South Sudan
National Master Plan for Neglected Tropical Diseases
2016 - 2020

Contents

ACRONYMS&ABBREVIATIONS

ALB	Albendazole
AFRO	Africa Region of the World Health Organization
APOC	African Programme for Onchocerciasis Control
CDD	Community Drug Distributor
CDTI	Community Directed Treatment with Ivermectin
CHANGES	Community Health and Nutrition, Gender and Education Support
CHDs	Child Health Days
CM	Case Management (NTDs)
CMCHWs	Community Maternal Child Health Workers
CHW	Community Health Worker
ComDT	Community Directed Treatment
DALYs	Disability Adjusted Life Years
DEC	Diethyl carbamazine Citrate, an anti-filarial drug
DFMO	DL - alpha-difluoro-methyl-ornithine (Eflornithrine), a trypanocidal drug
DHT	District Health Team
EIA	Environmental Impact Assessment
GDP	Gross Domestic Product
GNP	Gross National Product
GPELF	Global Programme for Elimination of Lymphatic Filariasis
GWE	Guinea Worm Eradication
HAT	Human African Trypanosomiasis
HIV	Human Immunodeficiency Virus
HSSP	Health Sector Strategic Plan
IDSR	Integrated Diseases Surveillance and Response
IEC	Information Education and Communication

IRS	Indoor Residual Spraying
ITNs	Insecticide Treated Nets
IU	Implementation Unit
LF	Lymphatic Filariasis
LFE	Lymphatic Filariasis Elimination
MADP	Mectizan Albendazole Donation Programme
MBD	Mebendazole
MDA	Mass Drug Administration
Mectizan	An anti-filarial drug donated by Merck & Co. Inc.
NGDO	Non Governmental Development Organization
NGO	Non-governmental Organization
NTD/NTDs	Neglected Tropical Disease or Diseases
OCP	Onchocerciasis Control Programmes elsewhere in Africa
PATTEC	Pan African Tsetse and Trypanosomiasis Eradication Campaign
PCT	Preventive Chemotherapy (NTDs)
PELF	Programme for Elimination of Lymphatic Filariasis
PHC	Primary Health Care
PZQ	Pranziquantel
SAC	School age children
SAEs	Severe Adverse Events
SSTH	Schistosomiasis and Soil Transmitted Helminthiasis
STH	Soil Transmitted Helminthiasis
TDR	Special Programme for Tropical Diseases Research
UNDP	United Nations Development Programme
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
WFP	World Food Programme
WHA	World Health Assembly
WHO	World Health Organization of the United Nations

List of contributors

FOREWORD

South Sudan has a high burden of Neglected Tropical Diseases (NTDs). The NTDs of the highest public health importance are categorized into two: those amenable to preventive chemotherapy (PC-NTDs) and those that are controlled through case management (CM-NTDs). The PC--NTDs prevalent in South Sudan include: lymphatic filariasis (filarial elephantiasis), schistosomiasis (bilharzia), soil-transmitted helminthes (STH),onchocerciasis (River Blindness), Loasis and Trachoma; while the CM-NTDs are: Human African Trypanosomiasis (HAT) commonly known as Sleeping Sickness, Leishmaniasis (Kala-azar), Buruli ulcer (bud), Rabies, Mycetomas, Nodding Syndrome, and Guinea Worm and Hydatid Cyst Diseases. Evidence shows that, these NTDs lead to reduced productivity and hence affect the socio-economic development of the country.

The major focus of the South Sudan National NTD Master Plan (2016 – 2020) therefore, is to scale up an integrated NTDs control efforts with the eventual aim of achieving prevention, control, elimination and/or eradication of these diseases in line with the World Health Organization roadmap for elimination of NTDs from Africa. This however, cannot be achieved without strong partnerships with other line ministries including education, water and sanitation, agriculture, among others, the development partners, civil society organisations, and the affected communities. I therefore, appreciate any support given as much as possible in this noble cause.

The Ministry of Health is committed to the prevention, control and elimination of NTDs in South Sudan, with the support of all stakeholders. I commend and appreciate the good work done by all the stakeholders to finalize the document.

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Hon. Dr. Riek Gai Kok
Minister of Health,
The Republic of South Sudan

ACKNOWLEDGMENT:

The Republic of South Sudan National Master Plan, 2016-2020 for Neglected Tropical Diseases Programme is a result of an intensive and rigorous planning workshop spearheaded by the Ministry of Health and partners. The Ministry of Health is particularly grateful to the World Health Organization Country Office in Juba and WHO-AFRO for the technical and financial support that enabled the review and development of this document. The NTD Master Plan will guide programme implementation for the next 5 years (2016-2020). It is hoped that this document will provide the basis for an accelerated progress towards the achievement of the intended goals of eliminating NTDs in South Sudan by 2020.

It is also worth-mentinong that, the Master Plan is developed and launched on the basis of the Ten(10) States, Seventy (79) counties and based on the 2008 popualtion census. However given the historic administrative re-division of the states to 28 as per the Presidential Order 36/2015, the operationalisation of the plan through the Annual Plans will take into consideration the new administrative structures. We do recognize the fundamental inputs of all stakeholders who participated in this review and writing of this Master Plan.It may not be possible to mention everyone by name who contributed to this plan, but nonetheless the MoH recognizes, appreciates and offers thanks to all contributors some of whom are listed below:

Special thanks go to our WHO/AFRO consultants Mr. Chukwu Okorongo and Ms. Julia Ochienghs for their tireless efforts and guidance. The contribution from Dr. Godfry for the desk review of the situation analysis for NTDs and update of the NTD Situation Analyisis document (2015). We would also want to acknowledge the support that has been and continues to be provided by our partners; The Carter Center, Sightsavers, Malaria Consortium, Christian Blind Mission, Malteser International, and the Pharmaceutical companies.

Finally, gratitude is extended to the entire staff of the directorate of Preventive Health Services through the leadership of the Director General Dr. John Pasquale Rumunu, the Director for Guinea Worn Eradication and Preventive Chemotherapy NTDs Mr. Makoy Samuel Yibi Logora and members of the NTD Secretariat for their support to a successful development of NTD Master Plan (2016-2020) and in seeing through its implementation.

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EXECUTIVE SUMMARY

South Sudan has a high burden of neglected tropical diseases (NTDs). These affect mainly the rural poor communities with limited access to healthcare, inadequate information and means of prevention and control measures. The ntds of the highest public health importance are categorized into two: those amenable to preventive chemotherapy (PC-NTDs) and those that are controlled through case management (CM-NTDs). the PC-NTDs prevalent in South Sudan include: lymphatic filariasis (filarial elephantiasis), schistosomiasis (bilharzia), soil-transmitted helminthes (STH),onchocerciasis (river blindness), Loaisis and trachoma; while the cm-ntds are: human african trypanosomiasis (hat) commonly called sleeping sickness, leishmaniasis (kala-azar),buruli ulcer disease (bud), rabies, mycetomas, nodding syndrome, rabbies and guinea worm. These NTDs lead to reduced productivity and hence affect the socio-economic development of the country. It is possible to prevent, control and/or eliminate NTDs using effective interventions as stipulated in the national health policy and strategy.

South Sudan Government is a signatory to the international treaties and conventions for the elimination of targeted diseases and is committed to control and eliminate targeted NTDs by the year 2020. With a vision to have South Sudan free of NTDs, this Master Plan is the basis for harmonization of implementation, monitoring and evaluation of programme performance by all stakeholders. Currently, with support from various partners, there are on-going NTD control and elimination efforts in the country using mass treatment in communities and/or schools, health education and limited morbidity management. The Ministry of Health intends to strengthen collaboration with other line Ministries including Education, Water and Mineral Resources, Agriculture, Animal Industry and Fisheries. There is also collaboration with other relevant departments within the ministry e.g. Planning, Finance and budgeting, National Disease Control, Primary Health Care and Pharmaceuticals.

So far significant achievements have been realized with varying degrees of success. South Sudan is on tract to completely interrupt Guinea worm disease by 2015. Also, Mapping of all PCT NTDs is planned to be completed in December of 2015. In addition to the previous interventions, extra support to scale up morbidity management for targeted NTDS has been obtained.

Therefore the Master plan has been reviewed to reflect the current situation with a focus to elimination and control by 2020. This Master Plan is divided into three parts, the situation analysis, NTD strategic agenda and operational framework. This strategic plan has an accompanying budget and will set the agenda for NTD Programme in South Sudan for 2016 to 2020

PART 1: SITUATION ANALYSIS

1.1 COUNTRY PROFILE

The Republic of South Sudan is a landlocked country in East-central Africa that gained its independence from Sudan in 2011, measuring 644,329 square Kilometres and population density of about 13 persons per square kilometer. It lies in the Sahel belt and 90% of which lies within the Nile Basin, with the vast swamp region of the Sudd, formed by the Nile. South Sudan borders the Republic of the Sudan to the north, Ethiopia to the east, Kenya to the southeast, Uganda to the South, the Democratic Republic of the Congo to the Southwest, and the Central African Republic to the West.

The annual rainsfalls in South Sudan is between the months of March to November. The annual maximum temperature ranges from 30-38 degrees Celsius. Some of the mountainous terrains in the Southern Eastern parts present barriers to health services as flat terrains abate flooding in the northern part. Prolonged dry spells are common affecting crop and animal production leading to food insufficiency and malnutrition. The climatic and environmental conditions make South Sudan vulnerable to food shortages, epidemics, tropical diseases and a wide range of Neglected Tropical Diseases. The climatic diversity is reflected on the patterns of disease distribution in the county e.g. Malaria.

Figure 1: Map of South Sudan showing its borders with neighboring countries.

1.1.1 ADMINISTRATIVE, DEMOGRAPHIC AND COMMUNITY STRUCTURES

1.1.1.1 Administrative structure

The country has national administration boundaries divided into ten states and two Administrative Areas, 85 counties and ove4 514 payams1. Payams are made up of Bomas – a collection of villages, considered as the smallest administrative division. Their number changes constantly as new settlements are created by the large numbers of returning refugees and by internally displaced persons (IDPs). These Administrative structures provide a frame work for service delivery which can be used to address NTDs programme activities. Decentralization promotes bottom-up approach including planning for NTDs service delivery.

Figure 2: Map of South Sudan showing states

[1] *While the number of states in the country is more stable, the number of counties and payams has changed several times. There is also a creation a new adminidtrative entity equivalent to a State (i.e Greater Pibor Administrative Area)*

1.1.1.2 Demographic Profile

According to the 2008 census, the population of South Sudan was 8,260,490 (48 percent male and 52 percent female) and life expectancy at birth is 59 years. The annual population growth rate is estimated at an average of 3 percent (NSCSE, 2004). With a growth rate of 3%, the population is estimated at 9,995,192 in 2015. The population is the youngest in the world, with an estimated 21% of persons aged less than 5 years old and 49% below the age of 15. Only 1.6% of the population are above the age of 65.

The proportion of children aged 0 – 6 months is xxx and that of children 6 – 59 months is xx. The proportion of children aged 5 – 14 years is xx while that of people above 15 years is xxx . The net primary school enrolment rate in 20 xx was xxx (update this to 2015).

The vastness of South Sudan coupled with low population density in rural area and the state of communication networks presents huge challenge for universal coverage with health service delivery. Health Infrastructure development based on population will require people to travel about 20Km on average to reach a PHCU. On the other hand health facilities based on administrative levels overstretches health resources at least in the medium term thus challenging equitable access to basic health services.

South Sudan Population pyramid 2013

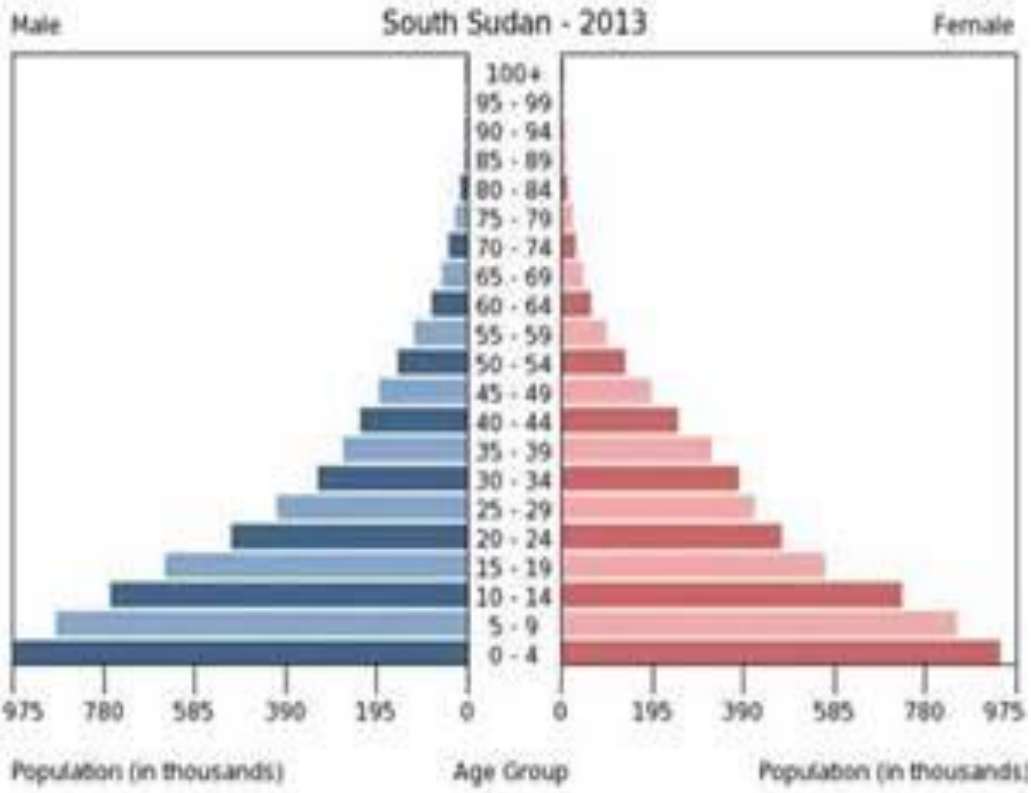


Table 1: Number of Counties, Population breakdown, Number of Health facilities and Schools by State

State	Counties	No. of (Boma)	Total Population	Under-fives (Pre-school)	5–14 years (School age)	No. of primary schools 2013	No. of peripheral health facilities		
							Referral	County Hospitals	Primary Health facilities (PHCC/U)
Central Equatoria	6	4,040	1,554,187	310,837	435,172	515	1	2	225
Eastern Equatoria	8	3,480	1,122,365	224,473	314,262	298	1	4	176
Jonglei	11	3,911	1,759,071	351,814	492,540	430	1	4	121
Lakes	8	1,626	1,075,135	215,027	301,038	317	1	3	98
NBeG	5	4,618	1,368,984	273,797	383,316	475	1	0	118
Unity	9	1,822	1,088,603	217,721	304,809	284	1	1	51
Upper Nile	13	2,614	1,338,727	267,745	374,844	418	0	0	100
Warrap	7	2,916	1,402,432	280,486	392,681	548	1	4	103
WBeG	3	1,790	526,666	105,333	147,466	186	0	1	84
Western Equatoria	10	2,550	784,492	156,898	219,658	335	1	3	194
Totals	**80**	**29,367**	**12,020,661**	**2,404,132**	**3,365,785**	**3806**	**8**	**22**	**1270**

1.1.2 Geographical Characteristics

South Sudan lies in the Sahel belt. It has diverse climatic, vegetative and topographic features as traversed from the South to North and from West to the East. It has land area of 640,000 Sq. Km and 90% of which lies within the Nile Basin, with large swamps and prone to flooding that disrupts transport systems and displace communities. It receives rains between the months of March to Novemberin a year. The annual maximum temperature ranges from 30-38 degrees Celsius. Some of the mountainous terrains in the Southern Eastern parts present barriers to health services as flat terrains abate flooding in the northern part. Prolonged dry spells are common affecting crop and animal production leading to food insufficiency and malnutrition.

The climatic and environmental conditions make South Sudan vulnerable to food shortages, epidemics, tropical diseases and a wide range of Neglected Tropical Diseases. The climatic diversity is reflected on the patterns of disease distribution in the county e.g. Malaria. The natural environment presents natural barriers to access of health services for the rural communities.

1.1.3 Socio-economic status and indicators

The longest civil war in African history in South Sudan has destroyed most of the infrastructure, prevented market development and inhibited economic activity. South Sudan thus has some of the lowest socio-economic indicators in the world, high unemployment, poor education levels, and post-conflict trauma, which affects the overall health of its population. About 71% of the 650,000 square kilometers of South Sudan are suitable for agriculture with another 24% being forest. Accordingly, agriculture is the main source of income for more than 85% of the population. Over 90% of the populations live on less than US $1 per day and the poverty rate lies between 40% and 50%. Life expectancy at birth is 42 years, while infant and under-five mortality is high at 150 deaths/1000 live births and 250 deaths/1,000 live births, respectively. Under-five mortality makes up 57% of the total deaths.

1.1.4 Community Structure

The health system in South Sudan is weak to effectively deliver health promotion services to the communities who badly need them. Most of the time of trained health workers (with clinical orientation) is taken up by curative services leaving little time for preventive and promotion services in the communities. This could partly explain the low indices for preventive interventions; e.g. low Pit latrine coverage, (7%), Low immunisation coverage DPT3 (33%), frequent outbreaks of epidemics and vaccine preventable diseases (Measles,

cholera, etc), High Maternal (2,054/100,000 LB) and infant Mortality (102/1000LB) rates, low Health Facility based deliveries (11.6% in 2012), poor health seeking behaviour (OPD Utilisation rate 0.38 in2012) among others, related to the low associated risk perception.

Communities are not passive consumers of health services only. Communities perform various roles in the health sector; as governors of the health system, service providers as community resource persons, and health service financiers. More importantly communities have served as intermediaries to deliver health services where the formal health system cannot effectively reach them.

This may take the form of mobilising communities for immunisation indeed any other service, mass drug administration for Neglected tropical diseases, supporting patients on chronic care (ART, TB treatment) Community based disease surveillance, Case identification and referral during epidemics etc.

Various attempts have been made to engage communities in health service delivery in South Sudan from the times of liberation movement through CPA till now. Since then, the community resource persons have continued to serve the communities on ad hoc basis without them being formalised or structured to fit as integral part of the health system.

Village Health Committees are provided for in the Basic Health and Nutrition Package for South Sudan, however, no practical steps have been taken to actualise the structure. There is lack of clarity in the structure, composition, roles and responsibilities, benefits, harmonisation with the existing community initiatives and commitment of resources for selection, training, and operations of the structures.

The current attempts have largely been partner led or diseases specific, duplicative, fragmented and existing in different names and different incentive packages. It is not uncommon to find an individual doing different tasks under different names within the health sector resulting in resource wastage in the absence of a harmonised structure.
The establishment of a formal structure of the health system at the Boma level dedicated to deliver an integrated package of health Promotion and disease prevention services to individuals, families and communities using community resource persons to reduce morbidity and mortality due to communicable diseases including NTDs and other preventable health conditions is mandatory for any health program implementation at community level.

1.1.5 Education structure and status

In South Sudan, the official age is 3 to 5 for grades baby, middle, and graduate in pre-primary school; 6 to 13 for grade P1-P8, in primary school; and 14 to 17 for grades S1-S4 in secondary school.

The number of pre-primary schools increased from 447 in 2011 to 652 in 2013. The state that saw the greatest increase in number of pre-primary schools was Central Equatoria, where the number increased from 186 in 2011 to 246 in 2013.The percentage of pre-primary schools by ownership type stayed relatively constant over the three years. Government and government-aided pre-primary schools account for about 40% of schools. The number of pupils at the pre-primary level increased from 55,857 in 2011 to 77,313 in 2013. The state that saw the largest increase in pre-primary pupils is Northern Bahr el Ghazal, where pupils increased from 1,470 to 5,294 over the three years. The gender disparity in enrolments stayed consistent over the three years, at roughly 52% males and 48% females.

According to the EMIS 2013 report, Primary school coverage of 98.2% comprised of 3,766 schools.The number of primary schools increased from 3,447 to 3,766 2011 to 2013. The percentage of primary schools owned by the government stayed constant, at roughly 75%. It is notable that in Unity state, the number of primary schools decreased over the three year period, from 316 to 284. In all other states the number of schools increased or stayed the same.

The number of pupils at the primary level decreased slightly over the three year period, which is concerning in a country with low enrolment rates such as South Sudan, and a sign that the school system is struggling to attract more children into school. States that saw particularly large decreases in pupil numbers over the three year period include Jonglei, Upper Nile and Unity states, each of which saw decreases of over 25,000 pupils. The gender disparity in primary enrolments stayed constant over the three year period, as over 60% of pupils are males. More needs to be done to enrol girls in school.

The literacy rate among young women is 13.4%. It is observed, on a positive note, that literacy levels in younger age groups are increasing in the age group below 20 years compared to their older counter parts between 20 and 24.Future health outcomes like MMR, IMR and numbers of health workers are dependent on the school enrolment of today. Collaborative synergies are required between ministry of health and education to increase school enrolment and implement school health program tailored to the common health challenges of south Sudan. School setting provides an excellent opportunity for MDA for management of NTDs.

1.1.5 Transportation and Communication

Transport and transportation infrastructure is still largely non-existent in many areas. Hence, transport and communication in South Sudan is difficult and expensive as most of the movement from one state to another is best by air owing to the poor state of roads, floods and security challenges. This picture only helps to highlight that even in an

administrative unit like a county the same challenges exist given the vastness of some of the administrative units.

Juba - capital of Central Equatoria State and seat of the government of the Republic of South Sudan (RSS) - boasts a range of mobile phone service providers. They include the popular Gemtel, Vivacel, Zain and MTN. However, the use of satellite phone services of Thuraya is far more extensive. It has a wider reach within the South due to satellite technology and is handy in many areas where there is no telecommunication set up.

Accordingly, NTD programmes need extensive logistical requirement from the national to states, counties, Payams, Bomas and Villages where people leave to be successful.

Road Distances of major Cities of South Sudan

Road Distances	Aweil	Bentiu	Bor	Juba	Faraksika	Kajo Keji	Kapoeta	Kwajok	Malakal	Malualkon	Maridi	Mundri	Nimule	Rumbek	Tambura	Tonj	Torit	Warrap	Wau	Yambio	Yei	Yirol
Aweil																						
Bentiu	320																					
Bor	940	620>																				
Juba	790	720	203																			
Faraksika	762	625	462	259																		
Kajo Keji	1,090	866	336	470	311																	
Kapoeta	1,067	997	480	277	537	411																
Kwajok	178	305	861	581	608	852	946															
Malakal	586	288	391=	594=	853^	727^	359=															
Malualkon	44	276	896	746	718	1,046	1,023	222	823	524*												
Maridi	732	655+	492	289	30	358	567	570+	1,242	883*	775+											
Mundri	629	549-	386	183	78	653	460	524	1,136	777*	673	108										
Nimule	970	900>	383	180	439	173	319	753	1,133	774	926	469	361									
Rumbek	365	310	610	407	317	877	684	286	957	598*	409	345	239	587								
Tambura	400	626	823	621	362	690	898	328	1,573	1,214-	444+	331	409	801	431							
Tonj	230	435	735	532	442	665	809	168	1,082	723*	274	470+	346	712	125	360+						
Torit	923	853	336	133	392	204	145	714	1,086	727	879	422	316	159	540	754	665					
Warrap	232*	627	927	724	556	857	1,001	160	1,076	717	275	662+	556	904	315	352	192	857				
Wau	140	373	835	632	542	766	906	68	984	625	184	570+	464	812	225	260	100	765	92			
Yambio	588	799*	636	433	174	502	711	516+	1,432	1,073+	632+	144	250	613	489	188	548	566	539	448		
Yei	943+	806*	357	154	181	147	431	789+	1,107	748>	899+	211	259	334	498	543	623+	287	747+	723+	355	
Yirol	475^	420^	500^	297^	427^	767^	574^	396^	1,067^	708^	519^	455^	349^	477^	110^	541^	235^	430^	427^	355^	599^	451^

1.2 HEALTH SYSTEM SITUATION ANALYSIS

1.2.1 Health System Goals and Priorities

South Sudan health vision is a healthy and productive population living a dignified life. The countries mission is to improve health status of the people by effective delivery of the Basic Package of Health and Nutrition Services (BPHNS); through provision of health promotion; disease, injury and disability prevention; treatment and rehabilitation services, with full participation of the people. As such the Health Policy Goal aims to strengthened national health system with partnerships that overcomes barriers to effective delivery of the BPHNS; and efficiently responds to quality and safety concerns of communities while protecting the people from impoverishment and social risk.

The top ten prioritiy diseases in South Sudan include: Malaria, Diarrheal, RTI/Pneumonia, STI, Typhoid, Malnutrition, Tuberclosis, HIV/AIDs, Eye Infection and Brucellosis

1.2.2 Analysis of the Overall Health System

1.2.2.1 Service delivery:

There are 1332 functional health facilities in South Sudan: 53 Hospitals, 341 Primary Health Care Centers (PHCC) and 938 Primary Health Care Units (PHCU). The health system in South Sudan is decentralized to States, Counties, Payams, Bomas and at the community level. Each level has specific role to play, the national ministry of health sets policies, strategic plans, mobilizes resources, sets standards and guidelines, assures quality through support supervision, and carries operational research. The States translate policies, strategic plans into annual plans; provide support supervision while Counties implement primary health care activities through the networks of health facilities in the Payams and Bomas.

Some of the challenges facing the service health delivery include unequitable distribution of health facilities located in undeserving areas; construction without lay out plans with minimal guidance on quality of medical buildings

The needs of pastoral communities who seasonally move away from existing health facilities have remained inadequately addressed with fixed health facilities worsened by the absence of a community health system anchored on the communities themselves. They miss both curative and community based health services such as preventive chemotherapy for NTDs.

1.2.2.2 Health workforce:

Health worker to Population ration of 23 per 10,000 is considered the threshold for human resources for health crisis. Although this ratio for South Sudan is about 22 per 10,000 population (26,122:12,000,000), the country has a critical shortage of qualified health workers; the estimated doctor–population ratio is 0.15 per 10 000 population; midwife/nurse–population ratio is 0.2 per 10000[2]. The staffing in county health system is about 10-20%[3] against the establishments of the health facilities. The numbers and staff skills mix in post are insufficient to deliver the Basic Package of Health and Nutrition Services as most of the staffs in post are unqualified. It is important to note that the positions in the Payam health department and county health department best suited for the delivery of community level interventions against NTDs indeed any other are largely vacant weakening the community arm of the health system.

Failure to attract qualified staff to some states, limited stock of qualified staff in the labour market resulting from limited production by training schools, poor terms of service and unfavourable work environment further compound the recruitment challenge.Consequently most qualified health staff distribution is skewed to urban centres, some States, and tertiary institutions. PHCUs and a large number of PHCCs are managed by community health workers although the training of Community Health Workers (CHW) and Community Maternal Child Health Workers (CMCHW) has been stopped. This move may exacerbate the human resources for health crisis.

Training of health professionals at pre-service, in-service and task shifting has been undertaken by ministry of health to boost numbers and skills in response to human resources for health crisis.

1.2.2.3 Health information:

Health management information provides the strategic information that guides decision making. It should provide information for monitoring the health policy, through strategic plans and annual work plans. Appropriate indicators for data sets to be collected, reported, collated and analysed should be chosen to achieve the above objective.

Health Management Information Systems in use include; monthly HMIS, Weekly Integrated Disease Surveillance, community based surveillance, vertical programs reporting systems,

[2] *South Sudan, Ministry of Health, Health Sector Development Plan 2012–2016.*
[3] *South Sudan, Ministry of Health, Health Facilities Survey 2013*

Early Warning Alert and Response system for the emergency response in the IDPs, and sentinel surveillance systems.

AFP, Guinea worms, TB, HIV, Immunisation, and Cholera maintain parallel surveillance systems. Little information on health inputs and processes is collected and reported; for example health resources and number of outreach activities carried out.

The Health Management Information System is fragmented with parallel reporting system e.g. Vaccination data is send to Directorate of PHC, Weekly Disease Surveillance is sent to Directorate of Preventive Health Services, and Monthly HMIS to the Directorate of Policy Planning, Budget and Research. HIV, TB and Guinea worm data are reported to the respective programs. Completeness and timeliness of the integrated disease surveillance data based on 1,332 functional health units is 38% and 27% respectively[4]. The performance of the surveillance system has been affected by the ongoing security situation in some parts of the country.HMIS completeness at the ministry of health has seen steady improvements from 50% in 2011 to 70% in 2013. The quality of the data is low. Few hospitals send reports to MoH, while other vertical reporting systems shunt off the state ministry of health.

Disease specific community based surveillance system only exists for Guinea worm, but other community level health activities of health promotion and disease prevention nature do not have a formal reporting system.The reporting system is constrained by inadequate human resource capacity (numbers and skills) and technologies to generate, analyse, disseminate and use health information.

1.2.2.4 Medical products:

The Central Medical Store supplies public health facilities with medicines and health commodities using the push system in three to six months' delivery cycles which often exceed the scheduled delivery dates. Under the push system of supply, inappropriate medicines frequently get supplied to health facilities.

The medicines availability to patients and the stock status are affected by frequent and prolonged stock outs which is attributed to: inadequate allocation of funds; delayed and incomplete release of funds for medicines; lack of a functional Logistics Management Information Systems to inform quantification of needs resulting into poor procurement planning; inadequate storage spaces at all levels; challenging distribution system of medicines; and irrational use of medicines.

[4] MoH 2014; IDSR reporting performance from 1st -39th week 2014 (Analysis)

Some donation of medicines and health supplies to health facilities are not in line with the essential drugs list of South Sudan. Parallel and multiple medicines logistics systems by disease programmes and partners, fragments the national medicines logistics systems, resulting into poor estimation of national needs in material and financial terms. Owing to the ongoing emergency situation in the country, health development partners created the Medicines emergency Fund to help government respond to the crisis. This mechanism pulls financial resources to purchase medicines and handle the logistics to the health facilities. These funding mechanisms target curative health services in clinical settings. It doesn't include pharmaceutical product for preventive chemotherapy for NTD control.

1.2.2.5 Pharmacovigilance system

The Food and Drug Control Authority (FDCA) has recently been formed to regulate the quality of drugs. Some of the weakness in the system include poor regulation of the pharmaceuticals sector in the country which gives rise to substandard, counterfeit pharmaceutical products in the market. Secondly, there is no system for destruction of expired drugs is in place. Lastly, the professional council that regulates the profession and practice of pharmacy is not established.The essential medicines policy, essential medicines list, as well as clinical guidelines need to be updated

1.2.2.6 Health financing:

The sources of financing for the health sector include government budget allocated through the Ministry of Finance and Economic Planning, as approved by the Council of Ministers.

Health budget is about 4% of the national budget. Donor/ Partner funding through Develop ment assistance for health (DAH) constitutes a significant revenue source, contributing about 60%, of the planned health expenditure especially at primary health care level. Donor funding is channeled off budget, through partners mainly for recurrent expenditure, with little attention to health infrastructure development. There is also *out of pocket* payment, incurre d by some patients in a number of health facilities. Most hospitals introduced user fees as a coping mechanism against inadequate funding. Additional expenses are incurred by patient s when medicines are out of stock without necessarily getting into financial transaction with the health facility staff.

Despite the constitutional provision of free Primary Health Care, financing without regulation could be catastrophic and impoverishing to a population where 51% already live below a dollar; a real threat to the objective of universal coverage with the BPHNS.

The provision of NTD control activities have always been at no cost to the communities.NTD interventions with partner funding have been targeted in selected states and counties. NTD preventive chemotherapy or case management interventions are public goods with wide externalities. It is also note worthy that there are no prepayments or insurance schemes to support cost sharing or private care in health facilities.Individuals would most likely be less interested to purchase insurance cover for it if such a service existed.

In relation to fund allocation, it is noticed that Funds are allocated on equal basis by level of care to state and county hospitals. Sixty percent (60%) of transfers to County Health Departments (CHD) are allocated equally while 40% is based on population size. A more equitable resource allocation formula that considers levels of functionality, size, and population is being explored. Operationalization of State and County funds transfer monitoring mechanisms as well as linkages between planning and budgeting remain a challenge. The allocation of funds to states and counties though inadequate, lacks guidance on the allocation to specific programmes areas such as NTD control. Future planning guideline will need to provide for all program areas in the strategic plan.

The capacities for proper planning and use of funds at local level are generally inadequate. Integration between the different departments of county governments is limited. Insufficient awareness of resources being transferred to counties among the local communities and their representatives to allow them play a proper oversight role, coupled with inadequate buy-in by County Executives obscures transparent use of resources. This is an opportunity to make the case for NTDs; not only for resource allocation but advocacy for community ownership.

1.2.2.7 Leadership and Governance:

The National health policy 2015-2025 and the Health Sector Strategic Plan 2015-2019 provides for communicable diseases control, expanded in the NTD strategic intervention and main activities. These provisions are indicative of the government commitment to eliminate NTDs.

The top management positions in the MoH are filled, but mid-level management positions are generally vacant. There are insufficient numbers of skilled human resources to manage Hospitals, County health departments, State and national MoH to plan, budget, implement and account for the resources.
The technical and administrative capacity to develop a coordination framework, to implement existing policies needs to be further strengthened. Ministry requires resources for coordination costs, necessary technical assistance to provide guidance.The need for technical assistance to the ministry of health to support NTD program is crucial to ensure

timely planning, logistics management, and supervision of implementation, compilation of technical reports and financial reports and accountability.

State and county structures in the MoH and CHD vary from one state to another following the last restructuring exercise. About 10 Directors General, in national ministry of health report directly to the Under Secretary and though in directly 10 Directors General in the State Ministries of health, and 3Teaching Hospitals, and about 4 Executive Directors of commissions, corporations, report directly to the office of undersecretary.

The health professional councils exist to register health professionals, regulate practice and develop the profession by developing curricula, checking the quality of professional training. Even though NTDs do not feature among the top 10 priority diseases, existing conditions within the current health system are supportive of plans to scale up PCT and CM-IDM in the country

1.2.2.8 Inter-sectorial Collaboration

The Health Sector has defined a clear mechanism for bringing together health sector partners, to ensure coordinated implementation. A good working relationship continues to exist with the MOH, other government ministries and the communities.

Table 2: Other line Ministries involved in health and their roles

No.	Health related sector	Role of health related sector
1.	Ministry of Finance and Economic Planning	- Mobilization of resources
		- Rational allocation of resources to different sectors according to government priorities.
2	Ministry of Electricity, Dams, Irrigation and Water Resources.	- Mapping availability of water sources for all health facilities.
		- Development of water sources (drilling bore holes, provision of piped water in urban areas, protection of springs, water for production – valley dams, rain water harvesting)
		- Provision of sanitation services in rural growth centers &urban areas and communal toilets.
		- Control and enforce sustainable use of the environment (EIA, avoid pollution, ensure sustainable use of wetlands)
		- Support communities to plant trees (a forestation)
3.	Ministry of Agriculture	- Production of food – (both plant and animal sources of food)
		- Preservation and storage of food items (food security)

4.	Ministry of Animal Resource and Fisheries	Control of zoonotic diseases: rabies control, HAT-vector control through Pan African Tsetse and Trypanosomiasis Eradication Campaign (PATTEC), avian influenza prevention programme -Enhancement of food and nutrition security
5.	Ministry of Gender, SocialWelfare and Religious Affairs	- Community mobilization for health promotion
		- Mainstreaming gender in plans and activities of all sectors including engendering the budget
		- Advocacy and prevention of gender based violence
		- Develop policies for social protection of the vulnerable groups
6.	Ministry of Housing, Physical Planning and Environment	- Setting and enforcing standards for buildings
7.	Ministry of Transport and Roads	- Construction and maintenance of roads for accessing health facilities to facilitate access and referral of patients
8.	Ministry of Telecommunication and Postal Services	Establishment of communication network to facilitate communication (e-governance, telemedicine, telephone, radio call)
9	Ministry of Environment and Wildlif Conservation	-Control and enforce sustainable use of the environment (EIA and avoid pollution). - Control reservoirs of zoonotic diseases
10.	Ministry of Education, Science and Technology	- Education of the population to read, write and interpret information for healthy life styles, e.g. education of the women is very critical for improving maternal and child health.
		- School Health Education Programmes covering among others NTDs like schistosomiasis, STH, LF, trachoma and river blindness.
		- MDA in schools and institutions
		- Training of health workers
		- Research and Development
11.	Ministry of Labour, Public Service and Human Resource Development	- Maintenance of payroll of civil servants (health workers inclusive)
		- Provide hard-to-reach allowances
		- Ensure entry on to the payroll of new recruits
12.	Ministry of information and broadcasting	- social mobilization and sensitizing campaigns at all levels
		- raising awareness e,g MDA
		- Broadcast for advocacy

1.3 NTD SITUATION ANALYSIS

1.3.1 Epidemiology and burden of disease

South Sudan is affected by a high burden of Neglected Tropical Diseases, most of which are readily preventable and/or treatable. The ones that have been reported in South Sudan include the following: *Visceral leishmaniasis (VL, also called kala-azar), Human African Trypanosomiasis, Trachoma, Soil-transmitted helminth infections (STH: hookworm, ascariasis and trichuriasis), Lymphatic filariasis (LF), Onchocerciasis, loiasis (Western Equatoria State) Schistosomiasis (Schistosoma haematobium and S. mansoni), Dracunculiasis (guinea worm), Leprosy, Buruli ulcer, Nodding disease, Mycetoma and Rabies*

Health data collected by the MoH such as hospital admissions and population based surveys illustrated the burden of NTDs across the country. However, because of a weak health surveillance infrastructure and the fact that populations affected are poor and isolated, these data are likely to be a grossly underestimate. All the preventive chemotherapy NTDs (PC-NTDs) require mapping and these are: *Trachoma, Soil-transmitted helminth infections (STH: hookworm, ascariasis and trichuriasis), Lymphatic filariasis (LF), Onchocerciasis and Schistosomiasis (Schistosoma haematobium and S. mansoni)*.

1.3.1.1 Trachoma

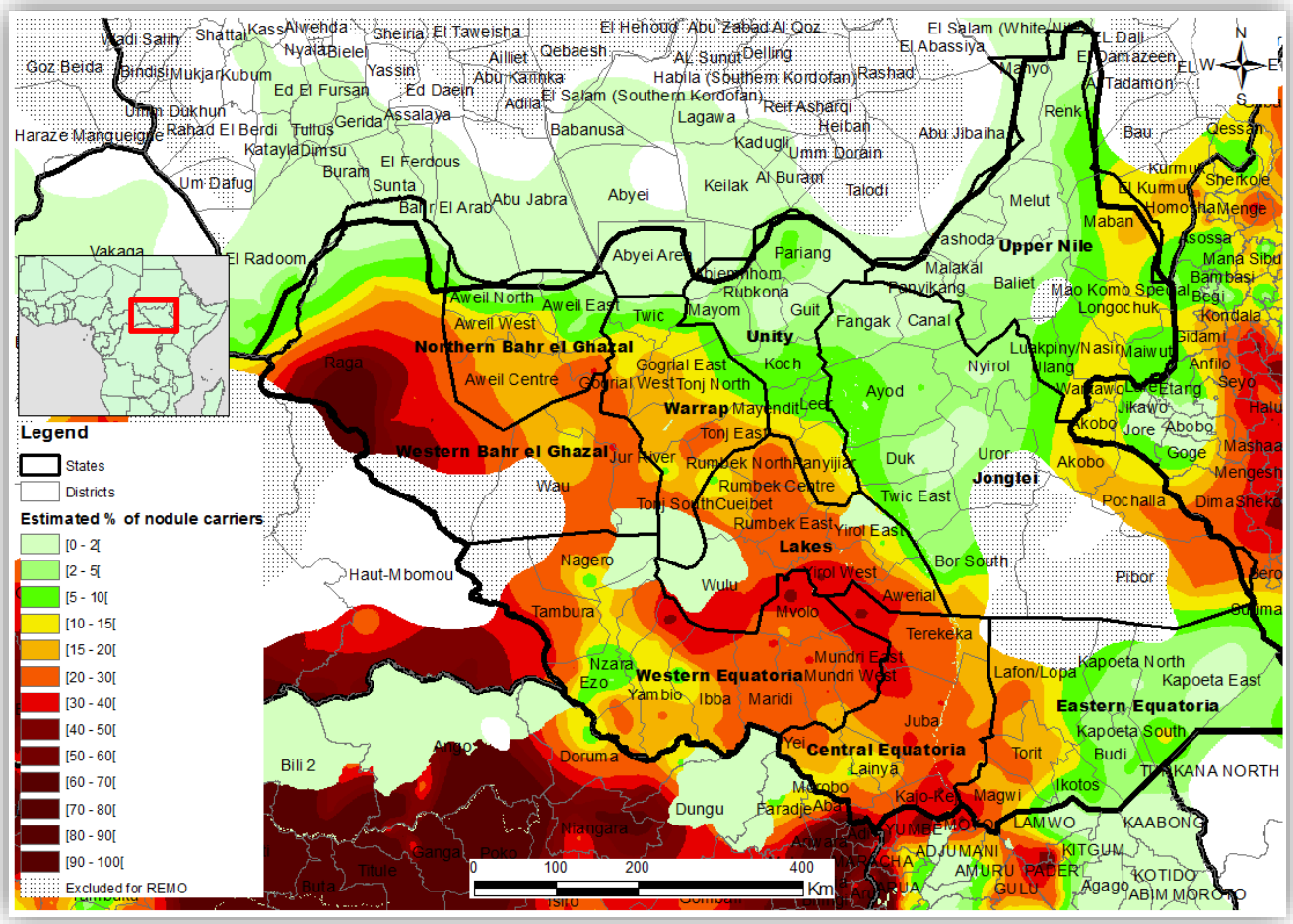
Trachoma is the leading infectious cause of blindness, but data on the distribution and burden of the disease in South Sudan continues to be limited. Three of the surveys conducted over the last decades (Salim et al. 1975, Tizazu & Mburu 1983, Mahmoud et al. 1994) have been of limited use for guiding current prevention of blindness programmes (Ngondi et al. 2005). Unpublished, population-based trachoma surveys conducted by the FMoH (Khartoum) in 1999 found a high prevalence of trachoma in South Sudan. The Carter Centre (TCC) has since supported further prevalence surveys in Eastern, Western and Central Equatoria States, Northern Bahr El Ghazal, Jonglei State, Unity and Upper Nile State (Amann 2001, Ngondi et al. 2005, King 2007). In all locations with available survey data the average prevalence of active trachoma (TF in children aged 1-9) was 47% (range 15%-87%), which is well above the 10% threshold recommended for control interventions. Surveys conducted in 2005 in the district of Mankien found that 4% of people aged 5 years and above were blind. This is more than twice the level that would be expected, given what is known about the prevalence of blindness in other parts of rural Africa.

Based on the surveys conducted in early 2000, selected SAFE strategy interventions were implemented in states that have higher rates of TF and TT including Unity, Jonglei, Upper Nile, and Eastern Equatoria between 2007 – 2015.

1.3.1.2 Onchocerciasis [River Blindness]

Onchocerciasis is endemic in many parts of South Sudan. In 2003, the distribution of onchocerciasis was estimated using the Rapid Epidemiological Mapping of Onchocerciasis (REMO) method; leading to the classification of communities into three categories: priority areas requiring CDTI; areas not requiring treatment; and possible endemic areas that need further investigation (figure 10). A major concern in the Western Equatoria zone is the co-endemicity of Loa loa in specific areas, which can precipitate serious adverse events (SAEs) in those who are given ivermectin.

Maps 2 below shows the results of REMO conducted in 2002-2004 and the endemicity of onchocerciasis in the 10 states.



Map 2: Results of Rapid Epidemiological Mapping of Onchocerciasis (REMO)

The main endemic foci are located in Western Bahr el-Ghazal, Western Equatoria, Central Equatoria and Lakes states. There are also endemic foci in North Bahr el Ghazal, Warrap, East Equatoria, Jonglei and Upper Nile states. All foci surveyed in Unity state showed prevalence below 20%. With the focus now shifting from control to elimination, Unity state is now eligible for mass treatment with ivermectin.

Community Directed Treatment with Ivermectin (CDTI) activities were initiated in 2004 following the REMO. In June 2011, APOC in collaboration with the Ministry of Health conducted sustainability evaluations of 3 out of 5 CDTI projects. These were East Bahr el Ghazal – now renamed Lakes; Eastern Equatoria and Western Equatoria and the SSOTF headquarter/coordinating office. The results of the findings were that none of the projects were moving towards sustainability and that CDTI activities for onchocerciasis control needed to be re-launched in all the projects in South Sudan.

1.3.1.3 Lymphatic Filariasis (LF)

Information and data on LF in the ten states of South Sudan is more scarce. Anecdotal information indicates that the disease may be endemic in all of the 10 states. The existing data indicate that LF is hyper endemic in four states (Upper Nile, Western Equatoria, Central Equatoria and parts of East Equatoria). Questionnaire results show that clinical manifestations occur in Jonglei, Lakes and Warrap. No information is as yet available from the remaining three states (Northern Bahr el Ghazal, Western Bahr el Ghazal and Unity).

1.3.1.4 Soil Transmitted Helminths (STHs)

Data collated by UNICEF from health partners (NGOs, etc.) operating in the South Sudan during the war consistently indicated that 8-10% of all outpatient visits were for treatment of intestinal worms. Population-based estimates of STH infection prevalence in South Sudan are limited, however. Data collected by the Federal MoH (Khartoum) in the 1990s show that STH were prevalent in the South Sudan, especially in Central and Eastern Equatoria. A survey conducted at a large number of sites throughout Sudan in 1994 analysed 2489 faecal samples. This found 53 infections with soil-transmitted helminths (STH) 50 of which were from Central Equatoria State in South Sudan.

The conclusion of the FMoH from these limited surveys is that in Central Equatoria and Eastern Equatoria States, the cumulative prevalence (prevalence of infection with at least one STH) ranged form 10% to 35% and the most widespread STH appeared to be hookworm. This conclusion is consistent with the prevalence of STH predicted using a GIS approach which clearly shows that within Sudan the southern states are the worst affected.

In 2010, the Ministry of Health- Republic of South Sudan with support from the Malaria consortium conducted an integrated mapping for Schistosomiasis, Soil transmistted helminths, and Lymphatic filariasis covering the three states of Unity, Central Equatoria and Eastern Equatoria State. The payam was used at the implementation unit (IU) for the mapping for SCH and STH while the county is used as the intervention unit for lymphatic filariasis. The results of the survey show that STH is endemic throughout Central Equatoria and in the western counties of Eastern Equatoria State. In northern Bahr Al Ghazal, a survey in 2009 shows that STH endemicity is limited to hookworm, where two payams are affected, hence recommended for annual albendazole or mebendazole mass treatment.

1.3.1.5 Schistosomiasis

A comprehensive review of schistosomiasis in Sudan was published in 1987 (WHO 1987) using historical data to depict the distribution of schistosomiasis throughout the country. This indicates that south of the 9th degree latitude *S. mansoni* is very common whereas the

largest endemic area of *S. haematobium* is to be found between the 9th and 16th degree latitudes. This includes Unity and Upper Nile States of South Sudan. Hospital data from 1949 indicated a prevalence of *S. mansoni* of 44.3% in the Eastern, Central and Western Equatoria as well as Jonglei state, while prevalence in Bahr el Ghazal was 1-5%.

From 2002 to 2004 the WHO South Sudan office carried out 3 surveys, all of which were consistent with the findings of the historical data. In 2002, 73% and 70% of 200 school-aged children in Nyal (Unity State) were found to be infected with *S. haematobium* or *S. mansoni*, respectively. During the same year, 52.5% of 200 school-aged children in Lui (Western Equatoria) were found to be infected with *S. mansoni*, whereas none were infected with *S. haematobium*.

In the 2010 survey conducted by the MoH with support from Malaria Consortium, both S. Mansoni and haematobium are endemic throughout Unity and in some foci in Central Equatoria and Eastern Equatoria States. In a similar survey conducted jointly by the MoH and malaria consortium in northern Bahr Al Ghazal state a year earlier (2009), S. haematobium, was found to be endemic and mainly in areas along the Loll River.

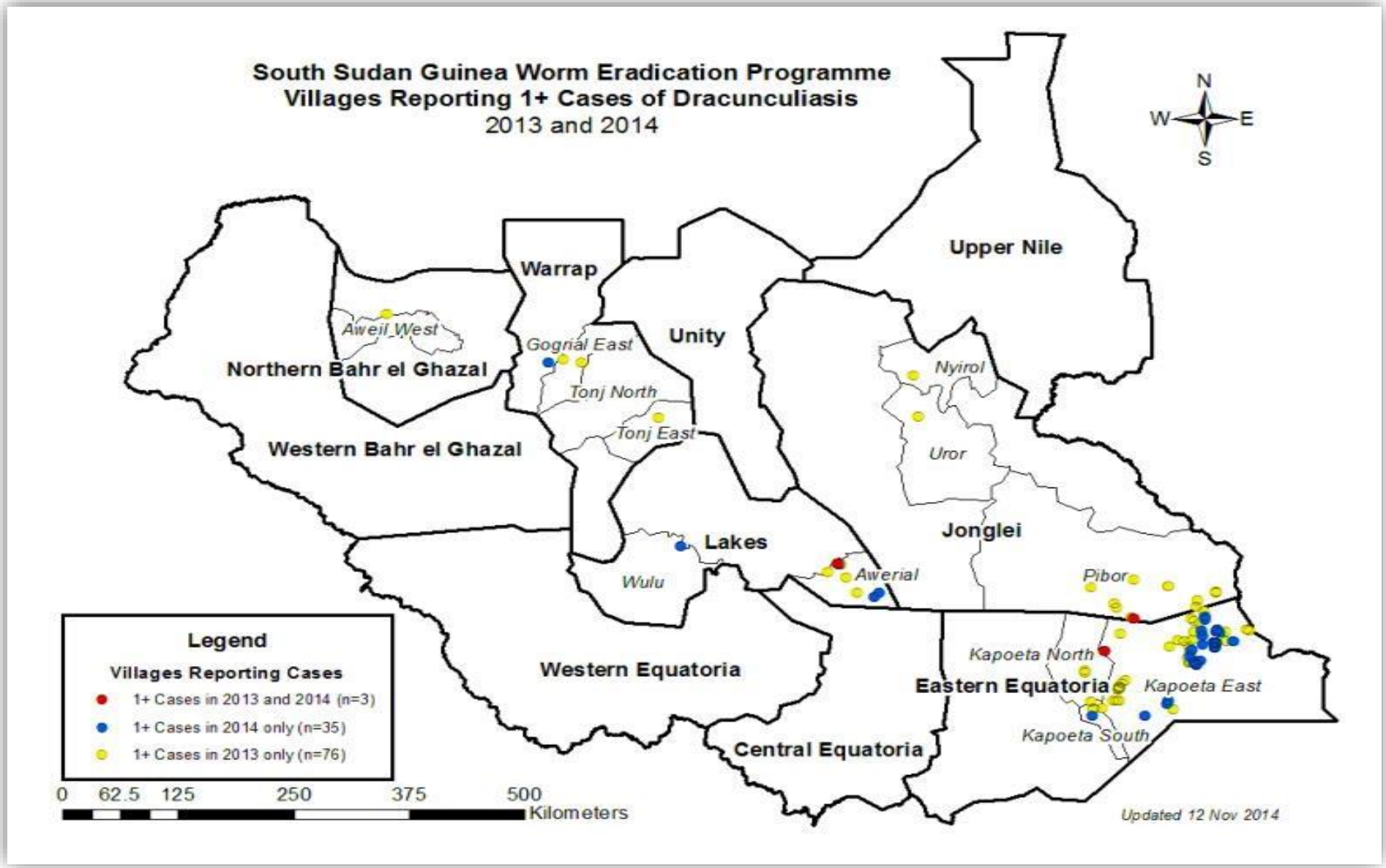
1.3.1.6 Dracunculiasis (Guinea Worm)

Dracunculiasis is caused by the largest of all parasitic filarial worms affecting man known as *Dracunculus medinensis*. Infection is acquired through drinking water contaminated infective disease larvae. The larvae penetrate the stomach, grow, mate and the female migrate through the body to the skin; eventually busting it and releasing myriads of larvae. The larvae need to be ingested by predatory copepod (water flea) to develop into the infective form within about 2 weeks.

Migration of the worm in the victim's subcutaneous tissues causes pain, especially when it occurs or dies in a joint. Emerging worm provokes painful blister accompanied by fever, nausea and vomiting possibly symptoms of an allergic reaction. Worm extraction may take about one-month during which its track may become secondarily infected and associated with severe immune reaction. Female worms sometimes burst in the tissues, resulting in a pus-filled abscess and severe cellulites.

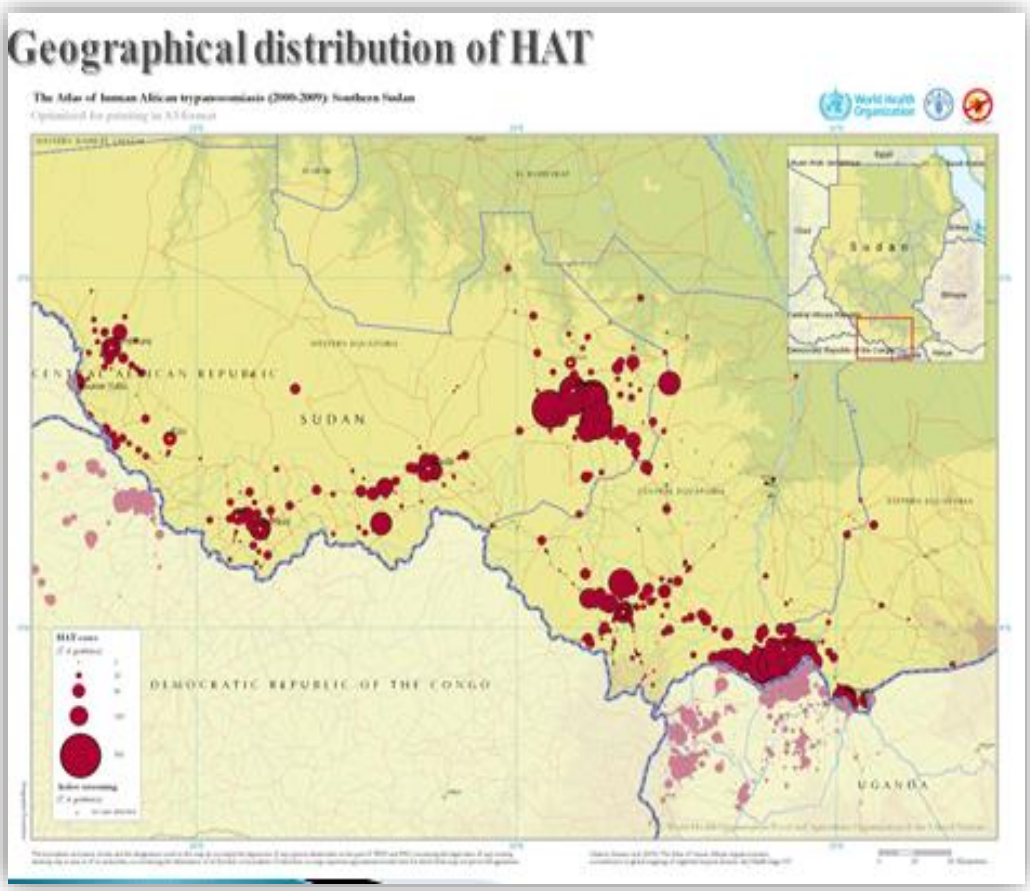
Active case finding and their management, health education, supply of safe water and measures to reduce copepod and contaminations of water by infected persons. Dracunculiasis was endemic in eight of the ten states; Western Equatoria and Unity being spared. In 2006 there were 3,310 endemic villages that reported cases of the disease.
Of the total cases reported in 2006 approximately 65% were reported from all the Kapoeta Counties of East Equatoria State, the major foci of disease. In 2015, only 3 confirmed cases of GWD were reported accounting for 93 % reduction compared to 2014.

Figure 5:


South Sudan Guinea Worm Eradication Programme
Villages Reporting 1+ Cases of Dracunculiasis
2013 and 2014
N
W
E
S
Upper Nile
Warrap
Unity
Northern Bahr el Ghazal
Western Bahr el Ghazal
Aweil West
Gogrial East
Tonj North
Tonj East
Nyirol
Uror
Jonglei
Lakes
Wulu
Awerial
Pibor
Western Equatoria
Central Equatoria
Eastern Equatoria
Kapoeta North
Kapoeta East
Kapoeta South
Legend
Villages Reporting Cases
1+ Cases in 2013 and 2014 (n=3)
1+ Cases in 2014 only (n=35)
1+ Cases in 2013 only (n=76)
0 62.5 125 250 375 500
Kilometers
Updated 12 Nov 2014

1.3.1.7 Human African Trypanosomiasis [sleeping sickness]

WHO classifies South Sudan as HAT epidemic, along with Uganda and the Democratic Republic of Congo (DRC) (WHO 2001). Foci of *T. brucei gambiense* occur in a belt bordering the Central African Republic (CAR), DRC and Uganda (Figure 6). Western Equatoria is the most endemic state, followed by Central Equatoria. Historically, cases of *T. b. rhodesiense* were anecdotally reported in Eastern Equatoria and Jonglei; however, no recent evidence can confirm this. The number of people at risk of HAT is estimated at 1-2 million, but reliable data are not available (Moore & Richer 2001).



Large epidemics of HAT have occurred periodically in South Sudan: outbreaks occur, large-scale control reduces number of cases, the programme either then scales down or collapses, and disease resurgence occurs. In the 1970s, for example, the Belgian-Sudanese trypanosomiasis treatment and control initiative successfully reduced the number of cases until political instability and insecurity caused the programme to withdraw (Moore & Richer 2001). By 1997, HAT had returned to prevalence rates as high as 19% in south-western communities bordering DRC, which remains an important source of infection for South Sudan (Berrang Ford 2007).

With another epidemic in full force, treatment and control programmes were re-initiated in the mid-1990s by a number of NGOs:

- International Medical Corps (IMC) and CARE established screening and treatment facilities, combined with vector control, in Tambura and Ezo and later in Yambio in Western Equatoria from 1995
- MSF (Dutch section for the first year, then the French section) ran programmes in Ibba, Maridi and Kotobi in Western Equatoria from 1995 (Balasegaram et al. 2006).
- MSF (Swiss section) in Kajo-Kegi County (Kiri Hospital) from June 2000
- Malteser implemented a Sleeping Sickness Program covering Yei, Ibba and Morobo Counties in March 2002 till May 2009
- Merlin established a programme in Nimule, Magwi County, Eastern Equatoria, in 2005

1.3.1.8 Leprosy [Hansen Disease]

Treatment of leprosy patients in South Sudan began in 1960 in greater Bahr el Ghazal. Catholic missionaries established two leprosaria at Kuelkwac (near Wullu in Lakes State) and at Pagarau (Yirol County, Lakes State). With the expulsion of all religious organizations from the country in 1964 both of these facilities were destroyed. During the 1990s, leprosy control activities were re-initiated by a group of faith-based and other NGOs, with technical and commodity (drugs) support from WHO. As a result, the number of treatment centres increased from 12 to 29 between 2003 and 2005. At present, the majority of leprosy patients are being treated by the Catholic missionaries through the Diocese of Rumbek and by the Comboni Sisters working in the Tambura/Yambio Diocese, supported by the German Leprosy Relief Association (GLRA). The latter is a mobile outreach programme with trained Sudanese health workers visiting sites in Tambura, Yambio and Maridi Counties to diagnose new cases and distribute MDT. The programme operated by the Diocese of Rumbek and implemented by various religious congregations supports seven facilities for care and treatment of leprosy patients.

Although the exact prevalence of leprosy in South Sudan remains unclear, the available data indicate a declining trend. From 2003 to 2006 prevalence decreased from 3.9 to 2.3 cases per 10,000. Over the same duration, new cases detected also declined from 29.8 to 14.1 per 100,000.

In 2006 a total of 1,060 new cases were reported. This decline in the prevalence and in the number of new cases reported can be attributed mainly to the improved case-management skills of health workers and to the updating of registers to remove those individuals that were cured, had defaulted or died. However, despite considerable improvements, MDT coverage remains low, at about 46%.

1.3.1.9 Visceral leishmaniasis

The leishmaniases are a group of diseases caused by over 17 species of the protozoan Leishmania parasite. Infection is transmitted by the bites of phlebotomine sandflies and manifestations as visceral leishmaniasis (VL), Cutaneous (CL), mucosal (ML). Visceral leishmaniasis is the most severe form of the disease and is characterized by irregular bouts of fever, substantial weight loss, swelling of the spleen and liver, and pancytopenia. Left untreated, it is usually fatal within2 years. The cutaneous form is the most common. It usually causes ulcers on theface, arms and legsulcers; up to 200 lesions that heal spontaneously, they cause seriousdisability and leave severe and permanently disfiguring scars that may become socially stigmatized. ML is the most disfiguring form that involves the mucousmembranes of the upper respiratory tract, causing gross mutilation as it destroys the soft tissues of the nose, mouth and throat; leading to discrimination and prejudice. Coinfection with *Leishmania* and HIV is an emerging problem.

Visceral leishmaniasis is endemic in four states of South Sudan: Upper Nile, Jonglei, Unity and Eastern Equatoria States. Diagnosis of VL is confirmed by demonstration of the parasite, serological techniques and Polymerase chain reaction [PCR]. Intracellular leishmania can be identified from aspirates of the spleen, bone marrow, lymph node or liver.

The preferred first-line treatment for visceral diseaseis liposomal amphotericin B, is highly effective, has almost no side-effects. The second-line medicine, such as amphotericin B or pentamidine in case relapse is however more toxic. Other effective medicines are miltefosine and paromomycin.

Control of is through strengthening active case-detection of both cutaneous andvisceral disease, ability to diagnose these at peripheralhealth centres where patients are usually treated based only on clinical symptoms. Secondly by controlling vectors and reservoirs by periodic indoor spraying ofinsecticides use of bednets impregnated with long-lasting insecticide.

1.3.1.10 Loiasis [African eye worm]

In the past, a number of studies on *L. loa* were conducted in Sudan (Woodman & Bokhari 1941, Kirk 1953). To date it seems that the geographical distribution based on these data still applies. At the time, loiasis was found to occur between latitude 4º to 6º North, extending westwards into French Equatorial Africa and southwards into the Belgian Congo. It did not occur east of longitude 30º East and was not reported in Uganda. In South Sudan, this region corresponds to the present day Western Equatoria.

In the 1950s about 20% of the population was infected with *L. loa*. The limited data collected over the last years indicate that prevalence remains high (APOC 2005). This is of major concern to the onchocerciasis control programme, because parts of Western Equatoria are co-endemic for loiasis and onchocerciasis, meaning that specific treatment procedures should be followed to avoid adverse reactions resulting from MDA with ivermectin.

To assess the risk and provide recommendations, experts from the African Programme for Onchocerciasis Control (APOC) implemented a RAPLOA assessment in the Equatoria States of South Sudan in April 2005 (APOC 2005). Unfortunately, logistical and security constraints prevented the team from accessing many of areas that were suspected to be at risk. Further prevalence data are therefore needed to develop a map indicating high-risk areas (*L. loa* prevalence >20%) (Diggle *et al.* 2007), so that a modified ivermectin distribution protocol can be implemented in these.Areas co-endemic for *L. loa* and *O. volvulus* needs to be clearly identified to allow targeted implementation of a modified onchocerciasis treatment protocol and formulation of an intervention strategy for areas where LF and *L. loa* are co-endemic (see Mectizan Expert Committee & Technical Consultative Committee, 2004) and recent update [Available from: http://www.mectizan.org/loarecs.asp]

1.3.1.11 Buruli Ulcer

During the 1990s, when the International Committee of the Red Cross (ICRC) reported four cases of Buruli ulcer from Upper Nile and Bahr el Gazal. Before then the occurrence of the disease in South Sudan was unknown.

From 2000 through 2006 an estimated 16,000 internally displaced people (IDPs) from the area around Raga were displaced to Mabia IDP camp in Tambura County. In July 2002, a suspected Buruli ulcer epidemic in the camp was reported by CARE International to WHO. From 25th to 26th July 2002, WHO, the Kenya Medical Research Institute (KEMRI) and CARE International carried out field investigation and collected specimens. Laboratory analysis and confirmation were conducted by KEMRI and the Institute of Tropical Medicine, Antwerp, Belgium. Though tests carried out at KEMRI showed that the 17 patients tested were infected with *Mycobacterium* species, *M. ulcerans* was only detected in two of the patients, using polymerase chain reaction (PCR). This was the first confirmed existence of Buruli ulcer in South Sudan. After the notification various agencies responded, including WHO, CARE International, Medair, Church Ecumenical Action in Sudan (CEAS) and the Catholic Church. A health facility was established in the camp to deal exclusively with the Buruli ulcer cases. From July 2002 to February 2004, a total of 1077 suspected Buruli ulcer cases were diagnosed in Mabia. At Yambio hospital 5 cases, all from Nzara were diagnosed and treated.

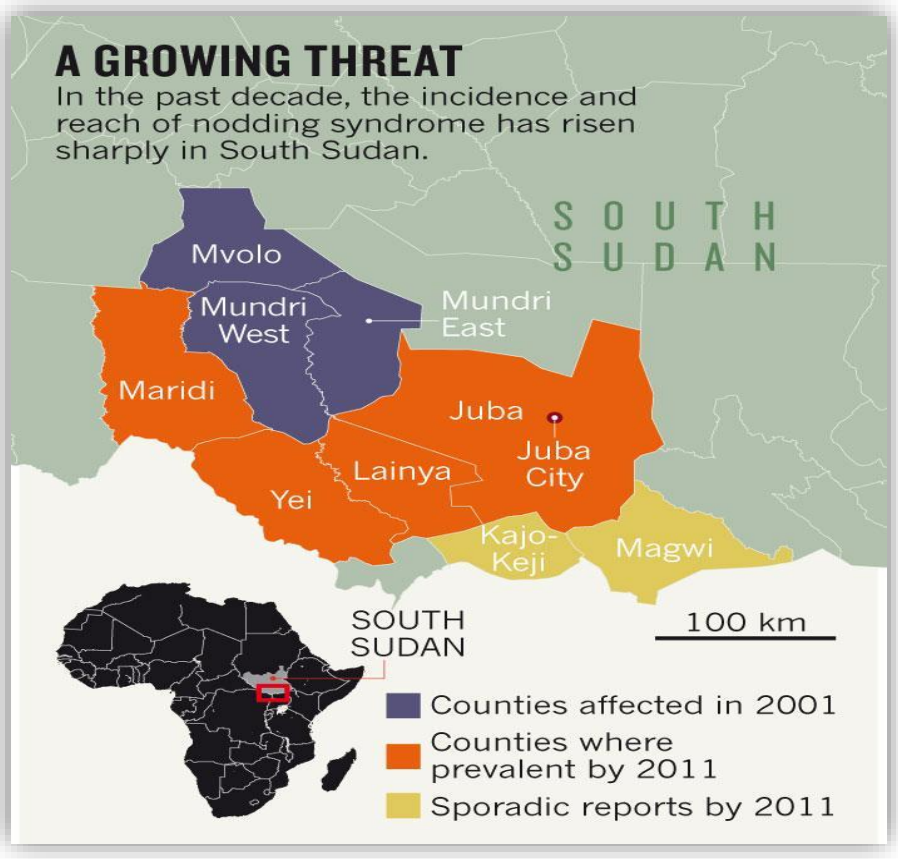
In Mabia the disease occured predominantly in the IDPs and was most common among children (accounting for 60% of all cases), although it is known to affect all age groups. There appeared to be no sex difference between the affected patients.

In 2004, an advocacy meeting was convened in Nairobi (26-27 February) to improve awareness and strengthen surveillance and control of Buruli ulcer. One Sudanese surgeon was trained in Ghana on Buruli ulcer management and a national counterpart to the WHO focal point was appointed to coordinate all Buruli ulcer activities in South Sudan. Under this leadership, national and regional task forces were established and an investigation team was formed, which visited Mabia, Tambura, Nzara and Yambio counties to determine the scale of the problem in Western Equatoria. The disease was confirmed in all counties, and one case was reported from Nimule hospital (Eastern Equatoria). Suspected cases have since also been reported from Upper Nile and Central Equatoria, but have not been confirmed to date. This indicates that other states of South Sudan may also be endemic for the disease, though based on current evidence the area around Nzara in Western Equatoria seems to be the epicentre.

During 2005, the number of new cases reported from Nzara increased from four in 2004 to 23 new cases and one recurrent case. No new cases were reported from Tambura after the IDPs returned to their original homes in Raga. A total of 27 health workers were trained on case detection and treatment in Nimule hospital (Eastern Equatoria). Drugs such as rifampicin and streptomycin and other supplies were purchased and distributed to Nzara and Yambio hospitals. Regular supervision and monitoring visits were carried out to support service providers in the field.

1.3.1.12 Nodding Disease/Syndrome

In 1997 the number of cases seen, especially in the Lui/Amadi region, seemed to increase until the situation stabilized after about three years. Although the epicenter seemed to be Lui/Amadi, isolated or small numbers of patients were also reported from Katigiri and Rokon (Juba County), Yambio (Yambio County), Morobo (Yei County), Bogori, Yeri, Mvolo (Mvolo County), Billing, Wulu, Kulu (Rumbek County), Kozi (Maridi County) and Kotobi (West Mundri County).



In 1997, the condition was officially reported to WHO from Lui by Samaritan's Purse, an NGO working in the area. WHO was requested to assess the situation in 2001.The first assessment, in September 2001, was carried out by WHO-EWARN in Lui/Amadi and confirmed the presence of the condition. In November 2001, HNI and the TCC collected samples for parasitological examination from children with and without nodding diseases in Lui and Amadi. It was established that nodding disease was not due to infection with *T. brucei gambiense*, *W. bancrofti* or *L. loa*. However, patients suffering from nodding disease consistently had more positive skin snips and higher microfilaria loads of *O. volvulus* when compared to children without the condition. This was consistent with earlier observations, for example from 1946, where British staff in Western Equatoria noted a high prevalence of seizure disorders in onchocerciasis endemic areas. Thus there seems to be an association between seizures and the presence of onchocerciasis.

In January 2002 further investigation by WHO ruled out the involvement of environmental pollutant, chemical agent or food toxins as a cause of nodding disease. However, as found a year earlier, a higher proportion of patients with nodding disease were infected with *O. volvulus* when compared to patients without the condition.

In April 2002, a neurologist recruited by WHO preformed portable EEGs on 31 patients with nodding disease. All EEGs were abnormal, showing specific progressive epileptic encephalopathy

In 2006, the World Health Organisation was requested to re-assess the situation because affected communities were concerned that the disease was spreading. The reports received by WHO were unclear as to whether new cases of nodding disease were appearing or if existing cases were moving to new locations. Communities fear that affected children would spread the disease to other children. In response, WHO contacted Samaritans Purse in Lui/Amadi. The organization reported that new cases of nodding disease did continue to appear sporadically, but that there had been no marked increase in the number of new cases.

Based on the evidence to date, nodding disease is a seizure disorder characterised by abnormal EEG findings. The cause is unknown, but there seems to be an association with onchocerciasis. There is no known cure, but the use of anticonvulsants helps to control the symptoms in some patients. Nodding disease has many similarities to a condition called Nakalanga or Kifafa, which has been reported from Uganda (Kipp *et al.* 1996) and Tanzania (Neuman *et al.* 1995), respectively. Both these conditions have been associated with onchocerciasis.

Treatment with anticonvulsants especially carbomazepine controls the seizures, but as the cause has not yet been identified there is no cure. Other manifestations of disease vary widely between individuals. Many children have typical findings of onchocerciasis such as nodules, skin disease and blindness and some children demonstrate growth retardation and fail to develop normal puberty.

1.3.1.13 Mycetoma

Mycetoma is characterized by a triad of painless subcutaneous mass, multiple sinuses and discharge containing grains, resulting in destruction, deformity and loss of function, which may be fatal. Mycetoma commonly involves the extremities, back and gluteal region.

The causative organisms can be detected by examining surgical tissue biopsy as well the lesion sinuses discharge. Although grains microscopy is helpful in detecting the characteristic grains, it is important to culture them to identify the causative organism properly. There are other useful techniques for the diagnosis of mycetoma and that included DNA sequencing and many imaging techniques. All these tests are not commonly available in endemic areas. Transmission occurs when the causative organism enters the body through minor trauma or a penetrating injury, commonly thorn pricks.

The disease is common among barefoot populations who live in rural areas in endemic regions but no person is exempted.

Given its slow progression, painless nature, massive lack of health education and scarcity of medical and health facilities in endemic areas, many patients present late with advanced infection where amputation may be the only available treatment. Secondary bacterial infection is common, and lesions may cause increased pain and disability and fatal septicaemia (severe infections involving the entire human system) if untreated. Infection is not transmitted from human to human.

Mycetoma commonly affects young adults, particularly males aged between 20 and 40 years, mostly in developing countries. People of low socioeconomic status and manual workers such as agriculturalists, labourers and herdsmen are the worst affected.

Table 5: NTD mapping status

Endemic NTD	Total # Counties	No. of endemic counties	No. of districts mapped or known endemicity status	No. of districts remaining to be mapped or assessed for endemicity status
Schistosomiasis	85	27	27	58
Soil Transmitted Helminthiasis	85	27	27	58
Trachoma	85	24	28	57
Lymphatic Filiariasis	85	27	27	58
Onchocerciasis	85	85	85	0*
Loaisis	85	9	76	0*
Leishmaniasis	85		39	46
Guinea Worm Disease	85	4	85	0
Leprosy	85			
Human Trypanosomiasis	85			
Buruli Ulcer	85			
Nodding Sydrome	85	3	3	0*
Mycetomas	85		0	85

1.3.2 NTD programme implementation

- List the past and on-going NTD control programmes. This information should be organized in to two sections: interventions for preventive chemotherapy (PCT) and interventions for case management (CM).

- Describe past and on-goinginterventions to control specific NTDs. This information can be summarized in a table asshown in tables6.1 and 6.2

Table 6.1: Summary of intervention information on existing PCT and CM

NTD	Date Progamme Started	Total Counties Targeted	States Coverage	Number of Counties Covered	No % Covered	Population of counties covered	Key Strategies Used	key Partners
Leishmaniasis (Kala-Azar)	1980	31	4	15	48.38%		Pasive Case Finding, Diagnosis and Treatment	MoH, WHO, IMA, KalaCORE
HAT	1990	24	3	14	58.33%		Acitve Screening, Passive Screening (CATT & SD BIOLIN RDT), Diagnosis, Staging and Treatment	MoH, WHO, FIND, Malteser, Save the Children PATTEC
Leprosy		79	8	23	29.11%		Diagnosis, Treatment	NLTBP, WHO…?
Buruli Ulcer		79	10		0%			MOH? WHO
Loaisis		79	10	?	?			MOH, WHO
Nodding Syndrome	2001	32	3	14	43.75%		Anti- epiletics, nutrition support from WFP	MOH, WHO, CDC, MCDDICO, USRATUNA, CAUMM, MSF spain,
Mycetoma								

Guinea Worm								MoH, WHO, Carter Center, UNICEF
lymphatic Filariasis		79	10	79	100.00%		MDA-Ivermectin	MoH, WHO,Samaritans Purse, MC, Merlin

Table 6.1: Summary of intervention information on existing PCT and CM (continued)

NTD	Date Progamme Started	Total Counties Targeted	States Coverage	Number of Counties Covered	No % Covered	Population of counties covered	Key Strategies Used	key Partners
Trachoma	2007	79	10	78	98.73%		MDA, Active Screening, Passive Screening, Diagnosis, Surgery	MoH, WHO, The Carter Center
Onchocercasis	2004			75			MDA, Active Screening, Passive Screening, Diagnosis, Surgery	MoH, WHO (APOC), SightSavers

Scistosomiasis		79	3	8	10.12%		MDA in children of school age children	MoH,COSV, WHO, World relief,MC, AAHI, ARC, Dioces of Yei

1.3.3 Gaps and Priorities

Table 7: SWOT counteracting table

Strengths	Weaknesses	Opportunities	Threats
Planning			
• Availability of a draft National Master plan for NTDs • Existing synergies between GWE & Trachoma Programmes • Availability of technical human resource capacity at national level for planning • Presence of policy frameworks especially at national level • Mapping of some NTDs conducted in selected areas	• Inadequate qualified cadres at all levels • Non- prioritization of health and particularly NTD activities by government • Poor dissemination of policy frameworks to state and county levels. • Inadequate mapping of some areas • Not meeting deadlines due to long chain of command • Lack of contingency plan in case of donor withdrawal	• The presence of strong political will • The presence of multiple partners to assist in planning, • Presence of qualified cadres • Availability of national strategic priorities	• Insecurity • Delay in meeting donor deadlines
Coordination			
• Presence of an NTD platform • Presence of Heath Information Systems and IDSR • Pre-existing partnerships with NGOs • Government provision of linked NTD project plans • Presence of devolved health systems and structures • Availability of	• Non- involvement of all health partners • Poor commitment of personnel • Non- minimal information sharing • Inadequate coordination structures at all levels	• Health Coordination mechanisms at the county level	• Donor misinformation • Insecurity • Organizations monopoly of information and lack of will to share it

telecommunications network and gadgets			

Table 7: SWOT counteracting table

Strengths	Weaknesses	Opportunities	Threats
Management			
• Presence of devolved health system • Presence of experienced technocrats at national and state levels • Presence of gate keepers	• Political influence (appointment of a new minister means changing of entire system) • Insufficient number of qualified cadres at county, payam and boma levels	• Technical donor human resource as well as a large pool of NGO trained locals	• High staff turnover • Insecurity • Withdrawal of donor support • Corruption
Partnership			
• Existence of an NTD Task Force at the national level	• Inadequate skilled personnel • Inadequate information about NTDs • Poor flow of information • Lack of MOU at State & county level • Poor representation of partners at the State and County level	• Availability of committed partners for NTD implementation	• Donor fatigue • Staff attrition • Resources being channeled to emergencies due to the crisis

Table 7: SWOT counteracting table

Strengths	Weaknesses	Opportunities	Threats
Implementation of Interventions			
• NTD programme in place • Devolved levels of health care system exists • NTD guidelines for implementation available • Availability of health policies • Availability of skilled H/R at national level • Availability of HMIS • Availability of free diagnostics and medicines. • Presence of multi-tasking community volunteers • On-going collaboration between trachoma and GWD	• Inadequate skilled human resource at all levels • Low community participation • Vertical approach in programme implementation	• Availability of partners (implementing and donors) who provide direct services at the payam and boma level: 80% of health facilities are managed by partners • Availability of man-power • Communication systems in places (flights, radio, mobile ICT, etc) • Willingness of communities to participate in NTD interventions • Capacity building strategies (refresher trainings, support supervision on-going	• Inaccessibility • Insecurity • Lack of awareness • High rate of staff turn over • Inadequate infrastructure (Health facilities, storage facilities etc)

Table 7: SWOT counteracting table

Strengths	Weaknesses	Opportunities	Threats
Surveillance, Monitoring &Evaluation			
• Presence of HMIS and IDSR systems, which capture many NTDs. • Availability of surveillance and M&E staff at all levels, including: surveillance officers, CHWs, M&E officers, CHVs • Availability of disease-specific tools for data collection at the lowest level • Use of mobile technology for timely and complete reporting on some NTDs • Availability of surveillance and M&E training manuals and tools • Surveys, assessments, evaluations and reviews conducted by the Ministry of Health, including: Household surveys, MICS etc. • Availability of baseline information on some NTDs	• Incomprehensive HMIS and IDSR systems, which do not capture all NTDs • Incomplete reporting of NTDs • Limited attention to active case search of CM-NTDs • Lack of an integrated database for NTDs • Weak M&E system and lack of complete ownership over health data. • Incomplete mapping of NTDs • Poor/ inadequate research in NTDs • Over dependence on donor funding • Inadequate inter-sectorial collaboration and information sharing with relevant ministries	• Availability of partners and donors, who provide technical assistance, funding and skilled manpower • Availability of communication systems such as mobile and internet networks • Use of humanitarian logistics e.g Regular flights to transport reports, specimen and medicines • Health cluster platform and taskforce teams at state and national level	• Donor fatigue to support M & E • Insecurity • Inaccessibility of some areas • Inadequate information on some NTDs e.g Nodding disease • Limited and disease specific focus by partners • Limited network coverage for communication • Ongoing humanitarian crisis

Table 7 (a): SWOT counteracting table

Weakness	Strengths counteracting weaknesses	Opportunities counteracting Weaknesses
• Insufficient numbers of qualified cadres at all levels • Non- prioritization of health and particularly NTD activities by government • Poor dissemination of policy frameworks to state and county levels. • Inadequate mapping of some areas • Not meeting deadlines due to long chain of command • Lack of contingency plan in case of donor withdrawal • Non- involvement of all health partners in programme coordination • Poor commitment of personnel • Lack of minimal information sharing by partners • Inadequate coordination structures at all levels • Political influence (appointment of a new minister means changing of entire system) • Inadequate information about NTDs • Poor flow of information • Lack of MOU between partners and government at State & county levels • Poor representation of partners at the State and County level	• Availability of technical human resource capacity at national level for planning • Presence of experienced technocrats at national and state levels • NTD program in place • Availability of a draft National Master plan for NTDs • Government provision of linked NTD project plans • Presence of policy frameworks especially at national level • Availability of health policies • NTD guidelines for implementation available • Availability of baseline information onsome NTDs • Pre-existing partnerships with NGOs • Existence of an NTD Task Force at the national level • Presence of devolved health systems and structures • Presence of gate keepers • Availability of HMIS • Availability of skilled H/R at national level • Presence of multi-tasking community volunteers • Availability of free diagnostics and medicines. • Presence of HMIS and IDSR systems, which capture many NTDs. • Surveys, assessments,	• Presence of qualified cadres within the health sector • Availability of manpower in-country • Technical donor human resource as well as a large pool of NGO trained locals • National strategic priorities available • The presence of strong political will • Availability of committed partners for NTD implementation • Communication systems in place (flights, radio, mobile ICT,internet networks etc) • Health Coordination mechanisms at the county level • Health cluster platform and taskforce teams at state and national level • Availability of partners and donors, who provide technical assistance,

• Inadequate skilled human resource at all levels • Low community participation	evaluations and reviews conducted by the Ministry of Health, including: Household surveys, MICS etc.	funding and skilled manpower • Capacity building strategies (refresher trainings, support supervision on-going • Willingness of communities to participate in NTD interventions

Table 7 (a): SWOT counteracting table

Weakness	Strengths counteracting weaknesses	Opportunities counteracting Weaknesses
• Vertical approach in program implementation • Incomprehensive HMIS and IDSR systems, which do not capture all NTDs • Incomplete reporting of NTDs • Limited attention to active case search of CM-NTDs • Lack of an integrated database for NTDs • Weak M&E system and lack of complete ownership over health data. • Poor/ inadequate research in NTDs • Over dependence on donor funding • Inadequate inter-sectoral collaboration and information sharing with relevant ministries	• Availability of surveillance and M&E staff at all levels, including: surveillance officers, CHWs, M&E officers, CHVs • Availability of disease-specific tools for data collection at the lowest level • Use of mobile technology for timely and complete reporting on some NTDs • Availability of surveillance and M&E training manuals and tools • Existing synergies between GWE & Trachoma Programmes	• Use of humanitarian logistics e.g Regular flights totransport reports, specimen and medicines

Table 7 (b): SWOT counteracting table

Threats	Strengths counteracting threats	Opportunities counteracting threats
• Insecurity causing ongoing humanitarian crisis • Delay in meeting donor deadlines • Donor misinformation • Organizations monopoly of information and lack of will to share it • High staff turnover • Withdrawal of donor support • Donor fatigue • Resources being channeled to emergencies due to the crisis • Lack of awareness • Inadequate infrastructure (Health facilities, storage facilities etc) • Inaccessibility of some areas • Inadequate information on some NTDs e.g Nodding disease • Limited and disease specific focus by partners • Limited network coverage for communication • Corruption	• Availability of a draft National Master plan for NTDs • Presence of policy frameworks especially at national level • Availability of skilled H/R at national level • Existing synergies between GWE & Trachoma Programmes • Pre-existing partnerships with NGOs • Availability of baseline information onsome NTDs • Availability of health policies • Presence of devolved health systems and structures • Availability of surveillance and M&E staff at all levels, including: surveillance officers, CHWs, M&E officers, CHVs	• Technical donor human resource as well as a large pool of NGO trained locals • Presence of qualified cadres within the health sector • Availability of manpower in-country • Capacity building strategies (refresher trainings, support supervision on-going • The presence of strong political will • Health Coordination mechanisms at the county level • National strategic priorities available • Use of humanitarian logistics e.g Regular flights totransport reports, specimen and medicines • Availability of committed partners for NTD implementation • Communication systems in place (flights, radio, mobile ICT,internet networks etc) • Availability of partners and donors, who provide technical assistance, funding and skilled manpower

Based on the SWOT analysis above the critical gaps of the South Sudan NTD programme include:

- Inadequate number of skilled staff for programme implementation at all levels,

- Poor coordination structures especially at sub-national levels,
- Weak data management information system,
- Insufficient information on NTDs, and poor community participation.
- Poor integration of existing NTD programmes,
- Dependency on donor support,
- Poor commitment of personnel,
- Inadequate infrastructures for health services delivery, and
- High staff turnover.

Consequently the priorities of the national NTD programme will include but not limited to the following:

- Building and strengthening coordination structures at all levels
- Building and strengthening human capacity for integrated/coordinated NTD programme implementation
- Development of strong management systems for timely reporting
- Strengthening community involvement and participation
- Strengthening integration and collaboration within the NTD programme and with other government agencies as well as community-based programmes
- Creation of awareness and ensuring high visibility of NTDs
- Broadening the NTD partnership base and improving on resource mobilization and management

PART TWO: NTD STRATEGIC AGENDA

Overall NTD programme vision, mission and goals

2.1.1 Vision:

A South Sudan where neglected tropical diseases (NTDs) will no longer be public health problems of significance.

2.1.2 Mission:

To implement NTD policy and plan through delivery of effective, efficient, quality and affordable health services contributing to strengthening of the health system and improved health status and sustainable development in South Sudan.

2.1.3 Strategic Goal:

To accelerate integrated control and/or elimination of NTDs by the year 2020 and significantly improve the life expectancy and quality of life of South Sudanese.

2.1.4 Programme focus

To progressively reduce morbidity, disability and mortality due to NTDs using integrated and cost-effective approaches with the view to eliminating PC-NTDs in South Sudan by the year 2020.

2.1.5 Strategic Milestones:

Quarterly monitoring and evaluation of input and output indicators and final evaluation of programme impact.

2.1.6 GUIDING PRINCIPLES AND STRATEGIC PRIORITIES:

The current Master Plan describes the process of scaling up NTD Programme to consolidate on the gains already made as the country moves on towards the elimination phase of some PCTs while intensifying efforts to enhance the visibility of the CM NTDs in South Sudan.

Table 8: Strategic framework, priorities and objectives for the Prevetion, Control, and/or elimination of Neglected Tropical Diseases in South Sudan.

STRATEGIC PRIORITIES	STRATEGIC OBJECTIVES
Strengthen government ownership, advocacy, coordination and partnerships.	Strengthen coordination mechanism for the NTD control programme at national and sub-national levels
	Strengthen and foster partnerships for the control, elimination and eradication of targeted NTDs at national, district and community levels
	Enhance high level reviews of NTD programme performance and the use of lessons learnt to enhance advocacy, awareness and effective implementation
	Strengthen advocacy, visibility and profile of NTD control elimination and eradication interventions at all levels
Enhance planning for results,	Develop integrated multiyear strategic plans and gender-sensitive annual operational plans for the control, elimination and eradication

resource mobilization and financial sustainability of national NTD programmes.	of targeted NTDs
	Enhance resource mobilization approaches and strategies at regional, national and sub-national levels for NTD interventions
	Strengthen the integration and linkages of NTD programme and financial plans into sector-wide and national budgetary and financing mechanisms
	Develop and update national NTD policies and elaborate guidelines and tools to guide effective policy and programme implementation
Scale-up access to interventions, treatment and system capacity (service delivery) building.	Scale up an integrated preventive chemotherapy, including access to interventions forlymphatic filariasis, soil transmitted helminthiasis,onchocerciasis, schistosomiasis and trachoma
	Scale up integrated case-management-based disease interventions, for all CM-NTDs in South Sudan
	Strengthening integrated vector management where feasible and other “PHASE” interventions for the targeted NTDs.
	Strengthening capacity at county level for NTD programme management and implementation
Enhance NTD surveillance, monitoring and evaluation and operational research.	Develop and promote an integrated NTD M&E framework and improve monitoring of NTDs, within the context of national health information systems.
	Strengthen surveillance of NTDs and strengthen response and control of epidemic-prone NTDs, in particularLeishmaniasis, sleeping sickness etc
	Operational research
	Establish integrated data management systems and support impact analysis for NTD in the WHO African Region as part of the global NTD data management system and global NTD plan

2.16.1 Strategic Priority 1: Strengthen government ownership, advocacy, coordination and partnership.

Strategic Objectives 1: Strengthen coordination mechanism for the NTD control programme at national and sub-national levels

Main Activities:

- Set up national and state taskforce and/or technical working groups on NTDs
- Conduct regular national and state technical working group meetings
- Popularise the NTD master plan to staekolders, development partners for mobilization of resources and commitment.

Strategic Objective 2: Strengthen and foster partnerships for the control, elimination and eradication of targeted NTDs at national, district and community levels

Main Activities:

- Foster integration of the NTDs programmes with Boma health committee system.
- Strengthen collaboration with other community based health/development programmes inlucding but not limited to EPI, School health programmes **etc.**
- Conduct mapping and regular updates of the inventory of NTD partners

Strategic Objective 3: Enhance high level reviews of NTD programme performance and the use of lessons learnt to enhance advocacy, awareness and effective implementation

Main Activities:

- Conduct orientation meetings with policy makers, line Ministries and other stakeholders on intyersectoral collaboration at national, state, county, payam and community (Boma) levels.
- Conduct regular sensitization meetings with decision makers from the education sector at national, state, county, payam and community levels on integrfated NTDs control/elimination and the role of schools in the NTD programmes
- Produce advocacy tools for NTDs and conduct NTD media senistisation and advocacy
- Orientation of community opinion leaders on the importance of prevention, control and elimination of NTDs.

2.16.2 Strategic Priority 2: Enhance Planning for Results, Resource Mobilization and Financial Sustainability of National NTD programmes.

Strategic Objectives 1: Develop integrated multiyear strategic plans and gender-sensitive annual operational plans for the control, elimination and eradication of targeted NTDs

Main Activities:

- Develop disease specific NTD policy guidelines, manuals and standard operating procedures
- Develop, print and disseminate the national NTD guidelines and work plans

- Develop and update national NTD policies and elaborate guidelines and tools to guide effective policy and programme implementation

Strategic Objective 2: Enhance resource mobilization approaches and strategies at regional, national and sub-national levels for NTD interventions

Main Activities:

- Integrate NTDs plans into the National, state and County annual operational plans
- Linking/integrate the NTDs programmes and financing into the overall health sector

2.16.3 Strategic Priority 2: Scale-up access to interventions, treatment and service delivery building.

Strategic Objectives 1: Scale up an integrated preventive chemotherapy; including access to interventions forlymphatic filariasis, soil transmitted helminthiasis, onchocerciasis, schistosomiasis and trachoma

Main Activities:

- Conduct mass drug administration (MDAs) in all endemic communities for onchocerciasis, lymphatic filariasis, schistosomiasis, soil transmitted helminthes, and trachoma based on WHO guidelines.

Strategic Objective 2: Scale up integrated case-management-based disease interventions, for Case Management NTDs (CM-NTDs) in South Sudan

Main Activities:

- Integrate case detection and reporting to the national disease surveillance system
- Improve clinical and laboratory capacities at all levels of the health care delivery systems
- Conduct active case searches integrated to adhoc and regular mapping of PC NTDS

Strategic Objective 3: Strengthening integrated vector management where feasible and other “PHASE” interventions for the targeted NTDs.

Main Activities:

- Effective and comprehensive vector control based on IVM and integration linked to vector conrol strategy in the national malaria control programme
- Imrpove safe water supply and sanitation to endemic communities in collaboration with relevant development partners
- Health education and health promotion

Strategic Objective 4: Strengthening capacity at county level for NTD programme management and implementation.

Main Activities:

- Intensify community empowerment and scaling up of NTD interventions
- Increase demand on NTD internvetions through intensive awareness raising

2.16.4 Enhance NTD monitoring and evaluation, surveillance and operational research.

Strategic Objectives 1: Develop and promote an integrated NTD M&E framework and improve monitoring of NTDs, within the context of national health information systems.

Main Activities:

- Enhance integration of NTD control, with the PHC system
- Conduct integrated supervision and monitoring
- Integrate NTDs monitoring with HMIS
- Conduct annual review of the NTD progarmmes performamce.

Strategic Objective 2: Support Operational Research and Evidence to guide innovative approaches to NTDs interventions

Main Activities:

- Stregthen surveillance and response of NTDs for control of epidemic-prone NTDs especially leishmaniasis in endemic areas
- Strengthen operational research on NTDs
- Document best practices

Strategic Objective 3: Establish integrated data management systems and support impact analysis for NTD in the WHO African Region as part of the global NTD data management system and global NTD plan.

Main Activities:

- Establish integrated data management systems and support impact analysis for NTDs

2.17 NATIONAL NTD PROGRAMME GOALS, OBJECTIVES, STRATEGIES AND TARGETS

2.17.1 Programme Goal

To control and eliminate NTDs in South Sudan by 2020

2.17.2 General objective

To significantly reduce the burden of 13 NTDs in all affected counties in South Sudan to a level where they will no longer be of public health importance

.

2.17.3 Specific objectives

- To maintain guinea worm free status by 2016 - 2018
- To sustain leprosy elimination and further reduce severe leprosy disabilities
- To eliminate lymphatic filariasis, Onchocerciasis, blinding trachoma and HAT by 2020
- To eliminate schistosomiasis and STH morbidity by 2020
- To achieve advanced control of BUD, leishmaniasis, Nodding syndrome, mycetomas

NTD PROGRAMME AND GLOBAL GOAL	NATIONAL GOAL	OBJECTIVES	STRATEGIES	DELIVERY CHANNELS
Leprosy: To eliminate leprosy	To further reduce the diseases burden and sustain provision of high quality leprosy services for all affected communities ensuring that the principles of equity and social justice are followed	- To improve political commitment and ensure leprosy becomes a health sector priority targeted for elimination - To further reduce the burden of leprosy through timely case finding and treatment - To scale up and strengthen access to underserved and hard to areas including areas where a high proportion of new cases with Grade 2 disabilities and children are detected. - To monitor progress by considering the trend of new cases with grade-2 disabilities in the population - To prevent and manage disabilities due to leprosy - To promote social welfare and community based rehabilitation of PAL - To improve overall management capacity of the	- Ensure resources are made available for leprosy activities - Ensure improved partner participation and adherence to guidelines - Ensure new leprosy cases are detected without leprosy related impairments and disabilities - Ensure all PAL have access to quality medicines - Ensure integration of leprosy services in PHCC - Monitor progress by considering the trend of grade 2 disabilities - Ensure all leprosy cases registered for care do not develop new disabilities other than those that were irreversible at the time of registration - SCR/CBR programs for persons affected by leprosy - Human resource development and support program operations - Promote program based operations research	Health facilities Community Advocacy Tertiary institution for reconstructive surgery and management of complications

		programme at all levels.		

NTD PROGRAMME AND GLOBAL GOAL	NATIONAL GOAL	OBJECTIVES	STRATEGIES	DELIVERY CHANNELS
Buruli Ulcers To eliminate Buruli Ulcer by 2020	To Eliminate Buruli Ulcer as a public health problem in South Sudan by 2020	• To intensify case detection of Buruli ulcer • To strengthen care and referral services • To promote social welfare of persons affected by BU	• Map the high burden areas • Engage the communities in detection and referral of cases • Ensure the tertiary institutions are equipped to manage BL • Monitor the progress and supervision	Community health system Referral hospitals

Visceral Leishmaniasis	To prevent and control Visceral Leishmaniasis in all endemic foci	• To improve access to prompt diagnosis and effective treatment of VL • To support the detection and management of HIV/VL co-infection • To improve surveillance, monitoring and evaluation and use of data to inform operational plans and respond to emerging outbreaks • To support vector control approaches for VL • To support operational research especially on pharmacovigilance and new approaches to vector control	• Integration of VL control activities to the PHC system • Create an emergency response team • Capacity building for expanded diagnostic and treatment services (Training, provision of supplies, supervision etc) • Equipment at least three hospitals to be used as referral centers • Develop a tool for accurate forecasting for essential drugs and diagnostic equipment for VL • Improving the data collection tools and ensure use of tools • To improve data analysis and feedback mechanism • Promoting the distribution of ITNs in all endemic areas to VL patients • Enhance health education on control of VL	Health facilities Community

NTD PROGRAMME AND GLOBAL GOAL	NATIONAL GOAL	OBJECTIVES	STRATEGIES	DELIVERY CHANNELS
Human African Typanosomiasis	To prevent control and eliminate HAT in all endemic foci	• To scale up diagnosis and treatment of VL • To strengthen and sustain control measures and ensure field activities are maintained • To strengthen surveillance system • To support operational research on newly improved screening, diagnostic and treatment tools • To synergize vector control activities in collaboration with relevant government ministries and the Pan African Tsetse and Trypanosomiasis Eradication Campaign (PATTEC) of South Sudan to develop an epidemiological database for HAT	• Ensure integration of HAT control activities in the PHCC • Training staff in endemic foci on diagnosis and management • Introduction of vector control activities in collaboration with other agencies • Improve surveillance and case reporting	Health facilities Community

DISEASE SPECIFIC OBJECTIVES AND MILESTONES *(Continuation)*						
NTD Global Goal	**National Goal**	**Objectives**	**Strategies**	**Delivery Channel**	**Target Population**	**Key Performance indicators**
Soil Transmitted Helminthes & Shcistosomiasis Elimination Goal: Treat at least 75% of all school age children at risk by 2020	To eliminate Soil Transmitted helminths & Schistosomiasis as a public health problem by 2016	- To complete mapping by 2015 - To establish implementation structures in all 10 states - To achieve at least 75% therapeutic coverage of all school age children in endemic counties by 2020 - Strengthen coordination with the ministry of Education to easy access to all the school age going children - Strengthen surveillance for Soil transmitted	- Mass Drug Administration (MDA) with Albendazole/Mebendazole & Praziquantil to school age children - MDA within high risk communities - Health education and promotion for behavioral change - Training and re-training of health workers and school teachers on integrated control of schistosomiasis and STH - Active surveillance for all endemic and at	- School Health Programme, - Community volunteers for non-enrolled schooled children	- All school age children age 5 to 14 - High risk adult population, pregnant women and tea pickers	- 100% of the counties completely mapped for STH & SCH - 75% school aged children and other at risk population reached with de-worming tablets in all endemic counties - 100% symptomatic cases of STH & SCH managed using IMCI strategy - 100 % health

		helminthes & Schistosomiasis within the context of integrated disease surveillance and response of the MoH	risk villages - Encouraging the communities to dig and use latrines			facilities, states and counties reporting timely and monthly using the IDSR

DISEASE SPECIFIC OBJECTIVES AND MILESTONES *(Continuation)*						
NTD Global Goal	**National Goal**	**Objectives**	**Strategies**	**Delivery Channel**	**Target Population**	**Key Performance indicators**
Lymphatic Filiriasis Elimination Goal: Eliminate Lymphatic filiriasis as public probelm at risk by 2020	To eliminate Lymphatic Filiriasis as a public health problem by 2016	- To complete mapping by 2015 - To establish implementation structures in all 10 states - To achieve at least therapeutic coverage for 65% of population at risk endemic counties by 2020 - Strengthen coordination with the ministry of Education to easy access to all the school age going	- Mass Drug Administration (MDA) with Ivermectin plus DEC to school age children - MDA within high risk communities - Health education and promotion for behavioral change - Training and re-training of health workers and school teachers	- School Health Programme, - Community volunteers for non-enrolled schooled children	- All school age children age 5 to 14 - High risk adult population, pregnant women and tea pickers	- 100% of the counties completely mapped for LF - 65% high risk popualtion reached with ALB+DEC tablets in all endemic counties - 100% symptomatic cases of LF managed using IMCI strategy

		children - Strengthen surveillance for Lymphatic Filiriasis within the context of integrated disease surveillance and response of the MoH	on integrated control of Lyphatic Filiriasis - Active surveillance for all endemic and at risk villages - Encouraging the communities to use LLITNs			- 100% LF cases are referred for morbidity management - 100 % health facilities, states and counties reporting timely and monthly using the IDSR

DISEASE SPECIFIC OBJECTIVES AND MILESTONES *(Continuation)*						
NTD Programme and Global Goal	National Goal	Objectives	Strategies	Delivery Channel	Target Population	Key Performance Indicators
Onchocerciasis Control/Elimination Programme	Eliminate Onchocerciasis infection and interrupt its transmission in	- Annual GCRs of 100% and TCRs of 80% in all onchocerciasis endemic counties.	- Intensified health education, mobilization and sensitization (HSAM) in all endemic communities. - Community empowerment	- Use of CDI Structure	(i) age ≥5years in meso, hypo and hyper	- Number of endemic counties attaining a minimum of

Control and elimination where feasible with CDTI and other effective interventions by 2020	80% of endemic areas in South Sudan by 2020[5].	- Strengthen the Human resource capacity of NOCP at all levels. - Strengthen community ownership of the CDTI programme - Advocate for increased funding by the government and other partners and aim to triple funding currently available.	through training of community leaders, FLHF staff, teachers and CDDs. - Annual treatment with Ivermectin to the population at risk. - Vector control with temephos (abate). - Engagement with Global Advocacy Team and national policy makers for increased funding.		endemic areas. (ii)Target isolated foci	80% therapeutic coverage. - Number of counties with 100%geographical coverage

Trachoma						
NTD National and Global Goal	**National Goal**	**Objectives**	**Strategies**	**Delivery Channel**	**Target Population**	**Key Performance indicators**
Eliminate as blinding disease by	To eliminate blinding trachoma	Complete mapping for Trachoma	**S:** Surgery of trichiasis cases	Use of CDI Structure	All age groups in endemic	Number (%) of counties completely mapped for trachoma

[5] MoH, 2013. Road map for the Reorganization of Community Directed Treatment with Ivermectin to control/eliminate onchocerciasis and other preventive chemo-therapy neglected tropical diseases in South Sudan, 2013 – 2015.

2020.	by 2020	- Reduce and maintain the prevalence of active trachomatous inflammation follicular (TF) among children aged 1-9 years in all endemic counties to less than 5% by the year 2020. - To reduce the backlog of TT cases to less than 1 case per 1000	**A:** Mass Drug Administration with Azithromycin of entire at risk identified communities. **F:** Personal hygiene reinforcing face washing **E**:Improved water supply for personal hygiene E: Health education and promotion of behavioural change		communities	Number (%) of endemic counties implementing MDA Number (%) of persons treated in all endemic counties Number of trichiasis surgeries in endemic counties % of children (1-9 yrs) with clean faces

2.4. NATIONAL MILESTONES

2.4.1 Leprosy

Indicators	Baseline (2015)	2016	2017	2018	2019	2020
Number of new leprosy cases	600	1000	1500	2000	1600	1500
90% MDT completion rate by 2020	71.3%	75%	80%	85%	90%	90%
Reduce the reports of children among the new cases to <5%	12%	9%	7%	6%	5%	<5%
To improve proportion of females among new cases to 55%	45%					55%
Decrease the proportion of new cases with grade 2 disability 5%	20%	15%	10%	10%	5%	5%
100% Contact surveillance coverage (6 contacts per case)	0					100%
Map of leprosy hotspots in the country available (100%)		Yes				
Number of leprosy treatment centres with regular supply of MDT	30	90	120	175	200	200
Number of facilities provide leprosy related rehabilitation surgery	0	1	1	2	3	3
90% Coverage of footwear requirements	10%	20%	40%	60%	80%	90%
The proportion of leprosy affected persons participating in community programs (50%)	0	10%	20%	30%	40%	50%
Availability of focal person at the central level		Yes				
Number of operational research conducted						

2.4.2 Buruli Ulcers

Indicators	Baseline (2015)	2016	2017	2018	2019	2020
Mapping 100% of Buruli ulcer endemic areas in the county				100%	100%	100%
100% of PHCCs in endemic areas capable of detecting Buruli Ulcers				100%	100%	100%
50% of county hospitals in endemic areas capable of management of Buruli Ulcers		25%	30%	40%	50%	50%
75% of endemic counties have community surveillance system by 2020		10%	20%	40%	60%	75%

2.4.3 Visceral Leishmaniasis (Kala Azar)

Indicators	Baseline (2015)	2016	2017	2018	2019	2020
Carry out passive case detection in 100% of the health facilities in endemic areas		25%	50%	75%	90%	100%
Integrate VL management into 100% of the Primary Healthcare Facilities		20%	40%	60%	80%	100%
Manage all (100%) primary VL cases in the Primary health care centres in endemic areas		25%	40%	60%	80%	100%

To manage relapses and special VL cases in the county hospital or one selected PHCC in 100% of endemic counties				Yes	Yes	Yes
75% of complicated cases referred to the referral centres by 2017		50%	75%	Yes	Yes	Yes
100% of clinical staff in PHCC in endemic areas trained on diagnosis and management of VL		20%	40%	60%	80%	100%
Achieved collection of 90% of the data from the VL diagnosis and treatment centres		50%	50%	60%	80%	90%
Incorporate distribution of LLIN and health education on VL in all (100%) of health facilities in endemic areas		50%	75%	100%	100%	100%
Carry out one operational research				Yes	Yes	Yes
Carry out cross border meetings on VL			10%	30%	50%	70%
Integrate Vector control activities into VL in 40% of endemic areas			10%	20%	30%	40%

2.4.4. Human African Trypanosomiasis (Sleeping Sickness)

Indicators	**Baseline (2015)**	**2016**	**2017**	**2018**	**2019**	**2020**
Carry out passive case detection in 100% of the health facilities in endemic areas		20%	40%	60%	80%	100%
Carry out active case detection in 100% of the communities in the endemic areas		20%	40%	60%	80%	100%
Integrate HAT management into the Primary Healthcare Facilities		20%	40%	60%	80%	100%
Treatment and follow up of 100% of diagnosed cases in all the county hospitals in the endemic areas		20%	40%	60%	80%	100%

Train healthcare workers in the diagnosis and management of HAT		20%	40%	60%	80%	100%
Data collection in 100% of the facilities in the endemic areas		20%	40%	60%	80%	100%
Carry out community social mobilization activities in 100% of the communities in the endemic areas		20%	40%	60%	80%	100%
Introduce new screening and diagnostic tools in all the health facilities in endemic areas		20%	40%	60%	80%	100%
Improve referral and communication systems between the PHCCs and the county hospitals(proportion of those referred against those diagnosed at the peripheral level)		20%	40%	60%	80%	100%
Carry out cross border meetings on HAT		10%	30%	50%	70%	90%
Integrate Vector control activities into HAT in all endemic areas			10%	20	30%	40%

2.4.5 Guinea Worm Disease

OBJECTIVES	Key Indicators	Baseline (June 2015)	Target	Milestones				
				2016	2017	2018	2019	2020
Strengthen human resource capacity of primary health care network for surveillance and case management - including support for human resource and data managers, coordinators, county field supervisors, and unpaid	100% Case Containment	100%	100%	100%				
	100% EV Reporting Rate	98.6%	100%	100%				
	100% EVs with 1+ Abate Treatments	100%	100%	100%				
	100% EVs with 100% Cloth Filter Coverage	92%	100%	100%				
	100% EVs with 80% Pipe	92%	100%	100%				

community volunteers in endemic counties.	Filter Coverage							
	100% EVs with Monthly Health Education	100%	100%	100%				
	100% EVs with Monthly Supervisory Visits	100%	100%	100%				
Strengthen Surveillance for Guinea worm disease within the context of integrated disease surveillance and Response of the MoH	100% reporting by reporting Units (by County)	100%	100%	100%	100%	100%	100%	100%
	Percentage of health workers trained on surveillance	100%	100%	100%	100%	100%	100%	100%
Awareness on Guinea worm disease and on cash reward for reporting of Guinea worm cases Strengthen coordination with the Ministry of Water Resources and water sector NGOs for provision of safe water supplies to endemic communities.	80% of the population are aware about the cash reward	60%	100%	100%	100%	100%	100%	100%
Technical assistance to strengthen leadership and management capacity of the Guinea Worm Eradication Secretariat of the Ministry of Health								

2.4.6 STH & SCH

Indicators	Baseline (2015)	2016	2017	2018	2019	2020
100% of the counties completely mapped for STH & SCH	30%	40%	50%	70%	90%	100%
75% school age children and other at risk population reached with de-worming tablets in all endemic counties	0%	25%	40%	60%	80%	100%
100% symptomatic cases of STH & SCH managed using IMCI strategy	0%	50%	70%	80%	90%	100%
100 % health facilities, states and counties reporting timely and monthly using the IDSR		50%	50%	60%	80%	90%

2.4.7 Lymphatic Filiriasis

Indicators	Baseline (2015)	2016	2017	2018	2019	2020
100% of the counties completely mapped for LF	30%	40%	50%	70%	90%	100%
65% high risk popualtion reached with ALB+DEC tablets in all endemic counties	0%	25%	40%	60%	80%	100%
100% symptomatic cases of LF managed using IMCI strategy	0%	50%	70%	80%	90%	100%
100% LF cases are referred for morbidity management	NA	50%	60%	70%	80%	90%
100 % health facilities, states and counties reporting timely and monthly using the IDSR	NA					

PART THREE: OPERATIONAL FRAMEWORK

This section of the South Sudan Master Plan was developed in consultation with stakeholders to ensure harmonized and effective NTD program implementation. This section describes how the planned activities will be implemented using the available resources taking into account the potential risks in order to sustain and secure the achievements made.

3.1 SCALING UP ACCESS TO NTD INTERVENTIONS AND TREATMENT AND SERVICE DELIVERY CAPACITY

The three packages of interventions discussed here are:

- Preventive chemotherapy
- Case management/chronic case
- Transmission control including vector and reservoir control, improvement in sanitation and water quality and supply.

3.2.1 Scaling-up Preventive Chemotherapy Interventions

Table 9: Types of mass drug administration

Cross-cutting MDA types	Delivery channels	Timing of treatments	Disease combination	Requirements	Target (districts) – list	Other mass disease control interventions
MDA1, MDA4 & T1 One annual round of MDA ivermectin/DEC and albendazole; One annual round of MDA with azithromycin;	Community-based campaigns/ CDTI; School-based campaigns.	Month 1 and month 6	Lymphatic filariasis, Onchocerciasis, Schistosomiasis, STH, trachoma	Training of health personnel; Training of teachers & community volunteers; Social mobilization; Supervision;		EPI campaigns, ITN distribution and re-treatment.

Cross-cutting MDA types	Delivery channels	Timing of treatments	Disease combination	Requirements	Target (districts) – list	Other mass disease control interventions
School-based treatment with (PZQ & ALB/MBD).				Production of tools; Logistics for drug distribution and management.		

Legend

MDA1 = Ivermectin + Albendazole

MDA2 = DEC+ Albendazole

MDA3 = Ivermectin only (CDTI)

MDA4 = Azithromycin only

T1 = Praziquantel + Albendazole or Praziquantel + mebendazole

T2 = Praziquantel only

T3 = Albendazole or mebendazole only

Table 10(a): Activities for strategic priority 1 –Scale up Access to PCT interventions

Activity	**Details (sub-activities)**	**Time frame**	**Resources needed**
Strategic objective 1: Scale up an integrated preventive chemotherapy, including access to interventions for lymphatic filariasis, soil transmitted helminthiasis,onchocerciasis, schistosomiasis and trachoma			
PC-NTD medicines	Clearance and storage	2016 - 2020	Personnel, Transport, Funds
	Delivery of medicines to states	2016 - 2020	
	Delivery of medicines to counties	2016 - 2020	
	Delivery of medicines to communities	2016 – 2020	
Training of trainers at State level	Conduct State level training	2016 – 2020	
Training of healthworkers at county level	Conduct county level training	2016 – 2020	

Training of school teachers	Conduct training for school teachers	2016 – 2020	
Training of community NGOs	Conduct training for NGOs at community level	2016 – 2020	
Training of community distributors	Conduct training for community volunteers and implementers	2016 – 2020	
Community mobilization	Training of social mobilisers on NTD's activities	2016-2020	Venue, allowance, transport, stationeries, communication, accommodation, meals

Table 10(b):

Activity	Details (sub-activities)	Time frame	Resources needed
Community Mobilization, Health Education and Sensitization	Sensitization meetings with local leaders at Payam level	2016 - 2020	Personnel, Transport, Funds
	Sensitization meetings with local leaders at Boma level	2016 - 2020	
	Community Health Education sessions	2016 - 2020	
Mass drug administration at the community level	MDA for oncho/LF	2016 - 2020	
	MDA for Schisto/STH	2016 - 2020	
	MDA for Trachoma	2016 – 2020	
Retrieval of MDA drugs from the community	Retrieval of MDA drugs from the community	2016 – 2020	
Report Collection	Report Collection	2016 – 2020	
Support Supervision	Support Supervision	2016 – 2020	

3.2.2 Scaling up NTDCase management Interventions

Table 11: Activities for case management interventions

Activity	Details (sub-activities)	Time frame	Resources needed
Strategic Objective 2: Scale up integrated case-management-based disease interventions, especially the following : (List of interventions for major CM-NTDs)			
Case detection for HAT, VL, Leprosy, Trichiasis, Lymphoedema, Hydrocele, Mycetoma, Yaws, Rabies	Passive screening at the health facilities	Annually	Personnel, Transport, Funds, equipment
	Health education sessions at the health facilities	Annually	
	Active screening in the communities in endemic areas	Annually	
Community Mobilization, Health Education and Sensitization for active case search for all CM-NTDs	Sensitization meetings with local leaders at Payam level	Annually	Personnel, Transport, Funds, materials
	Sensitization meetings with local leaders at Boma level	Annually	
	Community Health Education sessions	Annually	
Training of health workers at State level on case management	Training of health workers at State level on case management	Annually	Personnel, Transport, Funds, materials
Training of health workers at County level on case management	Training of health workers at County level on case management	Annually	Personnel, Transport, Funds, materials
Training of health workers at Payam level on case management	Training of health workers at Payam level on case management	Annually	Personnel, Transport, Funds, materials
Rumour investigation for Guineaworm	Rumour investigation for Guineaworm	Annually	Personnel, Transport, Funds, materials
Case Management for	Conduct of surgeries for trichaisis,	Annually	Personnel,

CM-NTDs	hydrocele		Transport, Funds, materials, consumables, medicines
	Management of cases of leprosy, VL, HAT, Mycetoma, Yaws, Rabies	Annually	
Support Supervision from the National Level	Support Supervision from the National Level	Annually	Vehicles, UNHAS Flights,boats allowances, SMOH
Support Supervision from the State Level	Support Supervision from the State Level	Annually	
Support supervision from the county level	Support supervision from the county level	Annually	Vehicles, boats, allowances, CHD
Strengthen CM surveillance	Strengthen CM surveillance	Annually	Surveillance data recording and reporting tools, transportation through, road, air or water, allowances,

Table 11: Package 3.2: Case management and chronic care.

Cross-cutting interventions	NTDs targeted	Requirements	Other non-NTD opportunities for integration
Surgery Hydrocele surgery (hydrocelectomies); Trichiasis surgery; Skin grafting SAFE	Lymphatic filariasis hydrocele; Trachoma trichiasis; Buruli ulcer late condition.	Training of medical doctors and nurses; Surgical kits, dermatome and mesh graft (for skin grafting); Hospital facilities or appropriate basic facilities with good surgical facilities; Follow-up and supervision.	Capacity building for basic surgery skills at the district level.

3.2.3 Scaling up NTD transmission control interventions

- P - Preventive chemotherapy
- H - Health Education
- A - Access to clean water
- S - Sanitation Improvement

- E - Environmental manipulation

Table 12: Intervention packages for Transmission control

Cross-cutting interventions	Targeted NTDS	Requirements	Other non-NTD opportunities for integration
Mosquito and sand-fly control: •Insecticide treated nets; •Indoor residual spraying; •Environmental management.	Lymphatic filariasis, Leishmaniasis, Dengue, Malaria	ITNs DDT Plastering of walls	Malaria vector control; Integrated vector management (IVM).

3.4 STRENGTHENING CAPACITY AT NATIONAL LEVEL FOR NTD PROGRAMME MANAGEMENT AND IMPLEMENTATION

Table 16: Activities and resources needed for strengthening capacity for NTD programme

Activity	**Details (sub-activities)**	**Time frame**	**Resources needed**
Strategic objective 1: Strengthening capacity at national level for NTD programme management and implementation			
Capacity building at the national level to improve NTD programme management	Leadership and management training for national and state level staff	Annually	Financial support Technical assistance Logistics
	Training on quality control of donated NTD medicines at national and State levels		
	Identification/Recruitment of NTD focal persons at the national, state and county levels	2016-2017	Secretariat, logistical support Printing services Technical assistance
Capacity building at the national, state and county levels on case management and mapping	Training of clinicians on diagnosis, treatment and care	Annually	Technical support Financial support Logistical support
	Training of laboratory technicians on diagnosis of CM-NTDs		

Capacity building at national, state and county on integrated NTD data management	Training of NTD programme and data managers at the national and state levels on integrated NTD data management	2016-2020	Logistics, vehicles, desktop computers, printers Technical assistance
Institutional support for the NTD secretariat at national and state levels	Creation of office spaces for national and state focal persons	2016 - 2017	Technical support Financial support Logistical support
	Support for NTD steering and advisory committees at the national and state levels	quarterly	

3.5 ENHANCING PLANNING FOR RESULTS, RESOURCE MOBILIZATION AND FINANCIAL SUSTAINABILITY

Table 14 (a): Activities for implementing Strategic Priority 2: Enhance planning for results, resource mobilization, and financial sustainability of national NTD programmes.

Activity	Details (sub-activities)	Time frame	Resources needed
Strategic objective 1: Develop integrated multiyear strategic plans and gender-sensitive annual operational plans for the control, elimination and eradication of targeted NTDs			
Finalize Integrated NTD Master plan	Conduct workshop for adaptation of NTD Master Planby States	Jan 2016	Secretariat, Technical Assistance and financial
	Update the Country Brief on the Status of NTDs in South Sudan.	Jan 2016	
	Conduct state level meetings on adaptation of standard operating procedures for scale up of PCT and CM activities.	Feb 2016	
Development of State & County Annual plans	Hold meetings with state, county & stakeholders to develop strategic plan, identification of gaps,	Jan 2016	Logistical support, finances and technical support.
	Training on development of state & county plans	Mar 2016 (and Annually through 2020)	

	Revise annual operational plans and identification of gaps	(2016 – 2020) Annually	
Strategic objective 2:Enhance resource mobilization approaches and strategies at national and sub-national levels for NTD interventions			
Mobilise resources for the Implementation of the integrated NTDs master plan (2016 – 2020)	Appointment of NTD Goodwill ambassadors	2016	Technical Assistance and Financial
	Organise fundraising activities to support NTD programmes with the help of the Goodwill Ambassador for NTDs.	Mar 2016 (and Annually through 2020)	
	Sensitisation of leaders on the linkage between the high burden of NTDs with negative impact on the economy of the country	Annually (first one will be organized immediately after the result of the mapping is out)	
	Production of NTD Master Plan	2016	logistic support and funds
	Distribution of the NTD master plan (2016-2020) with local, regional and international stakeholders in relevant fora.	Annually	Technical Assistance and Financial
Mobilise resources for the Implementation of the integrated NTDs annual plans (2016 – 2020	Organise resource mobilisation activities at the state & county levels	Annually	Secretariat, logistic support and funds.

Table 14 (b):

Activity	Details (sub-activities)	Time frame	Resources needed
Strategic objective 3:Strengthen the integration and linkages of NTD programme and financial plans into sector-wide and national budgetary and financing mechanisms			
Create enabling environment for planning, implementation and monitoring of NTD programmes	Advocate for allocation of 15% of the National Health budget to match partner(s) and donors funding for implementation of NTD programmes.	Annually	Technical Assistance
	Leverage the current donor funding mechanisms for health to support NTD programme implementation.	Annually	Technical Assistance
	Advocate for integration of existing community-based structures into the boma health system initiative to enhance implementation of NTD programmes.	Annually	Technical Assistance
	Conduct inter-sectoral planning meetings prior to submission of national budgets to leverage resources from other line Ministries for the implementation of PHASE activities for the elimination of NTDs.	June-July (Annually)	Technical Assistance
Sensitize MoH policy makers on strengthening linkages & enhancing integration with other departments.	Develop Memos; sensitise policy makers at routine meetings, make and share reports	Annually	Logistical support, technical human resource and finances
Hold meetings with other community based programmes	Establish contacts with representatives of programmes, conduct meetings, followup on recommendations	2016-2020	Logistical support, funds, technical team.
Strategic objective 4:Develop and update national NTD policies and elaborate guidelines and tools to guide effective policy and programme implementation			
Develop/Review policies and guidelines as	Update policies for NTD implementation.	2017	Technical Assistance and Financial

necessary, for effective implementation of NTD programmes	Update policies, guidelines, tools for NTD implementation.	2017 - 2018	Technical Assistance and Financial
	Print and disseminate guidelines and tools for NTD programme implementation	Annually	Technical Assistance and Financial

3.6 STRENGTHENING GOVERNMENT OWNERSHIP, ADVOCACY, COORDINATION AND PARTNERSHIPS

Table 15 (a): Activities for implementing Strategic priority 1: Strengthen government ownership, advocacy, coordination, and partnership.

Activity	Details (sub-activities)	Time frame	Resources needed
Strategic objective 1: Strengthen coordination mechanism for the NTD control programme at national and sub-national levels			
Establish & Strengthen NTD Task force/ Coordination Teams at National and State levels	Establish NTD management teams at State & County levels	2016	Funding, Venue, allowance, transport, stationeries, communication, accommodation, meals
	Launch of State NTD task forces	2016	
	Conduct Meetings of national NTD task force	Quarterly 2016 – 2020	Venue, allowance, transport, stationeries, communication, accommodation, meals
	Conduct Meetings of State NTD task force	Bi-annually 2016 – 2020	
Support for the National NTD secretariat	Identify/appoint focal persons for each disease Programme	2016	Advertise positions, logistics, office space, equipment and funding
Establish a technical advisory group (TAG) at national level	Identify people with the technical expertise on NTD's	2016	
	Hold TAG meetings	Quarterly 2016-2020	Venue, allowance, transport, stationeries, communication, accommodation, meals
Equip NTD secretariat at national, state and county levels	Equip NTD secretariat at national level	2016 - 2020	Vehicles, generators & office space & equipment, computers& accessories,printers, projectors,stationaries, communication
	Equip NTD secretariat at state level	2016 - 2020	
	Equip NTD secretariat at county level	2016 - 2020	

			equipments & Internet services
Conduct bi-Annual steering committee meetings	Holding of meetings (committee &ad-hoc sub-committees)	Bi-annual	Secretatiat & logistics support
Strategic objective 2: Strengthen and foster partnerships for the control, elimination and eradication of targeted NTDs at national, district and community levels			
Mapping partners on ground (update)	Coordination meeting, Identification of partners, field visits	Annually	Resource persons, Logistical support
MOU at national level	Share MOU to all SMOH Renew the MOUs	2016-2020	Secretariat & logistic support (Stationeries, funds & relevant stake holders)
Conduct Stakeholders meeting	Hold Annual meetings, mobilise for additional partners at National State County levels	2016-2020	
Strengthen partner coordination	Advocate for information sharing at all levels; establish effective & efficient channels of communication.	2016-2020	Program staff, partners and stakeholders
Conduct bi-Annual NTD Partners meetings	Holding of meetings committee &ad-hoc sub-committees,	Bi-annual2016-2020	Secretatiat & logistics support

Table 15(b):

Activity	**Details (sub-activities)**	**Time frame**	**Resources needed**
Strategic objective 3: Enhance high level reviews of NTD programme performance and the use of lessons learnt to enhance advocacy, awareness and effective implementation			
Conduct annual review of program performance	Hold national review meetings	2016-2020 (Annually)	Secretariat & logistic support (Venue, allowance, transport, stationeries, communication, accommodation, meals).
	Hold State review meetings	2016-2020 (Annually)	
	Hold countyreview meetings	2016-2020 (Annually)	
Update annual work plan	Technical group &Task force meeting	2016-2020 (Annually)	Venue, allowance, transport, stationeries, communication, accommodation, meals

Conduct National & State policy makers meeting	Advocacy & sensitisation briefs on the burden of NTDs	Annually	Secretariat & Logistic support.
Strategic objective 4: Strengthen advocacy, visibility and profile of NTD control elimination and eradication interventions at all levels			
Advocacy at all levels	Development & production of advocacy kits	2016-2020	Funds, transport, stationeries, communication
	Advocacy workshop/Visits at national level	2016-2020 (Annual)	Secretariat & logistic support (Venue, allowance, transport, stationeries, communication, accommodation, meals)
	Advocacy campaigns at State level	2016-2020 (Annual)	
	Advocacy & Sensitization workshop/visits to policy makers in line ministries &to other stakeholders	2016-2020 (Annual)	
Disseminate the NTD's strategic plan (master plan, annual plan & country brief)	Produce and disseminate among the relevant stakeholders	2016-2020	Funds for the production and dissemination of the documents
Media Advocacy & sensitization (Press briefing, talk shows on Radio & Television	Production of media briefs/radio & Tv jingles	Quarterly2016-2020	Secretariat and logistic support (Funds, Printing, allowance, transport, stationeries, communication)
	Holding of press briefings, talk shows and airing of radio/tv jingles	Quarterly2016-2020	
	Production of quarterly news letters	Quarterly2016-2020	
Establish NTD website under MoH.	Webpage launch, operationalisation& update of information on NTDs	2016 - 2020	Resource persons, stakeholders, Secretariat, funds.
Development & production of IEC materials	Development of IEC cameo designs	2016-2020	Funds, Printing, allowance, transport, stationeries, communication
	Production of banners&billboards	2016-2020	
	Production of posters, fliers, and brochures	2016-2020	
	Development of Integrated training manuals	2016-2020	
	Production oftraining manuals and SOPs	2016-2020	

3.7 MONITORING AND EVALUATION

Table 18 (a): Strategic Priority 4: Enhance NTD monitoring and evaluation, surveillance and operations research.

Activity	Details (sub-activities)	Timeframe	Resources needed
Strategic objective 1: Develop and promote an integrated NTD M&E framework and improve monitoring of NTDs, within the context of national health information systems.			
Develop an M&E Plan	Hold meeting to design an M&E plan including KPIs, performance questions and data collection tools	2016	Secretariat, Financial and technical assistance
	Production of data collection tools and community treatment registers	2016 - 2020	
Implement an integrated NTD M&E framework	Conduct training for programme implementers on M&E	2016	
	Produce integrated monitoring and evaluation tools and supervisory checklist for state, county and community levels	2016 - 2020	
	Conduct joint supportive Supervision of NTDs programme	2016-2020	
	Conducting independent monitoring of programme implementation	2016-2020	
	Support post MDA coverage surveys as appropriate	2016-2020	
Impact Assessment	Conduct impact assessment for trachoma	2016-2020	
	Conduct impact assessment for SCH/STH	2018 - 2020	
	Conduct Mid-term review of the NTD programme	2018	
	Carry out an end-of-programme external evaluation	2020	
Pre-certification of GWD eradication	Set up in-country certification committee	2016	
	Prepare comprehensive documentation	2016 - 2017	
	Conduct pre-certification visits	2018 - 2019	

Table 18(b)

Activity	Details (sub-activities)	Time frame	Resources needed
Strategic objective 2:Strengthen surveillance of NTDs and strengthen response and control of epidemic-prone NTDs, in particular dengue and Leishmaniasis			
Strengthen surveillance of NTDs and control of epidemic-prone NTDs	Conduct training on surveillance at state and county level	Annually 2016-2020	Secretariat, technical and financial assistance
	Hold meetings for inclusion of NTDs in HMIS registers (clearly specified)	2016	
	Hold meetings for prioritisation of NTDs for surveillance in HMIS and IDSR	2016	
	Hold meetings for adoption and implementation of mHealth system	2016	
	Hold meetings for development of protocols for MDA and case management of priority NTDs	2017	
Conduct Cross-border coordination meetings	Meetings with bordering countries: Ethiopia, Kenya, Uganda, DRC, CAR, Sudan	2016-2020 (Annually)	Funding, venue, allowance, transport, stationeries, communication, accommodation, meals
Strategic objective 3: Support operational research, documentation and evidence			
Support operational research, documentation and evidence	Identification of priority areas for operational research areas	Annually 2016-2020	Secretariat, technical and financial assistance
	Review OR proposals	Annually 2016-2020	
	Conduct operational research on NTDs	2016-2020	
	Document experiences on innovative approaches to integrated NTDs mapping and programme implementation	2016-2020	
	Produce and disseminate a quarterly bulletin on NTDs	Quarterly 2016-2020	

Table 18(c):

Activity	Details (sub-activities)	Time frame	Resources needed
Strategic objective 4 Establish integrated data management systems and support impact analysis for NTD in the WHO African Region as part of the global NTD data management system and global NTD plan			
Establish integrated data management systems	Identify gaps in the data management system	2016	Secretariat and technical assistance
	Conduct TOT training on the data management system at the central level and cascade to lower levels.	2016 - 2020	
	Establish and operate NTD database at national level and decentralized to state and county levels	2016 - 2020	
	Recruit an NTD M&E focal person at the national level	2016	
Data Quality Assurance	Data quality audits Review meeting State coordination meetings	Annually	Technical Assistance Financial support

3.8. POST INTERVENTION SURVEILLANCE AND INTEGRATION WITHIN PRIMARY HEALTH CARE

In order to successfully maintain disease levels below thresholds where they are not of public health significance following intense period of interventions depends on how strong post-intervention surveillance by the primary health care is, as well as their ability to incorporate the surveillance and residual control activities in routine health care delivery.

- Describe activities that will be implemented as part of surveillance for each of the NTDs targeted in this plan.
- Further, describe activities -planned prior to the start of interventions- that will ensure that surveillance and residual intervention activities are incorporated in routine health care delivery.

BUDGET JUSTIFICATION AND ESTIMATES

A budget is a plan for future activities and is a key management tool. It is essential for the national NTD programme to have a simple yet comprehensive budgetary plan in line with the NTDmaster plan. The budget of the master plan should be:

- Comprehensive;
- Concise;
- Cost-effective;
- Accurate and persuasive to stakeholders.

WHO/AFRO recommends the use of the Tool for Integrated Planning and Costing (TIPAC) for the developing comprehensive and realistic budget estimates. The budget summary based on the TIPAC tool can be summarized as shown in the table below.

SUMMARY BUDGET

Activities and Sub-activities	Total budget	Contribution		Gap
		Country	Partners	
1. Coordination, Partnership & Advocacy				
2. Planning and Resource Mobilization				
3. Scale-up Interventions				
Mapping				
Mass drug administration				
Drug (CM) supplies and procurement				
Morbidity management & disability prevention				
Vector control				
Trainings/Capacity Strengthening				
Infrastructure				
Laboratory equipment & support				
Total 3				
4. M&E, Research				
Monitoring surveys				
Disease surveillance				
Operational research				
Programme monitoring				
Data management				
Total 4				
GRAND TOTAL				

ANNEXES

The following are the proposed annexes to the plan of action that will provide justification for the budget estimates and support the various sections elaborated in the main body of the plan:

Part 1: Situation analysis

- Annex 1.1: Summary population table
- Annex 1.2: Chart showing distances between major cities and district headquarters in the country;
- Annex 1.3: Organogram of the Ministry of Health and NTD National programme
- Annex 1.4: Table on available data on PCT-NTD distribution
- Annex 1.5: Table on available data on CM-NTD distribution
- Annex 1.6: Table on status of implementation of PCT NTD interventions
- Annex 1.7: Table on status of implementation of CM NTD interventions

Part 2: Strategic agenda and operational framework

- Annex 2.1: Package of Mass drug administration
- Annex 2.2: Package of Case management and chronic care
- Annex 2.3: PCT algorithm 1
- Annex 2.4: PCT algorithm 2
- Annex 2.5: Algorithm for co-endemicity of CM-NTDs in countries of the African Region
- Annex 2.6 Package of Transmission control - vector/reservoir control
- Annex 2.7: Package of Improvement of Environment, Supply of safe drinking water, sanitation, and operational research
- Annex 2.8 “WHAT to do” by district (operational unit) by operational package
- Annex 2.9: Drug estimates and logistics.
- Annex 2.10: Drug forecasting and logistics.
- Annex 2.11: Summary of progressive scale up and phase out of PCT interventions package
- Annex 2.12: Results framework for the WHO-HQ-AFRO-APOC Strategic Plan, 2010–2015.

Part 3 (optional)

- Disease specific annexes.

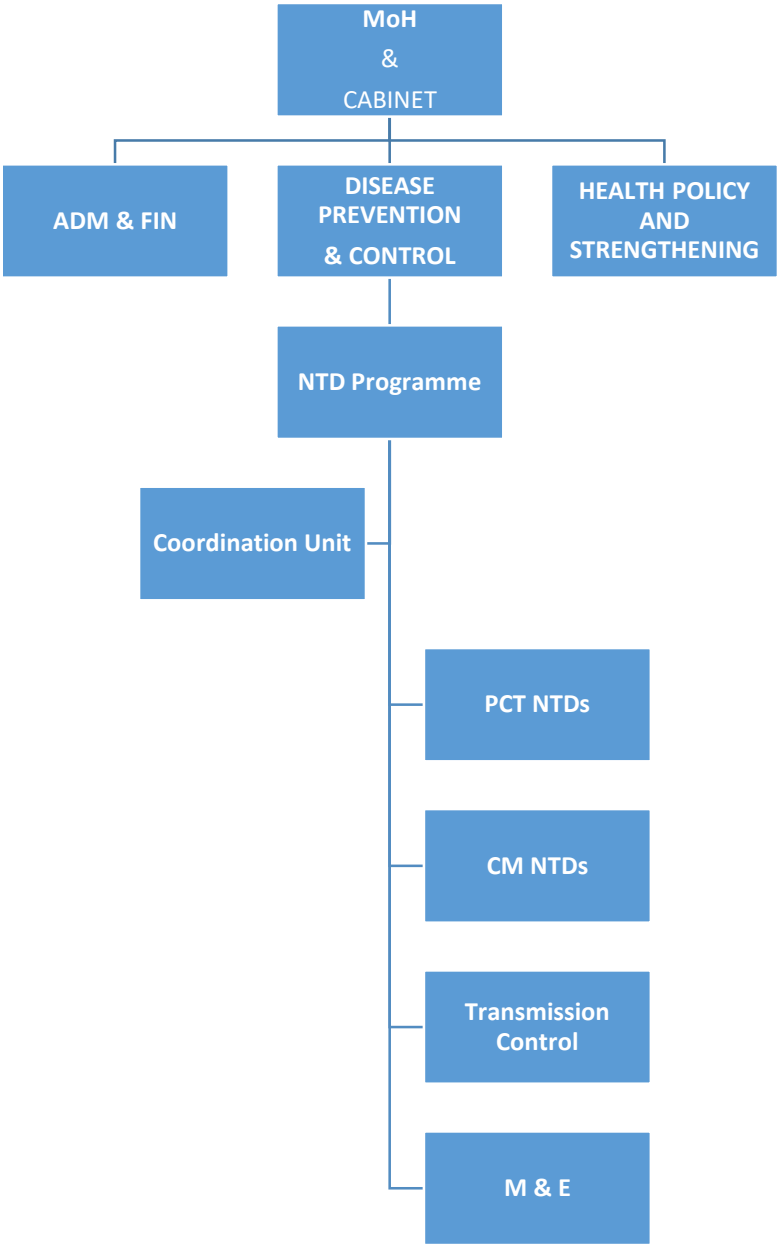
Annex 1.1. : Populations, Villages/communities, Children, Schools, and Health facilities per District and Province or Region

State	County	No. of villages or communities*	Total population	Under fives	5–14 years	No. of primary schools	No. of health centres
Central Equatoria	Juba		501,659	100,332	140,465		
Central Equatoria	Kajo-Keji		270,234	54,047	75,666		
Central Equatoria	Lainya		145,797	29,159	40,823		
Central Equatoria	Morobo		191,764	38,353	53,694		
Central Equatoria	Terekeka		179,245	35,849	50,189		
Central Equatoria	Yei		265,487	53,097	74,336		
Eastern Equatoria	Budi		114,569	22,914	32,079		
Eastern Equatoria	Ikotos		129,557	25,911	36,276		
Eastern Equatoria	Kapoeta East		188,499	37,700	52,780		
Eastern Equatoria	Kapoeta North		118,052	23,610	33,055		
Eastern Equatoria	Kapoeta South		92,824	18,565	25,991		
Eastern Equatoria	Lafon		133,352	26,670	37,339		
Eastern Equatoria	Magwi		204,717	40,943	57,321		
Eastern Equatoria	Torit		140,795	28,159	39,423		
Jonglei	Akobo		173,321	34,664	48,530		
Jonglei	Ayod		172,038	34,408	48,171		

Jonglei	Bor South		287,361	57,472	80,461		
Jonglei	Canal/Pigi		121,939	24,388	34,143		
Jonglei	Duk		118,944	23,789	33,304		
Jonglei	Fangak		160,298	32,060	44,884		
Jonglei	Nyirol		136,849	27,370	38,318		
Jonglei	Pibor		171,756	34,351	48,092		
Jonglei	Pochalla		86,089	17,218	24,105		
Jonglei	Twic East		124,977	24,995	34,994		
Jonglei	Uror		205,498	41,100	57,540		
Lakes	Awerial		58,123	11,625	16,275		
Lakes	Cueibet		177,652	35,530	49,743		
Lakes	Rumbek Centre		239,349	47,870	67,018		
Lakes	Rumbek East		188,944	37,789	52,904		
Lakes	Rumbek North		54,294	10,859	15,202		
Lakes	Wulu		73,641	14,728	20,620		
Lakes	Yirol East		121,575	24,315	34,041		
Lakes	Yirol West		161,556	32,311	45,236		
NBeG	Aweil Centre		108,470	21,694	30,372		
NBeG	Aweil East		538,765	107,753	150,854		
NBeG	Aweil North		272,097	54,419	76,187		
NBeG	Aweil South		147,280	29,456	41,238		
NBeG	Aweil West		302,372	60,474	84,664		
Unity	Abiemnhom		23,796	4,759	6,663		
Unity	Guit		47,718	9,544	13,361		
Unity	Koch		135,205	27,041	37,857		
Unity	Leer		115,798	23,160	32,423		
Unity	Mayendit		80,453	16,091	22,527		
Unity	Mayom		180,057	36,011	50,416		
Unity	Panyijiar		76,099	15,220	21,308		
Unity	Pariang		220,970	44,194	61,872		
Unity	Rubkona		208,507	41,701	58,382		
Upper Nile	Baliet		61,515	12,303	17,224		
Upper Nile	Fashoda		42,548	8,510	11,913		
Upper Nile	Longochuk		81,137	16,227	22,718		
Upper Nile	Luakpiny/Nasir		252,644	50,529	70,740		
Upper Nile	Maban		186,996	37,399	52,359		
Upper Nile	Maiwut		102,044	20,409	28,572		

Upper Nile	Malakal		150,148	30,030	42,041		
Upper Nile	Manyo		63,912	12,782	17,895		
Upper Nile	Melut		58,254	11,651	16,311		
Upper Nile	Panyikang		51,973	10,395	14,552		
Upper Nile	Renk		179,171	35,834	50,168		
Upper Nile	Ulang		108,385	21,677	30,348		
Warrap	Abyei		125,479	25,096	35,134		
Warrap	Gogrial East		144,788	28,958	40,541		
Warrap	Gogrial West		326,139	65,228	91,319		
Warrap	Tonj East		134,803	26,961	37,745		
Warrap	Tonj North		211,921	42,384	59,338		
Warrap	Tonj South		110,436	22,087	30,922		
Warrap	Twic		348,866	69,773	97,683		
WBeG	Jur River		201,947	40,389	56,545		
WBeG	Raga		87,555	17,511	24,515		
WBeG	Wau		237,163	47,433	66,406		
Western Equatoria	Ezo		104,180	20,836	29,170		
Western Equatoria	Ibba		48,681	9,736	13,631		
Western Equatoria	Maridi		102,084	20,417	28,583		
Western Equatoria	Mundri East		59,947	11,989	16,785		
Western Equatoria	Mundri West		54,538	10,908	15,271		
Western Equatoria	Mvolo		60,571	12,114	16,960		
Western Equatoria	Nagero		15,788	3,158	4,421		
Western Equatoria	Nzara		75,151	15,030	21,042		
Western Equatoria	Tambura		73,554	14,711	20,595		
Western Equatoria	Yambio		189,999	38,000	53,200		
TOTAL COUNTRY			**12,020,661**	**2,404,132**	**3,365,785**		

Annex 1.3: Organisational chart of the MoH and the NTD National Programme



Annex 1.4: Summary on available data of PCT-NTD distribution

Legend:

ND (No data): if no information is available
No: Not endemic or below PCT intervention threshold
Yes or known **Prevalence rate** if endemic

*Community is mainly for localised distribution of onchocerciasis and schistosomiasis.
In that case, state in bracket () the number or endemic communities or villages within the District

Annex 1.5: Summary on available data on CM-NTD distribution

Legend:

ND (No data): if no information is available
Nofor Not endemic or below elimination threshold
Yes or known **Prevalence rate** if endemic

*Community is mainly for localised distribution of Guinea worm, which is targeted for eradication.
In that case, state in bracket () the number or endemic communities or villages within the District

Annex 1.6: Summary on status of implementation of PCT NTD interventions in districts

Legend:ND (No data): if no information is available
No: if no intervention is required
MAP: if mapping is planned or on-going
PCT (1),PCT (2) …**PCT (10)**: if MDA, CDTI or Targeted treatment ison-going. In bracket is the number of round being conducted. Examples: MDA1 (1) = 1st round of MDA1 (IVM+ALB), T2 (3) = 3rdround of T2 (PZQ in SAC), CDTI (7) =7th round of IVM in communities for Onchocerciasis
** Loa loa is only for mapping

Annex 1.7: Summary on status of implementation of CM interventions in districts

Legend: **ND** (No data): if no information is available

No: if no active case finding is required (elimination goal is achieved at district level)

ACF: if active case finding is planned or on-going for assessing the disease burden and treating

CM1: if routine case finding and treatment are on-going in peripheral health facilities

CM2: if routine case finding and treatment are on-going and reference to higher levels (hospitals) is organised for confirmation of diagnosis, treatment and prevention of complications and disabilities

PART II: OPERATIONAL FRAMEWORK

Annex 2. 1: Package of Preventive Chemotherapy (PCT) - Mass drug administration (MDA)

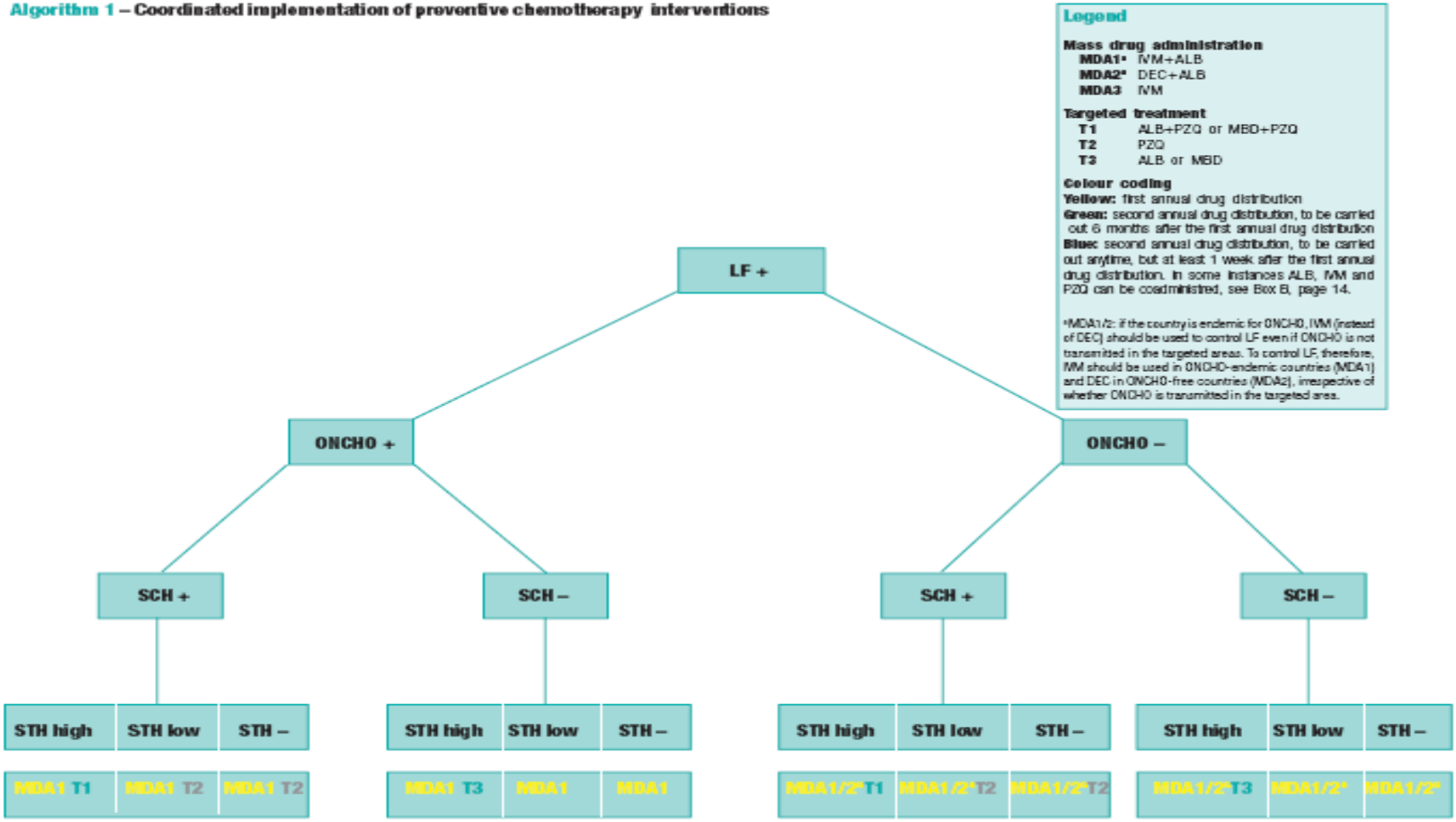
Activity		LF	ONCHO	SCH	STH	Trachoma
Programme coordination		X	X	X	X	X
Advocacy		X	X	X	X	X
Resource mobilization		X	X	X	X	X
Social mobilization		X	X	X	X	X
Training		X	X	X	X	X
Mapping		X	X	X	X	X
Drug distribution	CDTI	X	X	X	X	X
	School			X	X	
	MDA campaign	X		X	X	X
	Child health day				X	X
	Immunization campaign			X	X	X
	Health and nutrition day	X		X		
HSAM		X	X	X	X	X
M&E		X	X	X	X	X

Annex 2.2: Package of Case management (CM) and chronic care

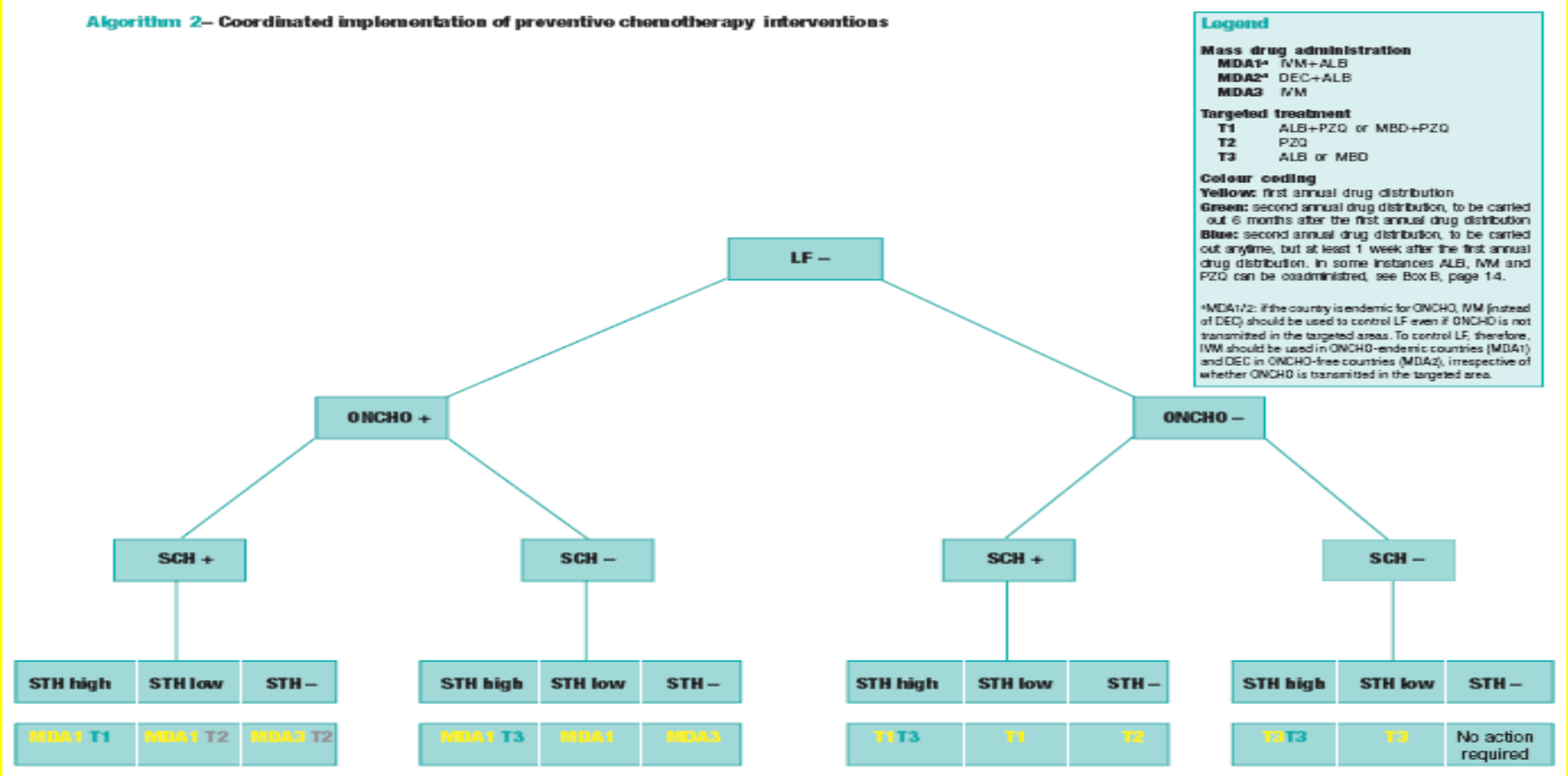
Key interventions	Diseases / conditions										
	GW	Leprosy	YAWS	HAT	LEISH	BU	Lymphadema	TRICHIASIS	Rabies	ECCH	CYST
Advocacy/resource mobilization	x	x	X	x	x	x	x	x	x	x	x
Strengthening partnership	x	x	X	x	x	x	x	x	x	x	x
Intersectoral collaboration	x	x	X	x	x	x	x	x	x	x	x
Health promotion	x	x	X	x	x	x	x	x	x	x	x
Capacity building	x	x	X	x	x	x	x	x	x	x	x
Mapping	x	x	X	x	x	x	x	x	x	x	x
Passive case finding	x	x	X	x	x	x	x	x	x	x	x
Active case finding				x	x	x	x				
Medical treatment	x	x	x	x	x	x	x	x			
Surgery		x				x	x	x			
Prevention of disability		x				x	x				
Integrated vector management/ reservoir control	x			x	x						
Surveillance	x	x	x	x	x	x	x	x	x	x	x

Annex 2. 3: PCT algorithm 1

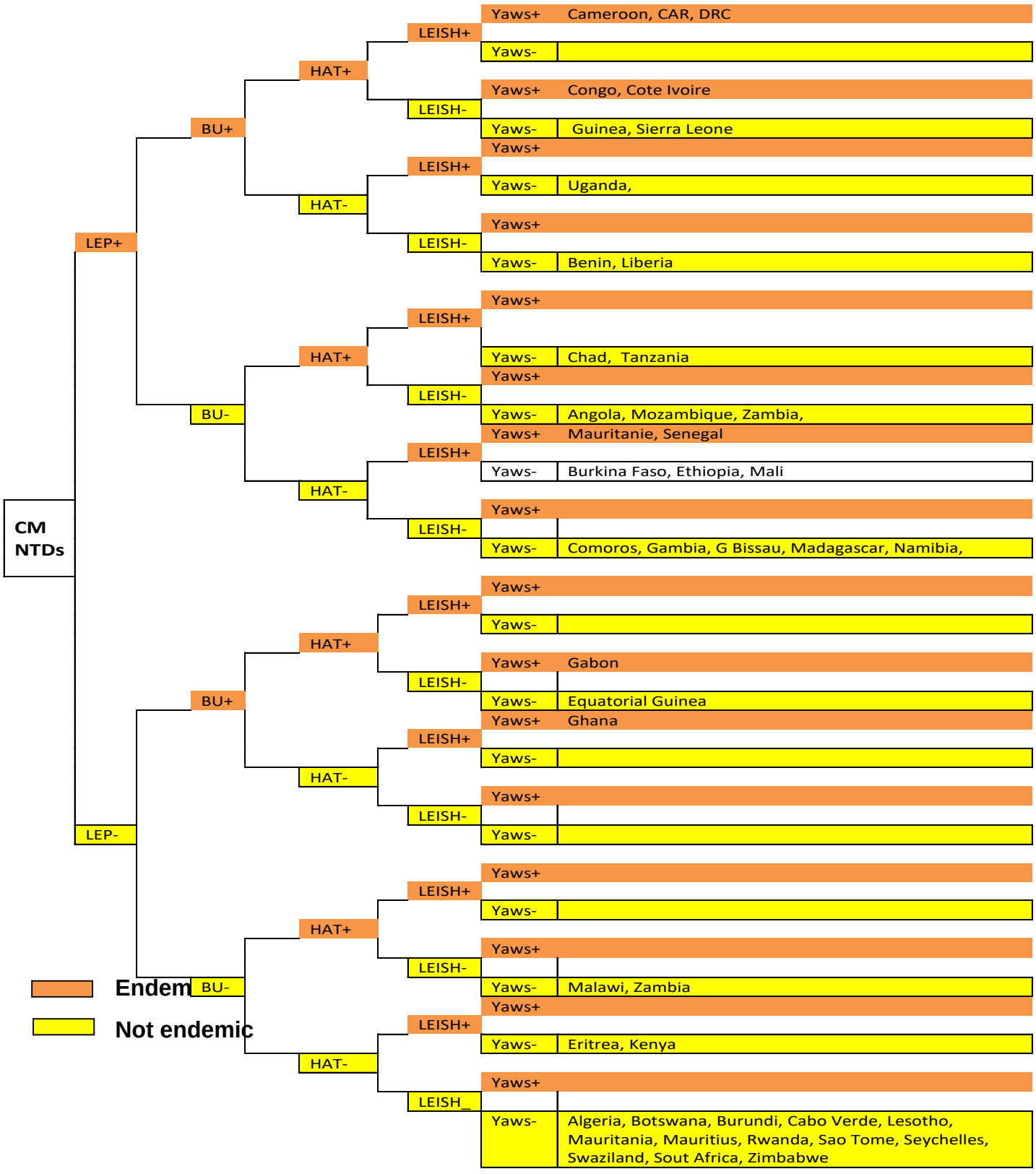
Algorithm 1 – Coordinated implementation of preventive chemotherapy interventions



Annex 2.4: PCT algorithm 2



Annex 2.5: Algorithm for Co-endemicity of CM-NTDs (Leprosy, Buruli ulcer, HAT, Leishmaniasis and yaws) in countries of the WHO African Region



Annex 2.6 Package of Transmission control - vector/reservoir control

Activity	Vectors and Associated NTDs						
	Mosquitoes			Other Vectors			
				Snails	Black fly	Sand fly	Tsetse fly
	LF	Dengue	Malaria	Schisto	Oncho	Leish	HAT
ITN	X	X	X			X	-
IRS	X	X	X			X	
Spacespraying					X		X
Larviciding	X	X	X		X		
Traps							X
Prevention/treatment of breeding sites	X	X	X	x	x	??	

Annex 2.7: Package of Improvement of Environment, Supply of safe drinking water, sanitation, and operational research

Activity	LF	Oncho	SCH	STH	Trac	LEP	Leish	HAT	GW	BU	Rabies	Dengue
Partnership for water supply improvement			X	X	X				X			
Partnership for sanitation improvement			X	X	X							
Social mobilization	X	X	X	X	X	X	X	X	X	X	X	X
Health promotion	X	X	X	X	X	X	X	X	X	X	X	X
Operational research	X	X	X	X	X	X	X	X	X	X	X	X

Annex 2.8: "WHAT to do" by district (operational unit) by operational package

Province or region	District or community *	PCT-NTDs		CM-NTDs		PCT & CM NTDs			NTDs Targeted for Elimination or Eradication	
		MAP	PCT	ACF	CM1+2	IVM	SWS	IoE	SURV	VERIF
Central Equatoria	Juba									
Central Equatoria	Kajo-Keji									
Central Equatoria	Lainya									
Central Equatoria	Morobo									
Central Equatoria	Terekeka									
Central Equatoria	Yei									
Eastern Equatoria	Budi									
Eastern Equatoria	Ikotos									
Eastern Equatoria	Kapoeta East									
Eastern Equatoria	Kapoeta North									
Eastern Equatoria	Kapoeta South									
Eastern Equatoria	Lafon									
Eastern Equatoria	Magwi									
Eastern Equatoria	Torit									
Jonglei	Akobo									
Jonglei	Ayod									
Jonglei	Bor South									

Jonglei	Canal/Pigi									
Jonglei	Duk									
Jonglei	Fangak									
Jonglei	Nyirol									
Jonglei	Pibor									
Jonglei	Pochalla									
Jonglei	Twic East									
Jonglei	Uror									
Lakes	Awerial									
Lakes	Cueibet									
Lakes	Rumbek Centre									
Lakes	Rumbek East									
Lakes	Rumbek North									
Lakes	Wulu									
Lakes	Yirol East									
Lakes	Yirol West									
NBeG	Aweil Centre									
NBeG	Aweil East									
NBeG	Aweil North									
NBeG	Aweil South									
NBeG	Aweil West									
Unity	Abiemnhom									
Unity	Guit									
Unity	Koch									
Unity	Leer									
Unity	Mayendit									
Unity	Mayom									
Unity	Panyijiar									
Unity	Pariang									
Unity	Rubkona									
Upper Nile	Baliet									
Upper Nile	Fashoda									
Upper Nile	Longochuk									
Upper Nile	Luakpiny/Nasir									
Upper Nile	Maban									
Upper Nile	Maiwut									

Upper Nile	Malakal									
Upper Nile	Manyo									
Upper Nile	Melut									
Upper Nile	Panyikang									
Upper Nile	Renk									
Upper Nile	Ulang									
Warrap	Abyei									
Warrap	Gogrial East									
Warrap	Gogrial West									
Warrap	Tonj East									
Warrap	Tonj North									
Warrap	Tonj South									
Warrap	Twic									
WBeG	Jur River									
WBeG	Raga									
WBeG	Wau									
Western Equatoria	Ezo									
Western Equatoria	Ibba									
Western Equatoria	Maridi									
Western Equatoria	Mundri East									
Western Equatoria	Mundri West									
Western Equatoria	Mvolo									
Western Equatoria	Nagero									
Western Equatoria	Nzara									
Western Equatoria	Tambura									
Western Equatoria	Yambio									

LEGEND:

MAP= Mapping; **PCT**= MDA, CDTI and Targeted Treatment; **ACF**= Active Case finding;

CM1+2= Routine case finding and treatment in HF1 (peripheral) and HF2 (reference

hospitals); I**VM**= Integrated Vector Management; **SSWS**= Sanitation and Safe drinking Water Supply;
IoE= Improvement of Environment; **SURV**= Surveillance; **VERIF**= Verification

Annex 2.9: Drug estimates and logistics

NTD programme	Drug	Source drug	Status of procurement (donated or purchased)	Minimum lead time before delivery	In-country consignee
LFE, oncho	IVM				
LFE	DEC				
LEPROSY	MDT blister packs	WHO, Novartis	Donated	6 months	National programme
HAT	Pentamidine/Melarsoprol NEC/DFMO				

Annex 2.10: Drug forecasting and logistics

Drug	Source of drug	Status of procurement (donate/purchased)	Minimum Lead time before delivery	In-country Consignee
IVM				
DEC				
ALB				
MEB				
PZQ				
AZI				

- Complete the following table to describe how essential NTD drug supplies will be obtained.
- Identify sources of drugs (procured or donated)
- Describe management, logistics and monitoring system for delivering drugs to field distributions sites.

Annex 2.11: Summary of progressive scale up and phase out of PCT interventions package

	Status of interventions	**Other PCT-NTD specific activities to be added**
1	LFE Mass drug administration started	Set up sentinel sites for STH impact evaluation
		Coordinate LF MDA with 2nd round of STH MDA, through school based approach, where prevalence is high (>50%).
		Assess schistosomiasis endemicity, if endemic; coordinate LF MDA with praziquantel treatment jointly with 2nd round of STH MDA. If only schistosomiasis is endemic or STH prevalence is low (<50%), coordinate with school based MDA for schistosomiasis.
2	LF MDA planned	-Map schisotosomiais and STH (also trachoma and onchocerciasis if applicable) -Collect baseline for LF, schistosomiasis and STH -Coordinate timing of delivery of MDA through community-based and school-based approaches appropriately.
3	LF not mapped	-Carry out integrated mapping with any of the five PCT diseases and Loa loa, where these are suspected. *Note: for some situations, LF mapping may need to be prioritized and carried out separately.* -Where LF is endemic, to proceed as in 2 above.
4	LF not endemic	-Proceed as in 2 above
5	LF MDA phasing out	-Evaluate STH endemicity status and follow STH guidelines -where onchocerciasis is co-endemic, continue ivermectin distribution and follow guidelines for onchocerciasis control.

Annex 2.12: Results framework for the WHO-HQ-AFRO-APOC Strategic Plan, 2010–2015

Strategic priorities	Strategic objectives	Core indicators
1 Strengthen advocacy, coordination and partnerships	I. Strengthen coordination mechanisms for the NTD control programme at regional, national and subnational levels in the African Region; II. Strengthen and foster partnerships for the control, elimination and eradication of targeted NTDs at regional, national, district and community levels; III. Enhance high level reviews of NTD programme performance and the use of lessons learnt to enhance advocacy, awareness and effective implementation of targeted interventions; IV. Strengthen advocacy, visibility and profile of NTD control elimination and eradication interventions at all levels in the African Region.	• Minutes of high-level NTD coordination meetings in countries; • Minutes of partnership events on NTDs; • Number of high level advocacy events on NTDs; • Number of partners involved in NTD programme.
2 Enhance resource mobilization and planning for results in NTD control	I. Support countries to develop integrated multiyear strategic plans and gender-sensitive annual operational plans for the control, elimination and eradication of targeted NTDs II. Enhance resource mobilization approaches and strategies at regional, national and sub-national levels for NTD interventions III. Strengthen the integration and linkages of NTD programme and financial plans into sector-wide and national budgetary and financing mechanisms IV. Support countries to develop and update national NTD policies and elaborate guidelines and tools to guide effective policy and programme implementation	• Number of countries with updated national integrated NTD strategic plans; • Number of NTD guidelines and NTD planning and implementation tools developed; • Number of countries with adapted national guidelines and tools; • Presence of NTD budget line; • Total amount of

Strategic priorities	Strategic objectives	Core indicators
		financial resources available for NTD activities; • Percentage of planned NTD funds received.
3 Scaleup access to interventions, treatment and NTD service delivery capacity, within the overall health system	I. Scale up an integrated preventive chemotherapy, including access to interventions forlymphatic filariasis, soil transmitted helminthiasis,onchocerciasis, schistosomiasis and trachoma; II. Scale up integrated case-management-based disease interventions, especially do the following: a. Accelerate leprosy elimination activities; b. Intensify guinea worm eradication and surveillance activities in order to interrupt transmission in the three remaining endemic countries in the shortest time possible; c. Enhance HAT control interventions for human African trypanosomiasis; d. Strengthen national programmes to control Buruli ulcer and endemic treponematosis; e. Strengthen leishmaniasis control and human rabies prevention; III. Strengthening integrated vector management for targeted NTDs. IV. Strengthen capacity at the national level for NTD programme management and implementation and accelerate implementation of disease burden assessments and integrated mapping of NTDs;	• Number of countries with completed integrated mapping of NTDs; • Drug administration coverage; • National coverage; • Parasitological prevalence; • Percentage of disease-specific targets achieved.
4 Enhance NTD monitoring and evaluation, surveillance and operations research	I. Develop and promote an integrated NTD M&E framework and improve monitoring of NTDs, within the context of national health information systems.This will include strengthening the reporting and response to severe adverse events (SAEs) by leveraging on-going efforts to strengthen	• NTD data completeness and timeliness; • Number of evaluation studies conducted and results

Strategic priorities	Strategic objectives	Core indicators
	pharmacyvigilance systems in the African Region; II. Strengthen surveillance of NTDs and strengthen response and control of epidemic-prone NTDs, in particular dengue and leishmaniasis; III. Support operational research, documentation and evidence to guide innovative approaches to NTD programme interventions; IV. Establish integrated data management systems and support impact analysis for NTD in the WHO African Region as part of the global NTD data management system and global NTD plan.	disseminated; • Number of operational research studies conducted and results disseminated; • A functional datamanagement system.

Annex 3: NTD Distribution by County

Table : Known disease distribution in the Country (Onchocerciasis)

District/Region/ State	Location/ Site/	Prevalence (numbers/ rate/proportion)	Study method	Year of survey and reference
Central Equatoria	Juba	0 - 45%	REMO	2006 MoH Unpbl. Report 2007
Central Equatoria	Kajo-Keji			
Central Equatoria	Lainya			
Central	Morobo			

Equatoria				
Central Equatoria	Terekeka			
Central Equatoria	Yei			
Eastern Equatoria	Budi			
Eastern Equatoria	Ikotos			
Eastern Equatoria	Kapoeta East			
Eastern Equatoria	Kapoeta North			
Eastern Equatoria	Kapoeta South			
Eastern Equatoria	Lafon			
Eastern Equatoria	Magwi			
Eastern Equatoria	Torit			
Jonglei	Akobo			
Jonglei	Ayod			
Jonglei	Bor South			
Jonglei	Canal/Pigi			
Jonglei	Duk			
Jonglei	Fangak			
Jonglei	Nyirol			
Jonglei	Pibor			
Jonglei	Pochalla			
Jonglei	Twic East			
Jonglei	Uror			
Lakes	Awerial			
Lakes	Cueibet			
Lakes	Rumbek Centre			
Lakes	Rumbek East			
Lakes	Rumbek North			
Lakes	Wulu			
Lakes	Yirol East			

Lakes	Yirol West			
NBeG	Aweil Centre			
NBeG	Aweil East			
NBeG	Aweil North			
NBeG	Aweil South			
NBeG	Aweil West			
Unity	Abiemnhom			
Unity	Guit			
Unity	Koch			
Unity	Leer			
Unity	Mayendit			
Unity	Mayom			
Unity	Panyijiar			
Unity	Pariang			
Unity	Rubkona			
Upper Nile	Baliet			
Upper Nile	Fashoda			
Upper Nile	Longochuk			
Upper Nile	Luakpiny/Nasir			
Upper Nile	Maban			
Upper Nile	Maiwut			
Upper Nile	Malakal			
Upper Nile	Manyo			
Upper Nile	Melut			
Upper Nile	Panyikang			
Upper Nile	Renk			
Upper Nile	Ulang			
Warrap	Abyei			
Warrap	Gogrial East			
Warrap	Gogrial West			
Warrap	Tonj East			
Warrap	Tonj North			
Warrap	Tonj South			
Warrap	Twic			
WBeG	Jur River			
WBeG	Raga			
WBeG	Wau			
Western Equatoria	Ezo			
Western	Ibba			

Equatoria				
Western Equatoria	Maridi			
Western Equatoria	Mundri East			
Western Equatoria	Mundri West			
Western Equatoria	Mvolo			
Western Equatoria	Nagero			
Western Equatoria	Nzara			
Western Equatoria	Tambura			
Western Equatoria	Yambio			

Table : Known disease distribution in the Country (Lymphatic Filariasis)

District/Region/ State	Location/ Site/	Prevalence (numbers/ rate/proportion)	Study method	Year of survey and reference
Central Equatoria	Juba	45%	ICT	2010 MC
Central Equatoria	Kajo-Keji	1 - 10 %	ICT	2010 MC
Central Equatoria	Lainya	10 - 50 %	ICT	2010 MC
Central Equatoria	Morobo	1 - 10 %	ICT	2010 MC
Central Equatoria	Terekeka	1 - 10 %	ICT	2010 MC
Central Equatoria	Yei	1 - 10 %	ICT	2010 MC
Eastern Equatoria	Budi			
Eastern Equatoria	Ikotos			
Eastern Equatoria	Kapoeta East			
Eastern Equatoria	Kapoeta North			
Eastern Equatoria	Kapoeta South			
Eastern Equatoria	Lafon			
Eastern Equatoria	Magwi			
Eastern Equatoria	Torit			
Jonglei	Akobo			
Jonglei	Ayod			
Jonglei	Bor South			
Jonglei	Canal/Pigi			
Jonglei	Duk			

Jonglei	Fangak			
Jonglei	Nyirol			
Jonglei	Pibor			
Jonglei	Pochalla			
Jonglei	Twic East			
Jonglei	Uror			
Lakes	Awerial			
Lakes	Cueibet			
Lakes	Rumbek Centre			
Lakes	Rumbek East			
Lakes	Rumbek North			
Lakes	Wulu			
Lakes	Yirol East			
Lakes	Yirol West			
NBeG	Aweil Centre			
NBeG	Aweil East			
NBeG	Aweil North			
NBeG	Aweil South			
NBeG	Aweil West			
Unity	Abiemnhom			
Unity	Guit			
Unity	Koch			
Unity	Leer			
Unity	Mayendit			
Unity	Mayom			
Unity	Panyijiar			
Unity	Pariang			
Unity	Rubkona			
Upper Nile	Baliet			
Upper Nile	Fashoda			
Upper Nile	Longochuk			
Upper Nile	Luakpiny/Nasir			
Upper Nile	Maban			
Upper Nile	Maiwut			
Upper Nile	Malakal			
Upper Nile	Manyo			
Upper Nile	Melut			
Upper Nile	Panyikang			
Upper Nile	Renk			
Upper Nile	Ulang			
Warrap	Abyei			
Warrap	Gogrial East			

Warrap	Gogrial West			
Warrap	Tonj East			
Warrap	Tonj North			
Warrap	Tonj South			
Warrap	Twic			
WBeG	Jur River			
WBeG	Raga			
WBeG	Wau			
Western Equatoria	Ezo			
Western Equatoria	Ibba			
Western Equatoria	Maridi			
Western Equatoria	Mundri East			
Western Equatoria	Mundri West			
Western Equatoria	Mvolo			
Western Equatoria	Nagero			
Western Equatoria	Nzara			
Western Equatoria	Tambura			
Western Equatoria	Yambio			

Table : Known disease distribution in the Country (schistosomiasis)

District/Region/ State	**Location/Site**	**Prevalence (numbers/ rate/proportion)**	**Study method**	**Year of survey and reference**
Central Equatoria	Juba	45%	Urine filtration	2006 MoH Unpbl. Report 2007
Central Equatoria	Kajo-Keji	21 %		2010
Central Equatoria	Lainya	17 %		2010
Central Equatoria	Morobo	8 %		2010
Central Equatoria	Terekeka	> 50 %		2010
Central Equatoria	Yei	34 %		2010
Eastern Equatoria	Budi			
Eastern	Ikotos			

Equatoria				
Eastern Equatoria	Kapoeta East			
Eastern Equatoria	Kapoeta North			
Eastern Equatoria	Kapoeta South			
Eastern Equatoria	Lafon			
Eastern Equatoria	Magwi			
Eastern Equatoria	Torit			
Jonglei	Akobo			
Jonglei	Ayod			
Jonglei	Bor South			
Jonglei	Canal/Pigi			
Jonglei	Duk			
Jonglei	Fangak			
Jonglei	Nyirol			
Jonglei	Pibor			
Jonglei	Pochalla			
Jonglei	Twic East			
Jonglei	Uror			
Lakes	Awerial			
Lakes	Cueibet			
Lakes	Rumbek Centre			
Lakes	Rumbek East			
Lakes	Rumbek North			
Lakes	Wulu			
Lakes	Yirol East			
Lakes	Yirol West			
NBeG	Aweil Centre			
NBeG	Aweil East			
NBeG	Aweil North			
NBeG	Aweil South			
NBeG	Aweil West			
Unity	Abiemnhom			
Unity	Guit			
Unity	Koch			
Unity	Leer			
Unity	Mayendit			

Unity	Mayom			
Unity	Panyijiar			
Unity	Pariang			
Unity	Rubkona			
Upper Nile	Baliet			
Upper Nile	Fashoda			
Upper Nile	Longochuk			
Upper Nile	Luakpiny/Nasir			
Upper Nile	Maban			
Upper Nile	Maiwut			
Upper Nile	Malakal			
Upper Nile	Manyo			
Upper Nile	Melut			
Upper Nile	Panyikang			
Upper Nile	Renk			
Upper Nile	Ulang			
Warrap	Abyei			
Warrap	Gogrial East			
Warrap	Gogrial West			
Warrap	Tonj East			
Warrap	Tonj North			
Warrap	Tonj South			
Warrap	Twic			
WBeG	Jur River			
WBeG	Raga			
WBeG	Wau			
Western Equatoria	Ezo			
Western Equatoria	Ibba			
Western Equatoria	Maridi			
Western Equatoria	Mundri East			
Western Equatoria	Mundri West			
Western Equatoria	Mvolo			
Western Equatoria	Nagero			
Western Equatoria	Nzara			

Western Equatoria	Tambura			
Western Equatoria	Yambio			

Table : Known disease distribution in the Country (Soil Transmitted Helmithiasis)

District/Region/ State	**Location/ Site/**	**Prevalence (numbers/ rate/proportion)**	**Study method**	**Year of survey and reference**
Central Equatoria	Juba	45%	Kato Katz	2006 MoH Unpbl. Report 2007
Central Equatoria	Kajo-Keji	31%		2010
Central Equatoria	Lainya	69%		2010
Central Equatoria	Morobo	54%		2010
Central Equatoria	Terekeka	36%		2010
Central Equatoria	Yei	53%		2010
Eastern Equatoria	Budi			
Eastern Equatoria	Ikotos			
Eastern Equatoria	Kapoeta East			
Eastern Equatoria	Kapoeta North			
Eastern Equatoria	Kapoeta South			
Eastern Equatoria	Lafon			
Eastern Equatoria	Magwi			
Eastern Equatoria	Torit			
Jonglei	Akobo			
Jonglei	Ayod			
Jonglei	Bor South			
Jonglei	Canal/Pigi			
Jonglei	Duk			
Jonglei	Fangak			
Jonglei	Nyirol			
Jonglei	Pibor			
Jonglei	Pochalla			
Jonglei	Twic East			
Jonglei	Uror			

Lakes	Awerial			
Lakes	Cueibet			
Lakes	Rumbek Centre			
Lakes	Rumbek East			
Lakes	Rumbek North			
Lakes	Wulu			
Lakes	Yirol East			
Lakes	Yirol West			
NBeG	Aweil Centre			
NBeG	Aweil East			
NBeG	Aweil North			
NBeG	Aweil South			
NBeG	Aweil West			
Unity	Abiemnhom			
Unity	Guit			
Unity	Koch			
Unity	Leer			
Unity	Mayendit			
Unity	Mayom			
Unity	Panyijiar			
Unity	Pariang			
Unity	Rubkona			
Upper Nile	Baliet			
Upper Nile	Fashoda			
Upper Nile	Longochuk			
Upper Nile	Luakpiny/Nasir			
Upper Nile	Maban			
Upper Nile	Maiwut			
Upper Nile	Malakal			
Upper Nile	Manyo			
Upper Nile	Melut			
Upper Nile	Panyikang			
Upper Nile	Renk			
Upper Nile	Ulang			
Warrap	Abyei			
Warrap	Gogrial East			
Warrap	Gogrial West			
Warrap	Tonj East			
Warrap	Tonj North			
Warrap	Tonj South			
Warrap	Twic			
WBeG	Jur River			

WBeG	Raga			
WBeG	Wau			
Western Equatoria	Ezo			
Western Equatoria	Ibba			
Western Equatoria	Maridi			
Western Equatoria	Mundri East			
Western Equatoria	Mundri West			
Western Equatoria	Mvolo			
Western Equatoria	Nagero			
Western Equatoria	Nzara			
Western Equatoria	Tambura			
Western Equatoria	Yambio			

Table: Known disease distribution in the Country (Trachoma)

District/Region/ State	**Location/ Site/**	**Prevalence (numbers/ rate/proportion)**	**Study method**	**Year of survey and reference**
Central Equatoria	Juba	45%	Eye examination	2006 MoH Unpbl. Report 2007
Central Equatoria	Kajo-Keji			
Central Equatoria	Lainya			
Central Equatoria	Morobo			
Central Equatoria	Terekeka			
Central Equatoria	Yei			
Eastern Equatoria	Budi			
Eastern Equatoria	Ikotos			
Eastern Equatoria	Kapoeta East			
Eastern Equatoria	Kapoeta North			
Eastern Equatoria	Kapoeta South			
Eastern Equatoria	Lafon			
Eastern Equatoria	Magwi			
Eastern Equatoria	Torit			
Jonglei	Akobo			
Jonglei	Ayod			

Jonglei	Bor South			
Jonglei	Canal/Pigi			
Jonglei	Duk			
Jonglei	Fangak			
Jonglei	Nyirol			
Jonglei	Pibor			
Jonglei	Pochalla			
Jonglei	Twic East			
Jonglei	Uror			
Lakes	Awerial			
Lakes	Cueibet			
Lakes	Rumbek Centre			
Lakes	Rumbek East			
Lakes	Rumbek North			
Lakes	Wulu			
Lakes	Yirol East			
Lakes	Yirol West			
NBeG	Aweil Centre			
NBeG	Aweil East			
NBeG	Aweil North			
NBeG	Aweil South			
NBeG	Aweil West			
Unity	Abiemnhom			
Unity	Guit			
Unity	Koch			
Unity	Leer			
Unity	Mayendit			
Unity	Mayom			
Unity	Panyijiar			
Unity	Pariang			
Unity	Rubkona			
Upper Nile	Baliet			
Upper Nile	Fashoda			
Upper Nile	Longochuk			
Upper Nile	Luakpiny/Nasir			
Upper Nile	Maban			
Upper Nile	Maiwut			
Upper Nile	Malakal			
Upper Nile	Manyo			
Upper Nile	Melut			
Upper Nile	Panyikang			
Upper Nile	Renk			

Upper Nile	Ulang			
Warrap	Abyei			
Warrap	Gogrial East			
Warrap	Gogrial West			
Warrap	Tonj East			
Warrap	Tonj North			
Warrap	Tonj South			
Warrap	Twic			
WBeG	Jur River			
WBeG	Raga			
WBeG	Wau			
Western Equatoria	Ezo			
Western Equatoria	Ibba			
Western Equatoria	Maridi			
Western Equatoria	Mundri East			
Western Equatoria	Mundri West			
Western Equatoria	Mvolo			
Western Equatoria	Nagero			
Western Equatoria	Nzara			
Western Equatoria	Tambura			
Western Equatoria	Yambio			