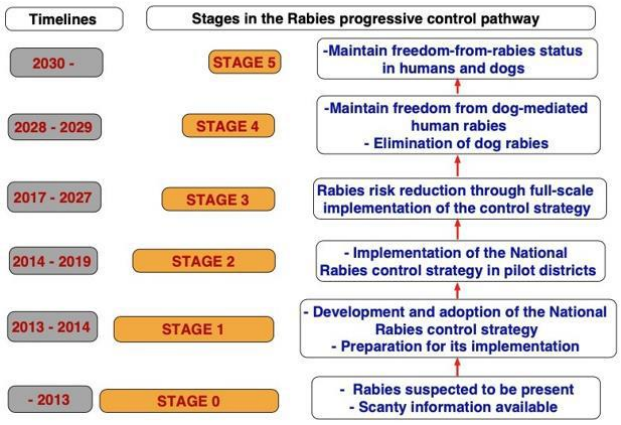
Kenya is implementing a national human rabies elimination strategy with a target of achieving zero human deaths from dog mediated rabies by 2030. Using three-pronged approach, the strategy aims to reduce the disease risk through sustained mass dog vaccination, dog population management, pre- and post-exposure prophylaxis in humans and public education among animal/human health workers and the community. With an estimated 5 million dogs in Kenya, 80% of which have known owners, mass vaccination of owned dogs would cover a substantial population of dogs and can successfully eliminate canine mediated rabies.

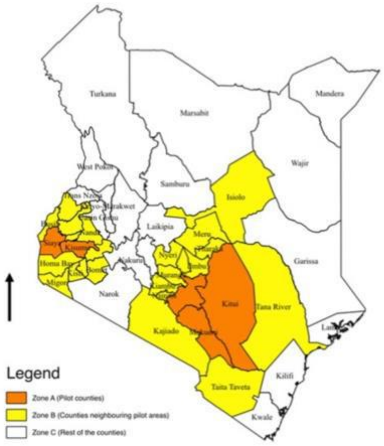
Due to the threat of emerging and re-emerging zoonotic diseases globally and the emphasis on these threats through the International Health Regulations (IHR), Kenya has established a One Health coordinating office, referred to as Zoonotic Disease Unit (ZDU), which forms a link between human and animal health sectors. The ZDU serves as the secretariat for the National Rabies Elimination Coordination Committee (NRECC) presenting an opportunity to promote inter-sectoral collaboration.

The Strategic Plan for the Elimination of Human Rabies in Kenya 2014-2030 provides a guide for systematic reduction of rabies risk until the country is completely free of human dog-mediated rabies. This strategy is based on activities planned in accordance with the

Stepwise Approach to Rabies Elimination (SARE) for the country to move from an endemic state to a disease-free status. SARE is a stepwise progression towards becoming a rabies disease-free country, consisting of 6 stages (Stage 0 to 5), each with a set of activities that build on each other to continuously reduce the risk of disease, with the country being declared completely free of human dog-mediated rabies when it reaches Stage 5. The map below shows zones for the stepwise rabies elimination strategy.

Zones for the stepwise rabies elimination strategy in Kenya





- Stepwise approach to rabies elimination
- Selection of pilot counties dependent on:
  - Rabies burden
  - Presence/absence of natural barriers

The critical steps in the various stages include (i) developing and adopting a national rabies elimination strategy (2013-2014), ii) starting implementation of elimination plan in pilot areas (2014-2019), (iii) implementation of the elimination strategy throughout the country (2017-2027) and iv) maintaining freedom from human dog mediated rabies and canine rabies (2028-2030). To move from one stage to the other, a set of targets must be reached and confirmed. The implementation of the strategy began with selected pilot areas to gain valuable lessons in creating and maintaining a rabies-free zone that are being used during the roll-out of the elimination campaign in the rest of the country.

Snake bites envenoming (SBE)

Snakebite envenoming was listed as a priority Neglected Tropical Disease by WHO in 2017. Globally, approximately 5 million people experience snakebite every year resulting in over 1.8 million envenomation (6.2/100,000 per year). Among the envenomed, 138,000 people die every year and 400,000 more suffer disabilities as a result of snake bite envenoming. In sub-Saharan Africa, 32,000 people die every year and 6,000 are amputated leading to disabilities and psychological morbidities.[30,31] The East Africa region contributes 6,127 and 22,941 amputations and post-traumatic stress disorders (PTSD) respectively,[32] with Kenya experiencing 15,000 annual bites. The affected populations are mostly the economically productive 10–40-year-old rural poor populations living in tropical areas that majorly depend on agriculture and livestock keeping. This explains the solid socioeconomic burden associated with the disease.

Despite the devastating effects, scarcity of data on the epidemiology of SBE has been reported as a major menace in most of the affected regions including Kenya and other East Africa nations.[33,34] Among the endemic counties in Kenya include Turkana, West Pokot, Baringo, Kilifi, Kitui, Makueni, Samburu, Narok, Kajiado, Busia and Kakamega counties. Table 20 illustrates annual incidence estimates of snakebite in select endemic areas in Kenya from previous surveys.[35,36]

[30] Harrison, R. A., Hargreaves, A., Wagstaff, S. C., Faragher, B., & Lalloo, D. G. (2009). Snake envenoming: A disease of poverty. PLoS Neglected Tropical Diseases, 3(12). https://doi.org/10.1371/journal.pntd.0000569

[31] WHO. (2017). RECOMMENDATIONS FOR THE ADOPTION OF ADDITIONAL DISEASES AS. 1–5

[32] Chippaux, J. (2011). Estimate of the burden of snakebites in sub-Saharan Africa : A meta-analytic approach. Toxicon, 57(4), 586–599. https://doi.org/10.1016/j.toxicon.2010.12.022

[33]Kihiko, D. K. (2013). Venomous snake bite injuries at Kitui District hospital. Annals of African Surgery, 10(1), 15–20.

[34] Okumu, M. O., Patel, M. N., Bhogayata, F. R., Olweny, I. A., Ochola, F. O., & Onono, J. O. (2018). Acute poisonings at a regional referral hospital in western Kenya. Tropical Medicine and Infectious Disease, 3(3). https://doi.org/10.3390/tropicalmed3030096

[35] Coombs, M. D., Dunachie, S. J., Brooker, S., Haynes, J., Church, J., & Warrell, D. A. (1997). Snake bites in Kenya: A preliminary survey of four areas. Transactions of the Royal Society of Tropical Medicine and Hygiene, 91(3), 319–321. https://doi.org/10.1016/S0035-9203(97)90091-2

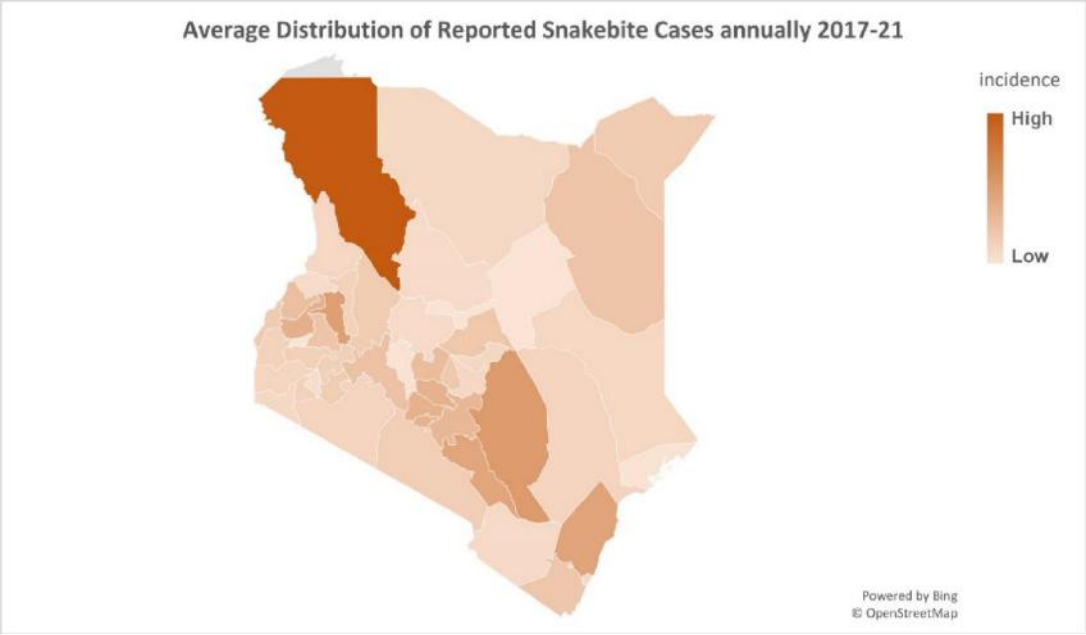
[36] Ochola, F. O., Okumu, M. O., Muchemi, G. M., Mbaria, J. M., & Gikunju, J. K. (2018). Epidemiology of snake bites in selected areas of Kenya. Pan African Medical Journal, 29, 1–14. https://doi.org/10.11604/pamj.2018.29.217.15366

TABLE 20: ANNUAL INCIDENCE ESTIMATES OF SNAKEBITE IN SELECT ENDEMIC AREAS IN KENYA

National / County	Incidence/100,000/year
National (country wide)	2.4-6.7 (Ochola et al., 2018)
Kakamega	1.9 (Coombs et al., 1997)
Laikipia	4.5 (Coombs et al., 1997)
Busia	25.3 (Coombs et al., 1997)
Kilifi	44 (Coombs et al., 1997)
Samburu	66 (Coombs et al., 1997)
Baringo	67.9 (Coombs et al., 1997)
Kitui	25.8 (Kihiko, 2013)

The map below illustrates spatial distribution and county-wide distribution of snakebite cases in Kenya from 2017 to 2021 (source: Kenya Health Information Systems).

Average distribution of reported snakebite cases (2017 – 2021)

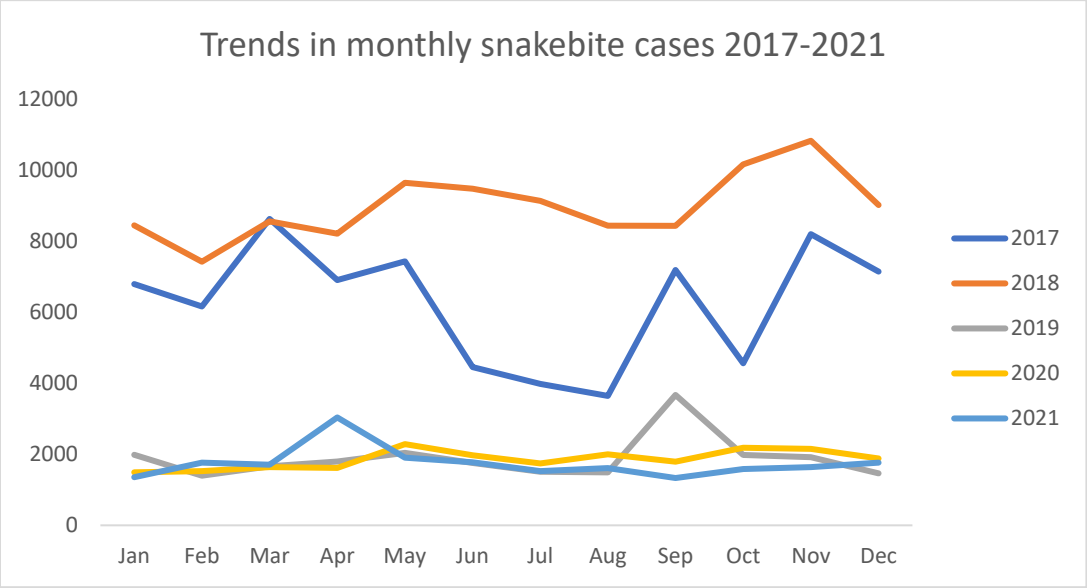


Despite the high burden of snake bite envenoming in Kenya and the larger East African region, effective treatment is generally scarce with most antivenoms proving to be ineffective and unavailable in most facilities. It's estimated that only about 2% of snake bite victims receive the antivenom that they need. The lack of antivenom in addition to the traditional beliefs results in victims consulting traditional healers even though they provide an ineffective treatment which worsens the outcome of these bites. Poor outcomes following antivenom administration can also be attributed to the observed variations in venom components due to geographical variations even within the same genus and species.

Other factors contributing to high morbidity and mortality in endemic areas include high illiteracy levels, poor road infrastructure, poorly equipped health facilities, lack of diagnostic tool, relatively low knowledge within the Health Care Workers (HCWs) in management of snakebite, limited supply of antivenom and high costs associated with antivenom treatment. Apparently, not much has been done in Turkana, West Pokot, parts of Baringo (Tiaty, Baragoi) and Samburu counties despite being most endemic regions. This is because of the associated insecurity and harsh climatic conditions.

Currently, there is no national prevalence of snakebite as the available data fails to capture data at the community level. This, therefore, necessitates improvement of SBE surveillance programs to capture this integral component. Nevertheless, the Kenya MOH surveillance program has made significant strides to capture monthly reported cases of snakebites in the Kenya Health Information System from all the health facilities. Figure 8 shows the monthly snakebite cases per the monthly trend analysis.

FIGURE 8: MONTHLY SNAKEBITE CASES IN KENYA (2017 – 2021)



The Kenya Snakebite Research and Intervention Centre (KSRIC), Institute of Primate Research (IPR) in close collaboration with the DVBNTD undertakes research and interventions aimed at improving data availability and advancing knowledge on management of snakebite envenoming in Kenya. Some of the key outputs from the collaboration include Integrated surveillance of SBE with other NTDs such as trachoma, antivenom quality control, Kenya SBE clinical management guidelines, training of health care workers and public health awareness in SBE endemic regions. DVBNTD has also been working in close collaboration with Health Action International (HAI) since 2019 to advance knowledge and skills required for control, management, care and treatment of snakebites through various public health programs. These include working with WHO to advocate for inclusion of snakebites as priority NTDs; development of IEC materials; training of healthcare workers, management and treatment of snakebites, membership and participation in the SBE Technical Advisory Group, recruiting Trainers of Trainees (TOTs) from the MOH to aid in dissemination of information and community education; sharing of key research findings to support decision making and review of proposed snakebite material (comic book) for prevention messaging.

Onchocerciasis

Onchocerciasis, commonly known as river blindness, is a neglected tropical disease (NTD) targeted for elimination by the WHO. It is a parasitic disease caused by the filarial worm *Onchocerca volvulus.*[37] The Global Burden of Disease Study estimated in 2017 that at least 220 million people required preventive chemotherapy against Onchocerciasis, 14.6 million of the infected people already had skin disease and 1.15 million had vision loss.[37] More than 99% of infected people live in 31 African countries.

The vectors of onchocerciasis are *Simuliidae* (blackfly). They are blood sucking Diptera which affect the health of man and animals in several ways. Some species within this family are vectors of filarial worms causing onchocerciasis in man and domestic animals. *Onchocerca volvulus* the filarial worm causing onchocerciasis in man is transmitted in most parts of Africa by species within the *Simulium (Edwardsellum) damnosum* complex. Species within the *S. (E) damnosum* complex have not been known to bite man in Kenya. In Kenya records show that the disease was transmitted by *S (E) neavei* in the areas formerly endemic for onchocerciasis.

Simuliidae select fast flowing streams where they lay their eggs either scattered over water or laid in masses on submerged vegetation or rocks. In the case *of Simulium naevei*, records show that the preimaginal stages (larval and pupal) of *Simulium naevei* were found in phoretic association where they were attached to freshwater crabs of genus *potamonautes*.[38] Because the blackfly vector requires fast flowing rivers and streams for breeding, the distribution of onchocerciasis is essentially focal, causing great suffering among the people who inhabit the fertile river valleys. In places where the *Simuliidae* are hyperabundant they cause direct injuries, intolerable nuisance, and even psychological effects in the hosts.

[37] https://www.who.int/news-room/fact-sheets/detail/onchocerciasis

[38] McMAHON JP, HIGHTON RB, GOINY H. The eradication of Simulium neavei from Kenya. Bull World Health Organ. 1958;19(1):75-107. PMID: 13585062; PMCID: PMC2537689.

In Kenya, onchocerciasis was originally endemic in six well-defined areas of western part of the country. The foci areas included the foothills of Mount Elgon, close to the Uganda border, Kodera Forest in Homabay, Ngoina in Kisii, Riana in Kericho, Kuja in Migori, Kaimosi in Vihiga and Kakamega forest. Elimination of the onchocerciasis vector *Simulium neavei* through the use of larvicides in focal areas of Kenya started in 1946 and spread over a period of around ten years up to 1956.

In Kenya, the phoretic association of the *S. neavei* group with fresh-water crabs of the species *Potamonautes niloticus* was only discovered in 1951 when McMahon found larvae and pupae of this group attached to riverine crabs in the Kipsonoi river in Kericho. This discovery is of great biological significance in the control of *S. neavei* vectors in the former endemic foci of onchocerciasis in parts of western Kenya which is being targeted for the current situation analysis.

The *Simulium neavei* group (subgenus *Lewisellum*) is a complex of closely related species, some of which occur in Kenya (see table 21).

TABLE 21: DISTRIBUTION OF BLACK FLIES OF SIMULIUM NEAVEI GROUP

Species	**Distribution**
Simulium neavei senso stricto (Roubaud 1915)	Kenya, Uganda, Zaire Angola,
Simulium goinyi (Lewis and Hanney 1965)	Kenya, Uganda
Simulium hightoni (Lewis 1961.)	Kenya, Uganda
Simulium nyasalandicum (De Meillon 1930)	Kenya, Malawi, Tanzania

<u>Kenyan situation</u>

Records show that *S. neavei s.s.* is the only species within the subgenus *Lewisellium* that has been shown to transmit human onchocerciasis. In Kenya *S. neavei* was first observed by S.A. Neavei in 1911 in River Yala in Kakamega District. More specimens were later

discovered in R. Kipsonoi in Ngoina/Kericho in 1922 by Dry. Later *S. neavei* was observed in Kodera in 1939 by Symes & Cormack (McMahon et al. 1958). The breeding sites of *S. neavei* were not known until 1951 when Van Someren & McMahon discovered the significance of the phoretic association between larvae & pupae of *S. neavei* and freshwater crabs, *Potamonautes niloticus*.[38] This knowledge of the biology and distribution of *S. neavei* was of great significance in the control of the vectors of onchocerciasis. The control programme which was conducted in all the endemic foci of onchocerciasis lasted from 1946-1955 covering an area of approximately 4,000 km.[38] The control of the vector using DDT involved the application of 18% DDT in emulsion oil to all infected rivers and their tributaries. Bush clearing was also used as a method of controlling *S. neavei*. It was conducted in Riana from 1943-1946. Buckley (1951) reported that the alteration of adult habitat by clearing the bush was responsible for the extinction of the flies. Treatment of infected people was also used as a control measure. This was done only on a very small scale.

In a follow-up survey conducted in 1964 in four focal areas, approximately 2,000 people were examined parasitologically and clinically; slightly over half this group were also given detailed ophthalmological examination. The results showed that, 11 years after interruption of transmission, live *Onchocerca volvulus* adults were still present both in nodules and the skin. After 18 years, however, microfilariae were no longer found in the skin signifying that permanent Interruption of transmission can occur if there is no reinfection for a period between 13-17 years.[39] These studies seem to have confirmed that transmission follows a straight regression line, theoretically reaching zero after about 13-17 years.[39]

In the 1970s to 1980s, several studies were conducted on *S. naevei* group by the MOH (DVBD) in partnership with researchers from neighboring countries. These studies were aimed at assessing the important biotic and abiotic factors that determine the existence,

[39] Roberts, J. M. D., Neumann, E., Gockel, C. W., & Highton, R. B. (1967). Onchocerciasis in Kenya 9, 1 1 and 18 Years after Elimination of the Vector, 37, 195–212. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2554347/pdf/bullwho00241-0030.pdf

distribution, and development of *Simulium* vector species in Kenya.[40] The studies focused on Immature stages of *S. naevei* group because adult stages were not easily accessible and were rarely caught in the wild. The findings confirmed that the interruption of transmission of onchocerciasis in kenya using larvicide was of great significance in reducing the number of the *S. naevei* vector population and in interrupting active transmission of the disease.

Rapid epidemiological assessment was carried out in northwestern Kenya in Oct- Nov 2004 by (WHO/MOH and APOC Consultants) to determine the prevalence of Onchocerciasis among the Sudanese refugees in Kakuma camp, Eldoret, Trans-Nzoia and Kapenguria. A total number of 1421 refugees were screened. The result showed that Onchocerciasis is hypo-endemic (6%) among the refugees surveyed, Existence of cases of severe onchocerca skin disease was observed. It was also observed that the prevalence (<2%) was very low. These results show the need for further investigation to ascertain where the positive cases originated from and whether there are current cases in the refugee camps. However, there has been no previous reported cases of onchocerciasis transmission in Kenya in the dry Northern parts of the country including Kakuma.

A survey conducted in 20 countries by the African Programme for Onchocerciasis Control (APOC) reported that Kenya is not among those countries classified as high risk for onchocerciasis. In this survey, only 8 persons out of 3,822 examined (0.2%) in Kenya had palpable nodules and given these nodules are not 100%, this supported earlier conclusions that elimination is realized in Kenya.[41]

Onchocerciasis Elimination mapping in those formerly endemic regions was done in 2018 to establish the status of Onchocerciasis transmission in Kenya including the risk of transmission from the neighboring countries. Blood Samples were collected from selected

[40] P. A. O Josiah, KEMRI/KETRI 3rd Annual Scientific Conference, 1982

[41] Noma, M., Zouré, H. G. M., Tekle, A. H., Enyong, P. A. I., Nwoke, B. E. B., & Remme, J. H. F. (2014). The geographic distribution of onchocerciasis in the 20 participating countries of the African Programme for Onchocerciasis Control : (1) priority areas for ivermectin treatment. Parasites and Vectors, 7(325), 1–15. Retrieved from https://parasitesandvectors.biomedcentral.com/track/pdf/10.1186/1756-3305-7325?site=parasitesandvectors.biomedcentral.com

individuals, Random Diagnostic test (OV16) was then run on them, Dry Blood Spot (DBS) was also collected from all participants for Enzyme Linked Immunosorbent Assay (ELISA) but was run for positive cases and an additional 5% of negative for quality assurance. The results will be used for further determination of Onchocerciasis by the program

Human African Trypanosomiasis (HAT)

Introduction

Trypanosomiasis is caused by a parasite transmitted by tsetse flies and other blood sucking Dipthera. The parasite causes Human and Animal Disease. Animal form is called Nagana or Animal African Trypanosomiasis (AAT). The Human form is called Sleeping sickness or Human African Trypanosomiasis (HAT). Management of both forms of the disease is key for poverty eradication in Africa. At the 36th Ordinary Summit of the African Heads of State and Government held in Lome, Togo, in July 200, Decision AHG/Dec. 156 (XXXVI), urging Member States to act collectively and rise to the challenge of eliminating trypanosomiasis from the continent of Africa was adopted. Tsetse and Trypanosomiasis problem is one of Africa's greatest constraints to socio-economic development, severely affecting human and livestock health, limiting land use, causing poverty, hunger and perpetuating underdevelopment.

Human Disease

Human African Trypanosomiasis (HAT) or sleeping sickness (SS) is caused by trypanosomes which are transmitted by tsetse flies (*Glossina spp*). The disease presents in two forms: a chronic form caused by *T. brucei gambiense*, which occurs in West and Central Africa, and the acute form, caused by *T. brucei rhodesiense*, which occurs in Eastern and Southern Africa. Sleeping sickness in Kenya was first reported in 1902 and became the main focus of tsetse control in the country. The disease was caused by *T brucei rhodesiense*, which is endemic in the Lake Victoria basin. It is characterized by localized outbreaks transmitted by *G fuscipes* and *G. pallidipes*. Historically outbreaks have occurred in Homabay, Siaya, Bungoma and Busia Counties and few reported cases in Migori and Narok counties.

The potential of human sleeping sickness outbreak recurring is high in the Lake Victoria basin and the Serengeti-Mara region. The disease is fatal with high costs of medication with accompanying losses of manpower negatively affecting the economy. Human African Trypanosomiasis (HAT) affects the population and the productivity of the people. The cost of the disease is extremely difficult to quantify. According to WHO (2003) at least 60 million people are at risk of contracting the disease in Africa while 11 million Kenyans are at risk.

Animal Disease

The economic losses attributable to Tsetse and Trypanosomiasis are realized through Cost of human and animal treatment, death of infected human and animals, abortions, loss of milk, loss of draught power and inability to plough in certain areas, inaccessibility to grazing grounds, low market value for affected animals, loss of foreign exchange through imports of drugs/pesticides and lost opportunity to export livestock and livestock products. Other parasite species and sub-species of the Trypanosoma genus are pathogenic to animals and cause animal trypanosomiasis in wild and domestic animals.

Animals can host the human pathogen parasites, especially *T.b. rhodesiense*, of which domestic and wild animals are important reservoirs. Animals can also be infected with *T.b. gambiense* and act as reservoirs to a lesser extent. However, the precise epidemiological role of the animal reservoir in the *gambiense* form of the disease is not yet well known.

The tourism industry accounts for 21% of total foreign exchange earnings and up to 12% of the Country's GDP while wildlife contributes 70% of tourism earnings and yet T&T infestation directly affects tourism due to threats of HAT. The threat to wildlife and unwillingness of tourists to visit tsetse infested areas contributes to loss in tourism earnings.

The trans-boundary nature of Tsetse and Trypanosomiasis requires a strong coordination framework with a mandate transcending political borders and capable of linking with

international organizations for tsetse eradication. The East African Community (EAC) coordination is key in addressing this challenge.

Major human epidemics

Several epidemics occurred in Africa over the last century:

- One between 1896 and 1906, in Uganda and the Congo Basin
- One in 1920 in several African countries
- Most recent epidemic started in 1970 and lasted until the late 1990s.

The 1920 epidemic was controlled by mobile teams who screened millions of people at risk. By the mid-1960s, it was controlled to less than 5,000 cases reported in the whole continent. With relaxed surveillance, the disease reappeared, reaching epidemic proportions in several regions by 1970. Efforts of WHO, national control programmes, bilateral cooperation and non-governmental organizations (NGOs) in the 1990s and early 21st century reversed the curve. International coordinated efforts dropped the number of new HAT cases reported between 2000 and 2012 significantly. Hence, the WHO neglected tropical diseases road map targeted its elimination as a public health problem by 2020 and interruption of transmission (zero cases) for 2030.

Disease burden

Sleeping sickness threatens millions of people in 36 countries in sub-Saharan Africa. Many affected populations in remote rural areas with limited access to adequate health services, which complicates surveillance and therefore diagnosis and treatment of cases.[42] In addition, displacement of populations, war and poverty are factors that facilitate transmission.

Data over the last five years (2016-2021)

No local cases were detected and treated in Kenya in the last five years by both active and passive surveillance according to the National Sleeping Sickness Referral Hospital (NSSRH, unpublished data). Only one case reported in 2017, a Chinese traveler who

[42] https://www.who.int/news-room/fact-sheets/detail/trypanosomiasis-human-african-(sleeping-sickness)

visited Kenya and Serengeti National Park. The tourist was diagnosed and treated in the country of origin. At the national level, no case (stage1/stage2) was detected and reported in the past five years. The Chinese tourist was diagnosed to be in stage one.The health facilities in the six formerly endemic counties lack the capacity to diagnose and manage HAT except the NSSRH Alupe, Busia. Two health facilities in each of the six sentinel counties were selected for equipping and capacity building of the health care workers. The last positive HAT case was detected through active surveillance at the NSSRH Alupe in 2009 and treated. Available data at the Referral Hospital confirms that the country has had no case for over 10 years. See details in the two tables below.

TABLE 22: ACTIVE SCREENING OF POPULATIONS IN HUMAN AFRICAN TRYPANOSOMIASIS FORMERLY ENDEMIC COUNTIES FOR THE PERIOD 2016-2020

	HAT cases Year 2016	HAT cases Year 2017	HAT cases Year 2018	HAT cases Year 2019	HAT cases Year 2020	Mean annual cases	Mean Population	n/10000/yr
Busia	0	0	0	0	0	0	100000	0
Bungoma	0	0	0	0	0	0	80000	0
Kakamega	0	0	0	0	0	0	120000	0
Siaya	0	0	0	0	0	0	210000	0
Homa Bay	0	0	0	0	0	0	145000	0
Migori	0	0	0	0	0	0	180000	0
Narok	0	0	0	0	0	0	170000	0

TABLE 23: PASSIVE SCREENING OF POPULATIONS IN HUMAN AFRICAN TRYPANOSOMIASIS FORMERLY ENDEMIC COUNTIES FOR THE PERIOD 2015-2020

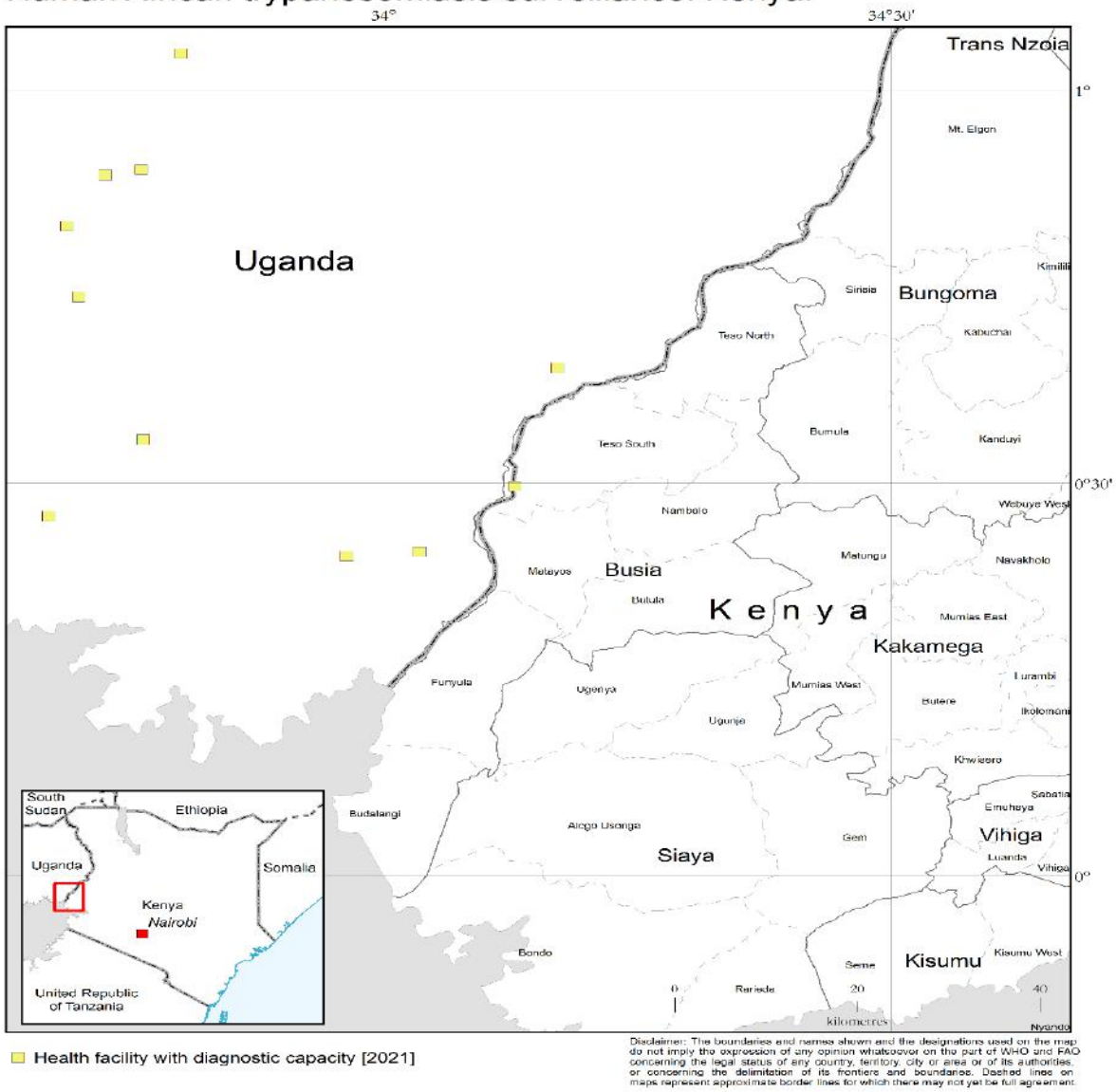
Year	Population examined	Counties	Population in HAT counties	Total HAT cases	Sero-positive cases	Stage 1	Stage 2
2015	1597	Busia	893,681	0	0	0	0
2016	1792	Bungoma	1,670,570	0	0	0	0
2017	2376	Narok	1,157,873	0	0	0	0
2018	2908	Homa Bay	1,131,950	0	0	0	0
2019	2063	Siaya	993,183	0	0	0	0
2020	1120	Migori	1,116,436	0	0	0	0

Geo-distribution of HAT cases (2016-2020) and HAT diagnostic facilities

World Health Organization

Food and Agriculture Organization of the United Nations

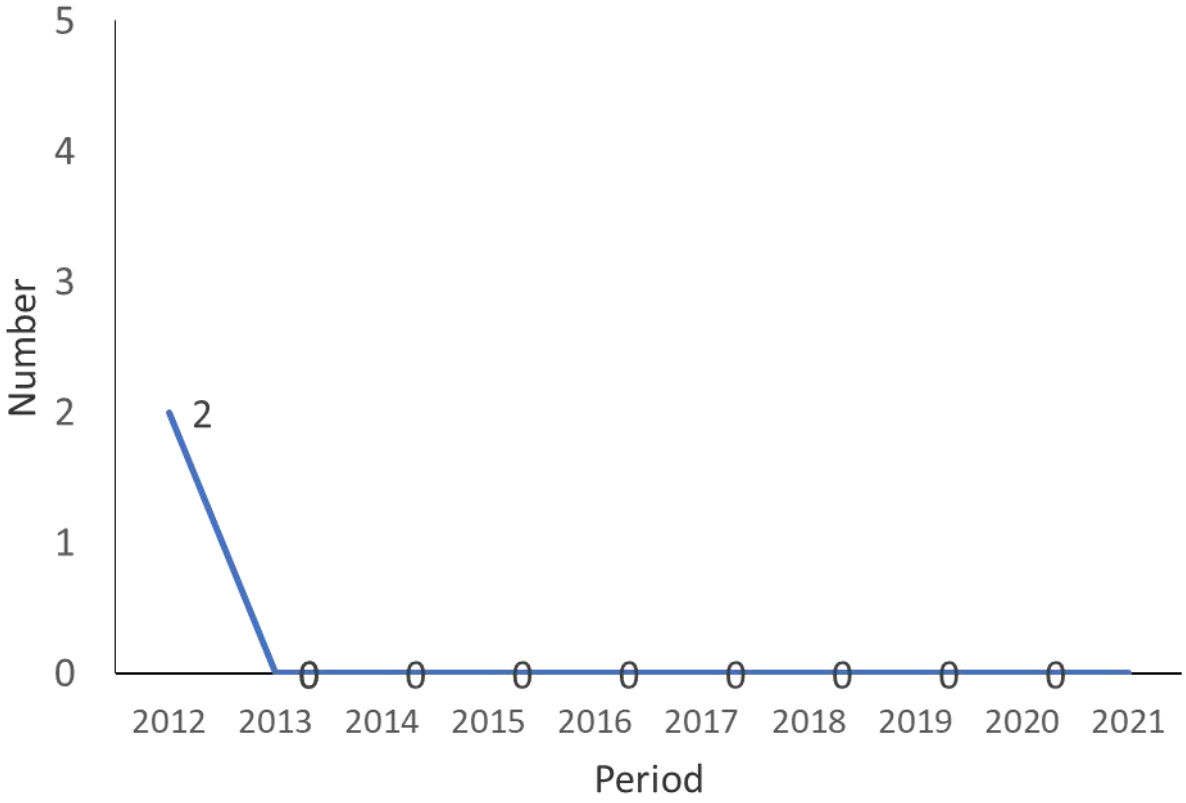
Human African trypanosomiasis surveillance. Kenya.



Health facility with diagnostic capacity [2021]

Disclaimer: The boundaries and names shown and the designations used on the map do not imply the expression of any opinion whatsoever on the part of WHO and FAO concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers and boundaries. Dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

FIGURE 9: HAT CASES REPORTED BETWEEN 2012-2021



Current HAT situation in Kenya

Efforts by the Kenya Government through mandated institutions, reduced HAT to undetectable levels, with the last case detected and successfully treated in 2009. A sustained zero case reporting is an indication that the disease is on course to elimination. However, recent livestock surveys by the State Department of Livestock in the affected counties revealed presence of *T. brucei* in cattle, which could be potentially human infective.

The WHO has laid down guidelines for countries that are ready for validation for the elimination of *rhodesiense* HAT as a public health problem (less than 10 cases per year per 10,000 human population). In March 2020, Kenya started the process of developing a dossier for validation by WHO in line with the set guidelines. The Dossier will then be submitted to the WHO for review and subsequently WHO will advise on the validation.

Leprosy

Elimination activities for Leprosy are managed by the Kenya National Tuberculosis, Leprosy and Lung Disease Program (NTLD-P), under the Ministry of Health. A detailed leprosy elimination plan is provided in the National Strategic Plan for Tuberculosis, Leprosy and Lung Health, 2019 – 2023.[43] In 1989, Kenya reached the post – elimination phase of leprosy having achieved one case per 10,000 population.[44] Counties with a high burden of Leprosy include Kwale, Kilifi, Homa Bay, Siaya, Busia, Kisumu and Mombasa.

The country has experienced a steady rise in Leprosy New Case Detection (NCD) from 2017 (92 new cases) through 2019 (161 new cases). In 2020, 22 of the 49 Counties in the Country reported Leprosy cases with Kilifi and Kwale Counties reporting the highest at 26 and 17 cases out of a total of 94. This was followed by a sharp drop by 47% to 95 cases in 2020 which could be linked to the impact of COVID-19 on all disease control interventions in the Country. According to the NTLP Annual Report (2020), 6 additional Counties did not report new Leprosy cases in 2019 and 2020. Figure 10 and Table 24 show the trend and number of reported cases of Leprosy.

[43] National-Strategic-Plan-2019-2023.pdf (nltp.co.ke) Accessed on 13 July 2022

[44] National Tuberculosis, Leprosy and Lung Disease Program. (2018, September 13). Tuberculosis and Leprosy Situation. Retrieved from National Tuberculosis and Leprosy Program: https://www.nltp.co.ke/services/tuberculosis-leprosy-situation

FIGURE 10: LEPROSY CASE NOTIFICATION TRENDS IN KENYA 2016 – 2021

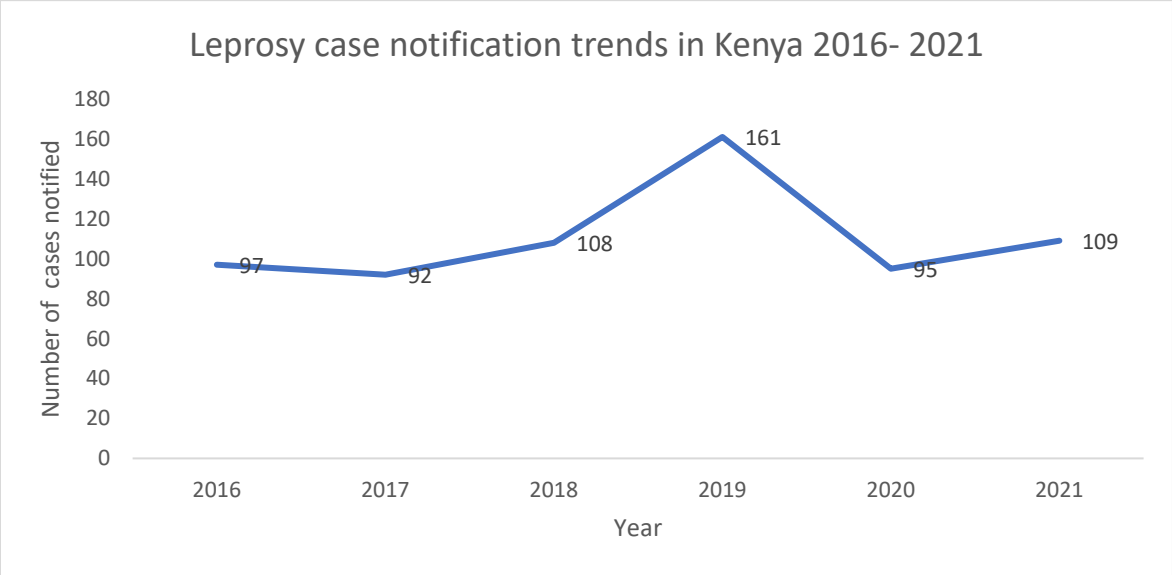


TABLE 24: TRENDS OF LEPROSY CASE NOTIFICATION AMONG TOP ELEVEN COUNTIES IN KENYA BETWEEN 2016– 2021 (MOH DATA)

County	2016	2017	2018	2019	2020	2021	Total
Kilifi	28	26	35	47	26	21	183
Kwale	8	16	6	31	17	31	109
Busia	6	10	8	14	7	15	60
Siaya	5	6	12	9	6	5	43
Mombasa	18	5	6	4	2	3	38
Homa Bay	8	4	5	9	7	4	37
Migori	1		5	7	7	6	26
Nairobi	3			8	2	6	19
Kakamega	3	2	6	4	1	1	17
Bungoma	1	6	1	4	2	2	16
Kisumu	2	3		6	3	2	16
Others	14	14	24	18	14	13	97
Grand Total	97	92	108	161	94	109	661

Distribution of Leprosy Cases in Kenya, 2017 -2021 (MOH Data)

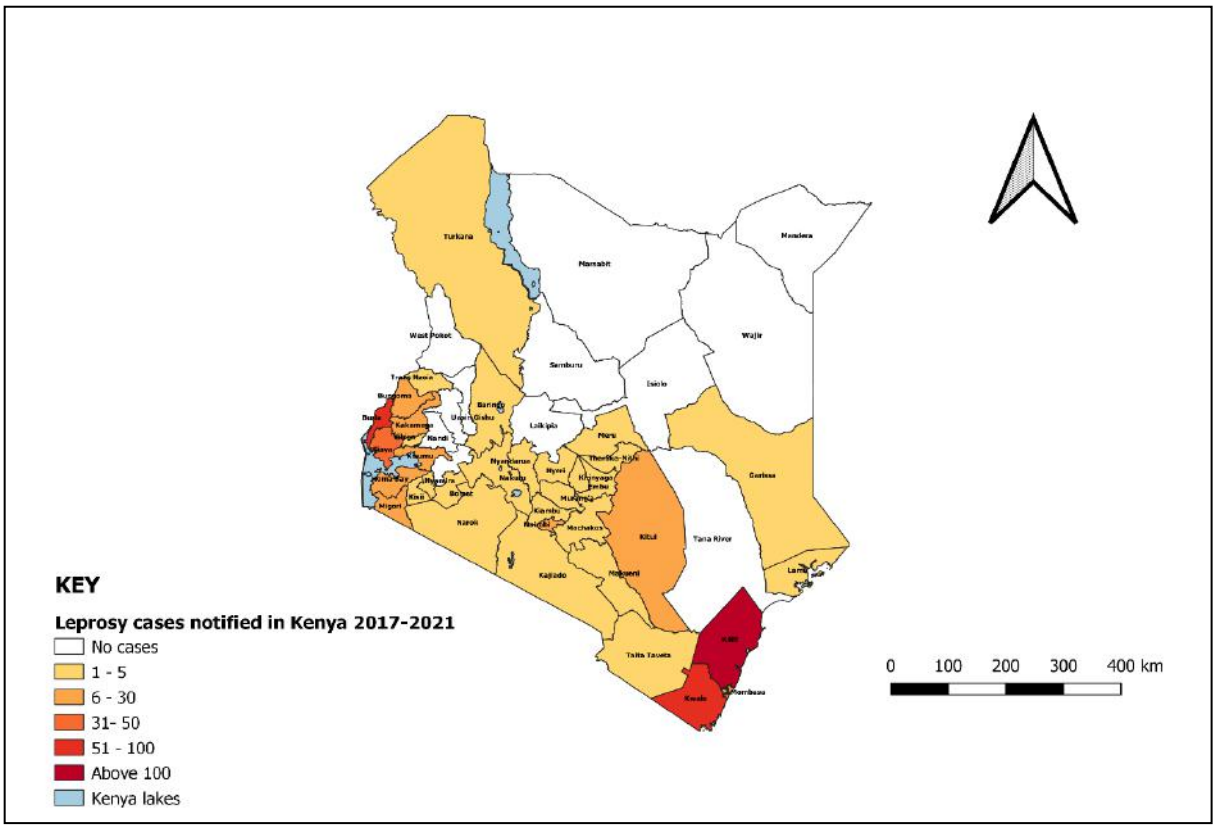
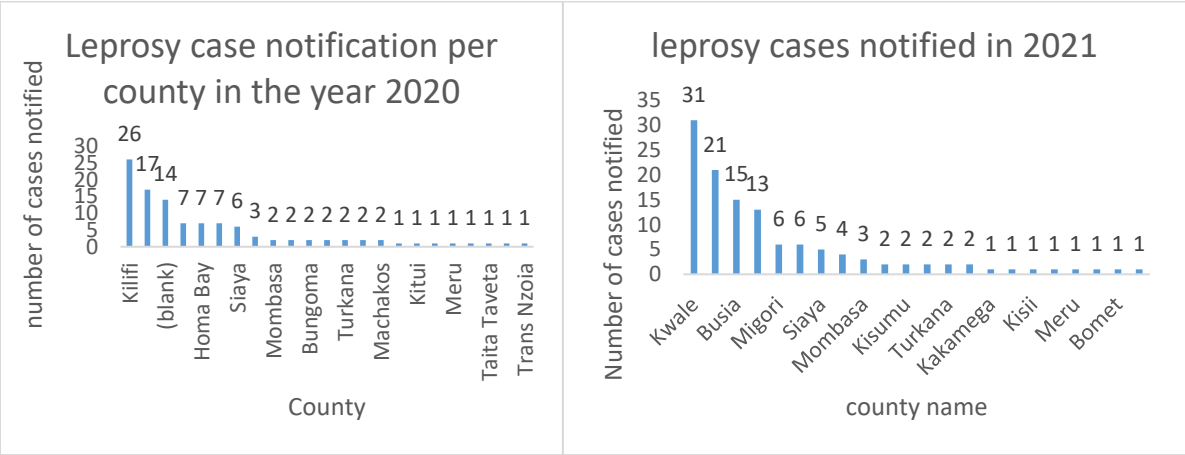


FIGURE 11: COUNTIES REPORTING LEPROSY CASES 2020-2021



Disability Grade 2 among newly diagnosed Leprosy cases dropped from 28% in 2020 (n=95) to 17% (n=109) in 2021. The baseline from the National Strategic Plan (NSP) (2019 – 2023) was 35% which was recorded in 2017 while the set target at the end of the strategic plan is <10%. This demonstrates steady progress towards the set target.

However, it also implies delayed detection of new leprosy cases which underscores the need to implement strategies that could lead to early Leprosy Case detection. Leprosy disabilities significantly lower quality of life.

Child proportion of 2.7% was recorded in 2021 (n=109) while the NSP baseline was 6% and the set target was 3%. This demonstrates positive progress which surpassed the target. However, the detection of children shows that transmission of Leprosy is also on-going in communities. Multibacillary leprosy proportion has consistently been above 95%; this gives an insight into the burden of Leprosy in the community.

End term review for TB /Leprosy and lung health 2015 -2018 findings revealed a low level of knowledge and awareness at both the community and health facility (HF) levels in the sub-Counties. Furthermore, there were no IEC materials in HFs across the Counties; this could contribute to the inadequate knowledge and awareness observed at the HF and Community levels. Strategies and structures to support early cases finding (active screening at HF and community level, contact investigation, management and rehabilitation for people affected by Leprosy who have disability) are inadequate at all levels.

Arboviruses – Dengue and Chikungunya

Dengue fever

Dengue fever is a mosquito-borne viral disease transmitted to humans through bites by infected female mosquitoes primarily of the species *Aedes aegypti* and, to a lesser extent, *Ae. Albopictus* (WHO 2014). It is caused by dengue virus (DENV) of the *Flaviviridae* family and there are four distinct, but closely related, serotypes with distinct epidemiological patterns of the virus that cause dengue (DENV-1, DENV-2, DENV-3 and DENV-4). *Aedes aegypti* could breed in natural containers such as tree holes and bromeliads but it has well adapted to urban habitats and breeds mostly in man-made containers including buckets, mud pots, discarded containers and used tires, storm water drains etc., thus making dengue fever an insidious disease in densely populated urban centers.

Dengue has an alarming impact on both global and national economies. Urbanization is associated with dengue transmission through multiple social and environmental factors like population density, human mobility, access to reliable water source and water storage practice. Community's risks to dengue also depend on population's knowledge, attitude and practice towards dengue, as well as the implementation of routine sustainable vector control activities in the community. Disease risks may change and shift with climate change in tropical and subtropical areas, and vectors might adapt to new environment and climate. One-third of the world's population (2.5 billion) is at risk of infection with DENV and it is estimated that approximately 390 million dengue virus infections occur per year (95% credible interval 284–528 million), and 96 million (67–136 million) manifest clinically.[45] The number of dengue cases reported to WHO increased over 8-fold in the last two decades, from 505,430 cases in 2000 to over 2.4 million in 2010, and 5.2 million in 2019.[46] Reported deaths between the year 2000 and 2015 increased from 960 to 4032, affecting mostly younger age groups.[46]

In 2017, Kenya reported 1537 cases with 806 cases lab confirmed and 1 death from Mombasa County (DSER). Another outbreak involving DENV-2 was reported in Wajir and Mandera in Northeastern Kenya, as well as Malindi and Kilifi on the Kenyan Coast (WHO 2017). In Malindi, a genomic study was conducted, and results obtained indicated the emergence of new immunogens relevant to the vaccine design. In 2018, Wajir reported 35 total cases with 21 cases confirmed and no death. In 2019, there was an outbreak involving DENV-3 in Mombasa where a total of 616 cases were reported and 268 labs confirmed but 0 deaths at the Kenyan Coast.

The proximity of mosquito vector breeding sites to human habitation is a significant risk factor for dengue. At present, the main method to control or prevent the transmission of dengue virus is to combat the mosquito vectors. This is achieved through: prevention of

[45] Solomon K Langat, Fredrick Lunyagi Eyase, Irina Maljkovic Berry, Albert Nyunja, Wallace Bulimo, Samuel Owaka, Victor Ofula, Samson Limbaso, Joel Lutomiah, Richard Jarman, John Distelhorst, Rosemary C Sang, Origin and evolution of dengue virus type 2 causing outbreaks in Kenya: Evidence of circulation of two cosmopolitan genotype lineages, Virus Evolution, Volume 6, Issue 1, January 2020, veaa026, https://doi.org/10.1093/ve/veaa026
[46] https://www.who.int/news-room/fact-sheets/detail/dengue-and-severe-dengue

mosquito breeding achieved through environmental management and modification, personal protection from mosquito bites by using personal household protection measures, engaging the community to improve participation and mobilization of sustained vector control, and also active monitoring and virus surveillance of vector abundance and species composition.

The integration of vector management approaches is encouraged by WHO to achieve sustainable, effectively locally adapted vector control interventions. WHO responds to dengue by; providing technical support and guidance to countries on effective management of outbreaks, supports countries in outbreaks confirmation through its collaborating network of laboratories, formulates evidence-based policies and strategies, provides training on diagnosis, clinical management and vector control at the country and regional level, support countries in the development of dengue prevention and control strategies and the adopting Global Vector Control Response (2017-2030), reviews the development of new tools, including insecticide products and application technologies and gathers official records of dengue and severe dengue from over 100 member states. Table 25 shows the reported cases of Dengue fever in Kenya.

TABLE 25: NUMBER OF DENGUE FEVER CASES REPORTED IN KENYA (2013 – 2019)

Dengue fever				
Year	**County**	**Total cases**	**Lab confirmed**	**Death**
2013	Mandera	221	_	0
	Mombasa	496	_	0
2014	Kilifi	1	_	1
2017	Mombasa	1537	806	1
2018	Wajir	35	21	0
2019	Mombasa	616	268	0

Chikungunya

Chikungunya is a mosquito-borne viral disease transmitted to humans through mosquito bite. It is caused by the Chikungunya virus (CHIKV), an RNA virus that belongs to the

alphavirus genus of the family *Togaviridae*. The vectors of chikungunya are *Ae. Aegypti* confined within the tropics and sub-tropics and *Ae. Albopictus* which occurs in temperate regions. It was first identified in 1952 in Tanzania but since 2004, there has been a rapid spread throughout 60 countries in Africa, Asia, Europe and Americans. WHOs African Regional Office (AFRO) recorded an outbreak in Senegal, representing the first active circulation in the area in five years.[47]

In 2016, 1874 cases with 32 labs confirmed and 0 deaths were reported in Mandera County and 123 cases and 0 deaths in Mombasa County. In 2018, outbreaks were reported in Mombasa County with 965 cases, 34 labs confirmed and 0 deaths; Lamu County with 199 reported cases, 4 labs confirmed and 0 deaths and Kilifi County with 7 reported cases, 2 labs confirmed and 0 deaths.

At present, the main method to control or prevent the transmission of Chikungunya virus is to combat mosquito vectors achieved by reducing the number of natural and artificial water-filled container habitats that support breeding of the mosquitoes. This requires mobilization of affected and at-risk communities, to empty and clean containers that contain water on a weekly basis to inhibit mosquito breeding and the subsequent production of adults. Sustained community efforts to reduce mosquito breeding can be an effective tool to reduce vector populations. Table 26 shows the reported cases of Chikungunya in Kenya.

TABLE 26: CHIKUNGUNYA REPORTED CASES (2016 – 2018)

Chikungunya cases				
Year	**County**	**Total cases**	**Lab confirmed**	**Death**
2016	Mandera	1874	32	0
	Mombasa	123	-	0
2018	Mombasa	965	34	0
	Lamu	199	4	0

[47] https://www.who.int/news-room/fact-sheets/detail/chikungunya

Chikungunya cases				
Year	**County**	**Total cases**	**Lab confirmed**	**Death**
	Kilifi	7	2	0

Scabies and other Ectoparasites

Ectoparasites

Ectoparasites include scabies (*Sarcoptes scabiei*), the common bed bug (*Cimex lectularius*), fleas, and lice, including the body louse (*Pediculus humanis*), pubic louse (*Phthirius pubis*), and head louse (*Pediculus humanus capitis*). Their severity ranges from nuisance value to serious public health hazard.

Scabies

It is caused by a mite (*Sarcoptes scabiei var hominis*) and is common worldwide and transmitted from person to person. The microscopic mite burrows into the skin and lays eggs, eventually triggering a host immune response that leads to intense itching and rash. Scabies infestation may be complicated by bacterial infection, leading to skin sores that, in turn, may lead to more severe consequences such as septicaemia, heart disease and chronic kidney disease.

Scabies is endemic in many resource-poor tropical settings, with an estimated average prevalence of 5–10% in the most vulnerable children. The highest infestation rates occur in countries with hot, tropical climates, especially in communities where overcrowding and poverty coexist, and there is limited access to treatment.

Primary management of affected individuals involves the application of a topical scabicide such as 5% permethrin, 0.5% malathion in aqueous base, 10–25% benzyl benzoate emulsion or 5–10% sulphur ointment. Oral ivermectin is also highly effective and is approved in several countries.

Tungiasis (Jiggers)

Tungiasis is caused by flea *Tunga penetrans* and results in painful skin lesions, infections, and permanent disability. The flea penetrates the skin causing intense itching followed by inflammation and acute pain. The jigger is evident as a small swollen lesion, with a black dot at the centre, which can grow to the size of a pea. These infections can lead to abscess formation, tissue necrosis and gangrene. Tungiasis is also associated with tetanus, possibly due to the entry of the soil pathogen, *Clostridium tetani* into the wound.

Jiggers are endemic in many tropical and sub-tropical countries, but the epidemiology of the disease is poorly understood. In common with most neglected tropical diseases, children and the elderly are the most likely to be affected by tungiasis.

In Kenya, over 2.6 million jigger infested people have been registered by Ahadi Kenya Trust, making jiggers infestation of great public health concern even though no comprehensive survey had been carried out. Jigger victims also have to deal with stigmatization and ridicule, being unable to exercise their voting rights due to disability, poverty and in extreme cases, death. Jigger infestation, caused by poverty and subsequently lack of proper hygiene, has so far claimed the lives of over 400 people since 2014 (Ahadi Kenya Trust, unpublished data). The number could be higher, as most cases go unreported. The geographic distribution of tungiasis is poorly understood, despite the frequent occurrence of the disease in marginalized populations of low socioeconomic status. The flea also plays an essential role in spreading the plague by transmitting the organism from rats to humans. Control of rats has reduced the flea population; however, rat and flea populations may thrive during war and disasters.

Lice

Lice are tiny parasitic insects that can reside in several places on our bodies. Common types include:

i. Head lice (*Pediculus humanus capitis*) are found in the hair on the head. They are common in school children worldwide and are mainly a distressing nuisance. The body louse is a vector for epidemic typhus, trench fever, and louse-borne relapsing fever.

Disinfection and hygienic practices may be essential to prevent epidemic typhus in disaster situations.

ii. Body lice (*Pediculus humanus corporis*) are found on various body parts and are passed on through shared clothing or bedding. Unlike head lice, body lice attach their eggs to clothes fibres, particularly inside seams and other areas of close body contact.

iii. Pubic lice (*Phthirus pubis*), commonly referred to as crabs, live on the skin and hair of the pubic area and are spread by sexual contact, shared clothing, and bedding. They can also attach themselves to the eyelashes.

Bedbugs (*Cimex lectularius*)

Although bed bugs have been found naturally infected with blood-borne pathogens, they are not effective vectors of disease. The primary medical importance is inflammation associated with their bites (due to allergic reactions to components in their saliva)

NB: All Ectoparasites are preventable by proper hygiene and the treatment of cases. The spread of these parasites is rapid and therefore warrants immediate attention in schools and the community.

NTD Programme Context

Kenya has successfully implemented two previous NTD master plans, the 1st National Multi – Year Strategic Plan for Control of Neglected Tropical Diseases 2011-2015[48] and the 2nd Kenya National Strategic Plan for Control of Neglected Tropical Diseases 2016-2020.[49] The MOH has developed this new master plan to build on the foundation and progress made in the implementation of previous master plans, to carry forward lessons learned, address some of the inherent programme challenges and elimination of the following NTDs by 2025: LF, Trachoma, Onchocerciasis and HAT.

[48] National_Multi_Year_Strategic_Plan_for_control_of_NTD.pdf (health.go.ke) Accessed 26 June 2022

[49] The 2nd Kenya National Strategic Plan For control of Neglected Tropical Diseases 2016-2020. https://espen.afro.who.int/system/files/content/resources/KENYA_NTD_Master_Plan_2016_2020.pdf (accessed on 22 November 2021)

Despite progress with previous strategic plans, Kenya has a high burden of NTDs. The NTD distribution mapping done between 2000 - 2011 identified populations with >1% prevalence based on the WHO's definition prevalence of public health importance. Most counties (44) that have been surveyed in Kenya are endemic with STH except arid and semi-arid areas. There are 12 trachoma endemic counties, out of which 5 are still active with trachomatous follicular (TF). Lymphatic filariasis is endemic in 6 counties while schistosomiasis is distributed in the coastal, lower eastern and Lake Victoria regions and is endemic in 32 counties and 158 mapped sub-counties.[50] HAT and Onchocerciasis were formerly endemic in 6 counties each.

Several activities have been undertaken towards elimination of Lymphatic Filariasis (LF). This includes successfully conducting annual MDA in all 23 endemic areas, leading to over 90% therapeutic coverage in these areas. However, the programme was unable to conduct TAS, passive surveillance and preparation and submission of 'dossier' for in-country verification of absence of LF transmission. Elimination of Trachoma remained on course with 34 implementing units (IUs) achieving elimination of blinding trachoma, over 40,000 surgeries conducted (98% of target) and prevalence survey conducted in all of the 53 IUs. Community-based treatment was initiated in 23 IUs achieving 100% geographical coverage. However, there were delays in conducting MDA which in turn delayed other subsequent activities such as impact assessments and passive surveillance.

To eliminate morbidity due to SCH, the programme conducted MDA in some of the endemic areas but not all targeted areas were reached due to funding constraints. Most MDA activities were implemented through the school health programme reaching a therapeutic coverage of 75%. No surveillance or impact assessments were conducted during the 2016 – 2020 period although data from the school health programme showed reductions of S. *mansoni* in some areas from 2.1% to 1.7%. Access to water and sanitation remained a major challenge in endemic areas. For example, in the coastal region, between 1.6% and 80.6% of households had no toilet facilities and between 2.6%

[50] Kenya landscape analysis for neglected tropical diseases (NTDs), WASH and behaviour change 2019

and 91.3% were using unprotected water. For the control of STH, MDA was implemented in all 94 IUs, reaching a therapeutic coverage of 75%. However, no impact assessment was conducted during this period. The programme achieved 100% for active case detection as well as 100% treatment coverage for control of Visceral Leishmaniasis in all 30 targeted IUs. However, vector control through integrated vector management, sentinel site surveillance and passive surveillance were not implemented.

To scale up of preventive chemotherapy, the programme mapped all 53 IUs for which were found below public health importance. MDA was implemented in all endemic areas although there were delays in procurement. For STH/SCH, mapping was conducted in all 130 wards in coastal region and the programme conducted two rounds of MDA in 2019 and 2020. For LF, the following activities were achieved: annual MDA of Di-ethyl Carbamazine (DEC) and albendazole was implemented in endemic counties; health promotion and behavior change communication; training of community drug distributor (CDD) trainers and CDD; advocacy with counties; and pre TAS in 50% of the endemic counties.

In collaboration with partners, the programme trained and certified Trachoma Trichiasis surgeons and conducted 15,767 surgeries during the 2016-2020 period. However, there was a backlog of 5,000 surgeries. These surgeries have been completed and what is left are the residual cases which the counties have committed to take up through the existing health system. For LF, the programme trained health care workers in hydrocele surgery which led to 474 surgeries conducted out a target of 5,000 surgeries. Lymphoedema management was scaled up in all endemic areas. At community level, the program focused on identification of hydrocele. Treatment guidelines for Leishmaniasis were reviewed and disseminated. Leishmaniasis medicines were procured, and health care workers trained in all endemic areas. Field reports showed that over 95% of Leishmaniasis cases were diagnosed and treated. No activities were implemented for Cystic Echinococcosis, HAT and Onchocerciasis.

The programme acquired additional office space after merging with the Vector Borne Disease Control unit, received seven vehicles for use by implementing partners for Trachoma elimination activities and four laptops. Several guidelines and IEC materials were developed during this period including BTS, SBE guidelines, IEC materials for various disease areas, Leishmaniasis Treatment Guidelines and GWD Combi Strategy. The programme conducted training needs assessment for health care workers on NTDs and refresher trainings. An M&E unit was set up during the 2016-2020 period. The programme continued to convene coordination meetings including technical working group (TWG), technical advisory group (TAG), data sharing and Expert Committee meetings. The programme was successful in its advocacy efforts with counties and national government to provide funding for various NTD activities such as obtaining funding for GWD expert committee, Health facilities in the formerly HAT endemic counties were assessed, characterized and dossier preparation for validation of HAT as a public health problem was initiated; chikungunya investigation was conducted in Mandera in 2016 and fund solicited for disease surveillance officers.

For the 2016 -2022 period, NTD expenditure data was only available for five diseases: Leishmaniasis, LF, Trachoma and STH/SCH. STH/SCH expenditure reached over Kes 1.3 billion and that for LF reached US$6.2 million. Trachoma and Leishmaniasis activities reached expenditures of Kes 3.93billion and Kes 73 million, respectively. MOH and county expenditure data for NTDs were not available. It was therefore not possible to assess whether the Division was able to raise enough funds for programme activities or not.

Most routine data for NTDs are captured monthly on DHIS2 while others are recorded on Integrated Diseases Surveillance and Response (IDSR) surveillance tool (MOH 705A/B). Data sharing meetings were held from time to time and data was used to map endemic areas, focus MDA and surveys activities. Leishmaniasis case data was used to set up treatment centres and guide procurement of medicines and supplies. MDA coverage data was used to plan for TAS and pre-TAS surveys for LF. The programme used Open Data Kit (ODK) mobile data collection apps for mapping and surveys and Google sheets to

document coverage of MDA. However, no operations research was conducted during the 2016 – 2022 period.

The school health programme was instrumental in the control of STH/SCH although the programme did not collaborate effectively with the Division. Engaging school children in school led total sanitation was effective. Procurement of supplies and medicines experienced delays with signing of MOUs and clearing of commodities at the airport. However, storage of commodities at KEMSA was adequate and distribution of some of the commodities to counties was undertaken without approval from the Division leading to shortages when the commodities were needed. Counties have been mobilized to lead the implementation of NTD control activities and allocate their own resources accordingly. As many counties have functional CHVs, it is convenient and efficient to engage them in community-based mobilization and distribution of drugs as well as provision of health education messages. There were several partners supporting each disease program that helped the Division to scale up some of the activities.

Going forward, the Division will focus on “low hanging fruits” for quick wins. For example, HAT cases have not been reported for more than a decade while Onchocerciasis has not been reported for several decades. There is great progress with elimination of LF and Trachoma and the Division needs to focus on scaling up remaining intervention to reach elimination targets and to start preparing the “dossier.” For STH/SCH, the highest prevalence was in areas that lack adequate and clean water, hygiene and sanitation. The Division needs to improve coordination and collaboration with the school health programme and with WASH partners. As WASH interventions can be resource intensive, the Division needs to advocate with the Counties, partners, and communities to invest in this area. There is a need to conduct a major social mobilization in counties with endemic NTDs and to get the counties to own the programme and lead activities in their areas in addition to allocating budgets for NTD control and elimination. The Division needs to review its capacity to align it with the requirements of the new Master Plan for an effective management of the programme. Budget tracking for national and county government allocations and expenditures as well as for partners will be prioritized. The M&E activities

will be mainstreamed in each disease area to improve data collection and data utilization for quality and timely decision-making.

CROSS CUTTING AREAS

Water, sanitation, and hygiene (WASH)

WASH is critical in the prevention and care of all the NTDs scheduled for intensified control, elimination, or eradication. Provision of safe water, sanitation and hygiene is one of the five key interventions within the global NTD roadmap. Yet to date, the WASH component has received little attention and the potential to link efforts on WASH and NTDs has been largely untapped. Focused efforts on WASH are urgently needed if the global NTD roadmap targets are to be met. This is especially needed for NTDs where transmission is most closely linked to poor WASH conditions such as STH, SCH, Trachoma and LF.

Currently data on WASH is collected at the household (HH) level and reported through DHIS 2 with only 3 indicators (No. of HH with latrines, No. of HH using treated water and No. of HH with hand washing facilities). There is no standard data on WASH in schools and health facilities. Most NTD endemic areas have low WASH investments with counties focusing on treatment and care rather than preventive care which requires long-term investments. In NTD endemic areas for SCH, STH, and Trachoma, most HH practice open defecation, lack access to safe water and lack basic hand washing facilities with water and soap. WASH partners in endemic areas provide interventions that overlap each other, with limited scope leaving out other needy areas, limited budget and thus a call for collaborations and partnerships creation within the WASH sector. A joint approach that addresses the causes of NTDs is likely to be more cost effective over the long term and more sustainable. It will also ensure that investments in WASH reach those most in need. Beyond the objectives of each sector, collaboration can also serve to achieve common goals such as health and well-being, equity, shared prosperity, and sustainability.

The behavior change element for NTDs prevention and control is still relatively new and far less standardized in its design and implementation compared with established drug

treatment approaches. An additional gap is comparatively less funding invested to evaluate change in behaviors and make a case for further investment. However, the narrative is moving towards more holistic approaches to eliminate NTDs. For example, Community Led Total Sanitation has a major behavior change component.

The NTD program embarked on the use of innovative WASH/BCC strategies targeting learners in primary schools. Some of the WASH/BCC interventions carried out by the program between year 2021-2022 includes puppetry edutainment which was introduced in 100 primary schools in 4 western counties of Kakamega, Bungoma, Vihiga and Transnzoia as a pilot to sensitize learners on STH and SCH transmission, treatment, prevention, and control. Baseline and end-line knowledge were measured to understand the effectiveness of puppetry as a behavior change communication tool. The lessons learnt informed scale up of this intervention to other schools in other counties.

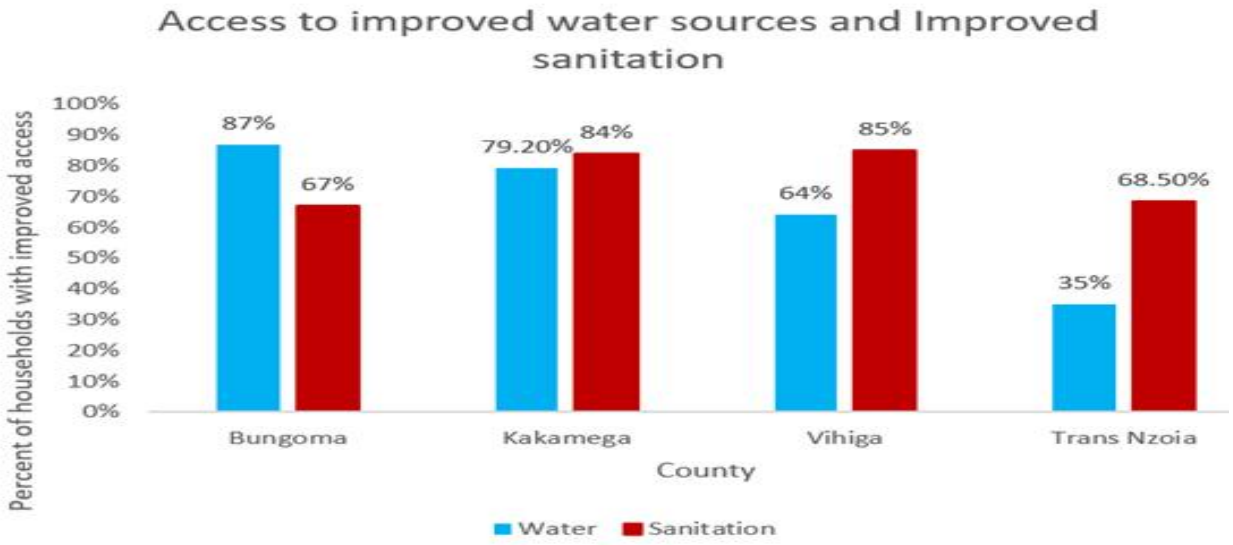
A game of cards was introduced in 160 primary schools and integrated into the school health clubs. School patrons and health teachers were trained to support the intervention in 4 Trachoma endemic counties of Baringo, West Pokot, Narok and Turkana as a pilot to sensitize learners on Trachoma.

School led total sanitation (SLTS) is a sanitation model similar to community led total sanitation (CLTS) introduced in these schools to encourage provision of functional latrines, access and their use, provision of hand washing facilities with soap and running water for control of trachoma.
A game of cards was also introduced in 3 primary schools in Kwale county to sensitize learners on SCH and STH. These games of cards were carried home by learners to encourage playing with siblings, peers and parents for increased knowledge and change of behaviors.

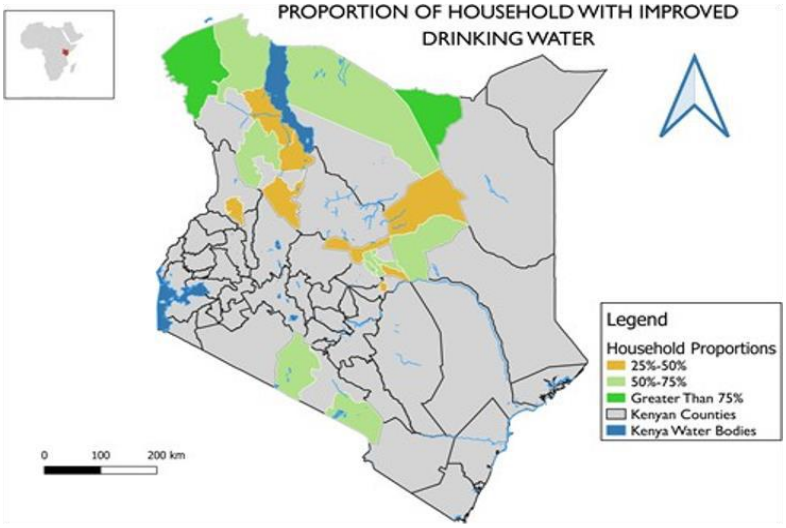
The Deworming Innovation Fund (DIF) project conducted a WASH situational analysis in Bungoma, Kakamega, Vihiga and Trans-Nzoia Counties in 2021. The findings helped in identification of WASH/SBCC priority areas, and development of county-specific

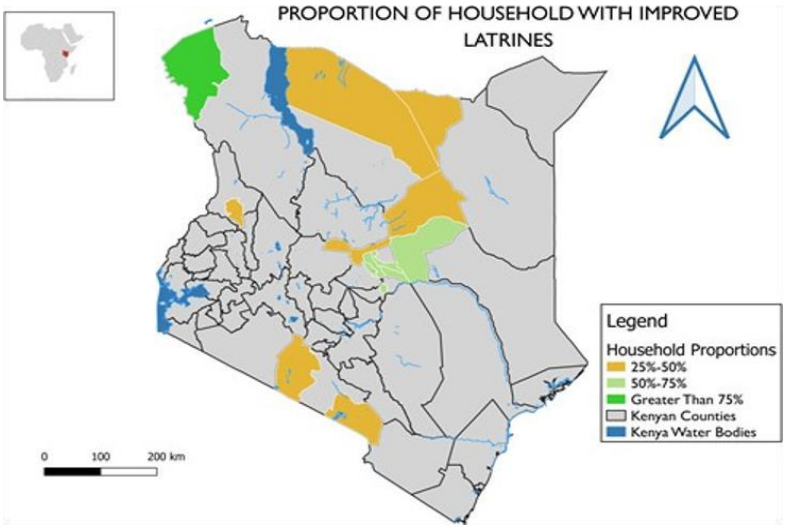
programming while leveraging on existing interventions by partners for control and elimination of STH/SCH. Figure 12 shows the WASH coverage by county.

FIGURE 12: WATER AND SANITATION COVERAGE BY COUNTY (SOURCE: COUNTY INTEGRATED DEVELOPMENT PLANS)



Data merge process anchored with the Landscape analysis document and supported by the MOH and Sight Savers was launched in 2020. The main goal of this process was to generate evidence for NTDs and WASH to get more WASH investments in NTD endemic areas. The process involved collecting all existing data on NTDs and WASH and uploading it in the Country integrated NTD database (CIND). Data was collected from DHIS2 which was the main source of WASH data while surveys were the main sources of data for disease distribution. This data was overlayed to identify where WASH investments were low and NTD infections were high. Maps were generated to give insights where WASH investments were most needed. See details in the maps below.





Advocacy Communication and Social Mobilization (ACSM)

Health communication in Kenya has used traditional approaches of message dissemination, with a focus on flyers, posters, public meetings (barazas) and radio announcements. However, with the increased access to social media and the recognition that different people have different information needs and access different media, there have been innovations in health communication. The MoH through the DVBNTD has, in the last 4 years, adopted innovative ways of communication through the adoption of a social mobilization package as an innovation in 2018, to ensure that all populations in Lamu East, Lamu West and Jomvu sub-counties took part in the IDA (Ivermectin, diethylcarbamazine and Albendazole) intervention for LF. The Division expanded health

communication to include social media (Facebook, WhatsApp, Twitter), public address system, documentaries (short clips that were shared on social media) and live talk shows over and above the distribution of flyers, posters, public meetings and use of CHV. Social mobilization has since been expanded into the STH/SCH microplanning with a keen focus on targeted approach. The microplanning project has facilitated the development of Standard Operating Procedures (SOPs), which will be reviewed and adapted for use.

Community sensitization and social mobilization activities

Evidence has shown that community participation is critical to the success of any public health program aimed at reducing exposure to, controlling, or eliminating diseases. Communities have knowledge and resources that can be tapped into for enhanced program success. There are beliefs and practices among community groups which can be detrimental to any health project that need to be addressed as part of programming. The current top-down approach to MDA, although effective in the short-term, is not sustainable. It is therefore important for SBCC and advocacy campaigns to be used to educate, create awareness, and demystify NTDs.

The key community sensitization and social mobilization activities proposed in this NTD Master Plan period include to:

- Carry out periodic KAP assessments to understand social cultural context of targeted population
- Customize IEC materials to resonate with local culture, language, religion and social dynamics to encourage behaviour change, e.g. educate communities on provision and use of toilets, hand-washing before food preparation, after toilet use, and before eating, etc
- Encourage the use of Continuous Medical Education (CME) platforms to propagate the WASH/BCC agenda e.g., Out-patient bays, MNCH clinic days, out-reach programs etc
- Hold targeted workshops and community meetings to improve the level of knowledge, awareness and ownership among community members. These may be local opinion leaders, religious leaders, program implementers, government

officials and other stakeholders.

- Engage communities through participatory community approaches for ownership and sustainability of interventions. The process of implementation will consider the use of innovation at the community level, e.g., the super school of five (handwashing and face washing practices) program, yegon and leaky tins to prevent NTDs;
- Develop and produce a social mobilization package to be disseminated through print media, social media, Short Messaging Service (SMS), Television/FM radio talk shows, posters, roadshows, town-criers, billboards, flyers, chiefs' barazas, religious gatherings, CHVs, among others to educate people on NTDs and WASH;
- Support the training of local artisans to design/adapt latrines and multiple user hand washing systems that are amenable to the needs of the targeted populations;
- Implement health promotion campaigns on vector control; and support the development and/or adaptation of mobile phone platforms for CDDs/CHVs and response to Frequently Asked Questions (FAQs) on both NTDs and WASH.

Laboratory

Laboratory Achievement From 2019 to 2022

The laboratory is a diagnostic wing of the DVBNTD and has embarked on the following activities:

STH/Schistosomiasis

Granular mapping in the Coastal region (Mombasa, Taita Taveta, Kwale, Kilifi, Tana River and Lamu) covering 129 wards and Western region (Kakamega, Vihiga, Bungoma and Trans-Nzoia) covering 155 wards. In the Western region, this helped the division to pick on transmission zones which were not known earlier. This has contributed immensely in thinning areas where intervention is taking place.

Lymphatic Filariasis (LF)

As a department, it also led in both Pre-TAS and TAS surveys in 11 IUs to assess the eligibility of ending MDA in the Coastal region. Establishment of a Molecular Laboratory

at the National level to assist in post-MDA laboratory surveillance. Currently, plans are underway to complete STH/Schistosomiasis mapping in the remaining part of the country.

Challenges

- Infrastructure -There is a need to create more equipped and modern laboratories.
- Human Resources - There is a need to recruit more qualified staff.
- Procurement of laboratory reagents and consumables -To ease sample analysis.
- Information Management - There is a need to develop a robust information system to manage data.

Situational Analysis Supply Chain and Warehousing

Globally, WHO plays a major role in the cycle of supply chain management for donated and/or procured health products for neglected tropical diseases (NTDs) for preventive chemotherapy and individual case management. These include albendazole for lymphatic filariasis and soil-transmitted helminthiases, azithromycin for trachoma, diethylcarbamazine citrate for lymphatic filariasis, ivermectin for onchocerciasis and lymphatic filariasis, mebendazole for soil-transmitted helminthiases and praziquantel for schistosomiasis. This is used for MDA at country level for populations at risk.

WHO SOPs were developed by ASCEND (accelerating the sustainable control and elimination of NTDs) program in collaboration with New Concept Information Systems Pvt. Ltd, to reflect key characteristics in the supply chain management of health products. These were for use in health ministries and national programs for NTDs to adopt and adapt them to their country context to strengthen its capacity. This was adopted by Kenya. The national NTD program prepares and submits the joint application packages (JAP) to the WHO for upcoming MDAs. The JAP comprises a set of four joint forms i.e. Joint Request for Selected Medicines (JRSM), Joint Reporting Form (JRF), Epidemiological Reporting Form (EpiRF) and Annual Work Plan (AWP). These are used to apply for drugs, report on their use and plan for MDA distribution with an extra 3% projection. The diseases targeted are LF, Onchocerciasis (ONCHO), SCH and STH. The JAP is submitted at least 10 months ahead of the planned MDA.

To meet the coverage targets of an MDA, SOPs actualize the process. From planning and quantifying needs, moving stock from production sites to patients at the service delivery points, communities, schools, and hospitals, retrieving and accounting for leftover stock. An effective supply chain ensures timely access and availability of quality-assured medicines, products and pharmaceutical supplies at all levels thus avoiding stock out, wastage and loss of tablets.

For trachoma, International Trachoma Initiative (ITI), a partner supporting the program, procures the required antibiotics. The need for trachoma MDA is informed through data received from surveys done in endemic regions. The quantity of drugs required are determined for areas where the prevalence of active trachoma is above 5%. A round of MDA is done once a year for trachoma. One round of MDA is done for areas with a prevalence of 5-9.9%, three rounds for areas with prevalence of 10-29.9%, five rounds for areas with a prevalence of 30-49.9% and seven rounds for areas with a prevalence of above 50%. The reports from the MDA give the population estimates and therefore adjustments are made respectively. Resurveys are done every 24 months in areas where prevalence is below 5% (non-endemic regions).

For Leishmaniasis, forecasting and evaluation of required commodities is done based on previous year's reported cases. This information is submitted to the WHO quarterly. On delivery, the program officer receives the commodities then distributes them to endemic areas through local facilities.

Challenges

- Dispatch of drugs at KEMSA made for MDAs to other government ministries without consultation.
- Quality control issues in cases where medicine container seal is broken – such medication cannot be used. Therefore, there is a need for conducting quality assurance tests at NQCL to ensure potency.

- Inadequate personnel to ensure the proper SOPs are followed during storage and handling of drugs and other devices at the warehouses.

The Role of Supply Chain in DVBNTD

A key component of achieving control and elimination of NTDs is effective supply chain management of PC drugs for MDA. Supply Chain Management plays a critical role in ensuring that these drugs make it from the point of manufacture to the people who need them.

Few public health initiatives have developed with more attention to the "first mile" of the supply chain than integrated NTD control. However, the "last mile" of supply chain (drug distribution within country programs) remains relatively neglected as donors and partners have focused on expanding the supply available to country programs.

Challenges.

- Limited access to supply chain expertise inhibits effective planning and execution.
- Funding constraints limit implementation of supply chain strengthening efforts.
- Limited capacity of MOH pharmacists/logisticians regarding management and tracking of campaign drugs.
- Lack of clear and operational "open container" policies which increases wastage.
- Resource constraints limit volunteer motivation and performance.
- Temporary (ad hoc) supply chain solutions subject to change and disruption.
- Use of multiple (duplicative) supply chains for only 4-6 NTD drugs.
- Incomplete and inaccurate drug supply data.

Integrated Vector Management (IVM)

According to the Global Vector Control Response (GVCR), 2017-2030.[51], '80% of the world population is at risk of one or more vector-borne diseases, and 17% of the global burden of communicable disease is vector-borne, contributing up to 700,000 deaths every

[51] WHO. Global vector control response 2017–2030 [Internet]. WHO. 2017 [cited 2022 Sep 29]. Available from: https://www.who.int/publications-detail-redirect/9789241512978

year. The GVCR 2030 global targets are: to 'reduce mortality and case incidence due to vector-borne diseases globally relative to 2016 by at least 75% and 60% respectively, and to prevent epidemics of vector-borne diseases in all countries without transmission by 2025, and in all countries by 2030.

Over the last 5 years, Kenya has experienced various outbreaks of vector-borne diseases which include: Aedes mosquito-related dengue fever, yellow fever, and chikungunya. The latest outbreaks were yellow fever in March 2022 and dengue fever in April 2021 in Mombasa and March 2022 in Wajir County. A chikungunya outbreak was also experienced in Mombasa in late 2017 and early 2018. Many upsurges of Malaria have also been experienced in epidermic-prone regions such as Turkana, Nandi and Elgeyo Marakwet. These diseases cause unnecessary mortality and morbidity.

The country needs a comprehensive integrated vector management (IVM) strategy/approach, which aligns the various vector control programmes within the MOH to maximize the impact of vector control efforts in the context of the Global vector control response 2017–2030. It is in this context that the WHO and the MOH supported a vector control needs assessment (VCNA) as a precursor to the development of an IVM strategy for Kenya.[52]

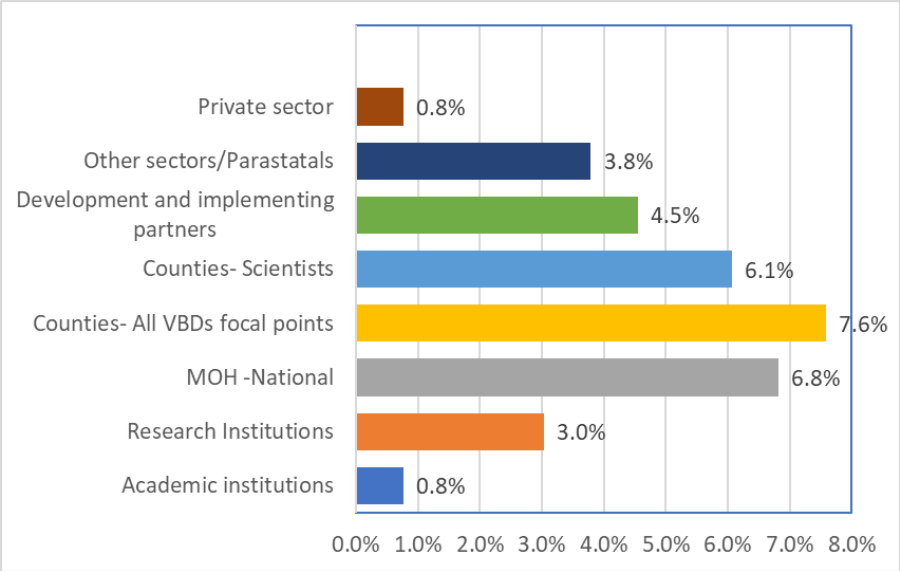
The process involves conducting a VCNA and producing a report to inform the development of a draft IVM strategy, reviewing the existing individual Vector-borne Disease (VBD) strategies, and interviewing the IVM committee members and other stakeholders.

VCNA Findings

44 individuals responded to the questionnaire interviews either through Google forms or PowerPoint templates for those who could not access Google forms (Figure 13).

[52] WHO. Framework for a National Vector Control Needs Assessment [Internet]. 2017 [cited 2022 Sep 29].

FIGURE 13: VCNA QUESTIONNAIRE RESPONDENTS BY SECTOR



Vector-borne disease situation

Hospital surveillance data projections indicate that the prevalence of Chikungunya-associated neurological disease was higher (77cases per 100,000 person-years compared to 20 per 100,000) than that caused by cerebral malaria in children under 5 years of age in the coastal regions of Kenya.[53] Malaria case reduction was reported in the past five years by most counties e.g. from 27% prevalence to 18 % for Siaya County[54] and as indicated in Figure 2 from other counties that supplied data for the VCNA. The countries reported that the reduced reported cases could be attributed to vector control and case management interventions but also inadequate data during the COVID-19 period of 2020 and 2021. The DNMP confirmed this for several counties and sub-counties[55] particularly Homabay and Migori counties where both integrated vector control has been applied using both long-lasting insecticidal nets and indoor residual spraying as the main vector control interventions. An official list of notifiable medical conditions (NMCs) in Kenya could not be accessed online or by other means but the responses of

[53] Nyamwaya DK, Otiende M, Mwango L, Kariuki SM, Otieno B, Omuoyo DO, et al. Incidence of chikungunya virus infections among Kenyan children with neurological disease, 2014–2018: A cohort study. von Seidlein L, editor. PLOS Med. 2022 May 12;19(5):e1003994.

[54] Kenya D of NMP (DNMP), ICF. Kenya Malaria Indicator Survey 2020. DNMP and ICF; 2021.

[55] Ministry of Health, Kenya. County malaria profiles- Kenya. Division of National Malaria Control; 2022.

the various groups of participants varied and were different from those listed in an assessment of NMCs in 2014 in Kenya.[56]

A detailed Report has been compiled and will be used during the development of the National IVM Strategy for Kenya. Efforts to tackle vector borne diseases require a multi-sectoral approach. Plans to hold the Inaugural Workshop to discuss development of an overarching National IVM Strategy are underway.

1.4 NTD Programme Status

Strengths, Weaknesses, Opportunities and Threats (SWOT) Analysis

Detailed SWOT analyses were performed for the national programme overall and for each specific disease area. The strengths, weaknesses, opportunities, and the threats of the programme were analyzed and summarized in the Table 27 below.

TABLE 27: STRENGTHS AND WEAKNESSES OF THE NTD PROGRAM AND SPECIFIC DISEASE AREAS

Area	Strengths	Weaknesses
National NTD Programme	1. Enabling policy environment - NTD Master Plan, BTS, Specific disease plans and guidelines. 2. Political Commitment – Division dedicated to NTDs and funding support from National and County Governments. 3. Devolution – service delivery led by County Governments. 4. Availability of Technical personnel at National Level. 5. Support from several GOK Departments – Education, Agriculture, ministry of water sanitation and irrigation etc. 6. Technical support from partners. 7. Availability of training and IEC materials and management guidelines.	1. No focal point for resource mobilization and tracking of resource (budget tracking) inflows at MOH, Counties and Partners. 2. Inadequate M&E support – data not collated and archived in a way it can be easily retrieved. 3. Inadequate skilled personnel. 4. Some NTDs are managed outside DVBNTD, therefore some leads do not follow the NTD Master Plan. 5. Failure to use the NTD Master Plan as a management tool. 6. Some cross cutting areas are not included in the 2016-2020 Master Plan, e.g., Laboratory support. 7. lack of ACSM budgetary allocation for continuous community sensitizations. 8. Lack of cross-border surveillance. 9. Prevention is not emphasized e.g., WASH activities led by other partners. 10. Inadequate healthcare workers knowledge to diagnose and treat NTDs.

[56] Moturi, Christopher; Kinuthis, Robert M. Mobile based Notifiable Disease Surveillance-Case for Kenya. Int J Comput Appl. 2014;95 (7)(Jan1).

Area	Strengths	Weaknesses
Lymphatic Filariasis	1. Global commitment and political goodwill for NTDs. 2. Existence of drug donation program and Consistent funding by partners. 3. Existing community structures and programmes e.g., distribution of bed nets by the malaria program maintained the LF transmission at low levels even with missed MDAs.	1. COVID-19 and environment – delayed surveillance activities. 2. Insecurity in Lamu. 3. Challenges in HR e.g., Staff turnovers. 4. Lack of budgetary allocation in LF endemic units.
Trachoma	1. National level coordination in terms of policy, guidelines, capacity building, resource mobilization, partner building and coordination. 2. County buy-in ownership of the program. 3. Availability of human resources for health at both National and County level. 4. Willing community to take up the medication. 5. Existing master plan. 6. Mainstreaming of trachoma with other NTDs- for better resource mobilization and coordination and getting it out of other ophthalmic conditions.	1. Inadequate resources for WASH and SBC activities (Social Behavior Change). 2. Re-emergence of cases in areas where elimination was thought to have been achieved. 3. Unsynchronized MDAs activities in country and cross borders i.e., affected populations should all be treated at the same time. 4. Challenges in Supply chain. 5. Implementation gaps resulting in persistence of trachoma. 6. Cultural practices driving persistence of NTDs.
Schistosomiasis	1. National, county government and partners collaboration. 2. CDD involvement in implementing activities, community acceptance. 3. Capacity building of healthcare workers on control, prevention, and treatment. 4. Leveraging on existing platforms during implementation- county ownership and reduction of operating cost. 5. Supporting guidelines - UHC, WHO, and BTS.	1. Lack of a resource mobilization tool. 2. Coordination between implementing partners. 3. Gap in supply chain management- there is no pharmacist to support in timely drug requisition and management. 4. Lack of proper monitoring and evaluation system.
Leishmaniasis	1. NTD MOH coordination platform. 2. NTD Master Plan. 3. Guidelines for management of VL. 4. Collaboration with research institutions and academia. 5. Availability of technical expertise. 6. KHIS for data capture. 7. Data collection tools.	1. Inadequate skilled personnel. 2. Inadequate testing facilities. 3. Inadequate storage facilities for VL commodities. 4. No GOK funding for VL. 5. Weak data capture system. 6. Poor ICT support. 7. Erratic supply of commodities.

Area	Strengths	Weaknesses
	8. Well spread countrywide VBDCU structures. 9. Increased support for VL research.	8. Lack of vector surveillance, control tools and activities. 9. Inadequate mapping of transmission hotspots. 10. Inadequate ACSM activities. 11. Lack of cross-border surveillance.
Onchocerciasis	1. NTD Master Plan 2. National level coordination in terms of policy, guidelines, capacity building, resource mobilization, partnerships, and coordination. 3. Collaboration with research institutions and academia. 4. Training opportunities, networking, and knowledge sharing.	1. Inadequately trained personnel on Onchocerciasis on epidemiology, vector biology and clinical management. 2. Insufficient research data. 3. Lack of awareness of the disease within the communities. 4. Lack of funding. 5. Need for more commitment from both the National and County government on funding, capacity building, monitoring and evaluation to sustain the program. 6. Inadequate facilities for field collection, storage, and analysis of biological specimen
M&E	1. Availability for Dengue, Guinea worm, Rabies indicators in KHIS (weekly surveillance). 2. Routine indicators present in KHIS (Bilharzia, snake bites, HAT, Chikungunya, Trachoma). 3. Digital data capture platforms e.g., ESPEN, DHIS2 (WHO&ASCEND). 4. Good working relationships between the two levels of government. 5. Functional community health strategy. 6. Availability of guidelines/strategic documents e.g., BTS, Master Plan 2015-2020, WHO NTD Roadmap. 7. Expanded workforce and workspace after merging of Vector Borne Disease Control and Neglected Tropical Disease units.	1. Lack of a DVBNTD M&E framework. 2. Inadequate staff to establish a fully-fledged DVBNTD M&E unit. 3. National Integrated NTD database not routinely updated due to limited human resource and technical capacity. 4. Inadequate research and independent pre-and-post MDA coverage survey and impact assessments. 5. M&E Technical working group (TWG) and Technical Advisory Group (TAG) are not established. 6. Fragmented data collection and storage. Each disease has its own focal person and no common database. 7. Some important NTD indicators not captured on KHIS.
ACSM (Advocacy, communication, and social mobilization)	1. Availability of ACSM strategic plan for NTDS 2. Collaboration with other programs in the DVBNTD 3. Good relations with mainstream media houses 4. Use of multiple channels for communication and social mobilization during MDAs 5. Availability of a Focal point to coordinate ACSM activities	1. lack of budgetary allocation for advocacy and continuous community sensitizations 2. Implementation of ACSM activities only during MDAs 3. Lack of prioritization of ACSM activities

Area	Strengths	Weaknesses
WASH (Water Sanitation and Hygiene)	1. Availability of WASH Framework for NTDs for enhanced collaborations with WASH partners 2. 2. Collaboration with MOWS&I, MOE 3. 3.Availability of a focal point for WASH/BCC	1. Lack of funds for WASH advocacy 2. 2.Lack of prioritization of WASH/BCC interventions 3. 3.Limited budgetary allocation for WASH/BCC 4. 4. Lack of budgets for WASH hardware

TABLE 28: OPPORTUNITIES AND THREATS OF THE NTD PROGRAM AND SPECIFIC DISEASE AREAS

Area	Opportunities	Threats
National NTD Programme	1. Technical and Funding support from donors, including WHO guidelines. 2. UHC Policy and Agenda. 3. Regional cross-border collaboration. 4. Several NTDs at pre-elimination and elimination stage (LF, Trachoma, HAT, etc.). 5. Drug donations for NTDs.	1. Insecurity in some focus counties. 2. Poor healthy practices/poor health seeking behavior (harmful cultural practices). 3. Funding cuts by some donors. 4. COVID-19 restrictions. 5. High poverty levels in affected populations.
Lymphatic Filariasis	1. Global commitment and political goodwill for NTDs. 2. Existence of drug donation program and Consistent funding by partners. 3. Existing community structures and programmes e.g., distribution of bed nets by the malaria program maintained the LF transmission at low levels even with missed MDAs.	1. COVID-19 and environment – delayed surveillance activities. 2. Insecurity in Lamu. 3. Challenges in HR e.g., Staff turnovers. 4. Lack of budgetary allocation in LF endemic units.
Trachoma	1. New partnerships especially in the WASH sector. 2. Transition planning for SAFE interventions especially for surgeries – planning how counties will take up after donors pull out and develop their plans and how they will fund them. 3. Operation research findings – ongoing research for new treatment approaches. 4. Global resources from Pfizer and ITI in terms of donated Zithromax. 5. Cross border collaboration and strategy.	1. Insecurity. 2. Cross border migrations (Uganda, Tanzania, Sudan). 3. Funding cuts by the Global community.
Schistosomiasis	1. Granular mapping. 2. Monitoring and evaluation strengthening. 3. Capacity building of laboratory technologists at county level. 4. Strengthening monitoring and evaluation. 5. Research on new diagnostic tools.	1. COVID-19 restrictions limited activities 2. Lack of coordination between partners. 3. Lack of financial resources. 4. Political instability. 5. Insecurity

Area	Opportunities	Threats
	6. Vector control. 7. Strengthening behavior change and control strategies. 8. Improve coordination framework between partners from NTD and Water, sanitation and Hygiene, environment. 9. Integration of STH/SCH activities with other programs.	
Leishmaniasis	1. Support from development partners. 2. UHC agenda. 3. Devolution. 4. Regional cross-border collaboration. 5. Increased partnerships and collaboration.	1. Insecurity in some focus counties. 2. Low awareness of Leishmaniasis as an NTD. 3. Poor health seeking behavior. 4. Low literacy levels. 5. Social cultural practices. 6. High poverty levels.
Onchocerciasis	1. Opportunities for resource Mobilization from both local and international partners 2. Collaboration with research institutions and other government agencies e.g KEMRI, NMK, ICIPE, universities e.t.c 3. Partners willing to fund operational research programs 4. Devolved health services which will support outreach and advocacy of Onchocerciasis	1. Lack of regional cross-border collaboration in addressing Onchocerciasis 2. Weak data collection and reporting tools for Onchocerciasis 3. Lack of clear policy and operational guidelines to address *Simulium naevei* group 4. Inadequate backup systems for data collection, management, and analysis 5. Inadequate facilities for field collection, storage, and analysis of biological specimen
M&E	1. Collaboration with research institutions and other government agencies e.g., BioRI, KEMRI, KENTTEC, ZDU, DVS, KWS, ICIPE, for HAT and Rabies. 2. Partners willing to fund operational research programs. 3. Integration of interventions in co-endemic areas. 4. Networking with regional laboratories to enhance surveillance.	1. Inadequate mapping data of NTDs in the country. 2. Prioritization of COVID-19 at the expense of NTDs. 3. Insufficient focus on funding of M&E activities. 4. Limited sensitization of data managers especially in the counties on NTD data. 5. Inadequate backup systems for data collected and storage in collaboration with implementing partners. 6. Neglect of some NTDs.
ACSM (Advocacy Communication and Social mobilization	1. Support from health promotion, child health, community health and primary health Divisions	1. Illiteracy levels 2. Ignorance 3. High costs of IEC materials, TV/Radio adverts/clips radio interviews/show

Area	Opportunities	Threats
	2. ACSM policies/strategies from other ministries/departments 3. Availability of health promotion officers at county level	4. Conflicting health promotion activities in counties
WASH (Water Sanitation and Hygiene)	1. Availability of WASH partners at National/county level 2. WASH interventions for other diseases impacting on NTDs e.g COVID-19 3. Availability of Water services providers at County levels 4. Budgetary allocation for WASH hardware in CIDPs and AWP for counties 5. 5.Multiple partners undertaking WASH interventions 6. WHO Roadmap 2021-2030 7. SDGs 3 and 6	1. Insecurity in NTD endemic areas 2. Vandalization of WASH infrastructural elements e.g pipes, solar panels, water tanks 3. Lack of community participation during planning for informed prioritization 5. Lack of monitoring and evaluation 4. Poor sustainability mechanisms 6. Limited WASH interventions in remote areas affected by NTDs. 5. Limited/targeted budgetary allocations from partners/donors 6. Limited scope for WASH interventions

Assumptions, Risks and Mitigations

Risk is the process of examining how likely risk will arise in the implementation of NTD programme. It also involves examining how the programme outcome and objectives might change due to the impact of the risk. The impact could be in terms of schedule, quality, and cost.

Risk mitigation is the process of developing options and actions to enhance opportunities and reduce threats to the programme objectives. Risk mitigation progress monitoring includes tracking identifiable risks, identifying new risks, and evaluation risk process effectiveness throughout the programme period. The table below shows the assumptions, risks and mitigation strategies that need to be monitored during implementation of the Master Plan

TABLE 29: ASSUMPTIONS, RISKS AND MITIGATIONS

Potential Risk	Before risk mitigation			Risk Mitigation	After risk mitigation		
	Likelihood of occurrence	Impact	Score		Likelihood of occurrence	Impact	Score
	Certain =5 Likely =4 Possible =3 Unlikely =2 Rare =1	Severe =5 Major =4 Moderate =3 Minor =2 Insignificant =1	Likelihood x Impact		Certain =5 Likely =4 Possible =3 Unlikely =2 Rare =1	Severe =5 Major =4 Moderate =3 Minor =2 Insignificant =1	Likelihood x Impact
Risk Type: Economical							
Inadequate resources and finances for NTDs	4	5	20	Control	3	3	9
Vested interest among partners	5	3	15	Control	2	2	4
Risk Type: Environmental							
Epidemics, emerging diseases and disasters	1	5	5	Monitor	1	3	3
Risk Type: Social							
Resistance from the community due to cultural beliefs	4	5	20	Control	2	3	6
Cross border migration	5	4	20	Control	4	4	16
Insecurity	3	4	12	Control	3	4	12
Risk Type: Capacity							
Inadequate Technical capacity	4	4	16	Control	1	2	3
Generation of inadequate/poor-quality data	3	5	15	Avoid	1	5	5
Inadequately coordinated multisectoral collaboration	3	4	12	Control	2	2	4
Attrition of technical expertise	4	3	12	Control	3	3	9

Limited cooperation from other divisions	3	4	12	Control	2	4	8

Risk Rating (Likelihood x Impact)	
19 – 25	Severe
13 – 18	Major
7 – 12	Moderate
0 – 6	Minor

Mitigation: Managing risk means mitigating the threats or capitalizing on the opportunities that uncertainty presents to expected results. Failure to identify risks and failures to come up with risk mitigation strategies can and do kill projects. If no mitigation strategy can help, then change your strategy and project approach.

Steps to mitigate risk	
Avoid	Change plans to circumvent the problem
Control	Reduce threat impact or likelihood (or both) through intermediate steps
Share	Outsource risk (or a portion of the risk) to a third party or parties that can manage the outcome.
Accept	Assume the chance of the negative impact
Monitor	Monitor and review process in which risk management is in place

NTD Programme Gaps and Priorities

Based on the SWOT analysis above, the following gaps and priorities were identified.

TABLE 30: NTD PROGRAMME GAPS AND PRIORITIES

Gaps
1. Inadequate technical and programme staff at DVBNTD, including staff for M&E, Supply Chain 2. Inadequate funding for NTDs at national and county level 3. Inadequate laboratory capacity for NTDs 4. NTD management fragmented across different units of the MOH 5. Weak collaboration with WASH partners 6. Weak collaboration with the Malaria programme 7. NTD database not routinely updated 8. Some NTD indicators not captured in KHIS 9. Inadequate pre- and post MDA coverage surveys and impact assessments 10. Long waiting list and waiting time for patients with hydrocele and lymphoedema 11. Counties do not have NTD plans although Annual workplans capture some NTD activities 12. Burden of NTDs not well established – urgent need for mapping and surveillance 13. Limited research (including operations research) on NTDs 14. Weak coordination and collaboration of stakeholders 15. Weak collaboration with Oncho Partners
Priorities
1. Recruit technical and programme staff, including for M&E and supply chain

2. Conduct smart advocacy for additional resources for NTDs at national and county level
3. Strengthen laboratory capacity and network for NTDs
4. Effective coordination of NTD management across different units of the MOH – ensure NTD Master Plan captures all NTDs of public health importance in Kenya
5. Conduct surgeries for patients on waiting lists
6. Advocate with counties to develop NTD plans and fund NTD activities
7. Urgently conduct mapping and surveillance of NTDs to establish a baseline for the current master plan
8. Identify NTD research priorities in collaboration with both research and academic institutions.
9. Development of NTD- WASH Framework to enhance collaboration, coordination and strengthen partnerships with the WASH sector
10. Strengthen technical knowledge of staff in both field and laboratory activities through focused training in key elements of Onchocerciasis, epidemiology and vectoral biology

Validation Workshop for the Kenyan NTD Master Plan, 17 – 19 OCTOBER 2022, Mlolongo, Machakos

PART 2: STRATEGIC AGENDA - PURPOSE AND GOALS

2.1: NTD Programme Mission and Vision

Vision

A healthy and productive nation free from NTDs.

Mission

To accelerate the prevention, control, elimination, and eradication of targeted NTDs in Kenya.

2.2: Guiding Principles

The NTD Programme has identified five guiding principles that will be core to its commitment to achieving its mission: These include:

- **Equity**: committed to reducing inequities and focusing on inclusiveness, non-discrimination, social accountability, and gender equality.
- **Collaboration**: committed to working jointly with others (partners, donors, counties, private sector, communities, and individuals) to achieve its goals
- **Quality:** committed to quality services and coverage for all including vulnerable and high-risk groups
- **Accountability:** obligated to report on performance, creation of public awareness, fostering transparency, and public participation
- **Integrity:** Obligated to adhere firmly to ethical and moral conduct

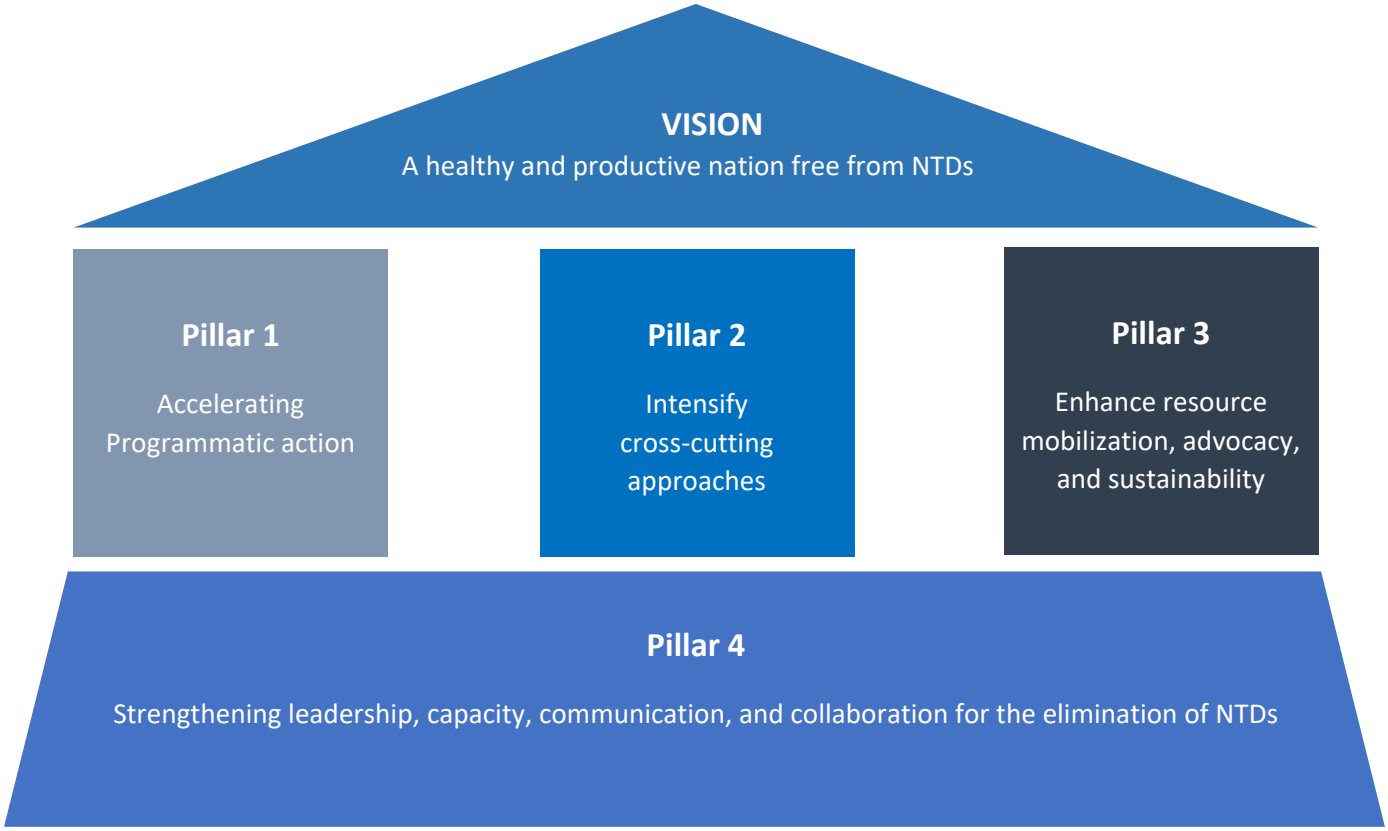
2.3: Strategic Pillars

Following extensive consultations with key stakeholders, four Strategic Pillars were identified for accelerating progress towards prevention, control, elimination, and eradication of NTDs in Kenya. Strategic pillars are key areas the programme must win in order for the programme to be successful (Figure 14). These are:

5. Accelerate programmatic action

6. Intensify cross-cutting approaches
7. Enhance resource mobilization, advocacy, and sustainability
8. Strengthen leadership, capacity, communication, and collaboration for the elimination of NTDs

FIGURE 14: STRATEGY FOR THE ELIMINATION OF NEGLECTED TROPICAL DISEASES IN KENYA



2.4: Strategic Priorities and Strategic Initiatives

For each strategic pillar, several key strategic priorities have been identified. Strategic priorities are big-picture objectives for the programme, and they describe what the programme will do to fulfil its mission. Each strategic priority has several strategic initiatives or outputs that will need to be achieved. Table31 summarizes all the strategic pillars, strategic priorities, and strategic initiatives of the Kenya NTD programme.

TABLE 31: STRATEGIC AGENDA FOR THE ELIMINATION OF NTDS IN KENYA

Strategic Pillar 1: Accelerate Programmatic Action	
Strategic Priorities	**Strategic Initiatives**
1.1 Preventive Chemotherapy	1.1.1 Mass Drug Administration
	1.1.2 Integrated MDA
	1.1.3 Pharmacovigilance
1.2 Case Management	1.2.1 Guidelines for Management of NTDs
	1.2.2 Capacity Building of HCWs and CHVs
	1.2.3 Diagnosis and Treatment of NTDs
	1.2.4 Vaccination and rehabilitation
1.3 Supply Chain Management	1.3.1 Capacity building in supply chain management at all levels
	1.3.2 Adapt supply chain SOPs
	1.3.3 Inventory management
	1.3.4 Policy and legal framework

Strategic Pillar 2: Intensify Innovative and Cross-cutting Approaches	
Strategic Priorities	**Strategic Initiatives**
2.1 M&E, Data analytics and Knowledge management Operational research and innovation	2.1.1 Create a data forum hosted by DVBNTD
	2.1.2 Establish integrated data management platforms/systems for DVBNTD
	2.1.3 Implement and adopt innovative approaches for better programming
	Develop and promote an integrated NTD M&E framework
	2.1.4 Develop operational research framework
2.2 Surveillance	2.2.1 Conduct targeted disease mapping and impact surveys
	2.2.2 Strengthen NTD passive surveillance through KHIS
2.3 Establish a network of reference laboratories to detect and report quality findings	2.3.1 Establish and equip national and regional laboratories for sentinel and routine surveillance
	2.3.2 Capacity build national and regional lab NTD surveillance teams
	2.3.3 Recruit and deploy staff to support routine and periodic surveillance

	activities
2.4 Integrated Vector Management	2.4.1 Establish IVM structures and scale up implementation of IVM activities
	2.4.2 Establish national coordination Mechanism and support its operations
	2.4.3 Capacity build for IVM at all levels

Strategic Pillar 3: Enhance Resource Mobilization, Advocacy, Health Promotion and Sustainability	
Strategic Priorities	**Strategic Initiatives**
3.1 Resource Mobilization	3.1.1 Increase domestic / government funding
	3.1.2 Obtain alternative financing
	3.1.3 Leverage donor support
3.2: National and County Government Ownership	3.2.1 Increase domestic funding (government and private sector)
	3.2.2 Leverage on donor support
	3.2.3 Increase efficiency in the use of resources towards NTDs
	3.2.4 Advocacy (Media, Government and Partners)
	3.2.5 Integration of NTDs into national and county development plans
3.3 Health Promotion	3.3.1 Expand NTD related WASH interventions
	3.3.2 Mainstream SBC interventions
3.4 Sustainability	3.4.1 Developing and implementing transition plans (refer to Kenya Health sector Transition Roadmap-2022-2030)

Strategic Pillar 4: Strengthen Leadership, Capacity, Communication, and Collaboration	
Strategic Priorities	**Strategic Initiatives**
4.1 Coordination and collaboration	4.1.1 Establish and operationalize national and county-level NTD committees
	4.1.2 Enhance multi-disciplinary collaboration
	4.1.3 Cross border initiatives
4.2 Capacity development	4.2.1 Infrastructure development
	4.2.2 Human capacity development

	4.2.3 Knowledge sharing
	4.2.4 Enhance logistics
4.3 Results Based Planning and financial management	4.3.1 Accountability and efficient use of financial resources
	4.3.2 Effective planning and management
4.4 Strategic Communication	4.4.1 Targeted dissemination of information
	4.4.2 Branding NTDs

2.5: NTD Programme Milestones, Indicators and Targets

For each targeted NTD, milestones, indicators, and targets have been developed to ensure the progarmme remains on track to achieve its mission and to highlight key interventions that will be scaled up. Figure 15 below summarizes the elimination stage and timelines for each NTD. Key milestones, indicators and targets are provided for each NTD in subsequent tables in this section.

FIGURE 15 : KENYA NTD PROGRAMME OVERALL TARGETS AT A GLANCE

Targeted for Eradication - Post Elimination Stage

1. Guinea Worm Disease

Targeted for Elimination (Interruption of Transmission) – Pre-Certification Stage

1. Human African Trypanosomiasis (Rhodesiense)
2. Onchocersiasis

Targeted for Elimination (as a Public Health Problem) – by 2027

1. Lymphatic Filariasis
2. Trachoma
3. Rabies
4. Soil Transmitted Helminths (STH)
5. Schistosomiasis

Targeted for Disease Control – by 2030

1. Leprosy
2. Leishmaniasis
3. Dengue and Chikungunya
4. Snake Bike Envenoming
5. Echinococcosis (Hydatid Disease)
6. Taeniasis/Cysticercosis
7. Scabies and other Ecto-parasites

TABLE 32: NTD PROGRAMME MILESTONES, INDICATORS AND TARGETS, 2023-2027

GUINEA WORM
Global Target: Eradication
National Target: Zero report of confirmed GWD cases

Indicators	2023	2024	2025	2026	2027
Investigate rumors within 24hrs	100	100	100	100	100
Submit quarterly reports to WHO	4	4	4	4	4
Conduct annual support supervision in at least 4 counties	4	4	4	4	4
Train health 50 health care workers per county on GWD in at least 4 counties	4	4	4	4	4
Submit annual report on GWD surveillance to WHO	1	1	1	1	1
Print and distribute 100 posters per county for at least 4 counties to sensitize on 100,000 cash reward	400	400	400	400	400

SCHISTOSOMIASIS
Global Target: Eliminate SCH as a public health concern.
National Target: Elimination of SCH as a public health concern.

Indicators	2023	2024	2025	2026	2027
Completed mapping of schistosomiasis and determined areas above intervention threshold and the endemic populations.	290 (100%)	-	-	-	-
Implementation community-based treatments in endemic sub-counties.	93 (32%)	290 (100%)	290 (100%)	290 (100%)	290 (100%)
Achievement of 100% geographical coverage in schistosomiasis endemic sub-counties.	93 (32%)	290 (100%)	290 (100%)	290 (100%)	290 (100%)
Proportion of formative assessments on FGS in endemic counties	3	3	4	-	-
No of newly trained Health care workers on Female genital schistosomiasis	600	600	700	-	-
No of trained Health care workers on supply chain management for NTDs	279	399	552	870	-
Conduct first impact assessment activities in at least 50% of schistosomiasis endemic sub-counties after at least 3 years of consecutive treatments.	-	57 (100%)	-	290 (100%)	-
No of Sub-counties with prevalence of ≤ 2% rate of infection	-	38 (13%)	-	290 (100%)	-
Proportion of forums held to sensitize on FGS	15 (33%)	30 (66%)	45 (100%)	-	-
Proportion of Praziquantel Efficacy trials conducted	1 (100%)	1 (100%)	1 (100%)	1 (100%)	1 (100%)
Proportion of sentinel site survey conducted	1 (100%)	1 (100%)	2 (100%)	3 (100%)	4 (100%)
Proportion of health care workers trained on Malacology	150 (100%)	150 (100%)	150 (100%)	150 (100%)	150 (100%)

Proportion of Malacological surveys conducted		1 (100%)	2 (100%)	4 (100%)	5(100%)

SOIL TRANSMITTED HELMINTHS
Global Target: Eliminate STH as a public health concern by 2030
National Target: Eliminate STH as a public Health concern 2027

Indicators	2023	2024	2025	2026	2027
Complete mapping of STH at sub-county level and determined areas above intervention threshold and the endemic population.	290 (100%)	-	-	-	-
Implementation of community-based treatments in endemic sub-counties (290).	93(32%)	290 (100%)	290 (100%)	290 (100%)	290 (100%)
Achieve 100% geographical coverage in STH endemic sub-counties.	93(32%)	290 (100%)	290 (100%)	290 (100%)	290 (100%)
Conduct 3-5 years of treatments in all endemic sub-counties with Sub- County coverage more than 75%.	57(19%)	-	93(32%)	290 (100%)	-
Conduct first impact assessment activities in at least 50% of STH endemic sub-counties after at least 3 years of consecutive treatments.	-	57 (100%)	-	290 (100%)	-
Achieve a prevalence rate of less than <2% in endemic sub counties	-	56 (19%)	-	290 (100%)	-
Efficacy Trials on Mebendazole/Albendazole	1(100%)	1(100%)	1(100%)	1(100%)	-
Number of new and re-trained laboratory personnel	150	60	60	-	-
No of new and re-trained healthcare workers on drug administration and supervision	27,300	52,500	52,500	52,500	52,500

LYMPHATIC FILARIASIS
Global Target: Eliminate LF as a public health problem
National Target: Elimination of LF as a public health problem

Indicators	**2023**	**2024**	**2025**	**2026**	**2027**
Proportion of IUs that stop MDA after TAS1	18 (78.3%)	23 (100%)	-	-	-
Proportion of IUs for which TAS1 survey is successfully conducted after at least 5 rounds of MDA.	23 (100%)	-	-	-	-
Proportion of IUs for which TAS2 survey is done two years after TAS1	7 (30.4%)	11 (47.8%)	5 (21.7%)	-	-
Proportion of IUs for which TAS3 survey is done two years after TAS2	-	-	7 (30.4%)	11 (47.8%)	5 (21.7%)
Proportion of IUs in which passive surveillance and vector control activities are implemented	7 (30.3%)	12 (52.2%)	18 (78.3%)	23 (100%)	-

Percentage of LF elimination dossier completed	50% complete	75% complete	100% complete	-	-
Proportion of IUs which have a minimum package of care for morbidity-management and disability prevention (MMDP) provided	5 (22%)	10 (44%)	15 (65%)	20 (87%)	23 (100%)
The proportion where at least 75% of hydrocele cases have been operated	5 (22%)	10 (44%)	15 (65%)	20 (87%)	23 (100%)

TRACHOMA
Global Target: Eliminate blinding trachoma as a public health problem by 2030
National Target: Elimination of blinding trachoma as a public health problem by 2026

Indicators	2023	2024	2025	2026	2027
Mapping of trachoma conducted to determine IUs that need interventions (surgery and MDA)	54 (100%)	-	-	-	-
Number and proportion of target counties where there is full geographical coverage of TT case-management services	12 (100%)	-	-	-	-
Number and proportion of IUs implementing community-based TT surgery	52 (100%)	-	-	-	-
Number and proportion of IUs where implementation of community-based MDA treatments have been conducted	24 (100%)	-	-	-	-
Number and proportion of IUs that do not require further MDA	19 (79%)	24 (100%)	-	-	-
Number and proportion of IUs which require 1 round of MDA	5 (21%)	0 (0%)	-	-	-
IUs that have achieved 100% MDA geographical coverage in trachoma target IUs.	24 (100%)	-	-	-	-
Number and proportion of IUs that achieved at least 80% therapeutic coverage in the previous year.	10/13 (77%)	5/5 (100)	-	-	-
Number of IUs under surveillance	14	5	0	-	-
Number and proportion of IUs that have achieved elimination of blinding trachoma	24 (44%)	30 (56%)	48 (88%)	54 (100%)	-
Compile dossier for verification of elimination	20% complete	50% complete	80% complete	100% complete	-

LEISHMANIASIS
Global Target: Control morbidity.
National Target: Reduction of morbidity in endemic areas to levels where they are no longer a public health problem.

Indicators	2023	2024	2025	2026	2027
Proportion of healthcare workers trained on case management (target 1000)	200 (20%)	200 (40%)	200 (60%)	200 (80%)	200 (100%)

Percentage of health facilities* managing leishmaniasis cases that are collecting and reporting leishmaniasis data	75%	100%	100%	100%	100%
Proportion of CL & VL treatment Facilities* with updated treatment guidelines	100%	100%	100%	100%	100%
Proportion of recovered cases* after initial management	95%	95%	95%	95%	95%
Proportion of PKDL cases identified and appropriately managed	25%	50%	75%	100%	100%
Number/proportion of healthcare workers trained on commodity management & reporting (target 100)	20 (20%)	20 (40%)	20 (60%)	20 (80%)	20 (100%)
Proportion of treatment facilities providing monthly consumption reports	25%	75%	100%	100%	100%
Targeted sentinel site surveillance in all of target counties for vectors control activities. (Target 14)	3 (25%)	4 (50%)	4 (75%)	3 (100%)	(100%)
Development of CL guidelines & tools	1 (100%)	-	-	-	-
Number of suspected CL & VL counties mapped	3	3	3	3	3
Proportion of VL/CL endemic sub- Counties with CHVs trained on active case finding	25%	50%	75%	100%	100%
Leishmaniasis data incorporated into the national surveillance system	100%	-	-	-	-
Number of health workers trained on leishmaniasis surveillance (target 400 HCW)	80 (20%)	80 (40%)	80 (60%)	80 (80%)	80 (100%)
Number of county governments in leishmaniasis endemic areas allocating funding for leishmaniasis control activities (Target 14 Counties)	3	5	10	14	-
IEC materials developed and distributed to leishmaniasis endemic counties	50%	75%	100%	-	-
Number of Counties with an established & functional coordination mechanism	50%	100%	-	-	-
Proportion of people with knowledge on leishmaniasis in endemic sub-Counties	25%	50%	75%	100%	-

**Target not known*

RABIES

Global Target: Elimination of human dog mediated rabies as public health problem.

National Target: Zero death from rabies.

Indicators	2023	2024	2025	2026	2027
Proportion of Sub - Counties assessed and areas that require interventions determined	30%	50%	70%	80%	100%
Proportion of school-based/community-based education and awareness conducted in endemic / high- risk Sub-Counties	30%	50%	70%	80%	100%
Proportion of post exposure prophylaxis provided to clients with dog / cat bites	100%	100%	100%	100%	100%
Proportion of impact assessment activities conducted in Rabies endemic sub-counties	30%	50%	70%	80%	100%

SNAKEBITE ENVENOMING
Global Target: 50% reduction in SBE associated deaths and disabilities.
National Target: Reduction of snakebite burden in endemic areas to levels where they are no longer a public health problem.

Indicators	2023	2024	2025	2026	2027
Updated guidelines on clinical management of snakebite	1 (100%)				
Number of trainings of health workers in 16 SBE Counties on diagnosis and case management of SBE		8 (100%)			
Mapping of snakebite in 16 endemic counties	4 (25%)	8 (50%)	12 (75%)	16 (100%)	
Clinical audits of health facility capacity for case management in 16 endemic counties	20%	40%	60%	80%	100%
Conducted five needs assessment on SBE diagnosis		4 (80%)	1 (20%)		
Progress on review of hospital management of SBE patients			100%		
Conducted two efficacy tests of antivenoms available in the market		1 (50%)		2 (100%)	
Proportion of communities sensitized in 60 SBE endemic sub-Counties	15 (25%)	6 (10%)	6 (10%)	6 (10%)	27 (45%)
Assessed capacity of the 16 SBE endemic counties to purchase antivenoms		16 (100%)		16 (100%)	

ONCHOCERCIAIS
Global Target: Elimination of Transmission of Onchocerciasis
National Target: Eliminate Onchocerciasis as a public health problem

Indicators	2023	2024	2025	2026	2027
Attachment and knowledge sharing with partner institutions within Kenya and neighbouring countries which are endemic for Onchocerciasis to better understand the vector ecology and epidemiology.	50%	25%	100%	-	-
Capacity building of healthcare workers on clinical and laboratory diagnosis, case management and recognition of onchocerciasis in the 6 formerly endemic sub-counties	450 30%	500 60%	550 (100%		
Development of communication and advocacy strategies in addressing Onchocerciasis (public participation, branding, IEC materials, manuals and guidelines)	25%	50%	100%	-	-
Development of *S. naevei* group protocol in consultation with WHO advisors and technical partners	100%				
Review and realign the OEM mapping and serological results for 2018 with the *S. naevei* group protocol developed	50%	50%			

Completed mapping/delineation and determination of onchocerciasis by aligning it to the *Simulium naevei group* protocol (Epidemiological and entomological assessment)	50%	90%	100%	-	-
Present the "dossier" for in-country verification of absence of onchocerciasis transmission.	30%	50%	100%	-	-
Post elimination surveillance activities for Onchocerciasis	-	-	-	50%	50%
Post elimination advocacy and awareness creation	-	-	-	50%	50%

HUMAN AFRICAN TRYPANOSOMIASIS

Global Target: Elimination as a public health problem by 2020 and interruption of transmission (zero cases) by 2030

National Target: Validation for the elimination of rhodesiense HAT as a public health problem (less than 1 case per year per 10,000 human population)

Indicators	2023	2024	2025	2026	2027
Identified and equipped target counties' health facilities	75%	100%	100%	-	-
Trained technical staff on Human African Trypanosomiasis (HAT)	75%	100%	100%	-	-
Conducted Active Surveillance of Human African Trypanosomiasis (HAT)	75%	100%	100%	-	-
Conduct Passive Surveillance of Human African Trypanosomiasis (HAT)	75%	100%	100%	100%	100%
To conduct Surveillance of African Animal Trypanosomiasis (AAT)	75%	100%	100%	100%	100%
To conduct Mapping and Surveillance of Vectors of HAT pathogens	75%	100%	100%	100%	100%
Submitted Dossier indicating the Post validation Surveillance Plan to WHO	-	100%	-	-	-

LEPROSY

Global Target:

- 90% Reduction in Rate Per Millions of New Cases with Grade 2 Disability.
- 90% Reduction in Rate Per Million Children of New Child Cases with Leprosy.

National Target:

- Reduction of newly diagnosed children with leprosy from 6% to below 3%.
- Reduction of newly diagnosed leprosy cases with disability grade 2 from 35% to below 10%.

Indicators	2023	2024	2025	2026	2027
Number Health workers capacity build on leprosy case management in 10 endemic counties	120	120	120	120	120
Case based geo-spatial mapping of Leprosy cases diagnosed from 2014- 2021 (945 cases) from all Counties and the ones notified within the year to determine areas that require interventions	20%	40%	60%	100%	100%

Proportion of new cases notified diagnosed from 2014- 2021 (945 cases) from all Counties and the ones notified within the year for which contact tracing and screening has been applied	20%	40%	60%	100%	100%
Number Conduct leprosy active case finding programs in target population in top 10 notifying counties	10	10	20	30	40
Number of ACSM campaigns on leprosy at the national level and 10 endemic counties	11	11	11	11	11
Access by persons affected by leprosy to social entitlements and community rehabilitation services	50%	75%	100%	100%	100%

DENGUE FEVER

Global Target: To reduce the burden of dengue and chikungunya incidence burden by 25%

National Target: To establish a robust dengue and chikungunya surveillance and control

Indicators	2023	2024	2025	2026	2027
Capacity building at the national level of both scientists and laboratory technicians on laboratory diagnosis(national) and vector surveillance	50	50	50	50	50
Procurement of equipment and materials for dengue and chikungunya surveillance	National	County 50%	County 50%	-	-
Development of a guideline for dengue and chikungunya surveillance and control	100%	-	-	-	-
Capacity building at the counties for vector surveillance and laboratory surveillance	50	100	100	-	-
Proportion of entomological surveillance conducted in the counties	20%	40%	60%	80%	100%

WASH

Global Target:

- 0% of population practicing open defecation by 2025
- 100% of population using at least basic sanitation by 2030
- 100% of population using at least basic water supply by 2025
- 100 % of population with hand-washing facilities, including soap and water by 2030 (WHO 2021-2030)

National Target:

- By 2030, achieve universal and equitable access to safe and affordable drinking water for all
- By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation

Indicators	2023	2024	2025	2026	2027
Proportion of households with access to safe drinking water	50%	60%	70%	80%	85%
Proportion of households/schools with access to functional latrines	50%	60%	70%	80%	85%

Proportion of households with functional hand washing facilities with soap and water	65%	70%	75%	80%	85%
Proportion of villages verified as open defecation free (ODF)	50%	45%	30%	25%	20%
Proportion of WASH partners (National level) with knowledge of NTDs	40%	50%	60%	70%	90%
Proportion of County Governments in endemic areas providing WASH funds for NTDs	40%	50%	70%	90%	100%

ADVOCACY COMMUNICATION AND SOCIAL MOBILIZATION (ACSM)
Global Target: Ensure the delivery of comprehensive, integrated actions against NTDs by 2030 for all
National Target: Intensified advocacy, coordination, and partnerships in NTD control and elimination

Indicators	2023	2024	2025	2026	2027
Number of high-level meetings held at the national level (CS Ministry of Health, PS Health)	4	4	3	2	2
Number of meetings held with policy makers at the county level (CoG, CECs, CHMT)	4	4	4	4	4
Number of influencers engaged in NTD endemic counties	10	20	30	40	50
Development, production, pretest and mass production of the social mobilization materials and messages/Number of health messages and materials developed	1000	1000	1000	1000	1000
Number of fact sheets on WASH-NTD developed	500	500	500	500	500
Number of schools reached in trachoma endemic counties (12) through targeted innovative BCC interventions for schools	500	600	700	800	1000
Number of media engagements to create awareness to media personalities who can advocate for NTDs	4	4	4	4	4
Number of forums held to sensitize on FGS in 5 regions	5	5	5	5	5
Number of communication channels used for continuous health messages for NTDs	5	5	5	5	5
Number of counties supported by dialogue days quarterly in NTD endemic areas to create awareness specific to NTDs-as a pilot for 2023	4	8	12	16	20
Number of counties reached for scale up of puppetry assets as a behavior change tool e.g live show and recorded videos developed under DIF project	4	8	12	16	20
Number of KAP studies undertaken to determine Knowledge, attitude and practices on SCH/STH among school going children in the target schools	3	3	3	3	3

SUPPLY CHAIN & WAREHOUSING

Global target:

Sustain the supply of necessary drugs and other interventions to help control and eradicate specific NTDs.

National target:

Eliminate and control NTDs through improved supply chain management by 2027

Indicators	2023	2024	2025	2026	2027
Number of visits to the warehouses to ensure proper storage of medication and other devices before and after MDAs.	12	12	12	12	12
Timely preparation and submission of JAP and AZT application forms depending on MDA schedule	100%	100%	100%	100%	100%
Quality assurance tests of opened containers of drugs before an MDA. (Random sampling)	100%	100%	100%	100%	100%
Proportion of tablet accountability forms kept for inventory management	100%	100%	100%	100%	100%
Tracking of drug donation deliveries depending on MDA schedule (approvals, shipping information, customs clearance)	100%	100%	100%	100%	100%
Proportion of trained supply chain/ inventory managers at sub county level.	100%	100%	100%	100%	100%

INTEGRATED VECTOR MANAGEMENT

Global Target: Reduction of mortality and case incidence due to vector-borne diseases globally relative to 2016 by at least 75% and 60% respectively and prevent epidemics of vector-borne diseases in all countries without transmission by 2025, and in all countries by 2030.

National Target: Reduction of mortality and epidemics due to VBDs to zero.

Indicators	2023	2024	2025	2026	2027
Mapped IVM Stakeholders and Partners	100%	-	-	-	-
Developed and launched the National IVM Strategy	100%	-	-	-	-
Established Intra and Inter-sectoral, Intra and Inter-ministerial Coordination Committee (ICC) for IVM	100%	-	-	-	-
Capacity built Entomologists and Technologists at National and county levels on IVM (Lab and Field work)	20%	40%	60%	80%	100%
Developed Implementation IVM framework for control of all NTDs	100%	-	-	-	-
Conducted vector surveillance and impact assessment for monitoring of all NTDs in 47 counties.	20%	40%	60%	80%	100%
Conducted insecticide resistance monitoring in 47 counties	20%	40%	60%	80%	100%

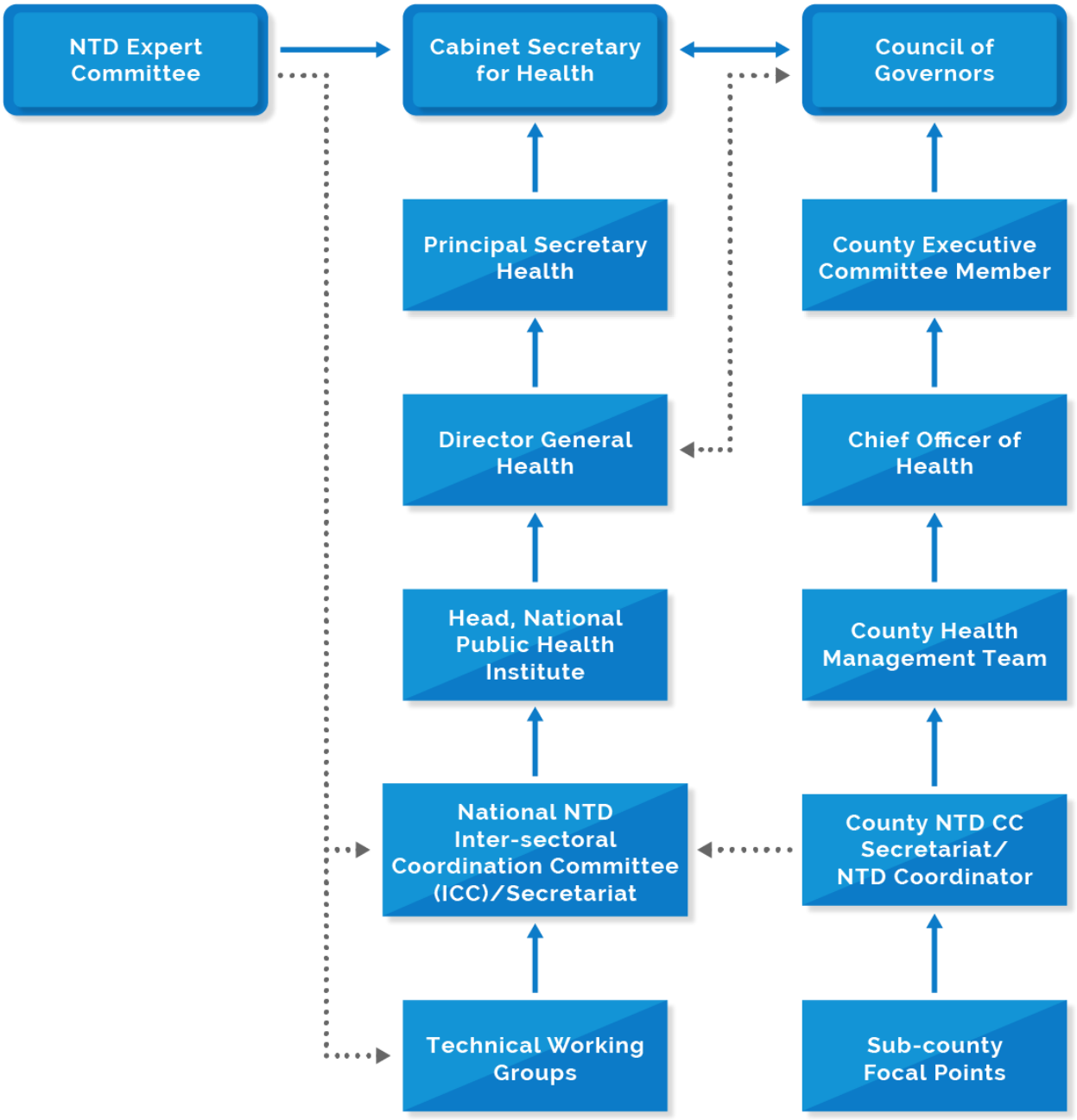
2.6 Sustainability and Institutional Framework for NTDs in Kenya

To achieve the ambitious elimination targets proposed in this NTD Master plan, effective leadership and governance will be critically needed to provide a framework for engagement with various institutions, private sector, county governments and line ministries working in NTD programming in the country. This is even more urgent given devolution of health services including NTD service delivery and the need to have functional governance mechanisms at both levels. This is critical in fulfilling key objectives such as:

- Engage and empower individuals and communities to play an active role in prevention and treatment of NTDs.
- Provide a forum for the media, private sector and the academia to contribute to the NTD elimination agenda.
- Provide coordination mechanism with other sectors such as WASH, Agriculture, Edducation, etc. to play a key role in NTD elimination.

The key structures necessary for implementation of this master plan are presented in Figure 16. They include National NTD Steering Committee, National and County Health Management Teams, National and County Inter-sectoral Coordination Committees, development partners and other relevant stakeholders in NTD prevention, control and elimination.

FIGURE 16: DRAFT NATIONAL NTD SUSTAINABILITY AND INSTITUTIONAL FRAMEWORK



2.7 Roles and Responsibilities of Key Actors

The table below summarizes the roles and responsibilities of each of the actors for effective and efficient realization of the vision and mission of this NTD Master Plan.

TABLE 33: ROLES AND RESPONSIBILITIES OF NTD ACTORS

Actor	Roles and Responsibilities
NTD ICC Chaired by the DG, NPHI	• To provide overall technical oversight for NTD elimination and control activities in Kenya including advising the Ministry of Health as required • To support policy formulation relevant to elimination and control of NTDs • To promote Sectoral and Multisectoral Coordination among all stakeholders involved in elimination and control of NTDs • To coordinate the activities of relevant stakeholders, ensure they are aligned to and follow the NTD Master Plan • To support country efforts to elimination and control NTDs • To facilitate systematic and timely information exchange among stakeholders • To facilitate information sharing on available resources to enhance planning, synergy and efficient use of available resources • To strengthen advocacy to raise the priority accorded to the elimination and control of NTDs • To strengthen international collaboration in support of national plans for the elimination and control of NTDs
MOH/DVBNTD	• Provide overall leadership and stewardship in NTD management, elimination, and control. • Advocacy and social mobilization. • M&E for elimination and control of NTDs • Development and review of policies and guidelines for NTDs. • Provide a framework for stakeholder engagement and revitalise multisector stakeholder coordination mechanisms. • Allocate adequate resources for supervision and oversight. • Resource mobilization and linkage of partners to counties. • Forge appropriate regional and local multi-sectoral partnerships. • Provide sector frameworks to guide investments in NTD.

Actor	Roles and Responsibilities
	• Conduct budget tracking and provide a resource mapping repository. • Coordination of NTD data management and dissemination as well as research and technology platforms. • Mainstreaming NTD within the health sector and integrate it within Universal Health Coverage • Prioritizing NTDs in the health financing policy • Capacity development for HRH
Other MOH Divisions, including Planning, Malaria, TB and Leprosy Program, etc.	• Support implementation of the NTD Master Plan • Support NTD Interventions • Advocacy • Integrated Vector Control activities • Support policy and guidelines development
Other Ministries, including Education, Agriculture, Water, etc.	• Support MDA activities • Support WASH interventions • Support awareness, demand creation and SBCC • Support NTD interventions
County Governments	• Implement national policies and guidelines on NTD at the county level • NTD service provision at all levels • Mainstream NTDs within the County Integrated Development Plan (CIDP) and develop County Annual NTD Plans • Create a budget line item for NTDs and allocate resources for NTDs within the county annual budgets • Provision of well-equipped health facilities • Hiring, training, retention, and remuneration of HRH in line with Kenya staffing norms • Advocacy and policy geared towards NTDs elimination and control • Ensuring availability of essential HPTs. • Create a conducive environment for implementing partners towards NTDs • Provision of WASH services. • Streamlining referral services • Establish county level multi-sectorial forums geared towards NTD elimination and control
Council of Governors, including	• Coordination, collaboration, and communication between national and county governments • Advocacy

Actor	Roles and Responsibilities
Secretariat and Health Committee	• Resource mobilization • Support implementation at county level
Law makers (Parliament and County Assemblies)	• Pass bills for elimination and control of NTDs • Lobby for increased allocation of resources for NTD elimination and control • Provide an oversight for NTD implementation in the country
National NTD Expert Committee	• Support access to interventions, treatment, and service delivery. • Strengthen government ownership, conduct advocacy, support co-ordination and partnerships at all levels • Support planning for results, resource mobilization and financial sustainability in efforts towards elimination and certification of NTDs • Support monitoring and evaluation of elimination and certification of elimination of NTDs.
Implementing Partners	• Provide technical support and capacity building • Support implementation at county level • Support coordination at national level • Support awareness, demand creation and SBCC activities • Advocacy • Support WASH activities • Resource mobilization • Conduct research, including mapping and surveillance of NTDs
Development Partners	• Support resource mobilization and financing of NTD activities. • Provide technical support and capacity building. • Participate in multisectoral coordination meetings. • Advocacy. • Support political goodwill.
Academic, Research and Health Training Institutions	• Support education and training on NTDs • Review education curricula in consultation with regulatory bodies to respond to the current NTD trends • Conduct NTD research to inform policy, planning and programming • Support accountability on the implementation of the Master Plan
Private Sector	• Provide financial support for NTDs elimination and control activities.

Actor	Roles and Responsibilities
	• Ensure manufacturing of quality, affordable, accessible health products (e.g., medicines, pharmaceutical products, and rehabilitation). • Undertake CSR activities targeting community awareness for NTDs. • Insurance companies should develop NTD friendly packages. • Conduct responsible advertising and follow NTD risk control laws and policies. • Support technology innovation and use in the health sector. • Participate in resource mobilization.
Media	• Engage in advocacy and community mobilization in implementation of NTD Master Plan. • Participate in development and dissemination of health messages on NTDs • Educate the public on NTDs and the risk factor across all levels. • Sensitize and mobilize their members for effective implementation of NTD Master Plan. • Advocate and ensure accurate and evidence-based reporting on NTDs elimination and control. • Provide media coverage for NTD elimination and control efforts.
Individuals and Communities	• Adopt appropriate health care seeking behaviours. • Participate actively in health promotion and NTD activities. • Increase demand by lobbying and seeking for insurance policies for financial and social protection. • Participate in social mobilization activities to raise awareness for NTDs. • Participate in the budget making process.

PART 3: IMPLEMENTING THE STRATEGY - OPERATIONAL FRAMEWORK

3.1: Introduction

Part 3 of the Master Plan provides technical and programmatic interventions that have been prioritized for elimination of NTDs in Kenya. For each strategic initiative, details are provided for the activities and sub-activities that will be implemented to achieve a successful programme. In addition, key resources, and the timeframe for implementing these activities are provided.

3.2: Strategic Pillar 1 - Accelerating Programmatic Action

Pillar 1 focuses on the clinical aspects of NTD prevention and control. The two main interventions are preventive chemotherapy and case management. Preventive chemotherapy will mainly be done through MDA in schools and communities. MDA involves identifying communities where treatment is needed, raising community awareness and buy-in, training community drug volunteers' distributors, transporting the drugs to the field, distributing the drugs and evaluating the impact of the treatment. NTD targeted for preventive chemotherapy in Kenya include LF, Trachoma, SCH and STH. Since 2018, the WHO guidelines on leprosy also recommended chemoprophylaxis for leprosy in the form of a single dose of rifampicin given to the group most at risk, close contacts of leprosy patients. For effective cross-border programming, Trachoma MDAs will be jointly administered in Kenya and Tanzania, Uganda, South Sudan and Ethiopia at designated borders.

NTDs targeted for case management are Leishmaniasis, Trachoma Trichiasis, LF disabilities (hydrocoele and elephantiasis), female genital schistosomiasis, snakebite envenoming (SBE), vaccination for rabies, and cystic echinococcosis. In addition, arbovirus, scabies and other ectoparasites will be focused on in this pillar. Rehabilitation, treatment and contact tracing will be carried out for leprosy. Efforts will be geared towards the elimination of onchocerciasis and HAT.

Prompt diagnosis and effective treatment of NTDs is crucial towards achieving the goal of this strategy. Individual case management will be conducted for leishmaniasis. Expanding the availability of surgery for men with hydrocele due to lymphatic filariasis is also an aim of the program. Treatment for trachoma will focus on treating the symptoms and helping to prevent future infection. This will use the SAFE strategy (surgery (S), antibiotics (A), facial cleanliness (F) and environmental educational efforts (E) which is a multi-pronged approach. This pillar will focus on updating and disseminating relevant documents, enhancing the skills of healthcare providers, and ensuring access to diagnosis and treatment commodities. Treatment guidelines for various NTDs including snakebite envenoming will be revised and disseminated. Training of health workers on NTDs will be undertaken in the respective endemic counties for various NTDs for both the public and private sector. Focused support supervision will also be carried out post the training.

In NTDs endemic regions, Quality Assurance (QA) reference labs will be established, and proper training conducted to ensure quality. Lot-to-lot testing will be performed to ensure the quality of mRDTs.

To support effective preventive chemotherapy and case management activities, supply chain management will be strengthened at sub-county, health facility and community levels. Procurement, warehousing, and distribution of all diagnostic and treatment commodities for NTDs together with vaccines will be carried out to ensure stock up levels are adequate and subsequently proper and timely management of patients with the various NTDs. Table 34 summarizes strategic priorities, initiatives, activities and sub-activities for Pillar 1.

TABLE 34: PILLAR 1 - ACCELERATE PROGRAMMATIC ACTION - STRATEGIC PRIORITIES, INITIATIVES, ACTIVITIES AND SUB-ACTIVITIES

Strategic Priority: Preventive Chemotherapy				
Strategic Initiatives	**Activities**	**Sub-activities**	**Key Resources**	**Timeframe**
Mass Drug Administration	National level planning	Drug forecasting and quantification	Human resource, Airtime, data	Annually (Yrs1-5)
		Drug forecasting and quantification of SCH and STH medicines	Human resource, Airtime, data	Annually (Yrs1-3)
		Drug forecasting and quantification for Trachoma	Human Resource	Yrs1-3
		Requisition of medicines for trachoma	Human Resource	Yrs1-3
		Requisition of medicines	Human resource, Airtime, data	Yrs1-3
		Requisition of medicines to treat about 17M people yearly - STH	Human resource, Airtime, data	Yrs1-3
		Requisition, treatment for approximately 10M people yearly - SCH	Human resource, Airtime, data	Yrs1-3
		Clearance at the port	Human resource, Airtime, data, transport	Yrs1-3
		Clearance at the port for Trachoma	Human Resource, Transport, Customs costs,	Yrs1-3
		Warehousing		
		Warehousing for Trachoma	Warehouse costs	Yrs1-3
		Distribution from JKIA airport to KEMSA	Transport	Yrs1-3
		Distribution of commodities to counties	Human Resource, Transport	Yrs1-3
		Warehousing	Human resource, data, transport	Annually (Yrs1-5)
		Distribution from JKIA airport to KEMSA	Human resource, airtime, transport	Annually (Yrs1-5)
		Distribution of commodities to counties	Human resource, airtime, transport	Annually (Yrs1-5)
		Harmonization of MDA materials	Human resource, airtime, transport, conference facility	Annually (Yrs1-5)

Strategic Priority: Preventive Chemotherapy				
Strategic Initiatives	**Activities**	**Sub-activities**	**Key Resources**	**Timeframe**
		Review of social mobilization tools	Human resource, airtime, transport, conference facility	Annually (Yrs1-5)
		Cross border Joint planning and review meeting	Human resource, airtime, transport, conference facility	Annually (Yrs1-5)
		Cross boarder MDA launch (Kenya-Uganda; and Kenya-Tanzania)	Human resource, airtime, transport, conference facility,	Annually (Yrs1-5)
		Review of social mobilization tools	Human Resource, Transport	Yrs1-3
		Cross border Joint planning and review meeting for Trachoma	Human Resource, Transport, Conference facility	Yrs1-3
		Joint cross border MDA launch for Trachoma	Human Resource, Transport, Visibility materials, Logistics	Yrs1-3
	Research	Therapeutic drug monitoring to assess efficacy	Human resource, airtime, transport,	Annually (Yrs1-5)
		Analyze reported ADRs/ SAEs to effect management/ guidelines to manage	Human resource, airtime, transport,	Annually (Yrs1-5)
	Capacity building on pharmacovigilance	Adopt PV guidelines on management of NTDs	Human Resource, Transport	Yrs1-3
		Adopt PV guidelines on management of NTDs	Human resource, airtime, transport,	Annually (Yr1)
		ToT and Healthcare workers on management of SAEs & ADRs at Subcounty level	Human resource, airtime, transport, conference facility	Annually (Yrs1-5)
		Sensitize/advocate HCW on reporting of SAEs/ADR	Human resource, airtime, transport, training materials,	Annually (Yrs1-5)
	Community sensitization	Develop Health messages on pharmacovigilance	Human resource, airtime, transport, IEC materials	Annually (Yrs1-5)
		Civic education on identification of side effects and effective reporting	Human resource, airtime, transport, IEC materials, media	Annually (Yrs1-5)

Strategic Priority: Preventive Chemotherapy				
Strategic Initiatives	**Activities**	**Sub-activities**	**Key Resources**	**Timeframe**
		Procure TT surgery commodities	Human resources	Yrs1-5
	Surgical quality assurance for trachoma	Per year Surgeon refresher training	Human Resource, Transport, Conference facility	Yrs1-5
		Supportive supervision	Human Resource, Transport, Conference facility	Yrs1-5
		Surgical audits in a year	Human Resource, Transport	Yrs1-5
	Advocacy for Trachoma	County advocacy meeting	Human Resource, Transport, Conference facility, Advocacy materials	Yrs1-5
		Sub county Advocacy meetings	Human Resource, Transport, Conference facility, Advocacy materials	Yrs1-5
		National TV/Radio show	Human resources	Yrs1-5
		Sensitization of community on MDAs via Local Radio talk shows & TV show	Human resources, Advocacy materials	Yrs1-5
		MDA community sensitization meetings- Barraza's	Human resources, Advocacy materials	Yrs1-5
		Radio talk shows-National	Human resources	Yrs1-5
		Radio talk show local	Human resources	Yrs1-5
	Advocacy	County advocacy meeting	Human resource, airtime, transport, conference facility	Annually (Yrs1-5)
		Sub county Advocacy meetings	Human resource, airtime, transport, conference facility	Annually (Yrs1-5)
		National TV/Radio show	Human resource, airtime, transport, media	Annually (Yrs1-5)
		Sensitization of community on MDAs via Local Radio talk shows & TV shows	Human resource, airtime, transport, media, IEC materials	Annually (Yrs1-5)
		MDA community sensitization meetings- Barazas	Human resource,	Annually

Strategic Priority: Preventive Chemotherapy				
Strategic Initiatives	**Activities**	**Sub-activities**	**Key Resources**	**Timeframe**
			airtime, transport, IEC materials	(Yrs1-5)
		Radio talk shows-National	Human resource, airtime, transport, documentary	Annually (Yrs1-5)
		Radio talk show local	Human resource, airtime, transport, media	Annually (Yrs1-5)
	Trainings for Trachoma	TOT (Master trainers)	Human Resource, Transport, Conference facility, Training materials	Annually (Yrs1-5)
		Training TOT (Master trainers) at National level	Human Resource, Transport, Conference facility, Training materials	Annually (Yrs1-5)
		Sub County Trainings and Community Drug Distributor (CDD)/CHVs	Human Resource, Transport, Conference facility, Training materials	Annually (Yrs1-5)
		Sub County Trainings for HCW and CDD/CHVs	Human Resource, Transport, Conference facility, Training materials	Annually (Yrs1-5)
	Trainings	TOT (Master trainers)	Human resource, airtime, transport, media, training materials, conference facility	Annually (Yrs1-5)
		Training TOT (Master trainers) at National level	Human resource, airtime, transport, media, training materials, conference facility	Annually (Yrs1-5)
		TOT (Master trainers)	Human resource, airtime, transport, media, training	Annually (Yrs1-5)

Strategic Priority: Preventive Chemotherapy				
Strategic Initiatives	**Activities**	**Sub-activities**	**Key Resources**	**Timeframe**
			materials, conference facility	
		Sub County Trainings and Community Drug Distributor (CDD)/CHVs	Human resource, airtime, transport, media, training materials, conference facility	Annually (Yrs1-5)
		Sub County Trainings for HCW and CDD/CHVs	Human resource, airtime, transport, media, training materials, conference facility	Annually (Yrs1-5)
	Microplanning for Trachoma	Hold a micro planning meeting	Human Resource, Transport, Conference facility	Annually (Yrs1-5)
		National planning meetings	Human Resource, Transport, Conference facility	Annually (Yrs1-5)
		County Planning meeting	Human Resource, Transport, Conference facility	Annually (Yrs1-5)
		Development of promotion materials – posters, caps, T-shirts, treatment poles,	Human Resource, Transport, Conference facility,	Annually (Yrs1-5)
		Community sensitization by use of public address system village and carriers	PA system Transport Human Resource	Annually (Yrs1-5)
		Holding of community sensitization meetings through barazas	PA system Transport Human Resource	Annually (Yrs1-5)
		Hold Stakeholder forum	Human Resource, Transport, Conference facility	Annually (Yrs1-5)
	Microplanning	Hold a micro planning meeting	Human resource, airtime, transport, media, training materials, conference	Annually (Yrs1-5)

Strategic Priority: Preventive Chemotherapy				
Strategic Initiatives	**Activities**	**Sub-activities**	**Key Resources**	**Timeframe**
			facility	
		National planning meetings	Human resource, airtime, transport,	Annually (Yrs1-5)
		County Planning meeting	Human resource, airtime, transport, media, Public Address	Annually (Yrs1-5)
		Development of promotion materials – posters, caps, T-shirts, treatment poles,	Human resource, airtime, transport, media, IEC materials, conference facility	Annually (Yrs1-5)
		Community sensitization by use of public address system village and carriers	Human resource, airtime, transport, training materials, conference facility	Annually (Yrs1-5)
		Holding of community sensitization meetings through barazas	Human resource, airtime, transport, Pubic address, IES materials, conference facility	Annually (Yrs1-5)
		Hold Stakeholder forum	Human resource, airtime, transport, media,	Annually (Yrs1-5)
	Social mobilization	Community sensitization through public address and radio stations	Human resource, airtime, transport, print company	Annually (Yrs1-5)
		Radio-County	Human resource, airtime, transport, public address	Annually (Yrs1-5)
		Development of promotion materials – posters, caps, T-shirts, treatment poles,	Human resource, airtime, transport, public address	Annually (Yrs1-5)
		Public address system village carriers	Human resource, airtime, transport, media, training materials, conference facility	Annually (Yrs1-5)
		Holding of community sensitization meetings	Human resource,	Annually

Strategic Priority: Preventive Chemotherapy				
Strategic Initiatives	**Activities**	**Sub-activities**	**Key Resources**	**Timeframe**
		through barazas	airtime, transport,	(Yrs1-5)
	Distribution of MDA commodities	From central stores to county stores	Human resource, airtime, transport,	Annually (Yrs1-5)
		Transportation of MDA commodities from central stores to county stores	Human resource, airtime, transport,	Annually (Yrs1-5)
		Transportation of MDA from the county stores to the sub county- health facilities	Human resource, airtime, transport,	Annually (Yrs1-5)
		Reverse cascade	Human resource, airtime, transport,	Annually (Yrs1-5)
	MDA	Treatment/ No. of personnel involved		
		Report writing	Human resource, airtime, conference facility	Annually (Yrs1-5)
		Supportive supervision	Human resource, airtime, transport	Annually (Yrs1-5)
		Dissemination	Human resource, airtime, transport, conference facility	Annually (Yrs1-5)
		Report writing	Human resource, airtime, transport, conference facility	Annually (Yrs1-5)
		Coverage evaluation survey	Human resource, airtime, transport, conference facility	Annually (Yrs1-5)
		Dissemination	Human resource, airtime, transport, conference facility	Annually (Yrs1-5)
		Drug collection and distribution and reverse cascade	Human resource, airtime, transport,	Annually (Yrs1-5)
		Coverage evaluation survey	Human resource, airtime, transport, conference facility	Annually (Yrs1-5)
		MDA launch	Human resource, airtime, transport, entertainment	Annually (Yrs1-5)
		Country context analysis	Human resource, airtime, transport,	Annually (1,2,3,4,5)

Strategic Priority: Preventive Chemotherapy				
Strategic Initiatives	**Activities**	**Sub-activities**	**Key Resources**	**Timeframe**
			conference facility	
		Joint planning, social mobilization	Human resource, airtime, transport, conference facility	Annually (Yrs1-5)
		MDA launch	Human resource, airtime, transport, conference facility, entertainment	Annually (Yrs1-5)
		Distribution of medicines	Human resource, airtime, transport,	Annually (Yrs1-5)
		Carry out MDA Supportive supervision	Human resource, airtime, transport,	Annually (Yrs1-5)
		Report writing	Human resource, airtime, transport, conference facility	Annually (Yrs1-5)
		National dissemination	Human Resource, Transport, Conference facility	Annually (Yrs1-5)
	Integrated MDA	County Dissemination	Human Resource, Transport, Conference facility	Annually (Yrs1-5)
		Sub county Dissemination	Human Resource, Transport, Conference facility	Annually (Yrs1-5)
	MDA	Conduct a situation analysis; identify ADRs, SAEs	Human resource, Airtime, transport, airtime,	Annually (Yrs1-5)
		Develop pharmacovigilance guidelines and tools for various drug molecules	Human resource, Airtime, transport, airtime, data,	Annually (Yr1)
		Sensitize the community and health workers on effective reporting of SAEs/ADRs	Human resource, Airtime, transport, airtime, IEC materials	Annually (Yrs1-5)
		Regular surveillance and develop a communication system for follow up on individuals	Human resource, Airtime, transport, airtime data	Annually (Yrs1-5)
	Dissemination-	Therapeutic drug monitoring to assess efficacy	Human resource,	Annually

Strategic Priority: Preventive Chemotherapy				
Strategic Initiatives	**Activities**	**Sub-activities**	**Key Resources**	**Timeframe**
	National		Airtime, transport, airtime data	(Yrs1-5)
		Analyze reported adverse drug reactions and adverse drug events	Human resource, Airtime, transport, airtime data	Annually (Yrs1-5)
		To assess efficacy of NTDs medicines1. Pre and Post MDA drug efficacy monitoring- Data collection, parasitological survey	Human resource, Airtime, transport, airtime data	Annually (Yrs1-5)
	Pharmacovigilance	Develop/ adopt guidelines on management of SAEs/ADR	Human resource, Airtime, transport, airtime data	Yr1
		Train Healthcare workers on reporting and management of SAEs/ ADRs	Human resource, Airtime, transport, airtime data	Annually (Yrs1-5)
		ToT and Healthcare workers on management of SAEs/ ADRs	Human resource, Airtime, transport, airtime data	Annually (Yrs1-5)
Pharmacovigilance	Post marketing surveillance	Sensitize HCW on reporting of SAEs/ADR	Human resource, Airtime, transport, airtime data, IEC materials	Annually (Yrs1-5)
		Sensitize the communities on SAEs	Human resource, Airtime, transport, airtime data, IEC materials	Annually (Yrs1-5)
		Country context analysis	Human resource, airtime coordination, conference package	Annually (Yrs1-5)
	Research	Joint planning, social mobilization	Human resource, Airtime, transport, data, conference facility	Annually (Yrs1-5)
	Capacity building on pharmacovigilance	Conduct a situation analysis; identify ADRs, SAEs	Human resource, Airtime, transport, data, conference facility	Annually (Yrs1-5)
		Develop pharmacovigilance guidelines and tools for various drug molecules	Human resource, Airtime, transport, data, conference facility	Yr1

Strategic Priority: Preventive Chemotherapy				
Strategic Initiatives	**Activities**	**Sub-activities**	**Key Resources**	**Timeframe**
		Sensitize the community and health workers on effective reporting of SAEs/ADRs	Human resource, Airtime, transport, data, conference facility, IEC materials	Annually (Yrs1-5)
		Therapeutic drug monitoring to assess efficacy	Human resource, Airtime, transport, data, conference facility, IEC materials	Annually (Yrs1-3)
	Community sensitization	Analyze reported ADRs/ SAEs to effect management/ guidelines to manage	Human resource, Airtime, transport, data, conference facility, IEC materials	Annually (Yrs1-5)
To Conduct Integrated MDA	Integrated MDA	Adopt PV guidelines on management of NTDs	Human resource, Airtime, transport, data, conference facility, guidelines	Yr1
		ToT and Healthcare workers on management of SAEs & ADRs	Human resource, Airtime, transport, data, conference facility, guidelines	Annually (Yrs1-5)
		Sensitize/advocate HCW on reporting of SAEs/ADR	Human resource, Airtime, transport, data, conference facility, guidelines	Annually (Yrs1-5)
		Develop Health messages on pharmacovigilance	Human resource, Airtime, transport, data, conference facility, IEC materials	Annually (Yrs1-5)
		Civic education on identification of side effects and effective reporting	Human resource, Airtime, transport, data, conference facility, IEC materials	Annually (Yrs1-5)

Strategic Priority: Case Management				
Strategic Initiatives	**Activities**	**Sub-activities**	**Resources**	**Timeframe**
Capacity building of HCWs and CHVs	Training of HCWs and CHVs on Leprosy	Review and develop Leprosy training material	HR, funds	Annually (Yrs1-5)
		Sensitization of sub-county teams from endemic regions- SC-NTD-coordinators, SC-CTLCs, SC-MOH on Leprosy	HR, funds	Annually (Yrs1-5)
		Training of health care workers- Medical officers, Clinical officers, Nurses and MLT on management of Leprosy	HR, funds	Annually (Yrs1-5)
		Sensitization of CHVs and PHOs/CHEWS/CHAs on Leprosy for contact tracing and community sensitization in areas of higher Endemicity	HR, funds	Annually (Yrs1-5)
	Develop leishmaniasis training manuals	Workshops	HR VL and CL treatment guidelines	Yr3
		Printing	Printing services	Yr3
	Train healthcare workers on leishmaniasis management	Training workshops in the endemic areas	Training manuals TOTs Transport logistics, Conference package	Annually (Yrs1-5)
		Post training technical supervision	On job trainers Supervision manuals	Annually (Yrs3-5)
Leprosy cases mapping	Case based geo-spatial mapping of Leprosy cases	Development and installation of geo-mapping app by IT personnel to run on HCW smart phones	HR funds	Annually (Yrs1-5)
		Sensitization of health workers on mapping	HR funds	Annually (Yrs1-5)
		Tracing of leprosy cases identified within the year and the ones diagnosed from 2014- 2021 (945 cases) from all Counties and the ones notified within using the CHVS sensitized on leprosy	HR funds	Annually (Yrs1-5)
		Household visits by HCW accompanied by CHVS for geo spatial mapping	HR funds	Annually (Yrs1-5)
Leprosy active case	Conduct leprosy	Conduct poly skin ailments clinics in leprosy	HR funds	Annually

Strategic Priority: Case Management				
Strategic Initiatives	**Activities**	**Sub-activities**	**Resources**	**Timeframe**
finding	active case finding in 10 endemic counties	hotspots with clustered cases		(Yrs1-5)
		Printing	Printing services	Yr3
	Benchmarking with neighboring countries that are endemic for HAT	Conduct a meeting to get information on the disease dynamics	Communication (airtime, internet), Venue, transport	Yrs1-3
Capacity building of healthcare workers	Benchmarking/ Knowledge sharing with neighboring countries and institutions	Conduct a meeting to get information on the disease dynamics	Facilitation meeting, transport (Local/Regional/International)	Y1, Y2, Y3
	Develop HAT training manuals	Conduct a workshop for training manual development	Communication (airtime, internet), Venue, transport	Yrs1-3
	Develop HAT training manuals Develop Onchocerciasis training manuals	Pretesting of the Manuals developed Printing of manuals Conduct a workshop for training manual development	Conference Package, DSA, Transport reimbursement, Airtime for coordination.	Yr1
	Develop Onchocerciasis training manuals Training of health workers on HAT case management	Pretesting of the Manuals developed	DSA (20 Pax) car hire (26-seater Bus) fuel Airtime for coordination	Yr1
		Printing of manuals	Printing costs	Yr1
	Training of health workers on Onchocerciasis case management	Train HCWs on disease recognition, diagnosis, confirmation, reporting and treating	Conference Transport Reimbursement Airtime for coordination	Yrs1-3
	Public health awareness on SBE	Community sensitization and awareness creation	Transport, Fuel, Graphics designing, Printing, Funds	Annually Yrs1-5
	Public health awareness on SBE	Advocacy	Radio& Tv, HR, Funds	Annually Yrs1-5

Strategic Priority: Case Management				
Strategic Initiatives	**Activities**	**Sub-activities**	**Resources**	**Timeframe**
	Advocacy and sensitization at the Counties and sub counties	Trainings	Training manuals, transport, Funds	Annually Yrs1-5
		County Advocacy meetings	Conference Package, DSA, Fuel, Transport Reimbursement Communication (airtime, internet)	Yrs1-3
		Subcounty Advocacy meetings	Conference Package, DSA, Fuel, Transport Reimbursement Communication (airtime, internet)	Yrs1-3
		Community sensitization meetings (Facilitate Health Promotion Officers, Chiefs, Assistant Chiefs to organize community sensitization meetings (baraza) at each endemic communities)	Conference Package, DSA, Fuel, Transport Reimbursement Communication (airtime, internet)	Yrs1-3
Develop and review guidelines for management of NTDs	Develop & review diagnosis & treatment guidelines for Arboviruses Develop guidelines for CE	National Consultant	TOR	Yr2
		Print guidelines	Printing services	Yr2
		Disseminate	CHMT Technical persons	Yr2
		Hold 2 Workshops	Conference package, transport reimbursements, airtime	Q1&2 (Yr2)
	Develop guidelines for CE Develop guidelines for CL	Print guidelines		
		Disseminate		
		Hold 4 Workshops	Reference materials Experts in CL	Yr2
	Develop guidelines for CL Develop guidelines for LF management	National Consultant	TOR	Yr2
		Print guidelines	Printing services	Yr2
		Disseminate	CHMT Technical persons	Yr2
		Hold guideline development workshop	Conference package,	Q4(Yr1),

Strategic Priority: Case Management				
Strategic Initiatives	**Activities**	**Sub-activities**	**Resources**	**Timeframe**
			transport reimbursements, airtime	Q1&2 (Yr2)
	Develop guidelines for LF management Develop guidelines for management of scabies & other ectoparasites	National Consultant	TOR	Q2 (Yr1)
		Print guidelines	Stationery, printers	Q4 (Yr1)
		Disseminate guidelines	Conference package, transport reimbursements, airtime	Q1 (Yr2)
	Training of surgeons on hydrocele surgery	Hold 5-day training workshop	Hydrocelectomy kit, personnel costs, conference package	Q3, Q4 (Yr2)
	Training of surgeons on hydrocele surgery Training of health care workers on lymphoedema management	Hold a 4-day training workshop	Trained health workers/care givers, care package	Q4 (Yr1)
		Trainings	FTS Test kits, Lab. Consumables, personnel costs	Annually (Yrs1-5)
	Surveillance (TAS1/2)	Workshops	Printing services	Yr2
	Review guidelines for VL	Disseminate	CHMT Technical persons Courier services	Yr2
	Review guidelines for VL To update guidelines on clinical management of snakebite	Hire a consultant to update and review the guidelines	Engage a consultant	Yr1
		Stakeholders Workshop to review the guidelines	Transport, Funds	Yr1
Review guidelines for management of snakebites	To update guidelines on clinical management of snakebite Diagnosis and treatment of	Print guidelines	Funds	Yr1
		Carry out a dissemination exercise to launch the guidelines	Media coverage, Transport, Funds	Yr1
		Assess regional reference labs in snakebite endemic regions	Consultant, Funds, Transport	Yr2
		Facilitate sample collecting of snake bite victims at	Materials and supplies,	Yr3

Strategic Priority: Case Management				
Strategic Initiatives	**Activities**	**Sub-activities**	**Resources**	**Timeframe**
	snakebite	health facilities.	Funds	
	Diagnosis and treatment of snakebite	Analysis of laboratory samples	Salary, materials and reagents	Yr3
	Support implementation of rabies strategy outside pilot counties	Assess regional reference labs in snakebite endemic regions	Transport, HR, Funds	Yr3
Review rabies elimination strategy guidelines	Support implementation of rabies strategy outside pilot counties	Strengthening surveillance, preparedness to monitor and evaluate key indicators	Human resource, Airtime, transport, airtime data	Yrs1-5
		Collating and analyzing existing rabies related baseline data every 2years	Human resource, Airtime, transport, airtime data	Yrs1-5
	Development of Female Genital Schistosomiasis (FGS)/Urogenital schistosomiasis training manuals and guidelines	Production and distribution of Training manuals	Printing costs, Human resource, Airtime, transport, airtime data	Yr1
		Train HCW on accurate diagnosis of FGS	Conference package, transport reimbursements, airtime	Yr1
Capacity building of HCWs and CHVs	Capacity building HCW on FGS	Sensitize CHV on FGS	Conference package, transport reimbursements, airtime	Yr1
	Awareness on FGS prevention by CVHs	Procuring and equipping the health facilities with the relevant equipment and diagnostic kits	Procurement costs	Yr1
	Diagnostic needs assessment for HAT	Training of HCWs for HAT vector mapping and diagnostic testing	Conference package, transport reimbursements, airtime	Yr1
	Diagnostic needs assessment for HAT	Introducing HAT into the health facility reporting register and ensuring continued capturing in the health reporting system	Communication (airtime, internet) transport	Yr1
	Diagnostic needs assessment for	Procuring and equipping the health facilities with	Equipment, diagnostic	Yr1

Strategic Priority: Case Management				
Strategic Initiatives	**Activities**	**Sub-activities**	**Resources**	**Timeframe**
	Onchocerciasis	the relevant equipment and diagnostic kits	kits	
		Training of HCWs for Oncho vector mapping and diagnostic testing	Conference package, transport reimbursements, DSA airtime	Yrs1-3
	Diagnostic needs assessment for Onchocerciasis Procure and distribute drugs and diagnostic kits for management of NTDs	Introducing Oncho into the health facility reporting register and	Conference Package(30pax) DSA Transport Reimburse Airtime for coordination	Yrs1-3
		Ensuring continued capturing in the health reporting system- Support supervision	DSA Transport Reimburse Airtime	Yrs1-3
		Conduct a KAP survey for Onchocerciasis	DSA Airtime Transport	Y1
		Forecasting and quantification	HR	Annually (Yrs1-5)
		Warehousing	Storage costs, HR	Annually (Yrs1-5)
Diagnosis and treatment of NTDs	Procure and distribute drugs and diagnostic kits for management of NTDs Establishing more testing and treatment sites for management of NTDs	Distribution	Transport, HR	Annually (Yrs1-5)
		Assess health facilities capacity to diagnose and treat targeted NTDS	DSA Transport Reimburse Airtime	Annually (Yrs1-5)
		Deploy trained personnel	HR, Communication (airtime, internet)	Annually (Yrs1-5)
	Establishing more testing and treatment sites for management of NTDs Establish regional reference Labs for quality assurance.	Assess regional reference labs in NTDs endemic regions	Laboratory scientists Reference materials	Annually (Yrs1-5)
		Conduct OJT to the personnel	Laboratory scientists Reference materials	Annually (Yrs1-5)

Strategic Priority: Case Management				
Strategic Initiatives	**Activities**	**Sub-activities**	**Resources**	**Timeframe**
	Establish regional reference Labs for quality assurance. Therapeutic efficacy tests for medicines	Certify reference laboratory	Laboratory scientists Reference materials	Yr1
		Sampling of patients	Laboratory scientists Reference materials	Yrs1-5
		Monitoring of patients	Laboratory scientists Reference materials	Yrs1-5
	Therapeutic efficacy tests for medicines Training New hydrocele Surgeons	Collecting laboratory samples	Laboratory scientists Laboratory kits	Yrs1-5
		Analysis of laboratory samples, and data analysis	HR	Yrs1-5
		New Hydrocele surgeons training for 6 days	Conference package, Transport imbursements, airtime	Yr1
		Surgical audits in a year	Transport imbursements, airtime	Q4 (Yr1)
	Training New hydrocele Surgeons Diagnostics	Per year Surgeon refresher training	Conference package, Transport imbursements, airtime	Q4 (Yr1)
		TOT (Master trainers)	Conference package, Transport imbursements, airtime	Q3, Q4 (Yr1)
		County trainings	Conference package, Transport imbursements, airtime	Q4 (Yr1) Q1 (Yr2)
		Sub County Trainings	Conference package, Transport imbursements, airtime	Q4 (Yr1) Q1 (Yr2)
		CDRs/CHVs Trainings	Conference package, Transport imbursements, airtime	Q4 (Yr1) Q2 (Yr2)
		Radio mobilization	Funds	Yrs1-5
		Town criers (PAS)	Funds	Yrs1-5
		Develop diagnostic tools that are more accurate	Funds	Yr1
		Formation of CRECC & SCRECC in implementing counties	Strategic Plan for the Elimination of Human Rabies in Kenya 2014-	Annually (Yrs2,2)

Strategic Priority: Case Management				
Strategic Initiatives	**Activities**	**Sub-activities**	**Resources**	**Timeframe**
			2030, TORs for CRECC & SCRECC, Funds to support sensitization of county and sub-county teams	
Diagnosis and treatment of NTDs	Promote partnerships and collaborations	Logistics management -Estimated dog population = 4.67 million Target of 70% = 3,269,000 dogs Vaccination cost approx. $2.5 USD per dog	Anti-Rabies Vaccines, Needles, syringes, PPE Cold Chain	Annually (Yrs1-5)
Prevention and control of rabies	To conduct Nationwide annual mass dog vaccination	Provision of anti-rabies vaccines, RIG and other supplies	Human Rabies Vaccines, Rabies RIG, HR	Annually (Yrs1-5)
	Prevention of human rabies	Training of staff in rabies case management	Validated curriculum, Pool of TOTs, Funds to support trainings	Annually (Yrs1-5)
	Capacity building	Strengthen surveillance in implementing counties	Rabies surveillance Guidelines, validated reporting tools, Funds to support surveillance activities	Annually (Yrs1-5)
	Strengthening surveillance	Strengthen laboratory diagnostic capacity	Capacity in sample collection and packaging, Courier services for sample transportation, Laboratory equipment, reagents, HR	Annually (Yrs1-5)
	Strengthening surveillance Conduct operational research - Health promotion	Conduct base-line surveys in implementing counties	1. Consultant 2. TORs Funds to support implementations of the surveys	Annually (Yrs1-5)
		Conduct post vaccination surveys in implanting counties	Consultant, TORs, Funds to support implementations of the surveys	Annually (Yrs1-5)
	Conduct operational	Conduct ACSM	Rabies communication	Annually

Strategic Priority: Case Management				
Strategic Initiatives	**Activities**	**Sub-activities**	**Resources**	**Timeframe**
	research - Health promotion Rehabilitation of persons with leprosy deformities		Guidelines, IEC materials Funds to support ACSM	(Yrs1-5)
		Establish linkage guide to community, Rehabilitative services, reconstructive surgery, disability groups and social protection groups	Funds, HR	Annually (Yr1,2)
		Establish patient support groups and linking them to organizations that can help such groups to develop income generating activities	Funds, HR	Annually (Yr1,2)
Vaccination and rehabilitation	Rehabilitation of persons with leprosy deformities Conduct needs assessment of health care workers to identify gaps in SBE management	Procurement and designing MCR sandals and distribution through local orthopedic units	Funds, HR	Annually (Yr1,2)
		Undertake a survey training needs assessment to identify gaps in management of snakebite	Funds, HR	Yrs3,4
		Hold 1 Workshops	Conference package, Communication (AIRTIME, internet), Transport	Yr1
Capacity building of HCWs and CHVs	Development of Arbo viruses training manual	Printing	Printing costs	Yr1
	Development of Arbo viruses training manual Development of CE training manual	Dissemination	Conference package, Communication (AIRTIME, internet), Transport	Yr1
		Hold 2 Workshops	Conference package, Communication (AIRTIME, internet), Transport, Printing costs	Yr1
	Development of CE training manual Development of Leishmaniasis	Dissemination	Conference package, Communication (airtime, internet), Transport	Yr1

Strategic Priority: Case Management				
Strategic Initiatives	**Activities**	**Sub-activities**	**Resources**	**Timeframe**
	training manual	Workshop	Conference package, Communication (airtime, internet), Transport, Printing costs	Yr1
	Development of Leishmaniasis training manual Development of scabies & other ectoparasites training manual	Dissemination	Conference package, Communication (airtime, internet), Transport	Yr1
		Hold 1Workshop	Conference package, Communication (airtime, internet), Transport	Yr1
	Development of scabies & other ectoparasites training manual Training of health workers on leishmaniasis case management	Dissemination	Conference package, Communication (airtime, internet), Transport	Yr1
		Post training technical supervision	Communication (airtime, internet), Transport	Annually (Yrs1-5)
	Training of health workers on leishmaniasis case management Training of health workers and surgeons on CE management	Hold 5 training Workshops (1 per county in 5 counties)	Conference package, Communication (airtime, internet), Transport	Yr1
	Training of health workers and surgeons on CE	Post training technical supervision	Communication (airtime, internet), Transport	Annually (Yrs1-5)

Strategic Priority: Case Management				
Strategic Initiatives	**Activities**	**Sub-activities**	**Resources**	**Timeframe**
	management Training of health workers on diagnosis & management	Hold 5 training workshops	Conference package, Communication (airtime, internet), Transport	Yr1
	Training of health workers on management Training of health workers on diagnosis and case management of SBE	Post training technical supervision	Communication (airtime, internet), Transport	Annually (Yrs1-5)
		Development of TOT training manuals/SOPs	HR, Consultant, Funds	Yr1
		Printing	Graphics designing, printing	Yr1
	Training of health workers on diagnosis and case management of SBE Support biannual review meetings for leprosy control in the high endemic counties	Training of ToTs	HR, Funds	Annually (Yrs1-5)
		Training of HCWs/CHWS/CHV on Snake bite Envenomation (SBE)	HR, Funds, Transport	Annually (Yrs1-5)
		Bi-annual support supervision	Communication (airtime, internet), Transport	Bi-annually (Yrs1-5)
		Conduct Biannual data review meetings for leprosy in the high endemic counties	Funds, HR	BI-annual (Yrs1,2)
		Conduct a technical assistance visit to endemic counties twice a year	Funds, HR	BI-annual (Yrs1,2)
Data review	Biannual Monitoring TA by the National Team (NTD and National Leprosy and TB program)	National laboratory supplies store	Communication (airtime, internet), Transport, DSA	Bi-annually (Yrs1-5)
	Management of NTD supplies	Human resource for NTD supplies management	HR	Yrs1-5
Inventory management	Management of NTD supplies Pharmacovigilance	NTD Inventory management and capacity building the users	Technical facilitators, conference package, DSA, airtime, transport reimbursement	Yrs1-5
		Assess efficacy of antivenoms available & new in	KSRIC, IPR, logistics,	Yrs1-5

Strategic Priority: Case Management				
Strategic Initiatives	**Activities**	**Sub-activities**	**Resources**	**Timeframe**
		the market	HR	
		Regular surveillance and develop a communication system for follow up on individuals	Helpline, HR	Yrs1-5
Pharmacovigilance	Post marketing surveillance	Therapeutic drug monitoring to assess efficacy	Logistics, HR	Yrs1-5
	Post marketing surveillance To assess efficacy of Leishmaniasis drugs	Analyze reported adverse drug reactions and adverse drug events	HR, logistics	Yrs1-5
		Develop Protocol and tools for therapeutic efficacy tests	HR, consultant, logistics	Yr1,2
		Ethical approval	HR, logistics,	Y1,2
	To assess efficacy of Leishmaniasis drugs Capacity building on pharmacovigilance	Conduct leishmaniasis drug efficacy monitoring study	HR, logistics, consultant	Y1-Y5
		Develop/ adopt guidelines on management of SAEs/ADR	Logistics, HR, technical facilitators,	Y1,2
		ToT and Healthcare workers on management of SAEs/ ADRs	Logistics, HR, technical facilitators,	Y1-5
	Capacity building on pharmacovigilance Drug forecasting and quantification	Sensitize HCW on reporting of SAEs/ADR	Logistics, HR, technical facilitators,	Y1-5
		Develop forecasting tools	Logistics, HR, technical facilitators,	Y1,2
		Forecasting workshops	Logistics, HR, technical facilitators,	Y1,2
Supply chain management	Drug forecasting and quantification Diagnostic kits forecasting and quantification	Develop forecasting tools	Logistics, HR, technical facilitators,	Y1,2
		Forecasting workshops	Logistics, HR, technical facilitators,	Y1-5
	Diagnostic kits forecasting and quantification Procurement of diagnostic kits	To make requisitions	HR	Y1-5
		Clearing of Arbo viruses' diagnostic kits	HR, clearance costs	Y1-5
	Procurement of diagnostic kits Procurement of drugs	Warehousing	Warehousing fees, logistics, HR	Y1-5
		To make requisitions	HR	Y1-5

Strategic Priority: Case Management				
Strategic Initiatives	**Activities**	**Sub-activities**	**Resources**	**Timeframe**
		Clearing of CE commodities	HR, clearance cost	Y1-5
	Procurement of drugs Distribution of the diagnostic kits to endemic counties	Warehousing	Warehousing fees, logistics, HR	Y1-5
		Warehousing	Warehousing fees, logistics, HR	Y1-5
	Storage of CE drugs and commodities	Warehousing	Warehousing fees, logistics, HR	Y1-5
	Distribution of the commodities to endemic counties	County trainings	Technical facilitators, conference package, DSA, airtime, transport reimbursement	Yrs1-3
	Training of human and animal health staff on case management and surveillance of rabies	Sub County Trainings	Technical facilitators, conference package, DSA, airtime, transport reimbursement	Yrs1-3
Capacity building of HCWs and CHVs	Training of human and animal health staff on case management and surveillance of rabies Systematic contact tracing selected endemic Counties; for sensitization, contact screening and referral to hospital for testing	CDRs/CHVs Trainings	Technical facilitators, conference package, DSA, airtime, transport reimbursement	Yrs1-3
		Sub County sensitization meetings	Technical facilitators, conference package, DSA, airtime, transport reimbursement	Yrs1-3
		Conduct household visit to the leprosy patients diagnosed from 2014- 2021 (945 cases) from all Counties; for systematic contact tracing and referral to hospital for evaluation by a clinician	Funds, HR	Annually (Yr1,2)
		Mapping & characterization of health facilities	Communication (airtime, internet), Transport	Yrs1-3
Contact management	Establishing of a referral facility for diagnosis & treatment	Develop Arbo viruses' quality assurance (QA) implementation plan	Technical facilitators, conference package, DSA, airtime, transport reimbursement	Annually (Yrs1-5)

Strategic Priority: Case Management				
Strategic Initiatives	**Activities**	**Sub-activities**	**Resources**	**Timeframe**
Diagnosis & Treatment of Arbo viruses	Undertake quality assurance for diagnosis of Arbo viruses	Conduct assessment of the national and county reference laboratories	Laboratory scientists Reference materials	Annually (Yrs1-5)
	Undertake quality assurance for diagnosis of Arbo viruses Establishing of a referral facility for diagnosis & treatment	Conduct training for laboratory staff on QA of rapid diagnostic tests (RDTs)	Technical facilitators, conference package, DSA, airtime, transport reimbursement	Yrs1,3
		Conduct lot to lot testing of Arbo viruses' diagnostic tests	HR, Diagnostic kits	Yrs1-5
		Mapping & characterization of health facilities	Communication (airtime, internet), Transport	Yrs1,3
		Develop CE quality assurance (QA) implementation plan	Technical facilitators, conference package, DSA, airtime, transport reimbursement	Yr1
Diagnosis & Treatment of CE	Undertake quality assurance for diagnosis of CE	Conduct training for Radiographers & radiologists on CE diagnosis	Technical facilitators, conference package, DSA, airtime, transport reimbursement	Yr1
	Undertake quality assurance for diagnosis of CE Early and appropriate human pre-exposure treatment	Forecasting and quantification RIG/Vaccine	Communication (airtime, internet), HR	Annually (Yrs1-5)
		Distribution ant rabies/RIG	Communication (airtime, internet), Transport	Annually (Yrs1-5)
Diagnosis and treatment of Rabies	Early and appropriate human pre-exposure treatment Public -Private partnerships	Assess health facilities capacity to manage Rabies	Communication (airtime, internet), Transport	Annually (Yrs1-5)
		Train personnel on supply chain management for RIG	Technical facilitators, conference package, DSA, airtime, transport reimbursement	Yrs1,3
		Design standard SOPs	Technical facilitators,	Yr1

Strategic Priority: Case Management				
Strategic Initiatives	**Activities**	**Sub-activities**	**Resources**	**Timeframe**
			conference package, DSA, airtime, transport reimbursement	
		Strengthening NTD programme commodity governance and accountability systems	Communication (airtime, internet), Transport	Annually (Yrs1-5)
		Develop Health messages on first aid management of snakebite	Technical facilitators, conference package, DSA, airtime, transport reimbursement	Yr1
Policy and legal framework	Community sensitization and awareness creation	Printing of IEC materials	Printing costs	Yrs1,3
Public health awareness	Community sensitization and awareness creation Trainings	Review of social mobilization tools	Technical facilitators, conference package, DSA, airtime, transport reimbursement	Yr1
		Train Healthcare workers on reporting and management of snakebite	Technical facilitators, conference package, DSA, airtime, transport reimbursement	Yrs1,3
	Trainings Supply chain management	Sub County Trainings and CDD/CHVs	Technical facilitators, conference package, DSA, airtime, transport reimbursement	Yr1
		Drug forecasting and quantification - survey to find out the capacity of the counties to purchase antivenoms	HR, logistics,	Y1 – Y5
		Develop forecasting & inventory management tools	HR, logistics, Consultant	Y1 – Y5
	Drug forecasting and quantification	Forecasting workshops	HR, Logistics	Y1 – Y5
Supply chain management	Drug forecasting and quantification Procurement of drugs	Warehousing	HR, Logistics,	Y1 – Y5

Strategic Priority: Case Management				
Strategic Initiatives	**Activities**	**Sub-activities**	**Resources**	**Timeframe**
	Distribution of the commodities to endemic counties	Mapping and characterization of health facilities	Mapping tools Human Resources travel logistics	Y3
	Establishing more testing and treatment sites for management of leishmaniasis	Develop leishmaniasis quality assurance (QA) implementation plan	Laboratory scientists Reference materials	Y2
Diagnosis & Treatment of leishmaniasis	Undertake quality assurance for diagnosis of leishmaniasis	Conduct assessment of the national and county reference laboratories	Assessment tools Reference materials	Y2
	Undertake quality assurance for diagnosis of leishmaniasis	Conduct training for laboratory staff on QA of parasitological tests, microscopy, and rapid diagnostic tests (RDTs)	HR Training manuals	Y3
		Conduct lot to lot testing of leishmaniasis RDTs and DAT	QA lab Laboratory scientists	Y3

Strategic Priority: Supply Chain Management				
Strategic Initiatives	**Activities**	**Sub-activities**	**Resources**	**Timeframe**
Building human capacity in supply chain management at all levels	Capacity building	Train personnel on supply chain management for NTDS (FEFO, short expiries/push items)	Logistics, technical facilitators, HR	Y1-3
		Train personnel on supply chain management for NTDS (FIFO, short expiries/push items)		
		Develop a landscape of supply chain providers within the country	Logistics, Consultant	Y1,2
		Quality control & analysis of opened products to minimize wastage	HR, logistics	Y1-5
Supply chain SOPs	Service delivery	Design standard SOPs for supply and quality control.	HR, logistics, technical facilitators	Y1
		Streamline the supply chain to avoid duplication	HR	Y1-5
		Strengthening the management of NTD shipments	HR, software	Y1-5
Inventory management	Planning	Accurate quantification of medicines crosscutting all NTDs to reduce wastage during reverse cascade/	HR, logistics	Y1-5

Strategic Priority: Supply Chain Management				
Strategic Initiatives	**Activities**	**Sub-activities**	**Resources**	**Timeframe**
		monitor reorder levels		
		Develop a national logistic information management system	Logistics, HR, software	Y1,2
		Strengthening NTD programme commodity governance and accountability systems	Logistics, HR,	Y1-5
		Reporting mechanism to monitor expiries and stockouts	HR, Logistics	Y1-5
		Reporting mechanism to track utility and remaining units after MDA	HR, Logistics	Y1-5
	Public -Private partnerships	Cultivate streamlined processes that enhance flow of NTD commodities	HR, Logistics	Y1-5
		Foster a collaborative environment with clear roles of all players	HR, Logistics	Y1-5
	Public -Private partnerships	Cultivate streamlined processes that enhance flow of NTD commodities	HR, Logistics	Y1-5
		Foster a collaborative environment with clear roles of all players	HR, Logistics	Y1-5
Policy and legal framework	Community sensitization and awareness creation	Printing of IEC materials	Printing costs	Yrs1,3

Strategic Priority: Cross-cutting				
Strategic Initiatives	**Activities**	**Sub-activities**	**Resources**	**Timeframe**
Cross-cutting	Dossier Development for LF	Annual workshop to review the dossier	Conference package, airtime, transport reimbursement,	Annually (Yrs1-3)
		Quarterly meetings to update dossier	Airtime, transport reimbursement, hall hire, stationery, refreshments	Quarterly (Yrs1-3)
		Formation of a dossier elimination committee	Conference package, airtime, transport reimbursement	Q2, Q3 Yr1

		Appointment of lead writer	Airtime, hall hire, transport reimbursement, refreshments	Q2 Yr1
	Dossier Development for Trachoma	Per diseases annual workshop to review the dossier	Conference package, airtime, transport reimbursement,	Annually (Yrs1-3)
		Per disease quarterly meetings to update dossier	Conference package, airtime, transport reimbursement,	Quarterly (Yrs1-3)
		Formation of a dossier elimination committee	Conference package, airtime, transport reimbursement,	Q2, Q3 Yr1
		Appointment of lead writer	Airtime, hall hire, transport reimbursement, refreshments	Q2 Yr1
	Transition Planning	Per County annual workshop	Conference package, airtime, transport reimbursement	Yr1
		National biannual meeting to review progress of transition	Conference package, airtime, transport reimbursement,	Bi-annually (Yrs1-3)
Dossier Development for Oncho	Formation of elimination dossier preparation committee	Conduct 1-day national meeting	Conference package, airtime, transport reimbursement,	Yr1
	Appointment of lead writer	Identify the appropriate HAT consultant who can initiate the process	Conference package, airtime, transport reimbursement,	Yr1
		Identify the appropriate Ocho consultant who can initiate the process	Conference package, airtime, transport reimbursement,	Yr1
	Quarterly meetings to update dossier	Convene 4 quarterly national meetings	Conference package, airtime, transport reimbursement,	Yrs1-3
	Annual workshop to review the dossier preparation	Convene 1-day stakeholders meeting to receive from the consultant the completed dossier document	Conference package, airtime, transport reimbursement,	Yr3

	progress	Convene 1-day stakeholders meeting to hand over the completed dossier document to WHO country office	Conference package, airtime, transport reimbursement,	

Strategic Priority: Oncho vector management				
Strategic Initiatives	**Activities**	**Sub-activities**	**Resources**	**Timeframe**
Establish a national coordination Mechanism for Oncho and support its operations	Conduct Monthly TWG meetings for Oncho	12 meetings	Airtime, transport reimbursement, hall hire, stationery, refreshments	Monthly (Yr1,5)
	Conduct quarterly TAG meetings for Oncho	4 Meetings	Airtime, transport reimbursement, hall hire, stationery, refreshments	Quarterly (Y1,5)

Strategic Priority: HAT management				
Strategic Initiatives	**Activities**	**Sub-activities**	**Resources**	**Timeframe**
Establish a national coordination Mechanism for HAT and support its operations	Conduct Monthly TWG meetings for HAT	12 meetings	Airtime, transport reimbursement, hall hire, stationery, refreshments	Monthly (Yr1,5)
	Conduct quarterly TAG meetings for HAT	4 Meetings	Airtime, transport reimbursement, hall hire, stationery, refreshments	Quarterly (Yr1,5)

3.3: Strategic Pillar 2 - Intensify Innovative and Cross-cutting Approaches

This Pillar focuses on strengthening platforms and delivery systems that cut across various NTDs. The aim is to promote integrated approaches across NTDs to achieve efficiency and economies of scale. This pillar is critical in mainstreaming NTD activities across the national, county and community health systems.

A robust monitoring and evaluation system is required for achieving the elimination of NTDs. Mapping and baseline surveys will be conducted to determine the prevalence of NTDs and identify counties and sub-counties with active transmission of NTDs. Monitoring will be required to determine coverage of MDA and post marketing surveillance. Routine M&E will be strengthened to access progress and use the data to focus interventions to where they are most needed. Following implementation of the 2nd Kenya NTD Master Plan, the programme will be evaluated to determine the impact of previous actions and adjust the programme accordingly. For NTDs targeted for elimination such as Trachoma, LF, Onchocerciasis and HAT, surveillance will become the core activity implemented in health facilities and laboratories for early detection of any re-emergence of cases. Knowledge management is important to ensure accurate, complete, and timely data is available to counties and stakeholders for use in decision-making. Knowledge management activities have therefore been included under this pillar.

Previous NTD Master Plans did not include the laboratory component which is critical for accurate diagnosis, monitoring and surveillance of NTDs. Reference laboratories will be strengthened to support the NTD programme and laboratory network established in regions to provide quality control and quality assurance. Laboratory technicians will be trained in NTDs diagnostics and deployed appropriately.

Integrated vector management (IVM) is a rational and systematic process in decision-making that involves optimal use of resources for efficient, cost-effective, and sustainable vector control. The programme will strengthen IVM through increased capacity, improved surveillance, better coordination and integrated action across sectors and diseases,

including the malaria programme. IVM has been shown to be effective in tackling NTDs. Innovative IVM strategies will be explored under this pillar.

The Role of Laboratory in DVBNTD

The laboratory is an essential component for disease surveillance, prevention and control of infectious diseases. Its primary functions are the identification and characterization of infectious agents and the development of serological tests. After prevention and control programs are underway, confirmation of diagnosis remains essential. As programs near the state of disease elimination or eradication, the laboratory role is critical in ensuring accurate diagnosis of suspicious illness. In the current global effort to eradicate most NTDs, the laboratory has a leading role in identifying the targeted infectious agents. Laboratories have also been shown to play a critical role in antimicrobial resistance by identifying the resistance patterns for the various micro-organisms.

Laboratory Network

Before implementation of the new constitution where health is devolved, the DVBNTDs had several satellite laboratories spread across the country for monitoring specific NTDs. The devolved unit converted them for other routine health functions. There is need to reactivate opening of these labs and partner closely with devolved unit as we gear toward eliminating some of the NTDS

Achievements

Despite the arrangements, the NTD program has manage to do quite a lot in terms of its laboratory obligations by partnering with county government in supporting various transmission assessments surveys for LF in coastal counties and granular mapping for STH and SCH in both coastal and western regions, respectively.

Challenges

- Inadequate Human resources against the backdrop of limited financial resources

- Poor Laboratory infrastructure for specialized testing procedures
- Lack of Equipment and consumables supplies for specialized testing

Table 35 summarizes strategic priorities, initiatives, activities and sub-activities for Pillar 2.

TABLE 35: PILLAR 2 - INTENSIFY INNOVATIVE AND CROSS-CUTTING APPROACHES

Strategic Priority: Strengthen M&E, data analytics, knowledge management, operational research, and innovation				
Strategic Initiatives	**Activities**	**Sub-activities**	**Resources**	**Timeframe**
Create a data forum /hub hosted by NTD-MOH	Create a data forum /hub hosted by NTD-MOH	Conduct partners mapping and convene data hub symposium.	HR, Online platform, Logistics and technical facilitators	Annually (1,2,3,4)
		Hold high level data advocacy learning symposiums bi-annually	Consultant HR Logistics and Technical facilitators	Annually (1,2,3,4)
		Convene monthly TWGs	Logistics and Technical facilitators, HR	Annually (1,2,3,4)
		Convene quarterly TAGs	Logistics and Technical facilitators, HR	Annually (1,2,3,4)
Adopt the use of ALMA NTD Scorecard for tracking implementation	Adopt the use of ALMA NTD Scorecard for tracking implementation	Convene monthly Score card dissemination and development	HR, National/County logistics	Monthly (yr1,2,3,4,5)
		Bi-annual dissemination of scorecard to Policy makers (Head Directorates, Governors, MCAs, CECs Health, CECs Treasury	HR, National logistics, technical facilitators	Bi-annual (yr1,2,3,4,5)
Establish integrated data management platforms/systems for NTD program	Establish integrated data management platforms/systems for NTD program	Conduct data gap assessment survey	HR, consultant, logistics	Y1
		Conduct review surveys on data gaps	HR, Consultant, logistics	Y3, Y5
		Develop data standards and data dictionary for NTD data	HR, Logistics, technical facilitators	Y1-Y5
		Develop an interactive online government led data management user platform	HR, Consultant, Data Storage Systems	Y1-Y2
		Convene (National, County, Sub County) workshops to develop and review user requirements	HR, Consultants, Technical Facilitators	Y1, Y3, Y5
		County and sub-county consultations on user requirements	HR, Technical Facilitators	Y1,Y2
		Hire a developer to design the system and implementation protocol and oversee the pilot	Consultant, logistics	Y1, Y2
		Pilot the interactive online data management user platform	Consultant, Logistics, Technical facilitators	Y1, Y2
		Purchase of Infrastructure to support the data management system	Consultant, Logistics, equipment purchase	Y1, Y2
Intercountry	Intercountry	Regional exchange visits as learning	Logistics, HR	Y1, Y2

Strategic Priority: Strengthen M&E, data analytics, knowledge management, operational research, and innovation				
Strategic Initiatives	**Activities**	**Sub-activities**	**Resources**	**Timeframe**
Capacity building on M&E data systems	Capacity building on M&E data systems	experience on their M&E systems (data capture, storage, modelling, mapping)		
		Capacity building of stakeholders on the data platform	Logistics, HR, Technical facilitators	Y2, Y3, Y4
		Integrate NTD data reporting in mainstream HMIS	Logistics, HR, Technical facilitators	Y1, Y2
Implement and adopt innovative approaches for better programming	Implement and adopt innovative approaches for better programming	Develop and Refine M&E Strategy (framework with indicators)	Consultant, logistics, HR	Y1
		Standardize data collection tools	Technical facilitators, HR, Logistics	Y1
		Monitor the implementation of the framework	HR, Logistics	Y1-Y5
		Printing and dissemination of M&E Framework	Logistics, HR	Y1, Y2
		Printing of M&E Tools (Registers, SOPs, summary booklets, rumor forms)	Logistics, HR	Y1, Y2
Develop operational research frameworks	Develop operational research frameworks	Identify research gaps for NTDs around diagnostics, vector control, treatments, and management	Consultant, logistics, HR	Y1
		Stakeholder mapping and strengthen linkages (universities, research, and government departments) to improve programming	HR, Logistics	Y1
		Presentation and knowledge dissemination at COR-NTD and other research sharing forums	HR, Logistics	Y1-Y5
		Initiate regular forums for sharing knowledge to inform policy and planning	HR, Logistics	Y1-Y5
Strengthen capacity of the M&E team in DVBNTD	Strengthen capacity of the M&E team in DVBNTD	Secondment / recruitment of M&E support staff	Consultants	Y1-Y5
		Yearly training sessions to build capacity of national and sub-national teams	Consultants, HR, Technical facilitators,	Y1-Y5
End evaluation of the BTS	End evaluation of the BTS	Consultants to oversee the evaluation of the BTS	Consultants, HR, logistics	Y2
		Evaluation field work	Consultants, HR, logistics	Y2
		Dissemination	Consultants, HR, Technical facilitators	Y2
Strategic Priority: Surveillance				
Strategic	**Activities**	**Sub-activities**		

Strategic Priority: Strengthen M&E, data analytics, knowledge management, operational research, and innovation				
Strategic Initiatives	**Activities**	**Sub-activities**	**Resources**	**Timeframe**
Initiatives				
To conduct targeted disease mapping	To conduct targeted disease mapping	Conduct Granular mapping for SCH/STH	Communication (Airtime, Internet connectivity), Transport, Personnel, Lab. equipment and reagents	Y1, Y2, Y3
		Conduct Coverage evaluation surveys for LF, STH/SCH, Trachoma	Communication (Airtime, Internet connectivity), Transport, Personnel, Lab. equipment and reagents	Annually (Y1-Y5)
		Conduct Clinical audits for case management NTD	Communication (Airtime, Internet connectivity), Transport, Personnel, Lab. equipment and reagents	Annually (Y1-Y5)
		Conduct Snake bite mapping	Communication (Airtime, Internet connectivity), Transport, Personnel, Lab. equipment and reagents	Annually (Yr1,2,3,4,5)
		Conduct Mapping of skin NTDs	Communication (Airtime, Internet connectivity), Transport, Personnel, Data collection tools	Annually (Yr1,2,3,4,5)
		Conduct Leishmaniasis mapping: VL (Visceral)	Communication (Airtime, Internet connectivity), Transport, Personnel, Data collection tools	Annually (Yr1,2,3,4,5)
		Conduct Leishmaniasis mapping: CL (Cutaneous)	Communication (Airtime, Internet connectivity), Transport, Personnel, Data collection tools	Annually (Yr1,2,3,4,5)
		Conduct Cross border surveillance for Trachoma	Communication (Airtime, Internet connectivity), Transport, HR, Lab. equipment and reagents	Annually (Yr1,2,3,4,5)
		Conduct Cross border surveillance for Guinea worm	Communication (Airtime, Internet connectivity), Transport, Personnel, Lab. equipment and reagents	Annually (Yr1,2,3,4,5)
		Conduct Cross border surveillance for Dengue and Chikungunya	Communication (Airtime, Internet connectivity), Transport, Personnel, Lab. equipment and reagents	Annually (Yr1,2,3,4,5)
		Conduct Cross border surveillance for HAT	Communication (Airtime, Internet connectivity), Transport, Participants (Human resource, Data collection tools	Annually (Yr1,2,3,4,5)
		Cross border surveillance for Visceral Leishmaniasis	Communication (Airtime, Internet connectivity), Transport, Participants	Annually (Yr1,2,3,4,5)

Strategic Priority: Strengthen M&E, data analytics, knowledge management, operational research, and innovation				
Strategic Initiatives	**Activities**	**Sub-activities**	**Resources**	**Timeframe**
			(HR), Data collection tools	
		Conduct Cross border surveillance for Onchocerciasis	1. Communication (Airtime, Internet connectivity) 2. Transport 3. Personnel	Y1 – Y5
		Conduct Cross border surveillance for LF	Communication (Airtime, Internet connectivity), Transport, Personnel, Lab. equipment and reagents	Annually
Clinical diagnosis and case detection	Clinical diagnosis and case detection	Diagnostic needs assessment for HAT, Onchocerciasis, Snakebites, Leishmaniasis	1. Communication (Airtime, Internet connectivity) 2. Reagents and equipment 3. Personnel	Y1 – Y5
		Training of healthcare workers on HAT		
		Training of healthcare workers on Onchocerciasis	1. Communication (Airtime, Internet connectivity) 2. Transport 3. Personnel	Y1 – Y5
		Training of healthcare workers on Snakebites	Communication (Airtime, Internet connectivity), Meeting venue, HR, Training modules	Annually (Yr1,2,3,4,5)
		Training of healthcare workers on Leishmaniasis	Communication (Airtime, Internet connectivity), Meeting venue, HR, Training modules	Annually (Yr1,2,3,4,5)
		Training of community health volunteers in endemic counties for HAT, Onchocerciasis, Snakebites, Leishmaniasis	1. Communication (Airtime, Internet connectivity) 2. Transport 3. Personnel	Annually (Yr1,2,3,4,5)
		Community sensitization/awareness creation	1. Communication (Airtime, Internet connectivity) 2. Transport 3. Personnel	Annually (Yr1,2,3,4,5)
		Mapping of Onchocerciasis and HAT vectors	1. Communication (Airtime, Internet connectivity) 2. Transport 3. Personnel 4.reagents and equipment	Annually (Yr1,2,3,4,5)

Strategic Priority: Strengthen M&E, data analytics, knowledge management, operational research, and innovation				
Strategic Initiatives	**Activities**	**Sub-activities**	**Resources**	**Timeframe**
To strengthen NTD passive surveillance through KHIS	To strengthen NTD passive surveillance through KHIS	Ensure all relevant DVBNTD staff get KHIS rights	Communication (Airtime, Internet connectivity), HR, Data	Annually (Yr1,2,3,4,5)
		Annual DQA to validate DVBNTD data	Communication (Airtime, Internet connectivity), HR, Data	Annually (Yr1,2,3,4,5)
		Recruit and deploy staff to support routine and periodic surveillance activities	Communication (Airtime, Internet connectivity), Advertisement platform, HR	Annually (Yr1,2,3,4,5)
		Train DVBNTD staff on use of KHIS, Data analytics	Communication (Airtime, Internet connectivity), Meeting venue, HR, Training modules	Annually (Yr1,2,3,4,5)
		Conduct NTD Surveillance Gap Analysis	Communication (Airtime, Internet connectivity), Transport, HR	Annually (Yr1,2,3,4,5)
		Standardize routine MOH reports to enable proper reporting on KHIS	Communication (Airtime, Internet connectivity), HR, Data capture platform, Training modules	Annually (Yr1,2,3,4,5)
		Development of M&E Data capture and data use SOPs	Communication (Airtime, Internet connectivity), HR, Data capture platform	Annually (Yr1,2,3,4,5)
		Generate monthly reports on trends of NTDs in the country to facilitate DQA	Communication (Airtime, Internet connectivity), HR, Data capture platform	Annually (Yr1,2,3,4,5)
		Passive surveillance of routine data collected (Through KHIS)	Communication (Airtime, Internet connectivity), HR, Data capture platform	Annually (Yr1,2,3,4,5)
		Sensitize and train Health records and information officers (HRIOs) and data managers at all levels of the health care delivery system on NTD data management	Communication (Airtime, Internet connectivity), HR, Data capture platform, Training modules.	Annually (Yr1,2,3,4,5)
		Quarterly support supervision/DQA to strengthen NTD surveillance	Communication (Airtime, Internet connectivity), HR, Transport, Data collection tools	Annually (Yr1,2,3,4,5)
Guinea worm post certification surveillance	Guinea worm post certification surveillance	Rumor investigation for Guinea worm	Communication (Airtime, Internet connectivity), HR, Data collection tools	Annually (Yr1,2,3,4,5)
		Bi-annual County visits and support supervision for Guinea worm post certification	Communication (Airtime, Internet connectivity), HR, Transport, Data collection tools, IEC Materials.	Annually (Yr1,2,3,4,5)
		Community sensitization on guinea worm and Ksh 100,000 cash reward	Communication (Airtime, Internet connectivity), HR, IEC materials	Annually (Yr1,2,3,4,5)
Establish sentinel	Establish	Train HCW on Echinococcosis in selected	Communication (Airtime, Internet	Annually

Strategic Priority: Strengthen M&E, data analytics, knowledge management, operational research, and innovation				
Strategic Initiatives	**Activities**	**Sub-activities**	**Resources**	**Timeframe**
sites for specific NTDs	sentinel sites for specific NTDs	sentinel sites	connectivity), Meeting venue, HR, Training modules	(Yr1,2,3,4,5)
		End term surveys for STH/SCH in MDA implementing areas	Communication (Airtime, Internet connectivity), HR, Transport, Data collection tools	Annually (Yr1,2,3,4,5)
		Train HCW on Visceral Leishmaniasis in selected sentinel sites	Communication (Airtime, Internet connectivity), Meeting venue, HR, Training modules	Annually (Yr1,2,3,4,5)
		Train HCW on cutaneous leishmaniasis in selected sentinel sites	Communication (Airtime, Internet connectivity), Meeting venue, HR, Training modules	Annually (Yr1,2,3,4,5)
		Train HCW on STH/SCH in selected sentinel site5	Communication (Airtime, Internet connectivity), Meeting venue, HR, Training modules	Annually (Yr1,2,3,4,5)
		Train HCW on onchocerciasis in selected sentinel sites	Communication (Airtime, Internet connectivity), Meeting venue, HR, Training modules	Annually (Yr1,2,3,4,5)
		Conduct LF TAS 1 in 5 Sub-counties (IUs)	1. Communication (Airtime, Internet connectivity) 2. Transport 3. Personnel 4. Lab. equipment and reagents	Annually (Yr1,2,3,4,5)
		Conduct LF TAS 2 in 23 Sub-counties (IUs)	1. Communication (Airtime, Internet connectivity) 2. Transport 3. Personnel 4. Lab. equipment and reagents	Annually (Yr1,2,3,4,5)
		Surveys for Trachoma: 3 Baseline surveys, 10 Impact Assessment, 15 Surveillance Surveys	Communication (Airtime, Internet connectivity), Transport, HR, Data collection tools	Annually (Yr1,2,3,4,5)
		Mid-term surveys for STH/SCH in MDA implementing areas	Communication (Airtime, Internet connectivity), Transport, HR, Lab. equipment and reagents	Annually (Yr1,2,3,4,5)
Strategic Priority: Establish a network of reference laboratories to detect and report quality findings				
Strategic	**Activities**	**Sub-activities**		

Strategic Priority: Strengthen M&E, data analytics, knowledge management, operational research, and innovation				
Strategic Initiatives	**Activities**	**Sub-activities**	**Resources**	**Timeframe**
Initiatives				
Establish and equip a national NTD reference laboratory	Establish and equip a national NTD reference laboratory	Renovate existing National laboratory space,	Contractors, Supervisors, Logistics	Y1
		Procure lab equipment, reagents and consumables for National Lab	Listing & tendering, procurement, Installation and training	Y1
		Conduct Routine maintenance contracts	Service contracts	Biannually (Y1-Y5)
Establish and equip regional NTD reference laboratories	Establish and equip regional NTD reference laboratories	Renovate existing regional laboratory space	Contractors, Supervisors (National and county)	Y1-Y5
		Procure lab equipment, reagent, and consumables for 10 Regional Labs	Listing & tendering, procurement, Installation, and training	Y1-Y5
		Routine maintenance contracts for 10 Regional Labs	Service contracts	Y1-Y5
Recruit and deploy laboratory professionals	Recruit and deploy laboratory professionals	Recruit Laboratory Manager/Director (10), Lab Officers (20) (BSc Laboratory Sciences), Lab technologists (60), Entomologists (20), Casual workers (30), Biosafety officers (20) /Biosafety manager (1)	HR according to Public Service Commission guidelines	Annually (Y1-Y5)
Capacity build national and regional NTD Laboratory professionals	Capacity build national and regional NTD Laboratory professionals	Supervision of regional laboratories	Supervision guidelines & Manuals, National Trainers, ToTs, IEC Materials	Bi-annual (Yr1,2,3,4,5)
		TOT Training on biosafety	ToT manuals & guidelines, Trainers, Reagents	Bi-annual (Yr1,2,3,4,5)
		Regional Cascade Training on biosafety	ToT manuals & guidelines, Trainers, Reagents	Bi-annual (Yr1,2,3,4,5)
		Training on use of PCR (molecular diagnostics)	Manuals & guidelines Trainers Reagents Equipment	Bi-annual (Yr1,2,3,4,5)
		Training on preparation of lab reagents	Manuals & guidelines Trainers Reagents & Equipment	Bi-annual (Yr1,2,3,4,5)
		Training on equipment maintenance	Manuals & guidelines, Trainers, Reagents & Equipment	Bi-annual (Yr1,2,3,4,5)
Laboratory Based Surveillance	Laboratory Based Surveillance	Visit regional labs to assess data collected	Data collection Tools, HR-Technical, Transport	Quarterly (Yr1,2,3,4,5)
		Cross check slides analyzed	HR-Technical, Equipment, Transport	Bi-annual

Strategic Priority: Strengthen M&E, data analytics, knowledge management, operational research, and innovation				
Strategic Initiatives	**Activities**	**Sub-activities**	**Resources**	**Timeframe**
				(Yr1,2,3,4,5)
		Entomology surveys to establish presence of vectors	HR, Equipment, Transport	Annual (Y1-Y5)
		Support passive surveillance for specific NTDs	HR, Consumables, Lab equipment, HR, Logistics	Annual (Y1-Y5)
Strategic Priority: Integrated Vector Management				
Strategic Initiatives	**Activities**	Sub-activities		
Establish a national coordination Mechanism for IVM and support its operations	Establish a national coordination Mechanism for IVM and support its operations	Hold 1 planning meeting	Communication (Airtime, Internet connectivity), Meeting venue, HR,	Annually (Yr1,2,3,4,5)
		Hold Quarterly ICC Meetings	Communication (Airtime, Internet connectivity), Meeting venue, HR	Annually (Yr1,2,3,4,5)
		Hold monthly National TWG meeting	Communication (Airtime, Internet connectivity), Meeting venue, HR	Annually (Yr1,2,3,4,5)
		Conduct quarterly national TAG meeting	Communication (Airtime, Internet connectivity), Meeting venue, HR	Annually (Yr1,2,3,4,5)
		Hold 1 national advocacy meeting	Communication (Airtime, Internet connectivity), Meeting venue, HR	Annually (Yr1,2,3,4,5)
		Hold 1 regional advocacy meeting	Communication (Airtime, Internet connectivity), Meeting venue, HR	Annually (Yr1,2,3,4,5)
		Conduct a meeting to get information on the disease dynamics	Communication (Airtime, Internet connectivity), Meeting venue, HR	Annually (Yr1,2,3,4,5)
Capacity building for IVM at all levels	Capacity building for IVM at all levels	Hold i national sensitization meeting	Communication (Airtime, Internet connectivity), Meeting venue, HR, National guidelines	Annually (Yr1,2,3,4,5)
		Conduct county TOT trainings	Communication (Airtime, Internet connectivity), Meeting venue, HR, Training modules	Annually (Yr1,2,3,4,5)
		Subcounty training of healthcare workers (HCW)	Communication (Airtime, Internet connectivity), Meeting venue, HR, Training modules	Annually (Yr1,2,3,4,5)
		Hold annual cross border meeting	Communication (Airtime, Internet connectivity), Meeting venue, HR, IEC materials	Annually (Yr1,2,3,4,5)
		Hold national data sharing meeting	Communication (Airtime, Internet connectivity), Meeting venue, HR, Data	Annually (Yr1,2,3,4,5)

Strategic Priority: Strengthen M&E, data analytics, knowledge management, operational research, and innovation				
Strategic Initiatives	**Activities**	**Sub-activities**	**Resources**	**Timeframe**
Establish IVM structures and scale up implementation of IVM activities at national and county levels.	Establish IVM structures and scale up implementation of IVM activities at national and county levels.	Hold 1 planning meeting	Communication (Airtime, Internet connectivity), Meeting venue, HR	Annually (Yr1,2,3,4,5)
		Hold Quarterly ICC Meetings	Communication (Airtime, Internet connectivity), Meeting venue, HR	Annually (Yr1,2,3,4,5)
		Hold monthly National TWG meeting	Communication (Airtime, Internet connectivity), Meeting venue, HR	Annually (Yr1,2,3,4,5)
		Conduct quarterly national TAG meeting	Communication (Airtime, Internet connectivity), Meeting venue, HR	Annually (Yr1,2,3,4,5)
		Hold 1 national advocacy meeting	Communication (Airtime, Internet connectivity), Meeting venue, HR	Annually (Yr1,2,3,4,5)
		Hold 1 regional advocacy meeting	Communication (Airtime, Internet connectivity), Meeting venue, HR	Annually (Yr1,2,3,4,5)
		Conduct a meeting to get information on the disease dynamics	Communication (Airtime, Internet connectivity), Meeting venue, HR	Annually (Yr1,2,3,4,5)
Capacity building for IVM at all levels	Capacity building for IVM at all levels	Hold 1 national sensitization meeting	Communication (Airtime, Internet connectivity), Meeting Venue, HR, National guidelines	Annually (Yr1,2,3,4,5)
		Conduct county TOT trainings	Communication (Airtime, Internet connectivity), Meeting venue, HR, Training modules	Annually (Yr1,2,3,4,5)
		Subcounty training of healthcare workers (HCW)	Communication (Airtime, Internet connectivity), Meeting venue, HR, Training modules	Annually (Yr1,2,3,4,5)
		Hold annual cross border meeting	Communication (Airtime, Internet connectivity), Meeting venue, HR, IEC Materials	Annually (Yr1,2,3,4,5)
		Hold national data sharing meeting	Communication (Airtime, Internet connectivity), Meeting venue, HR, Data	Annually (Yr1,2,3,4,5)
Establish IVM structures and scale up implementation of IVM activities at national and county levels.	Establish IVM structures and scale up implementation of IVM activities at national and county levels.	2 meetings	Communication (Airtime, Internet connectivity), Meeting venue, HR,	Annually (Yr1,2,3,4,5)
		Hold virtual planning meeting	Communication (Airtime, Internet connectivity)	Annually (Yr1,2,3,4,5)
		Undertake IVM mapping exercise	Communication (Airtime, Internet connectivity), Transport (vehicles, data collection tools), HR	Annually (Yr1,2,3,4,5)
		Dissemination of mapping report	Communication (Airtime, Internet	Annually

Strategic Priority: Strengthen M&E, data analytics, knowledge management, operational research, and innovation				
Strategic Initiatives	**Activities**	**Sub-activities**	**Resources**	**Timeframe**
			connectivity), Transport, HR	(Yr1,2,3,4,5)
		Undertake quarterly vector surveillance	Communication (Airtime, Internet connectivity), Transport (vehicles, data collection tools), HR	Annually (Yr1,2,3,4,5)

3.4: Strategic Pillar 3 - Resource Mobilization, Advocacy, Health Promotion and Sustainability

The NTD programme is not well resourced. However, it is supported by several committed implementing partners and donors. For Kenya to achieve its NTDs control and elimination targets by 2027, additional resources are urgently required. Current donors will be requested to provide additional resources and new donors will be recruited. Advocacy will be carried out at both national and county governments targeting policy and decision makers. The focus will be on the economic, social and psychological burden that results from NTDs infections and the cost of treating these diseases, despite free health care in the country and universal health coverage initiative, in order to develop NTD budget line items and allocate NTD funds progressively each year. To mainstream county ownership, county governments will recruit NTD focal points, incorporate NTDs in County Integrated Development Plans, and Annual work plans to fund implementation of NTD interventions. To promote sustainability, transition plans will be developed so that counties take up increased responsibilities for leading, funding, and implementing NTD interventions. Health promotion activities will be strengthened at community level to achieve community ownership of their health, to control and prevent infections and re-infections, and increase demand for health care products and services. These will be done by increasing communication and social mobilization using health materials and messages via local radio talk shows, national TV and Radios, posters, brochures, health care workers, digital platforms and CHVs among others. Innovations in messaging will be used especially puppetry, card games, theatres and plays that will be integrated in school health clubs to instill and encourage behavior changes in learners for sustained control and elimination of NTDs

WASH-related activities will be expanded to promote healthy behavior through social and behavior change communication. Access to safe water and use is key in control and elimination of some NTDs while provision and use of functional latrines for safe disposal of fecal matter and urine prevents infections and reinfections of STH, Trachoma and SCH. Hand hygiene is also key in controlling infections that are transmitted via fecal oral route,

and fomites. Provision of hand washing facilities in schools, health facilities and at household level. Table 36 summarizes strategic priorities, initiatives, activities and sub-activities for Pillar 3.

TABLE 36: PILLAR 3 - RESOURCE MOBILIZATION, ADVOCACY, HEALTH PROMOTION AND SUSTAINABILITY

Strategic Priority: Resource mobilization				
Strategic Initiatives	**Activities**	**Sub-activities**	**Resources**	**Timeframe**
Increased government budget allocation	Conduct resource mapping	Convene a meeting with TWGs to map resource needs and how to meet these resource needs	Communication (airtime, internet connectivity), meeting venue,	Annually (Yr1,2,3,4,5)
		Convene government NTD stakeholder forum to generate a list of relevant areas which each enabler sector can support	Communication (airtime, internet connectivity), meeting venue, transport, county logistics	Annually (Yr1,2,3,4,5)
		Convene a meeting in liaison with the SWG and TWG to appropriate/allocate resources needs bridging to sectors as per their ability	Communication (airtime, internet connectivity), meeting venue, transport	Annually (Yr1,2,3,4,5,)
	Conduct advocacy for increased government resources towards NTDs	Hold meetings with county assemblies for the prioritization for NTD funding	Communication (airtime, internet) meeting venue, Transport, national/county logistics	Annually (Yr1,2,3,4,5)
		Hire consultant to develop an advocacy implementation plan	Communication(airtime)	(Yr1)
		Conduct advocacy activities at national and county governments as per the implementation plan	Communication (airtime, internet connectivity) Meeting venue, Transport, national/county logistics	Annually (Yr1,2,3,4,5)
		Develop advocacy briefs /fact sheets	Communication (airtime, internet connectivity) meeting venue, transport	Annually (Yr1,3,5)
		Sensitize and orientate NTD champions and ambassadors in counties	Communication (airtime internet connectivity) meeting venue, transport, national/county logistics, HR	Annually (Yr2,3,4,5)

		Create a community of practice for NTD	Communication (airtime, internet connectivity) meeting venue	Annually (Yr1,2,3,4,5)
		Hold a two-day post advocacy review meetings with relevant stakeholders at county and national level to identify bottle necks	Communication (airtime, internet connectivity) meeting venue, transport, national/county logistics	Annually (Yr1,2,3,4,5)
		Engage community level social groups/organizations to enhance ownership	Communication (airtime, internet connectivity) meeting venue, transport, HR, National/county logistics	Annually (Yr1,2,3,4,5)
	Establish innovative Public Private Collaborations (PPCs) for NTDs Leverage private sector philanthropy or CSR	Conduct investor outreaches on partners interested in NTDs and identify areas of collaboration.	Communication (airtime, internet connectivity) transport, national logistics	Annually (Yr1,2,3,4,5)
		Advocate for public private collaboration engagement through partnership agreements for NTD	Communication (airtime, internet connectivity) meeting venue, transport	Annually (Yr1,2,3,4,5)
		Constitute an implementation group to undertake planning meetings to focus and promote PPCs	Communication (airtime, internet connectivity) meeting venue	Annually (Yr1,2,3,4,5)
		Through Kenya Health care Federation, map private sector companies with CSR or other forms of philanthropy	Communication (airtime, internet connectivity) meeting venue, transport	Annually (Yr1,2,3,4,5)
Leverage on donor support	Approaching donors for grants and loans	Harmonization of Donor support areas	Communication (airtime, internet connectivity)	Annually (Yr1,2,3,4,5)
		Hold annual stakeholder's forum with health partners for increased NTD funding	Communication (airtime, internet connectivity) meeting venue, transport, county logistics	Annually (Yr1,2,3,4,5)
		Conduct accountability meetings with partners for increased efficiency	Communication (airtime, internet connectivity) meeting venue, transport	Annually (Yr1,2,3,4,5)
		Donor mapping	Communication (airtime,	Annually

			internet connectivity), meeting venue, transport	(Yr1,2,3,4,5)
	Network with external NTD stakeholders for greater resource mobilization	Joint Planning, budgeting and Monitoring of NTD implementation	Communication (airtime, internet connectivity) meeting venue, transport	Annually (Yr1,2,3,4,5)
		Hold annual webinars on status of NTDs in Kenya and other countries	Communication (airtime, internet connectivity)	Annually (Yr1,2,3,4,5)
Increase efficiency in the use of resources towards NTDs	Conduct NTD priority setting and expenditure tracking	Convene a stakeholders meeting targeting government and partners to harmonize the budget tracking tools to ensure ownership during implementation phase	Communication (airtime, internet connectivity) meeting venue, transport, county logistics	Annually (Yr1,2,3,4,5)
		Develop SOPs to guide on how to use the budget and expenditure tracking tool	Communication (airtime, internet connectivity) meeting venue	Annually (Yr1)
		Monitoring and tracking of resources allocated for NTD services	Communication (airtime internet connectivity) meeting venue	Annually (Yr1,2,3,4,5)
		Conducting financial spot checks and audits of NTD activities	Communication (airtime, internet connectivity) transport	Annually (Yr1,2,3,4,5)
		Launching of budget tracking tool	Communication (airtime, internet connectivity), meeting venue,	Annually (Yr1)
		Hire consultancy services in developing tracking tools and aligning them to the PFM financial procedures, and the NHA	Communication (airtime, internet connectivity)	Yr1
	Conduct PFM analysis	Convene a feedback meeting at national	Communication (airtime, internet connectivity) meeting venue, transport	Annually (Yr1,2,3,4,5)
		Monitoring and evaluating PFM procedures during project implementation activities align with the budget	Communication (airtime, internet connectivity) transport, National logistics	Annually (Yr1,2,3,4,5)
	Strategic purchasing of drugs, equipment and supplies	Bi-annual inter-county meetings to explore opportunities for bulk purchasing and price regulations	Communication (airtime, internet connectivity) transport, national, county logistics	Bi-annually (Yr1,2,3,4,5)

		Annual meetings with suppliers	Communication (airtime, internet connectivity) meeting venue, transport, national/county logistics	Annually (Yr1,2,3,4,5)
		Train county health managers on strategic purchasing	Communication (airtime,) meeting venue, transport, national/county logistics, HR	Annually (Yr1,2,3)

Strategic Priority: National and County Government NTD Program ownership				
Strategic Initiatives	**Activities**	**Sub-activities**	**Resources**	**Timeframe**
Advocacy (Media, Government and Partners)	Media engagement and awareness creation on NTDs	Convene round table awareness meeting with media	Communication (airtime, internet connectivity) meeting venue, transport	Annually (Yr1,2,3,4,5)
	Development of briefs and fact sheets	Stakeholders' consultative meetings to develop content for media briefs and facts sheets	Communication (airtime, internet connectivity) meeting venue, transport	Annually (Yr1,2,3,4,5)
		Design and develop advocacy materials	Communication(airtime) meeting venue, transport	Annually (Yr1,2,3)
		Print advocacy materials	Design, Printing costs	Annually (Yr1,2,3)
		Disseminate advocacy materials to media reps	Communication (airtime, internet connectivity) meeting venue, transport,	Annually (Yr1,2,3,4,5)
		Disseminate NTD Policy briefs to CHMT, SCHMT and other Stakeholders	Communication (airtime, internet connectivity) meeting venue, transport, national/county logistics	Annually (Yr1,2,3,4,5)
	Convene awareness creation meetings	Breakfast meeting with council of governors	Communication (airtime, internet connectivity) meeting	Annually (Yr1,2,3,)

	with the council of governors		venue, transport	
	Convene meetings with the national ministries.	Breakfast meetings with national ministries on joint program approach	Communication (airtime, internet connectivity) meeting venue, transport	Annually (Yr1,2,3,4,5)
	Advocate for inclusion of NTDs into National Development plan, Country integrated development plan, MTEF	Review of national and county development plans (where possible)	Communication (airtime, internet connectivity)	Annually (Yr1, 2)
		Development of advocacy materials (Consultancy to develop advocacy briefs etc.)	Communication (airtime, internet connectivity)	Annually (Yr1, 2)
		Convene meetings to target decision makers in the development of national development plans and County integrated development plans	Communication (airtime, internet connectivity), meeting venue, transport, national/county logistics	Annually (Yr1,2,3)
	Advocacy for integration of NTDs into routine service delivery	Conduct joint monitoring and Supportive supervision for NTD prevention and Management	Communication (airtime, internet connectivity) transport, national/county logistics	Annually (Yr1,2,3,4,5)
		Train Health care workers as TOTs on NTD prevention and Management	Communication (airtime, internet connectivity) meeting venue, transport, national/county logistics, HR	Annually (Yr2,3,4,)
		Train CHAs, CHVs on NTD prevention and Management in 4 NTD endemic zones (Eastern, Western, Coast, North rift)	Communication (airtime, internet connectivity) meeting venue, transport, national/county, logistics, HR	Annually (Yr2,3,4)

Strategic Priority: Health promotion				
Strategic Initiatives	**Activities**	**Sub-activities**	**Resources**	**Timeframe**

Expand NTD related WASH interventions	Conduct WASH situational analysis	Undertake Planning meetings	Communication (airtime, internet connectivity) meeting venue	Annually (Yr2)
		Undertake WASH situational Analysis in NTD endemic areas	Communication (airtime)transport, national/county logistics, technical facilitators	Annually (Yr2,3)
		Undertake validation meeting	Communication (airtime, internet connectivity) meeting venue, transport, county logistics	Annually (Yr2,3)
		Design and Printing	Printing costs	Annually (Yr2,3)
		Disseminate WASH situational Analysis	Communication (airtime, internet connectivity) meeting venue, transport, national/county logistics	Annually (Yr2,3)
	Develop a WASH NTD Framework	Mapping stakeholders	Communication (airtime, internet connectivity) meeting venue, transport	Annually (Yr1)
		Inception meeting with stakeholders	Communication (airtime, internet connectivity) meeting venue, transport, county logistics	Annually (Yr1)
		Consultancy to develop WASH NTD Framework	Consultancy fee	Annually (Yr1)
		Validate WASH NTD Framework	Communication (airtime) meeting venue, transport, county logistics	Annually (Yr1)
		Design and Printing of WASH NTD Framework	Printing costs	Annually (Yr1)
		Disseminate WASH NTD Framework	Communication (airtime, internet	Annually (Yr1)

			connectivity) meeting venue, transport, national/county logistics	
	Collaboration meetings with the WASH sector players to increase infrastructural investment in NTD endemic areas	Quarterly meetings with stakeholders (National, counties and partners) for NTD	Communication (airtime, internet connectivity) meeting venue, transport, national/county logistics	Annually (Yr1,2,3,4,5)
Mainstream SBC interventions	Designing, developing and testing targeted SBC interventions.	Consultative meetings	Communication (airtime, internet connectivity) meeting venue	Annually (Yr1,2,)
		Developing social mobilization package for NTDs	Communication (airtime, internet connectivity), meeting venue, transport	Annually (Yr1,2)
		Design and Printing of social mobilization package	Design and printing costs	Annually (Yr1,2)
		Dissemination social mobilization package	Communication (airtime, internet connectivity) meeting venue, transport, national/county logistics	Annually (Yr1,2)
		Implementation of SBCC interventions	Communication (airtime) transport, national/county logistics	Annually (Yr2,3,4,5)
	Conduct periodic KAP assessments on behaviors with an influence on NTDs.	Inception meeting on KAP assessments on behaviors with an influence on NTDs	Communication (airtime, internet connectivity) meeting venue, transport	Annually (Yr2)
		Conduct KAP assessments on behaviors with an influence on NTDs	Communication (airtime, internet connectivity) transport, technical facilitators	Annually (Yr2,3)
	Collaboration	Quarterly meetings with stakeholders (National, counties,	Communication	Annually

	meetings with ACSM sector players to increase awareness on NTDs	and partners)	(airtime, internet connectivity) meeting venue, transport, national/county logistics	(Yr1,2,3,4,5)
	Finalizing NTD-ACSM strategic plan	Hold 2 planning meetings	Communication (airtime, internet connectivity) meeting venue, transport	Annually (Yr1)
		Hold 2 stakeholders' meetings	Communication (airtime, internet connectivity) meeting venue, transport, county logistics	Annually (Yr1)
		Hold 1 residential workshop	Communication (airtime, internet connectivity) meeting venue, transport, national/county logistics	Annually (Yr1)
		Printing, launching and dissemination	Communication (airtime, internet connectivity), printing costs, meeting venue, transport, national/county logistics	Annually (Yr1)
	Continuous community awareness creation on NTDs	Sensitizing teachers/patrons in 4 NTD endemic zones (western, coastal, north rift and eastern)	Communication (airtime, internet connectivity), meeting venue, transport, national/county logistics, HR	Annually (Yr1,2,3,4,5)
		Hold planning meetings for development of training modules/manuals and key health, messages	Communication (airtime, internet connectivity), meeting venue, transport	Annually (Yr1,2)
		TOTs training for CHAs and health care workers on NTDs in 4 endemic regions	Communication (airtime, internet connectivity), meeting venue, transport,	Annually (Yr2,3,4,5)

			national/county logistics, HR	
		Develop scripts for adverts in national TV/Radio. Newspaper articles, live interviews/shows on national TV/Radio/local radios. E- posters on social media platforms.	Communication (airtime, internet connectivity), meeting venue, transport, costs of media platforms	Annually (Yr1,2,3,4,5)
		Development/review of training modules /guides/ manuals	Communication (airtime, internet connectivity), meeting venue, transport	Annually (Yr1,2,3,4,5)
		Sensitize community leaders (opinion, religious, youths, local administrators) on NTD prevention	Communication (airtime, internet connectivity), meeting venue, transport, national/county logistics, HR	Annually (Yr1,2,3,4,5)
		Carry out continuous education targeting health facilities at service delivery points in endemic counties	Communication (airtime, internet connectivity), meeting venue, transport, national/county logistics, HR	Annually (Yr1,2,3,4,5)
	Undertake innovative WASH-BCC initiatives in selected schools in NTD endemic counties(puppetry , game of cards, talking walls)	Hold planning meetings with MOH/MOE stakeholders at national	Communication (airtime, internet connectivity), meeting venue, transport	Annually (Yr1, 2)
		Hold stakeholders' meetings with MOH/MOH stakeholders at County level	Communication (airtime, internet connectivity), meeting venue, transport, national/county logistics	Annually (Yr1,2)
		Engagement meetings with headteachers/MOH/MOE/TSC/CSO/ward administrators at Sub- County level	Communication (airtime, internet connectivity), meeting venue, transport, national/county logistics	Annually (Yr1,2,)
		Engage a service provider to develop edutainment assets	Consultancy fee	Annually (Yr1-2,)
		Roll-out of the WASH/BCC intervention	Communication (airtime	Annually

			transport, national/county logistics	(Yr2,3,4,5)
		Monitoring and evaluation to inform scale-up	Communication (airtime transport, national/county logistics	Annually (Yr2,3,4,5)

Strategic Priority: Sustainability				
Strategic Initiatives	**Activities**	**Sub-activities**	**Resources**	**Timeframe**
Developing and implementing transition plans (refer to Kenya Health sector Transition Roadmap-2022-2030)	Developing and implementing transition plans (refer to Kenya Health sector Transition Roadmap-2022-2030)	Hold meetings to develop transition plans	Communication (airtime, internet connectivity), meeting venue, transport	Annually (Yr2)
		Hold dissemination meetings with various counties	Communication (airtime, internet connectivity), meeting venue, transport, national/county logistics	Annually (Yr2,3,4,)
		Monitoring and evaluation of transition progress	Communication (airtime)transport, national/county logistics	Annually (Yr3,4,5)
	Advocate for inclusion of NTD conditions in the Health Benefit Package for UHC	Hold advocacy meetings with the UHC and Health Benefit Package Panel	Communication (airtime, internet connectivity), meeting venue, transport, county logistics	Annually (Yr2,3,4,)

3.5: Strategic Pillar 4 - Strengthen Leadership, Capacity, Communication, and Collaboration

The DVBNTDs has achieved great milestones in the past years, key being the elimination and certification of elimination of guinea worm disease in Kenya. Some other notable successes are the shrinking of the LF and Trachoma maps in Kenya through continuous MDAs in endemic areas. Kenya was the first country to pilot the triple therapy of LF interventions that reduced the number of MDAs needed to achieve elimination to 2 instead of the usual 5 five years using Ivermectin, Diethylcarbamazine and albendazole in three endemic regions (Lamu East, Lamu West and Jomvu). The three regions passed the transmission assessment survey indicating that LF was no longer a disease of public health importance. Trachoma endemic areas with high burden of the disease are currently undergoing biannual MDAs to intensify the push for elimination. Kenya is gearing to have achieved certification of elimination for Onchocerciasis, HAT, LF and Trachoma during the lifetime of this master plan.

There has been expansion of interventions to other NTDs that were formerly not given much attention due to the thin staff at the division. Innovative approaches have been embraced to ensure the program has data driven interventions. Some of the key interventions include, expanding the map of STH and SCH in the country through mapping out of the high burden areas of the diseases in the country. The program has included Snakebite Envenoming (SBE) in the MDA questionnaire for trachoma endemic regions which are suspected to be endemic for SBE, the division further plans to roll out the same for STH and SCH. Questions on SBE have also been included in the coverage evaluation survey for LF to capture the data on SBE. The division has also carried out a successful integrated survey which includes transmission assessment of LF, impacts of interventions on STH and mapping out of tungiasis prevalence in Kwale and Kilifi. The division has also adopted a microplanning and monitoring tool called Reveal to help support STH and SCH MDA in the western region, this makes it easier to plan to the ward level.

The division woks in collaboration with the counties, through its persistent lobbying, the counties have been able to allocate NTD coordinators both at the county level and sub

county level. This has made it easier in terms of coordination of NTD related activities. The division has further created capacity to manage MDAs and interventions of LF, Trachoma, STH, SCH and leishmaniasis by the counties through a well-coordinated approach. This however has been a challenge since most of the coordinators do not show initiative due to over reliance on the national program on coordination and guidance and most of these NTD coordinators do not singly work on NTDs, most of them double up as other diseases focal points and or public health officers in charge of their jurisdictions. This creates a competitive role in implementation of activities on NTDs. However, the division has embarked on intensified county ownership campaign and advocacy. In western it has been able to meet up with the first ladies, MCAs and County Assembly committee on health in turn some of these counties have committed to include a budget line for NTDs in their county budget. This is a good direction towards ownership and elimination of these NTDs.

Nationally the division has gone through a lot of transformation, before devolution the division had 30 satellite laboratories, they acted as regional referral centres. These were converted to clinical laboratories post devolution and the staff were redeployed to other roles in the counties. In the same line the division had most of its national lab space lost to the East African Regional Reference Laboratories. During the process of restructuring, Vector Borne Unit and Neglected Tropical Diseases Unit were split and in the process the division lost it budget line in the Ministry which led to loss of direct support from the government.

The other challenge that the division faces is lack of sufficient staff, most of the staff have been lost to either attrition or death leaving the division lean to fully cover the NTDs endemic in the country. The last time the Ministry recruited was in 2012 and previously in 1987, resulting in a huge transition gap and little knowledge on management. The division currently relies heavily on donor funding, this creates the need for government ownership and inclusion of a budget line for DVBNTDs within the Ministry, increase staff capacity through recruitments and inclusion of some NTD interventions in the Cabinet Secretary's performance contract. Table 37 summarizes details sub-activities for Pillar4.

TABLE 37: PILLAR 4 - STRENGTHEN LEADERSHIP, CAPACITY, COMMUNICATION, AND COLLABORATION

Strategic Priority: Coordination and collaboration				
Strategic Initiatives	**Activities**	**Sub-activities**	**Resources**	**Timeframe**
Establish and operationalize national and county-level NTD committees	National steering committee, Expert committee, TAGs, TWGs, Implementation Teams meetings	Bi-Annual national steering committee meetings	Communication (airtime, internet connectivity), meeting venue, transport	Bi-annual (Year 1)
		Bi-Annual national steering committee to discuss multi-disciplinary issues	Communication (airtime, internet connectivity), meeting venue, transport	Bi-annual (Yr1,2,3,4,5)
		Hold a quarterly expert committee meeting to steer elimination of LF, Trachoma and certification of elimination of HAT and Onchocerciasis	Communication (airtime, internet connectivity), meeting venue, transport	Quarterly (Yr1,2,3,4,5)
		Hold biannual County multi-disciplinary Steering Committee to discuss NTD related multi-disciplinary issues	Communication (airtime, internet connectivity), meeting venue, transport	Bi-annual (Yr1,2,3,4,5)
		Hold quarterly County TWG meeting to discuss technical issues for various NTDs endemic in the County	Communication (airtime, internet connectivity), meeting venue, transport	Quarterly (Yr1,2,3,4,5)
Enhance multi-disciplinary collaboration	Intersectoral collaboration, coordination with other programs and ministries	Hold Bi-annual cross sector collaboration stakeholders Meetings for NTDs at national	Communication (airtime, internet connectivity), meeting venue, transport	Bi-annual (Yr1,2,3,4,5)
	Joint co-implementation of NTD interventions and surveillance, Lab linkages, skills and knowledge sharing, joint research, cross	Hold quarterly In-country Joint strategic planning meetings with countries with similar diseases bordering Kenya (Trachom, VL, LF, Guinea Worm)	Communication (airtime, internet connectivity), meeting venue, transport	Quarterly (Yr1,2,3,4,5)
		Hold quarterly out country Joint strategic planning meetings with countries with similar diseases bordering Kenya (Trachom, VL, LF, Guinea Worm)	Communication (airtime, internet connectivity), meeting venue, transport	Quarterly (Yr1,2,3,4,5)

	border harmonization meetings with organizations such as Africa CDC, EAC, IGAD			

Strategic Priority: Enhance multi-disciplinary collaboration				
Strategic Initiatives	**Activities**	**Sub-activities**	**Resources**	**Timeframe**
Infrastructure development	Provision of equipment, refurbish/build facilities and offices, information technology	Travel for needs assessment; tendering; maintenance and service costs; office equipment; purchase of laptops and desktops, printers, scanners; Internet provision	Communication (airtime, internet connectivity), DSA, transport	Annually (Yr1,2,3,4,5)
		Conduct needs assessment	Communication (airtime, internet connectivity), DSA	Once (Yr1)
		Conduct a tendering of the identified materials and equipment needs	Communication (airtime, internet connectivity), meeting venue, transport	Once (Yr1)
		Procure ICT materials (Hardware and Software)	Communication (airtime, internet connectivity), HR	Once (Yr1)
Human capacity development	Needs assessment, Training, recruitment, and placement of personnel at national and sub national levels	Conduct human resource needs assessment	Communication (airtime, internet connectivity), meeting venue, transport	Once (Yr1)
		Print the needs assessment report	Printing costs,	Once (Yr1)
		Recruitment of HRH (communication, finance, supply chain/Logistician, Technical Officers)	Communication (airtime, internet connectivity)	Once (Yr2)
		Training and orientation of the hired staff	Communication (airtime, internet connectivity), meeting venue, transport	Once (Yr2)
Knowledge sharing	Identify tools for knowledge sharing,	Attend international NTD conference and stakeholders meeting forums	Communication (airtime, internet connectivity), DSA	Once (Yr1,2,3,4,5)

	benchmarking, training, conferences	Organize Annual International NTD Conference (500 attendees)	Communication (airtime, internet connectivity), meeting venue, transport	Once (Yr1,2,3,4,5)
		Procure knowledge sharing tools (Zoom)	Procurement costs	Once (Yr1)
Reinforce Logistics (warehouse, Commodities, and vehicles)	Address logistics gaps to enable the program to operate seamlessly	Conduct tendering process to procure three program vehicles	Communication (airtime, internet connectivity), meeting venue, transport	Once (Yr1)
		Purchase program vehicles (3)	Procurement costs	Once (Yr1,2,3)
		Payment for storage facility and transportation at KEMSA	Storage costs	Once (Yr1)

Strategic Priority: Results Based Planning and financial management				
Strategic Initiatives	**Activities**	**Sub-activities**	**Resources**	**Timeframe**
Accountability and efficient use of financial resources	Financial accounting and reporting; Adopt integrated financial management systems; audit	Dissemination and training of staff on integrated financial reporting platform	Communication (airtime, internet connectivity), meeting venue, transport, national/county logistics	Once (Yr1,2)
		Partners meeting to develop an integrated financial reporting calendar for MoH and Partners	Communication (airtime, internet connectivity), meeting venue, transport, national/county logistics	Quarterly (Yr1,2,3,4,5)
		Annual Joint planning for allocated resources from the MoH and Partners	Communication (airtime, internet connectivity), meeting venue, transport, national/county logistics	Annual (Yr1,2,3,4,5)
		Annual joint review of resource allocation and expenditure review	Communication (airtime, internet connectivity), meeting venue, transport,	Annual (Yr1,2,3,4,5)

			national/county logistics	
Effective planning and management	Adopt planning and management tools and systems, development and periodic review of plans	Development of master plan 2026-2030	Communication (airtime, internet connectivity), meeting venue, transport, national/county logistics	Once (Yr1,2,3,4,5)
		Hire consultant to develop the 2026 - 2030 master plan	TOR	Once (Yr5)
		Master plan validation meeting 2026-2030	Communication (airtime, internet connectivity), meeting venue, transport, national/county logistics	Once (Yr5)
		Printing of the Master plan (2026-2030)	Printing costs	Once (Yr5)
		Launch and disseminate 2026 -2030 NTD Master plan	Communication (airtime, internet connectivity), meeting venue, transport, national/county logistics	Once (Yr5)
		Midterm review of master plan 2023-2027	Communication (airtime, internet connectivity), meeting venue, transport, national/county logistics	Once (Yr3)
		End term review of masterplan 2023-2027	Communication (airtime, internet connectivity), meeting venue, transport, national/county logistics	Once (Yr5)
		Sensitize the county teams on planning to ensure NTDs activities are integrated in the CIDP	Communication (airtime, internet connectivity), meeting venue, transport, national/county logistics	Bi-annually (Yr1,2,3,4,5)

Strategic Priority: Strategic Communication				
Strategic Initiatives	**Activities**	**Sub-activities**	**Resources**	**Timeframe**
Targeted dissemination of information	Development of communication plans, tools and materials for NTDs	Hold 3 1-day non-residential meetings to develop a communication plan for NTDs	Communication (airtime, internet connectivity), meeting venue, transport, national/county logistics	Once (Yr1)
Branding NTDs	Creating visibility for the DVBNTDs Division and NTD programs	Develop media and policy briefs	Communication (airtime, internet connectivity), meeting venue, transport, national/county logistics	Bi-annually (Yr1,2,3,4,5)
		Revamp NTD Website, Social media platforms	Communication (airtime, internet connectivity)	Once (Yr2)
		Conduct quarterly NTD ambassadors e.g., Kenya Youth Against NTDs	Communication (airtime, internet connectivity), meeting venue, transport, national/county logistics	Quarterly (Yr1,2,3,4,5)
		Celebrate World NTD Day (National and county)	Communication (airtime, internet connectivity), meeting venue, transport, national/county logistics	Annually (Yr1,2,3,4,5)

PART 4: BUDGETING FOR IMPACT - ESTIMATES AND JUSTIFICATION

4.1 Introduction

This is a country-led and country-owned costed NTD master plan process that is inclusive and engaged all the partners and stakeholders supporting the control, elimination, and eradication of NTDs in Kenya. Information on the cost of providing health care services is becoming increasingly important. This part of the NTD master plan 2023-2027, establishes the resource outlay required to implement the plan on annual basis, as well as strategic priorities and initiatives outlined by the Division of Vector Borne & Neglected Tropical Diseases in the ministry of health, across partners and stakeholders.

This chapter presents cost estimates for providing health care services under the NTD master plan. It also describes in detail the level of resource requirements for the strategic plan period 2023-2027, the available resources and the gap between what is anticipated and what is required. The process of estimating resources is a critical component toward sustainable financing of NTDs and is used as a tool for resource mobilization on the funding gap needed to implement the interventions outlined in the Kenya NTD master plan. Ultimately, the end goal is to support the realization of the strategic priorities and initiatives.

Basically, this information on costs, resources available and the financing gap is expected to assist stakeholders to develop realistic annual health budgets. Without this, annual operational plans cannot be designed or implemented in a more effective way. The results will help health program implementers, policy makers, and funders generate evidence to support advocacy efforts for NTD services and resource mobilization. It will also improve NTD resource allocation, planning, budgeting, monitoring, review, and delivery performance. The information from the analyses will be important for developing investment cases and facilitating the calculation of the health and economic impact of NTD interventions.

4.2 Costing Methodology

Costing is a process of determining the value of inputs required to generate a particular output in monetary terms. It involves estimating the quantity of inputs required by an activity/programme. It is also described as a quantitative process, which involves estimating both operational (recurrent) costs and capital costs of a programme. The process ensures that the value of resources required to deliver services is cost-effective and affordable.

The study used Activity Based Costing approach (ABC), a bottom-up costing approach to cost the NTD master plan. Activity-based costing (ABC) is a method of allocating costs to products and services based on each intervention and activity with an aim of achieving set goals /results. ABC is generally used as a tool for planning and control. All costs of activities are traced to the product or service for which the activities are performed. Direct labour and materials are relatively easy to trace directly to products. In ABC, each of the activities requires inputs, such as labour, conference hall etc. These inputs are required in certain quantities, and with certain frequencies.

The summation of the product of the unit cost, the quantity, and the frequency of the input will give the total input cost. Unit cost refers to the value of resources to provide a service to one unit/person (client or a patient). In activity-based costing all the ingredients to provide a service to one person are clearly defined. The quantity of each input (ingredient) in the provision of the service is required. The cost price of a unit of the input is also required for the calculation of the unit cost. The ABC costing method was used to estimate the resources required for the strategic pillars, priorities and activities within the master plan. The scope for these strategic priorities and initiatives costed in the ABC is for all the NTDs that are endemic in the country. ---

4.3 Total Resource Requirements (2023 – 2027)

The cost estimates show that DVBNTD and other key stakeholders require an investment of KSh 83,366.12 million for NTDs over the 5-year plan period. These costs include the cost of implementing activities within the strategic pillars. These activities are cross-

cutting across all the NTDs that are endemic in the country. The variation in the financial need across years is marginal, with the FY 2022/23 accounting for the highest resource needed at Ksh 17,568.85 million (21.07%) of the total resources required for the period of the strategic plan (Figure 17).

FIGURE 17: TOTAL ESTIMATED COSTS FOR THE KENYA NTD MASTER PLAN 2023 - 2027

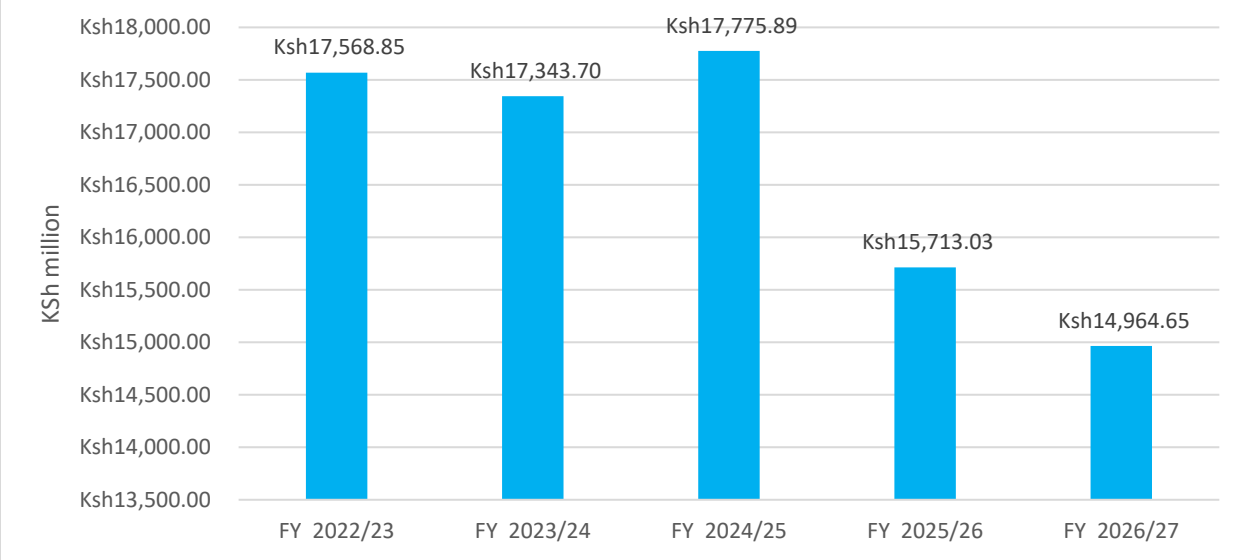


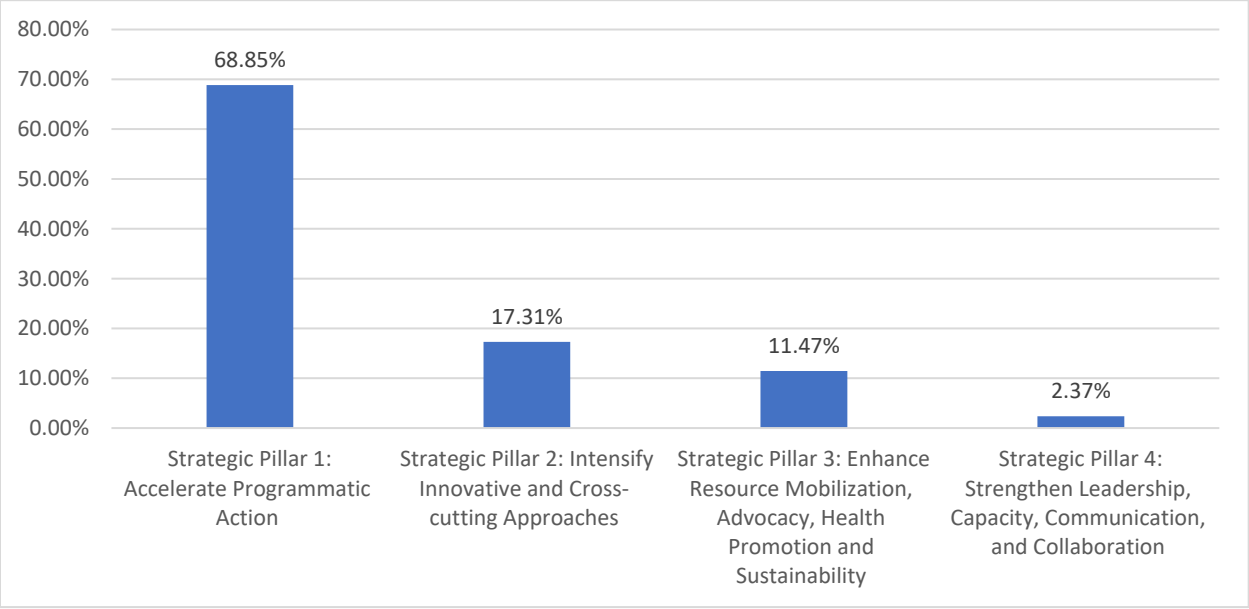
Table 38 shows the total resource requirements by strategic pillars for the four-year period of the plan. Analysis of the cost requirements shows that Ksh 57,400.83 million will be required for pillar 1-accelerating programmatic action over the 5-year period while pillar 2- intensifying innovative and cross-cutting approaches is estimated to cost Ksh 14,428.28 million. The cost for pillar 3-enhancing resource mobilization, advocacy, health promotion and sustainability and pillar 4 - strengthening leadership, capacity, communication, and collaboration is Ksh 9,563.74 million and Ksh 1,973.27 million, respectively. Strategic pillar 1 will account for the highest proportion (68.85%, or Ksh 57,400.83million) of the total resources required over the 5-year master plan implementation period.

TABLE 38: RESOURCE REQUIREMENTS BY A STRATEGIC PILLAR (IN KSH MILLION)

Pillars	FY 2022/23	FY 2023/24	FY 2024/25	FY 2025/26	FY 2026/27	Total
Strategic Pillar 1: Accelerate Programmatic Action	12,099.23	12,052.69	12,487.40	10,792.57	9,968.95	57,400.83
Strategic Pillar 2: Intensify Innovative and Cross-cutting Approaches	3,040.79	3,083.68	2,999.32	2,686.59	2,617.91	14,428.28
Strategic Pillar 3: Enhance Resource Mobilization, Advocacy, Health Promotion and Sustainability	2,014.81	1,811.94	1,930.28	1,855.92	1,950.79	9,563.74
Strategic Pillar 4: Strengthen Leadership, Capacity, Communication, and Collaboration	414.03	395.39	358.89	377.95	427.01	1,973.27
Total	**17,568.85**	**17,343.70**	**17,775.89**	**15,713.03**	**14,964.65**	**83,366.12**

Pillar 4 will consume 17.31% of the total resource needs, while pillar 3 and pillar 4 require 11.47% and 2.37% of the resource needs, respectively. Figure 18 shows the proportion of resource needs for each of the strategic pillars.

FIGURE 18: PROPORTION OF RESOURCES REQUIRED BY STRATEGIC PILLAR



4.4 Cost of Strategic Pillars differentiated by Strategic Priorities and Initiatives

4.4.1 Strategic Pillar -1: Accelerating Programmatic Actions

From the analysis in Figure 18, a substantial number of resources will be required for strategic pillar 1 over the 5-year period. In this pillar, the key strategic priority is the prevention chemotherapy which accounts for the highest costs as shown in Table 39. Overall, the cost of integrated preventive chemotherapy treatment will be 37,921.26 million (66.06%) over the 5-year period. Of this amount, conducting mass drug administration will cost Ksh 37,411.64 million while pharmacovigilance will cost Ksh 509.62 million over the 5 year- period. KSh 13,571.87 million (case management), KSh 77.71 million (supply chain management) and KSh 467.51 million (cross-cutting), KSh 4,876.21 million (Oncho Vector management), KSh 12.65 million (HAT management) and KSh 473.61 million (LF post-MDA surveillance). The cost of strategic initiatives per each strategic priority is presented in Table 39 below.

TABLE 39: COST FOR STRATEGIC PILLAR 1 DIFFERENTIATED BY STRATEGIC PRIORITIES AND STRATEGIC INITIATIVES (IN KSH MILLION)

Strategic Priority/Objective	FY 2022/23	FY 2023/24	FY 2024/25	FY 2025/26	FY 2026/27	Total	%
1.1. Preventive Chemotherapy	7,495.97	7,668.38	7,848.24	8,028.97	6,879.71	37,921.26	66.06 %
1.2. Case management	2,845.82	2,596.28	2,663.39	2,603.95	2,862.42	13,571.87	23.64 %
1.3. Supply chain Management	18.77	19.20	19.64	20.10	-	77.71	0.14 %
1.4. Cross-cutting	93.59	95.15	93.92	97.26	87.60	467.51	0.81 %
1.5. Oncho Vector management	1,522.78	1,553.63	1,750.63	24.31	24.86	4,876.21	8.50 %
1.6. HAT management	2.42	2.47	2.53	2.59	2.65	12.65	0.02 %
1.7. LF post-MDA surveillance	119.88	117.58	109.04	15.40	111.70	473.61	0.83 %
Total	**12,099.23**	**12,052.69**	**12,487.40**	**10,792.57**	**9,968.95**	**57,400.83**	**100%**

4.4.2 Strategic Pillar-2: Intensify Innovative and Cross-cutting Approaches

Under strategic priority 2; surveillance will consume the principal share of resources at Ksh 10,188.83 million or 70.62%. This is followed by establishing a network of reference laboratories to detect and report quality findings accounting KSh 3,211.93 million

(22.26%), integrated vector management which will account for KSh 541.45 million (3.75%) and Strengthen M&E, data analytics, knowledge management, operational research, and innovation accounts for KSh 486.07 million (3.37%) of the total resources under this pillar. The main cost drivers in this pillar are clinical diagnosis and case detection and mapping of all vector-borne NTDs endemic. See Table 40 below for details.

TABLE 40: COST OF STRATEGIC PILLAR 2 DIFFERENTIATED BY STRATEGIC PRIORITIES AND STRATEGIC INITIATIVES (IN KSH MILLION)

Strategic Priority/Objective	FY 2022/23	FY 2023/24	FY 2024/25	FY 2025/26	FY 2022/27	Total	%
2.1. Strengthen M&E, data analytics, knowledge management, operational research, and innovation	125.88	144.12	97.21	57.87	60.99	486.07	3.37%
2.2. Surveillance	2,168.89	2,227.17	2,130.69	1,883.18	1,778.90	10,188.83	70.62 %
2.3. Establish a network of reference laboratories to detect and report quality findings	615.85	627.96	642.41	657.18	668.53	3,211.93	22.26 %
2.4. Integrated Vector Management	130.17	84.43	129.01	88.36	109.49	541.45	3.75%
Total	**3,040.79**	**3,083.68**	**2,999.32**	**2,686.59**	**2,617.91**	**14,428.28**	**100%**

4.4.3 Strategic Pillar-3: Enhance Resource Mobilization, Advocacy, Health Promotion and Sustainability

The strategic priority on health promotion will consume the largest share of the resources needed at KSh 4,880.51 million. Resource mobilization will account for the second largest share of the resources needed at KSh 4,194.07 million largely driven by the program's need to increase government budget allocations, mobilization of resources from the private sector, leverage on donor support and increase efficiency in the use of resources towards NTDs. See Table 41 below for details.

TABLE 41: COST OF STRATEGIC PILLAR 3 DIFFERENTIATED BY STRATEGIC PRIORITIES (IN KSH MILLION)

Strategic Priority/Objective	FY 2022/23	FY 2023/24	FY 2024/25	FY 2025/26	FY 2022/27	Total	%
3.1. Resource mobilization	835.03	784.57	856.77	821.07	896.63	4,194.07	43.85 %

Strategic Priority/Objective	FY 2022/23	FY 2023/24	FY 2024/25	FY 2025/26	FY 2022/27	Total	%
3.2. National and County Government NTD Program Ownership	93.54	82.48	145.18	74.06	75.76	471.02	4.93%
3.3. Health Promotion	1,086.24	937.56	924.82	957.19	974.71	4,880.51	51.03 %
3.4. Sustainability	-	7.34	3.52	3.60	3.68	18.14	0.19%
Total	**2,014.81**	**1,811.94**	**1,930.28**	**1,855.92**	**1,950.79**	**9,563.74**	**100%**

4.4.4 Strategic Pillar 4: Strengthening Leadership, Capacity, Communication, and Collaboration

Under Pillar 4 as shown in Table 42, strategic priority on coordination and collaboration will account for the highest cost at Ksh 1,392.90 million (70.59%) followed by strategy priority on capacity development at Ksh 379.09 million (19.21%). The cost drivers in this pillar include the establishment and operationalizing of national and county-level NTD committees (KSh 1,302.72 million), knowledge sharing – national (KSh 189.40 million), effective planning and management (KSh 164.76 million) and human capital development (KSh 95.68 million).

TABLE 42: COST FOR STRATEGIC PILLAR 4 DIFFERENTIATED BY STRATEGIC PRIORITIES AND STRATEGIC INITIATIVES (IN KSH MILLION)

Strategic Priority / Objective	FY 2022/23	FY 2023/24	FY 2024/25	FY 2025/26	FY 2022/27	Total	%
4.1. Coordination and collaboration	277.11	264.88	270.97	286.68	293.27	1,392.90	70.59 %
4.2. Capacity development	112.19	95.89	55.71	56.99	58.30	379.09	19.21 %
4.3. Results Based Planning and financial management	19.56	29.63	28.70	30.69	71.76	180.33	9.14%
4.4. Strategic Communication	5.17	5.00	3.51	3.59	3.67	20.95	1.06%
Total	**414.03**	**395.39**	**358.89**	**377.95**	**427.01**	**1,973.27**	**100%**

4.5 Resources available for funding the NTD master plan (2023-2027)

There are different funding commitments from different organizations. These organizations have pledged funding up to 2027. Overall, WHO will account for the single

largest source of funding for the NTD master plan in the country, contributing about 46.09% (Ksh 2,636.4 million) of the total available funding over the 5-year period. The contribution from DVBNTD will account for 20.38% (Ksh 1,166 million) of the total funding. Below is a summary of funding sources. See Table 43 below for details.

TABLE 43: SOURCES OF FUNDING FOR THE NTD MASTER PLAN (IN KSH MILLION)

Source of Funding	2023	2024	2025	2026	2027*	Total	%
AMREF Health Africa	343.12	316.13	332.45	317.86	317.86	1627.42	28.45%
Department of Health Kakamega County	54.02	54.46	57.98	59.99	59.99	286.44	5.01%
DVBNTD	154	198	242	286	286	1166	20.38%
JICA/ Nagasaki University	1.12	1.02	0.62	0.62	0.62	4	0.07%
WHO	527.28	527.28	527.28	527.28	527.28	2636.4	46.09%
Total	**1,079.54**	**1,096.88**	**1,160.33**	**1,191.75**	**1,191.75**	**5,720.25**	**100.00%**

* Estimated resources available based on previous years trends

The distribution of funding proportions by strategic pillar is presented in Table 39 below. Strategic Pillar 4 on strengthening leadership, capacity, communication, and collaboration will account for the largest share of the total funding which represents 44.94% (KSh 2,052.89 million) of the total funding required for the implementation of the NTD strategic master plan over the five-year period. This is followed by Strategic Pillar 2 on intensifying innovative and cross-cutting approaches which accounted for 30.7% (Ksh 1,753.45 million) of the total funding.

TABLE 44: FUNDING OF THE NTD MASTER PLAN BY STRATEGIC PILLARS (IN KSH MILLION)

Pillars	2023	2024	2025	2026	2027**	Total	%
Strategic Pillar 1: Accelerate Programmatic Action	270.41	258.76	259.56	261.77	261.77	1,312.29	23%
Strategic Pillar 2: Intensify Innovative and Cross-cutting Approaches	279.22	314.29	367.04	396.45	396.45	1,753.46	31%

Pillars	2023	2024	2025	2026	2027**	Total	%
Strategic Pillar 3: Enhance Resource Mobilization, Advocacy, Health Promotion and Sustainability	19.36	16.42	16.56	15.76	15.76	83.85	1%
Strategic Pillar 4: Strengthen Leadership, Capacity, Communication, and Collaboration	510.54	507.41	517.17	517.77	517.77	2,570.66	45%
Grand Total	**1,079.54**	**1,096.88**	**1,160.33**	**1,191.75**	**1,191.75**	**5,720.26**	**100%**

TABLE 45: DISTRIBUTION OF RESOURCES FOR NTD MASTER PLAN BY STRATEGIC PRIORITIES (IN KSH MILLION)

Strategic Priority	2023	2024	2025	2026	2027**	Total	%
Strategic Pillar 1: Accelerate Programmatic Action	**270.41**	**258.76**	**259.56**	**261.77**	**261.77**	**1,312.29**	**23%**
1.1 Preventive Chemotherapy	167.96	162.55	151.65	152.02	152.02	786.19	14%
1.2 Case Management	35.25	41.80	42.41	42.75	42.75	204.96	4%
1.3 Supply Chain Management	20.46	20.78	21.46	22.46	22.46	107.61	2%
1.4 Health promotion	46.74	33.64	44.05	44.55	44.55	213.53	4%
Strategic Pillar 2: Intensify Innovative and Cross-cutting Approaches	**279.22**	**314.29**	**367.04**	**396.45**	**396.45**	**1,753.46**	**31%**
2.1 M&E, Data analytics and Knowledge management Operational research and innovation	87.23	85.46	81.46	79.46	79.46	413.08	7%
2.2 Surveillance	51.99	53.83	70.58	63.99	63.99	304.38	5%
2.3 Establish a network of reference laboratories to detect and report quality findings	125.00	165.00	205.00	245.00	245.00	985.00	17%
2.4 Integrated Vector Management	15.00	10.00	10.00	8.00	8.00	51.00	1%
Strategic Pillar 3: Enhance Resource Mobilization, Advocacy, Health Promotion and Sustainability	**19.36**	**16.42**	**16.56**	**15.76**	**15.76**	**83.85**	**1%**
3.1 Resource mobilization	14.57	12.77	11.77	10.97	10.97	61.06	1%
3.2: National and County Government ownership	4.78	3.65	4.78	4.78	4.78	22.79	0%
Strategic Pillar 4: Strengthen Leadership, Capacity, Communication, and Collaboration	**510.54**	**507.41**	**517.17**	**517.77**	**517.77**	**2,570.66**	**45%**
4.1 Coordination and collaboration	335.37	335.79	335.79	335.79	335.79	1,678.54	29%
4.2 Capacity development	49.84	45.78	55.55	55.65	55.65	262.47	5%

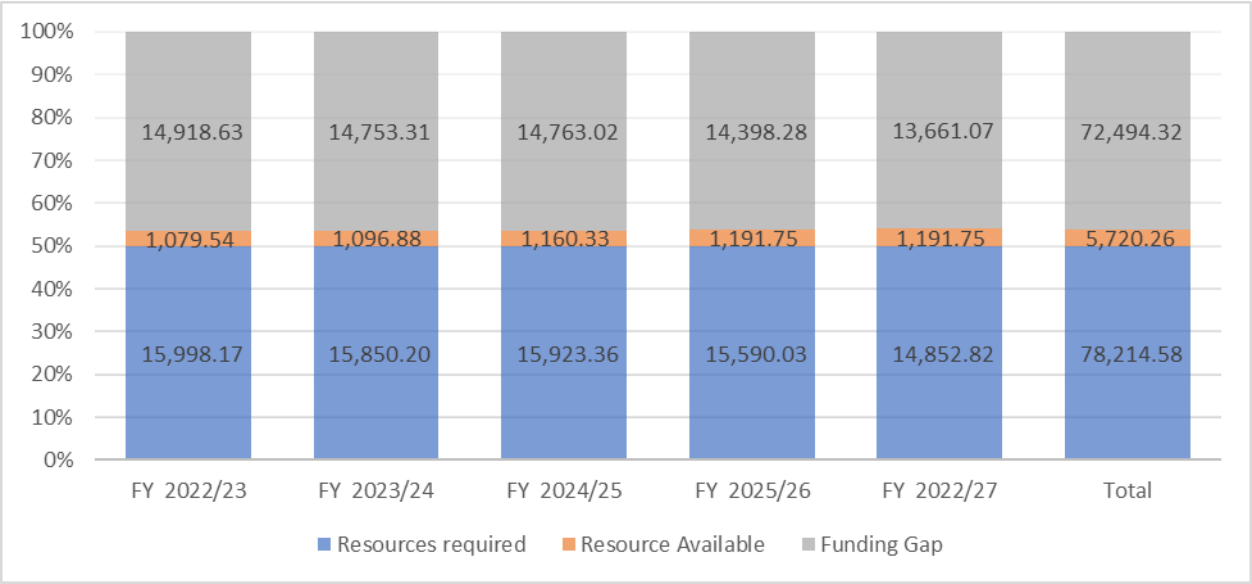
4.3 Results Based Planning and financial management	30.63	30.63	30.63	30.63	30.63	153.15	3%
4.4 Strategic Communication	94.70	95.20	95.20	95.70	95.70	476.50	8%
Grand Total	**1,079.54**	**1,096.88**	**1,160.33**	**1,191.75**	**1,191.75**	**5,720.26**	**100%**

4.6 Financial Gap Analysis (2023-2027)

The difference between the resource requirements and projected resource available/commitments provides a measure of the gap in funding which exists if the master plan is to be fully implemented. The identification of the funding gap enables the estimation of the additional funds that need to be mobilized to support implementation of the priority interventions. In Kenya, the NTD program is over-reliant on external financing from development partners and other stakeholders. The Division of Vector-Borne & Neglected Tropical Diseases conducted a resource mapping assessment to determine the resources available for the implementation of the master plan. The financing gap was estimated by generating the difference between the projected available resources and the cost of implementing the NTD master plan. The results are in Figure 19.

The DVBNTD faces a financing gap of Ksh 72,494.32 million over the 5-year period. The gap is highest in FY 2022/23 at Ksh 14,918.64 million and lowest in FY 2026/27 at Ksh13,661.07 million. The huge financing gap is driven by potentially declining external financing and the increasing burden of neglected tropical diseases.

FIGURE 19: FINANCIAL GAP ANALYSIS FOR THE NTD MASTER PLAN (KSH, MILLIONS)



It is anticipated that the government, partners and donors that are currently supporting the NTD programmes will continue providing their assistance towards achieving the targets for the four pillars and strategic priorities. Additionally, more efforts will be needed to further mobilize resources from within and outside the country to fill the financial gaps to execute some of the identified strategic priorities and initiatives.

4.7 Limitations

There is no resource mapping document that provides projected resources availability and commitment towards NTD funding both domestically and externally. Limitations exist in data availability and the ability to estimate the resource gap for the master plan. Although it is important to note that most of the development partners would consider funding strategic initiatives (activities), efforts need to be made to track resources from partners, government and other stakeholders that was not easily available and accessible. Attempts were made to conduct a resource gap analysis using the existing data.

ANNEXES

ANNEX A: RESOURCE REQUIREMENT BY STRATEGIC PILLARS

Pillars	FY 2022/23	FY 2023/24	FY 2024/25	FY 2025/26	FY 2026/27	Grand Total
Strategic Pillar 1: Accelerate Programmatic Action	12,099,227,986.68	12,052,687,448.08	12,487,404,340.28	10,792,566,114.56	9,968,946,481.08	57,400,832,370.68
Strategic Pillar 2: Intensify Innovative and Cross-cutting Approaches	3,040,788,286.67	3,083,679,903.37	2,999,315,788.98	2,686,591,908.29	2,617,908,444.17	14,428,284,331.48
Strategic Pillar 3: Enhance Resource Mobilization, Advocacy, Health Promotion and Sustainability	2,014,807,130.67	1,811,937,020.98	1,930,281,747.96	1,855,920,987.79	1,950,789,067.86	9,563,735,955.25
Strategic Pillar 4: Strengthen Leadership, Capacity, Communication, and Collaboration	414,028,822.00	395,394,944.41	358,885,480.42	377,950,756.86	427,006,127.47	1,973,266,131.16
Grand Total	**17,568,852,226.01**	**17,343,699,316.83**	**17,775,887,357.64**	**15,713,029,767.50**	**14,964,650,120.58**	**83,366,118,788.56**

ANNEX B: RESOURCE REQUIREMENT BY DISEASE CONDITION

Disease Area	FY 2022/23	FY 2023/24	FY 2024/25	FY 2025/26	FY 2026/27	Grand Total
Arbo Viruses	199,347,280.00	48,377,670.00	17,646,572.00	17,838,323.32	1,854,212.45	285,064,057.77
CE	28,330,500.00	43,563,432.00	31,968,321.36	32,703,592.75	33,455,775.39	170,021,621.51
HAT	574,740,570.00	585,523,840.11	598,990,888.43	612,767,678.87	628,462,551.43	3,000,485,528.84
Leishmaniasis	235,909,607.03	191,379,314.11	130,764,086.40	132,491,987.41	134,259,630.14	824,804,625.09
Leprosy	211,133,800.00	211,465,148.40	201,117,547.80	206,549,412.57	173,130,434.10	1,003,396,342.87
LF	358,281,434.72	346,189,276.33	356,031,504.50	268,070,889.88	370,186,708.66	1,698,759,814.09
Oncho	1,589,089,034.32	1,608,636,897.40	1,805,756,589.49	81,872,502.14	84,152,040.39	5,169,507,063.74
Rabies	930,569,420.00	947,625,687.36	959,695,056.25	980,321,663.07	1,003,142,867.06	4,821,354,693.75
Scabies and other ectoparasites	45,379,000.00	20,602,197.00	21,076,047.53	21,560,796.62	-	108,618,041.16

Snake Bites	121,738,052.00	73,072,583.10	201,195,294.44	87,297,930.09	365,548,938.11	848,852,797.74
STH SCH	6,534,691,988.62	6,677,023,704.36	6,834,052,497.11	6,991,411,874.38	7,152,176,397.49	34,189,356,461.96
Trachoma	1,270,017,300.00	1,299,227,697.90	1,329,109,934.95	1,359,679,463.46	22,576,925.85	5,280,611,322.15
Grand Total	**12,099,227,986.68**	**12,052,687,448.08**	**12,487,404,340.28**	**10,792,566,114.56**	**9,968,946,481.08**	**57,400,832,370.68**

ANNEX C: RESOURCE REQUIREMENT BY THE STRATEGIC PILLAR AND STRATEGIC PRIORITIES

Activity	FY 2022/23	FY 2023/24	FY 2024/25	FY 2025/26	FY 2026/27	Grand Total
Strategic Pillar 1: Accelerate Programmatic Action	**12,099,227,986.68**	**12,052,687,448.08**	**12,487,404,340.28**	**10,792,566,114.56**	**9,968,946,481.08**	**57,400,832,370.68**
1.1. Preventive Chemotherapy	7,495,968,580.62	7,668,375,857.97	7,848,243,700.26	8,028,967,425.20	6,879,705,462.87	37,921,261,026.93
1.2. Case management	2,845,823,982.83	2,596,277,690.08	2,663,393,646.97	2,603,954,883.61	2,862,424,482.12	13,571,874,685.60
1.3. Supply chain Management	18,771,000.00	19,202,733.00	19,644,395.86	20,096,216.96	-	77,714,345.82
1.4. Cross-cutting	93,586,070.00	95,149,301.61	93,918,725.30	97,256,515.07	87,602,579.37	467,513,191.36
1.5. Oncho Vector management	1,522,778,373.52	1,553,628,999.91	1,750,634,692.25	24,305,142.17	24,864,160.44	4,876,211,368.29
1.6. HAT management	2,416,000.00	2,471,568.00	2,528,414.06	2,586,567.59	2,646,058.64	12,648,608.29
1.7. LF post-MDA surveillance	119,883,979.72	117,581,297.50	109,040,765.57	15,399,363.95	111,703,737.64	473,609,144.38
Strategic Pillar 2: Intensify Innovative and Cross-cutting Approaches	**3,040,788,286.67**	**3,083,679,903.37**	**2,999,315,788.98**	**2,686,591,908.29**	**2,617,908,444.17**	**14,428,284,331.48**
2.1. Strengthen M&E, data analytics, knowledge management, operational research and innovation	125,878,638.00	144,115,440.08	97,207,168.50	57,871,567.72	60,994,398.52	486,067,212.81
2.2. Surveillance	2,168,892,362.67	2,227,170,602.01	2,130,694,527.55	1,883,179,505.33	1,778,895,278.46	10,188,832,276.01
2.3. Establish a network of reference laboratories to detect and report quality findings	615,845,806.00	627,964,259.54	642,407,437.51	657,182,808.57	668,530,446.23	3,211,930,757.84
2.4. Integrated Vector Management	130,171,480.00	84,429,601.74	129,006,655.43	88,358,026.68	109,488,320.97	541,454,084.82
Strategic Pillar 3: Enhance Resource Mobilization, Advocacy, Health Promotion and Sustainability	**2,014,807,130.67**	**1,811,937,020.98**	**1,930,281,747.96**	**1,855,920,987.79**	**1,950,789,067.86**	**9,563,735,955.25**
3.1. Resource mobilization	835,031,880.00	784,566,709.74	856,766,480.23	821,071,814.18	896,630,967.79	4,194,067,851.93
3.2. National and County Government NTD Program ownership	93,539,384.00	82,475,062.03	145,178,793.65	74,060,303.28	75,763,690.25	471,017,233.21
3.3. Health promotion	1,086,235,866.67	937,555,735.71	924,819,090.11	957,190,586.53	974,713,365.49	4,880,514,644.52

3.4. Sustainability	-	7,339,513.50	3,517,383.97	3,598,283.80	3,681,044.33	18,136,225.60
Strategic Pillar 4: Strengthen Leadership, Capacity, Communication, and Collaboration	**414,028,822.00**	**395,394,944.41**	**358,885,480.42**	**377,950,756.86**	**427,006,127.47**	**1,973,266,131.16**
4.1. Coordination and collaboration	277,108,000.00	264,875,160.00	270,967,288.68	286,678,621.34	293,272,229.64	1,392,901,299.66
4.2. Capacity development	112,193,822.00	95,887,653.91	55,712,308.30	56,993,691.39	58,304,546.29	379,092,021.88
4.3. Results Based Planning and financial management	19,555,000.00	29,630,683.50	28,695,825.18	30,687,654.52	71,755,973.77	180,325,136.98
4.4. Strategic Communication	5,172,000.00	5,001,447.00	3,510,058.27	3,590,789.61	3,673,377.77	20,947,672.64
Grand Total	**17,568,852,226.01**	**17,343,699,316.83**	**17,775,887,357.64**	**15,713,029,767.50**	**14,964,650,120.58**	**83,366,118,788.56**

ANNEX D: RESOURCE REQUIREMENT BY THE STRATEGIC PILLAR, STRATEGIC PRIORITIES AND ACTIVITIES

Strategic Pillar / Strategic Priority / Strategic Initiative / Activity	FY 2022/23	FY 2023/24	FY 2024/25	FY 2025/26	FY 2026/27	Grand Total
Strategic Pillar 1: Accelerate Programmatic Action	**12,099,227,986.68**	**12,052,687,448.08**	**12,487,404,340.28**	**10,792,566,114.56**	**9,968,946,481.08**	**57,400,832,370.68**
1.1. Preventive Chemotherapy	**7,495,968,580.62**	**7,668,375,857.97**	**7,848,243,700.26**	**8,028,967,425.20**	**6,879,705,462.87**	**37,921,261,026.93**
1.1.1. Conduct Mass drug administration	7,394,972,580.62	7,565,056,949.97	7,742,548,457.38	7,920,841,191.73	6,788,222,585.26	37,411,641,764.96
1.1.2. Pharmacovigilance	100,996,000.00	103,318,908.00	105,695,242.88	108,126,233.47	91,482,877.61	509,619,261.96
1.2. Case management	**2,845,823,982.83**	**2,596,277,690.08**	**2,663,393,646.97**	**2,603,954,883.61**	**2,862,424,482.12**	**13,571,874,685.60**
1.2.1. Capacity building of HCWs and CHVs	71,548,800.00	73,194,422.40	74,877,894.12	76,600,085.68	39,367,569.82	335,588,772.01
1.2.1. Capacity building of healthcare workers	532,997,500.00	536,129,748.00	548,460,732.20	561,075,329.04	573,980,061.61	2,752,643,370.86
1.2.1. Develop and review guidelines for management of NTDs	328,962,455.00	242,068,612.83	247,095,391.83	252,778,585.84	258,592,493.32	1,329,497,538.82
1.2.1. Review guidelines for management of snakebites	5,972,000.00	6,889,393.50	5,930,146.11	6,066,539.47	6,206,069.88	31,064,148.97
1.2.1. Review rabies elimination strategy guidelines	6,763,000.00	6,188,433.90	6,592,400.13	6,476,375.54	6,899,137.92	32,919,347.49
1.2.1. Capacity building of HCWs and CHVs	149,648,000.00	153,051,954.00	156,534,198.94	160,096,535.52	163,740,805.83	783,071,494.29
1.2.2. Clinical diagnosis and case detection	41,746,660.80	39,375,946.00	40,281,592.76	41,208,069.39	42,155,854.99	204,768,123.93
1.2.2. Diagnosis and treatment of NTDs	12,249,000.00	12,530,727.00	12,818,933.72	13,113,769.20	13,415,385.89	64,127,815.81
1.2.2. Prevention and control of rabies	383,581,500.00	403,292,277.30	402,580,345.51	410,660,963.78	420,106,165.94	2,020,221,252.54
1.2.2. Vaccination and rehabilitation	51,356,000.00	52,537,188.00	37,746,207.97	38,614,370.76	39,502,501.28	219,756,268.01
1.2.2. Capacity building of HCWs and CHVs	118,737,000.00	143,631,246.00	215,080,965.63	155,119,648.61	98,967,631.24	731,536,491.48
1.2.3. Data review	23,948,000.00	24,498,804.00	25,062,276.49	25,638,708.85	26,228,399.15	125,376,188.50
1.2.3. Inventory management	12,780,908.00	5,146,618.88	5,264,991.12	5,386,085.91	5,509,965.89	34,088,569.81
1.2.3. Pharmacovigilance	15,023,000.00	3,871,032.00	3,960,065.74	4,051,147.25	4,144,323.63	31,049,568.62
1.2.3. Supply chain management	15,094,000.00	13,983,387.00	12,027,757.80	12,304,396.23	10,204,192.21	63,613,733.23
1.2.3. Capacity building of HCWs and CHVs	158,694,000.00	162,343,962.00	166,077,873.13	169,897,664.21	173,805,310.48	830,818,809.82
1.2.4. Contact management	16,000,000.00	16,368,000.00	16,744,464.00	17,129,586.67	17,523,567.17	83,765,617.84
1.2.4. Diagnosis & Treatment of Arbo viruses	146,237,280.00	9,057,642.00	43,954.22	44,965.17	45,999.36	155,429,840.75
1.2.4. Diagnosis & Treatment of CE	6,767,500.00	9,985,503.00	-	-	-	16,753,003.00
1.2.4. Diagnosis and treatment of Rabies	381,530,920.00	375,801,014.16	384,444,437.49	393,286,659.55	402,332,252.72	1,937,395,283.91
1.2.4. Policy and legal framework	85,596,800.00	87,565,526.40	89,579,533.51	91,639,862.78	93,747,579.62	448,129,302.31

Strategic Pillar / Strategic Priority / Strategic Initiative / Activity	FY 2022/23	FY 2023/24	FY 2024/25	FY 2025/26	FY 2026/27	Grand Total
1.2.4. Public health awareness	113,766,052.00	55,527,621.60	109,425,281.55	58,111,266.31	359,342,868.23	696,173,089.68
1.2.4. Supply chain management	57,219,107.03	55,637,955.61	55,637,955.61	55,637,955.61	55,637,955.61	279,770,929.46
1.2.5 Leprosy ACSM	17,765,000.00	18,173,595.00	18,591,587.69	19,019,194.20	19,456,635.67	93,006,012.56
1.2.5. Diagnosis & Treatment of leishmaniasis	61,323,500.00	62,733,940.50	439,542.18	449,651.65	459,993.64	125,406,627.97
1.2.6. Leprosy Case mapping	29,763,000.00	25,922,820.00	26,519,044.86	27,128,982.89	27,752,949.50	137,086,797.25
1.2.7. Leprosy active case finding	753,000.00	770,319.00	1,576,072.67	2,418,483.52	3,298,811.52	8,816,686.71
1.3. Supply chain Management	**18,771,000.00**	**19,202,733.00**	**19,644,395.86**	**20,096,216.96**	**-**	**77,714,345.82**
1.3.1. Building human capacity in supply chain management at all levels	2,538,000.00	2,596,374.00	2,656,090.60	2,717,180.69	-	10,507,645.29
1.3.2. Supply chain SOPs	5,277,000.00	5,398,371.00	5,522,533.53	5,649,551.80	-	21,847,456.34
1.3.3. Inventory management	9,504,000.00	9,722,592.00	9,946,211.62	10,174,974.48	-	39,347,778.10
1.3.4. Policy and legal framework	1,452,000.00	1,485,396.00	1,519,560.11	1,554,509.99	-	6,011,466.10
1.4. Cross-cutting	**93,586,070.00**	**95,149,301.61**	**93,918,725.30**	**97,256,515.07**	**87,602,579.37**	**467,513,191.36**
1.4.1. Cross- cutting	29,695,000.00	32,594,826.00	31,076,678.66	31,791,442.26	18,634,123.23	143,792,070.15
1.4.1. Dossier Development for Oncho	63,891,070.00	62,554,475.61	62,842,046.65	65,465,072.81	68,968,456.14	323,721,121.20
1.5. Oncho Vector management	**1,522,778,373.52**	**1,553,628,999.91**	**1,750,634,692.25**	**24,305,142.17**	**24,864,160.44**	**4,876,211,368.29**
1.5.1. Establish a national coordination Mechanism for Oncho and support its operations	1,522,778,373.52	1,553,628,999.91	1,750,634,692.25	24,305,142.17	24,864,160.44	4,876,211,368.29
1.6. HAT management	**2,416,000.00**	**2,471,568.00**	**2,528,414.06**	**2,586,567.59**	**2,646,058.64**	**12,648,608.29**
1.6.1. Establish a national coordination Mechanism for HAT and support its operations	2,416,000.00	2,471,568.00	2,528,414.06	2,586,567.59	2,646,058.64	12,648,608.29
1.7. LF post-MDA surveillance	**119,883,979.72**	**117,581,297.50**	**109,040,765.57**	**15,399,363.95**	**111,703,737.64**	**473,609,144.38**
1.2.2. Diagnosis and treatment of NTDs	14,682,324.40	15,020,017.86	3,718,447.73	3,803,972.02	3,891,463.38	41,116,225.39
1.2.3. Pharmacovigilance	6,718,000.00	6,872,514.00	-	-	-	13,590,514.00
1.7.1. Transmission Assessment Survey (TAS)	98,483,655.32	95,688,765.64	105,322,317.84	11,595,391.93	107,812,274.26	418,902,404.99
Strategic Pillar 2: Intensify Innovative and Cross-cutting Approaches	**3,040,788,286.67**	**3,083,679,903.37**	**2,999,315,788.98**	**2,686,591,908.29**	**2,617,908,444.17**	**14,428,284,331.48**
2.1. Strengthen M&E, data analytics, knowledge management, operational research and innovation	**125,878,638.00**	**144,115,440.08**	**97,207,168.50**	**57,871,567.72**	**60,994,398.52**	**486,067,212.81**
2.1.1. Create a data forum /hub hosted by NTD-MOH	10,749,000.00	10,996,227.00	11,249,140.22	11,507,870.45	11,772,551.47	56,274,789.13
2.1.2. Adopt the use of ALMA NTD Scorecard for tracking implementation	16,674,000.00	17,057,502.00	17,449,824.55	17,851,170.51	18,261,747.43	87,294,244.49
2.1.3. Establish integrated data management platforms/systems for NTD program	31,632,100.00	28,911,003.00	7,390,587.80	-	1,791,784.74	69,725,475.54
2.1.4. Intercountry Capacity building on M&E data systems	4,080,000.00	30,648,057.00	33,246,133.27	-	-	67,974,190.27
2.1.5. Implement and adopt innovative approaches for better programming	23,892,000.00	24,441,516.00	1,859,682.03	1,902,454.72	1,946,211.18	54,041,863.93
2.1.6. Develop and promote an integrated NTD M&E framework	18,893,830.00	6,698,194.80	6,852,253.28	7,009,855.11	7,171,081.77	46,625,214.96
2.1.7. Develop operational research frameworks	3,320,000.00	1,708,410.00	1,747,703.43	1,787,900.61	1,829,022.32	10,393,036.36
2.1.8. Strengthen capacity of the M&E team in DVBNTD	16,637,708.00	17,020,375.28	17,411,843.92	17,812,316.33	18,221,999.60	87,104,243.13
2.1.9. End evaluation of the BTS	-	6,634,155.00	-	-	-	6,634,155.00
2.2. Surveillance	**2,168,892,362.67**	**2,227,170,602.01**	**2,130,694,527.55**	**1,883,179,505.33**	**1,778,895,278.46**	**10,188,832,276.01**

Strategic Pillar / Strategic Priority / Strategic Initiative / Activity	FY 2022/23	FY 2023/24	FY 2024/25	FY 2025/26	FY 2026/27	Grand Total
2.2.1. To conduct targeted disease mapping	481,819,500.00	536,962,981.50	532,724,598.90	371,826,049.59	212,258,040.57	2,135,591,170.56
2.2.2. Clinical diagnosis and case detection	1,511,861,500.00	1,516,788,289.50	1,400,951,743.79	1,433,173,633.89	1,466,136,627.47	7,328,911,794.65
2.2.3. To strengthen NTD passive surveillance through KHIS	32,928,096.00	27,863,549.21	28,504,410.84	29,160,012.29	29,830,692.57	148,286,760.91
2.2.4. Guinea worm post certification surveillance	24,576,600.00	25,141,861.80	25,720,124.62	8,313,844.89	8,505,063.32	92,257,494.64
2.2.5. Establish sentinel sites for specific NTDs	117,706,666.67	120,413,920.00	142,793,649.41	40,705,964.66	62,164,854.52	483,785,055.25
2.3. Establish a network of reference laboratories to detect and report quality findings	**615,845,806.00**	**627,964,259.54**	**642,407,437.51**	**657,182,808.57**	**668,530,446.23**	**3,211,930,757.84**
2.3.1. Establish and equip a national NTD reference laboratory	407,411,130.00	414,735,585.99	424,274,504.47	434,032,818.07	444,015,572.89	2,124,469,611.41
2.3.2. Establish and equip regional NTD reference laboratories	24,566,500.00	25,131,529.50	25,709,554.68	26,300,874.44	26,905,794.55	128,614,253.16
2.3.3. Recruit and deploy laboratory professionals	114,692,376.00	117,330,300.65	120,028,897.56	122,789,562.21	125,613,722.14	600,454,858.56
2.3.4. Capacity building - national and regional NTD Laboratory professionals	32,736,800.00	33,489,746.40	34,260,010.57	35,047,990.81	32,086,527.66	167,621,075.44
2.3.5. Laboratory Based Surveillance	36,439,000.00	37,277,097.00	38,134,470.23	39,011,563.05	39,908,829.00	190,770,959.27
2.4. Integrated Vector Management	**130,171,480.00**	**84,429,601.74**	**129,006,655.43**	**88,358,026.68**	**109,488,320.97**	**541,454,084.82**
2.4.1. Establish a national coordination Mechanism for IVM and support its operations	22,885,600.00	2,735,502.00	21,654,359.46	2,862,782.17	22,661,915.15	72,800,158.78
2.4.2. Capacity building for IVM at all levels	72,439,700.00	74,699,153.10	75,810,246.80	78,174,829.99	79,337,621.77	380,461,551.67
2.4.3. Establish IVM structures and scale up implementation of IVM activities at national and county levels.	34,846,180.00	6,994,946.64	31,542,049.17	7,320,414.51	7,488,784.05	88,192,374.37
Strategic Pillar 3: Enhance Resource Mobilization, Advocacy, Health Promotion and Sustainability	**2,014,807,130.67**	**1,811,937,020.98**	**1,930,281,747.96**	**1,855,920,987.79**	**1,950,789,067.86**	**9,563,735,955.25**
3.1. Resource mobilization	**835,031,880.00**	**784,566,709.74**	**856,766,480.23**	**821,071,814.18**	**896,630,967.79**	**4,194,067,851.93**
3.1.1. Increased government budget allocation	731,659,650.00	744,843,384.45	761,974,782.29	779,500,202.29	797,428,706.94	3,815,406,725.97
3.1.2. Mobilize private sector resources	5,879,000.00	6,014,217.00	6,152,543.99	6,294,052.50	6,438,815.71	30,778,629.20
3.1.3. Leverage on donor support	16,904,000.00	17,292,792.00	17,690,526.22	18,097,408.32	18,513,648.71	88,498,375.25
3.1.4. Increase efficiency in the use of resources towards NTDs	80,589,230.00	16,416,316.29	70,948,627.73	17,180,151.07	74,249,796.43	259,384,121.52
3.2. National and County Government NTD Program ownership	**93,539,384.00**	**82,475,062.03**	**145,178,793.65**	**74,060,303.28**	**75,763,690.25**	**471,017,233.21**
3.2.1. Advocacy (Media, Government and Partners)	3,052,500.00	61,054,174.50	55,681,098.71	56,961,763.98	58,271,884.55	235,021,421.74
3.2.2. Integration of NTDs	90,486,884.00	21,420,887.53	89,497,694.94	17,098,539.30	17,491,805.70	235,995,811.47
3.3. Health promotion	**1,086,235,866.67**	**937,555,735.71**	**924,819,090.11**	**957,190,586.53**	**974,713,365.49**	**4,880,514,644.52**
3.3.1. Expand NTD related WASH interventions	14,940,410.00	16,695,134.94	5,752,246.65	10,762,883.31	12,883,260.87	61,033,935.76
3.3.2. Mainstream SBC interventions	1,071,295,456.67	920,860,600.77	919,066,843.47	946,427,703.22	961,830,104.63	4,819,480,708.75
3.4. Sustainability	**-**	**7,339,513.50**	**3,517,383.97**	**3,598,283.80**	**3,681,044.33**	**18,136,225.60**
3.4.1 developing and implementing transition plans (refer to Kenya Health sector Transition Roadmap-2022-2030)	-	7,339,513.50	3,517,383.97	3,598,283.80	3,681,044.33	18,136,225.60
Strategic Pillar 4: Strengthen Leadership, Capacity, Communication, and Collaboration	**414,028,822.00**	**395,394,944.41**	**358,885,480.42**	**377,950,756.86**	**427,006,127.47**	**1,973,266,131.16**

Strategic Pillar / Strategic Priority / Strategic Initiative / Activity		FY 2022/23	FY 2023/24	FY 2024/25	FY 2025/26	FY 2026/27	Grand Total
4.1. Coordination and collaboration		**277,108,000.00**	**264,875,160.00**	**270,967,288.68**	**286,678,621.34**	**293,272,229.64**	**1,392,901,299.66**
	4.1.1. Establish and operationalize national and county-level NTD committees	248,832,000.00	254,555,136.00	260,409,904.13	266,399,331.92	272,526,516.56	1,302,722,888.61
	4.1.2. Enhance multi-disciplinary collaboration	754,000.00	771,342.00	789,082.87	807,231.77	825,798.10	3,947,454.74
	4.1.3. Cross border initiatives	27,522,000.00	9,548,682.00	9,768,301.69	19,472,057.65	19,919,914.98	86,230,956.31
4.2. Capacity development		**112,193,822.00**	**95,887,653.91**	**55,712,308.30**	**56,993,691.39**	**58,304,546.29**	**379,092,021.88**
	4.2.1. Infrastructure development	19,443,500.00	42,096,450.00	683,906.70	699,636.56	715,728.20	63,639,221.45
	4.2.2. Human capacity development	26,204,272.00	16,781,570.26	17,167,546.37	17,562,399.94	17,966,335.14	95,682,123.70
	4.2.3. Knowledge sharing	36,177,550.00	37,009,633.65	37,860,855.22	38,731,654.89	39,622,482.96	189,402,176.72
	4.2.4. Reinforce Logistics (warehouse, Commodities and vehicles)	30,368,500.00	-	-	-	-	30,368,500.00
4.3. Results Based Planning and financial management		**19,555,000.00**	**29,630,683.50**	**28,695,825.18**	**30,687,654.52**	**71,755,973.77**	**180,325,136.98**
	4.3.1. Accountability and efficient use of financial resources	4,703,000.00	2,857,750.50	2,608,996.80	2,669,003.72	2,730,390.81	15,569,141.83
	4.3.2. Effective planning and management	14,852,000.00	26,772,933.00	26,086,828.38	28,018,650.80	69,025,582.97	164,755,995.15
4.4. Strategic Communication		**5,172,000.00**	**5,001,447.00**	**3,510,058.27**	**3,590,789.61**	**3,673,377.77**	**20,947,672.64**
	4.4.1. Targeted dissemination of information	166,000.00	-	-	-	-	166,000.00
	4.4.2. Branding NTDs	5,006,000.00	5,001,447.00	3,510,058.27	3,590,789.61	3,673,377.77	20,781,672.64
Grand Total		**17,568,852,226.01**	**17,343,699,316.83**	**17,775,887,357.64**	**15,713,029,767.50**	**14,964,650,120.58**	**83,366,118,788.56**

ANNEX E: LIST OF CONTRIBUTORS IN DEVELOPMENT OF THE NTD MASTER PLAN

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