

MINISTRY OF HEALTH SEYCHELLES



Seychelles Neglected Tropical Diseases Master Plan 2015-2020

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ACRONYMS

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
CHW	Community Health Worker
CM	Case Management (NTDs)
ComDT	Community Directed Treatment
DALYs	Disability Adjusted Life Years
DEC	Diethyl carbamazine Citrate, an anti-filarial drug
DFMO	DL - alpha-difluoro-methyl-ornithine (Eflornithine), a trypanocidal drug
DHT	District Health Team
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
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

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INTRODUCTION

Neglected tropical diseases (NTDs) are a medically diverse group of infections caused by a variety of pathogens such as viruses, bacteria, protozoa and helminths. The list of these 17 diseases as identified by the World Health Organisation (WHO) includes *Dengue*, *Rabies*, *Chagas disease*, *Human African trypanosomiasis (sleeping sickness)*, *Leishmaniasis*, *Cysticercosis*, *Dracunculiasis (guinea-worm disease)*, *Echinococcosis*, *Foodborne trematodiasis*, *Lymphatic filariasis*, *Onchocerciasis (river blindness)*, *Schistosomiasis*, *Soil-transmitted helminthiasis*, *Buruli ulcer*, *Leprosy*, *Trachoma* and *Yaws*. These NTDs are endemic in 149 countries of the world, and affect more than 1 billion people, that is one sixth of the world's population. Neglected tropical diseases kill an estimated 534 000 people worldwide every year. The health burden that they bring about are tremendous as they cause immense human suffering and death. They pose a devastating obstacle to health, frustrate the achievement of the health-related United Nations Millennium Development Goals, and remain a serious impediment to poverty reduction and overall socioeconomic development.

Strategies, tools and safe and effective drugs exist for some of these NTDs that make it feasible to implement large-scale preventive chemotherapy. These NTDs are referred to as Preventive Chemotherapy neglected tropical diseases (PC NTDs) and they include lymphatic filariasis, onchocerciasis, schistosomiasis and soil-transmitted helminthiasis.

For a very long time, neglected tropical diseases received little or no attention at all, despite their magnitude and their impact on both economic development and quality of life. But during the last five years, a lot of work has been done by WHO and partners to convince the world and particularly political leaders in endemic and non endemic countries to invest in the control of neglected tropical diseases. In 2007, the organisation published the '*Global Plan to Combat Neglected Tropical Diseases 2008–2015*' which has as its goal to prevent, control, eliminate or eradicate NTDs. Since then, WHO, its international partners, donor agencies and NGOs have set up better channels to support endemic countries to distribute both donated and purchased drugs to needy areas. In addition to efforts made by endemic countries, funds have been pledged by the world community for the promotion of global health. Substantial contribution has come from the United States government, the United Kingdom Department for International Development (DFID), the Bill and Melinda Gates Foundation, The Carter Center, the United States Agency for International Development (USAID) and the private sector.

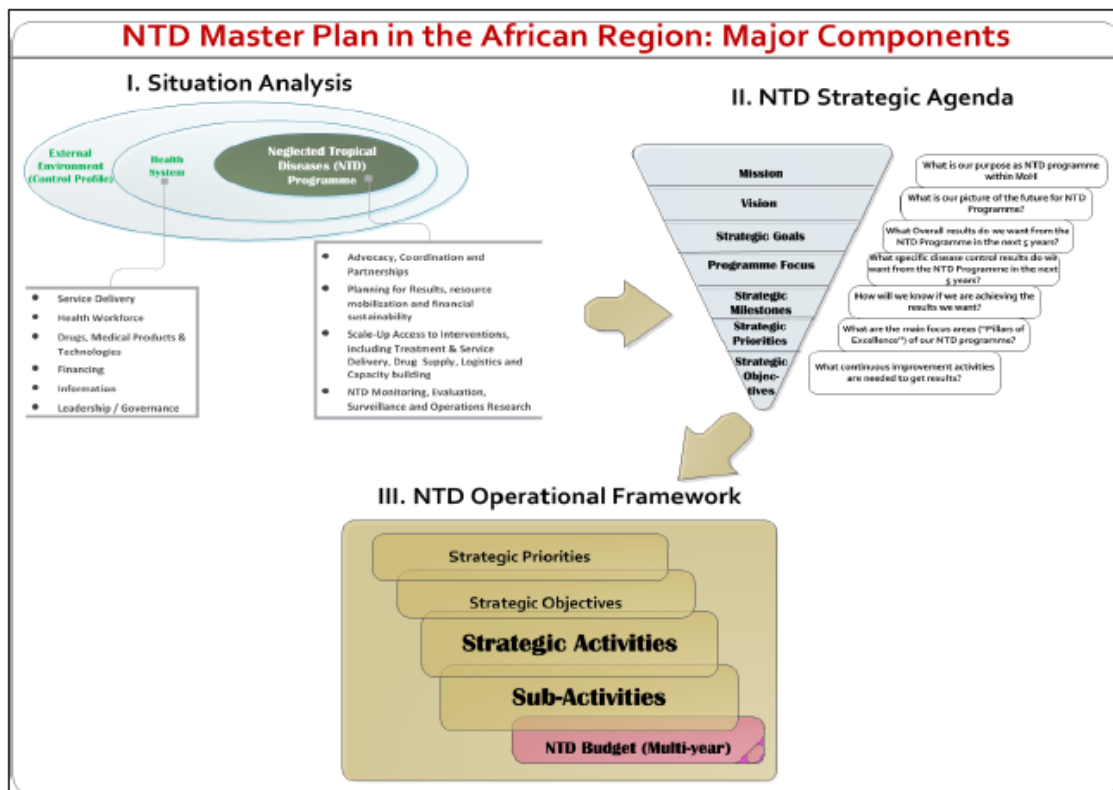
To note, the African Region bears about half of the global burden of neglected tropical diseases (NTDs). Populations at risk in Africa requiring preventive chemotherapy range from 123 million for onchocerciasis to 470 million for lymphatic filariasis. The most predominant case management NTDs are Buruli ulcer with 3443 cases, human African trypanosomiasis with 7197 cases and leprosy with 25 231 cases.

With this health burden both globally and in the African region, In May 2013, there was renewed momentum for countries to invest in NTDs when the World Health Assembly adopted resolution WHA 66.12, where the ministers of health of Member States in the African Region expressed their commitment to scaling up interventions against the major NTDs. The global commitments to control NTDs culminated in the publication by World Health Organization in January 2012 of the document "*Accelerating Work to Overcome the Global Impact of Neglected Tropical Diseases: A Roadmap for Implementation*". In June 2012, in the Accra Urgent Call to Action on NTDs, all stakeholders were urged to accelerate efforts to eliminate targeted NTDs in

the African Region. In 2013, the regional consultative meeting on NTDs in Brazzaville expressed the need for a strategy to accelerate the elimination of NTDs in the Region.

As a member states Seychelles was amongst those who also pledged to expand and implement, as appropriate, interventions against neglected tropical diseases in order to reach the targets agreed in the Global Plan to Combat Neglected Tropical Diseases 2008–2015, as well to devise plans for maintaining universal access to and coverage with interventions against neglected tropical diseases

Figure 1: Major components of Seychelles NTD Master Plan



Part 1: SITUATION ANALYSIS

1.1 Country profile

Seychelles is a 115 islands country spanning an archipelago scattered over 1million square kilometres of sea in the middle of the Western Indian Ocean. The archipelago lies 1,500 kilometres east of the mainland South East Africa and north east of the island Madagascar. Mahe the most important island lies between 4degrees south latitude and 55 degrees east longitude. The capital of Seychelles is Victoria and it is located on the island of Mahé.

Figure 2: Location of Seychelles in the Indian Ocean



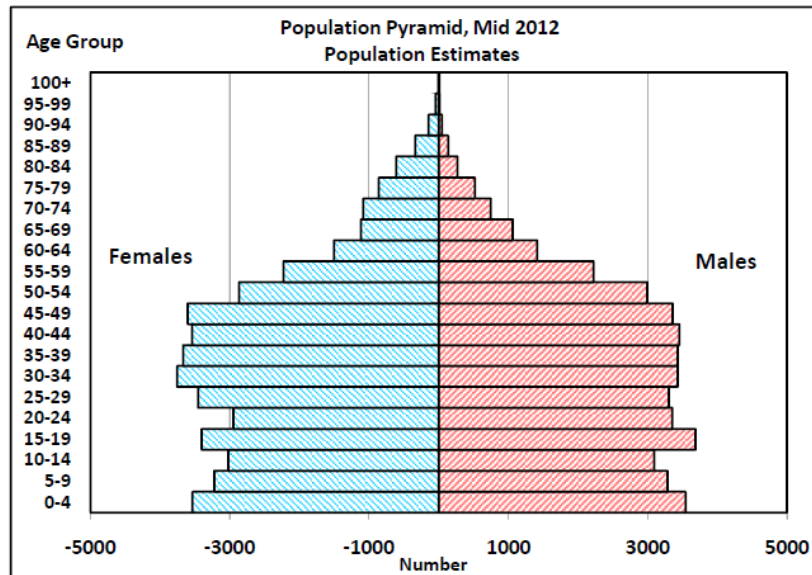
1.1.1 Administrative, demographic and community structures

Seychelles is divided into the inner and outer islands. It is administratively divided into 27 districts, all of which are located on the inner islands. The outer islands are not part of any districts. Ten of the districts make up the Greater Victoria, 14 are located on the rural part of the main island Mahe, two on Praslin and one on La Digue. Because of its small size, the 27 districts are grouped into 6 regions; five on the main island Mahe - Central, North, East, South, West and one comprised of the districts on the islands of Praslin and La Digue.

Table 1: National population data, schools and health facilities at district level

Region	District	Total population	Number of villages	< 5 yrs	5-14 yrs	Number of primary schools	Number of peripheral health facilities
North	Belombre	3,667	4	237	571	1	0
	Beau Vallon	4,055	5	238	661	2	1
	Glacis	3,791	5	226	562	0	1
	Anse Etoile	4,665	5	291	763	2	3
Central	English River	4,150	5	264	618	0	1
	Mont Buxton	3,055		183	466	1	0
	St Louis	3,174	5	215	461	0	0
	Bel Air	2,826	5	174	415	1	0
	Mont Fleuri	3,382	5	237	540	2	2
East	Plaisance	3,740	5	251	590	1	0
	Roche Caiman	3,197	5	196	427	0	0
	Les Mamelles	2,638	5	148	448	0	1
	Cascade	4,220	5	275	643	1	0
	Pointe Larue	3,037	5	250	523	1	0
	Anse Aux Pins	3,808	5	273	618	1	1
South	Au Cap	4,187	5	262	664	1	0
	Anse Royale	4,122	5	256	683	1	1
	Takamaka	2,794	5	158	465	1	1
	Baie Lazare	3,568	5	212	557	1	1
West	Anse Boileau	3,967	5	268	666	1	1
	Grand Anse Mahe	3,072	5	203	569	1	1
	Port Glaud	2,544	5	156	453	1	1
Inner islands	Grand Anse Praslin	3,686	6	263	618	1	1
	Baie Ste Anne	4,823	5	338	706	1	1
	La Digue	2,731	15	162	447	1	1
Outer islands	Outer Islands	1,031	0	5	12	0	0
Total		89,930	786	5,741	14,146	23	19

Figure 4: Population Pyramid for Seychelles mid 2012



The estimated mid-year population in 2013 was 89,949 whilst the 2010 census projected a total number of 26,376 households (National Bureau of Statistics, 2013). The population structure shows an upward movement from a younger to an older population with predominance of males, and females forming 48.4% of the population for mid-year estimated population, 2013. The population is characterised by a slow growth rate, low births, and low mortality and affected by external migration, typical to small island states

The life expectancy in Seychelles was estimated at 74.2 years in 2012. In that same year, 20% of the population was under 15 years old, with 7% aged 65 years or more. Over 92% of the adult population in Seychelles is literate, and literacy rate of school aged children has risen to well over 98%.

1.1.2 Geographical characteristics

The Seychelles archipelago of 115 islands is made up of 43% granitic islands with high hills and mountains and the outlying islands and 57% of coralline islands consisting of 73 or more for most part situated only a little above sea-level. Mahe, the most important island is 27 kms long and 11 kms wide and rise abruptly from the sea to a maximum altitude of 905 metres in the mountain of Morne Seychellois.

The two other significant islands in terms of size and population are Praslin and La Digue. Praslin is 33.6kms from Mahe, and La Digue 48kms away. In spite of the close proximity of Seychelles to the Equator, the climate is healthy. The capital of Seychelles is Victoria.

The temperature in Seychelles varies little throughout the year ranging between 24-32°C. Two distinct seasons are noticeable in the Seychelles; the Southeast monsoon from May to October, when the south-east trade winds brings relatively dry periods with little precipitation. The North west monsoon occurs between November and April and is generally the rainy season.

Figure 5: Seychelles Temperature (2011 and 2012)

Mean Temp ^{oC}	2011		2012	
	Min.	Max.	Min.	Max.
January	24.0	29.6	24.5	29.8
February	25.4	30.5	25.0	30.5
March	25.1	31.3	25.3	30.9
April	25.9	31.5	25.5	32.1
May	26.7	31.8	26.0	31.2
June	25.4	30.1	25.1	29.7
July	24.8	29.8	24.2	29.0
August	24.4	29.0	24.7	29.1
September	24.7	29.9	24.5	29.2
October	24.2	29.1	24.7	29.5
November	24.7	30.3	24.8	30.8
December	24.8	30.7	24.9	30.5
Year	25.0	30.3	27.7	30.2

The rainfall in Seychelles varies considerably from island to island and from year to year. Most of the rainfall occurs during the hot months when the northwest tradewinds blows, that is between November and April. The islands are outside of the hurricane zone.

Figure 6: Seychelles Rainfall

Rainfall (mm)	2009	2010	2011	2012
January	437	369	483	177
February	194	248	36	227
March	55	287	205	95
April	237	400	159	196
May	160	68	11	50
June	26	55	15	57
July	288	80	86	37
August	57	59	168	55
September	110	150	66	258
October	364	78	780	214
November	47	31	227	105
December	352	229	236	269
Total	2,327	2,053	2,472	1,739

Rivers: There are 146 named rivers on Mahe, Praslin, La Digue and Silhouette. The granitic islands have many small, steep watercourses, but most of them have only ephemeral flows. Groundwater resources are limited and often contains traces of salt. The total dam capacity is 0.970 million m³. The Rochon Dam, which collects its waters from the Rochon River, has a storage capacity of 0.050 million m³. Surplus water is forwarded to the La Gogue Dam, which has a storage capacity of 0.920 million m³. About 1.0 million m³/year of desalinated water is

produced from four desalination plants for potable use to compensate for the shortage that occurs during the dry period. Most of the agricultural, domestic and industrial waters come from the small streams or rivers from the hillsides, depending on monsoons and the rainfall pattern.

The main ecosystem setting in Seychelles are coastal, highland- mountain, wetland and forest land. Out of the 458.7km² of land of the Seychelles, 406km² is covered by forests. The proportion of land area under protection has reached more than 50% of the total land area of the country. The urban areas is located in the coastal highland and wetland areas whilst the forest setting is mainly rural.

All economic activities are located on a narrow coastal plain of Mahe with an average elevation of only two meters above sea level. Land reclamation of sea is particularly in Praslin where 350 hectares have been reclaimed, and along the east coast of Mahe. These issues have a grave implication for the population and the economy in the event of Tsunami or abnormal rise in sea level due to climate change.

1.1.3 Socio-economic status and indicators

Seychelles is one of the most politically stable and democratic country in Africa. The country gained independence from Britain in 1976, established a one-party republic in 1979, a multiparty system took effect in 1992. Seychelles remains a member of the Commonwealth of Nations. In general, the country has managed to maintain a relative degree of racial harmony, despite the diverse ethnic origins of its population.

Seychelles' socio-economic progress has been one of the most successful among developing countries. Visible poverty does not exist in Seychelles. Indicators, such as housing, access to sanitation and potable water are high. However, there may still be pockets of poverty. Social welfare programmes for the very needy have been established and provide safety nets for the vulnerable and disadvantaged. Universal access to education approaches 100% and adult literacy is about 96%. The national food poverty line at US\$3 a day is already above the set absolute poverty line of the World Bank.

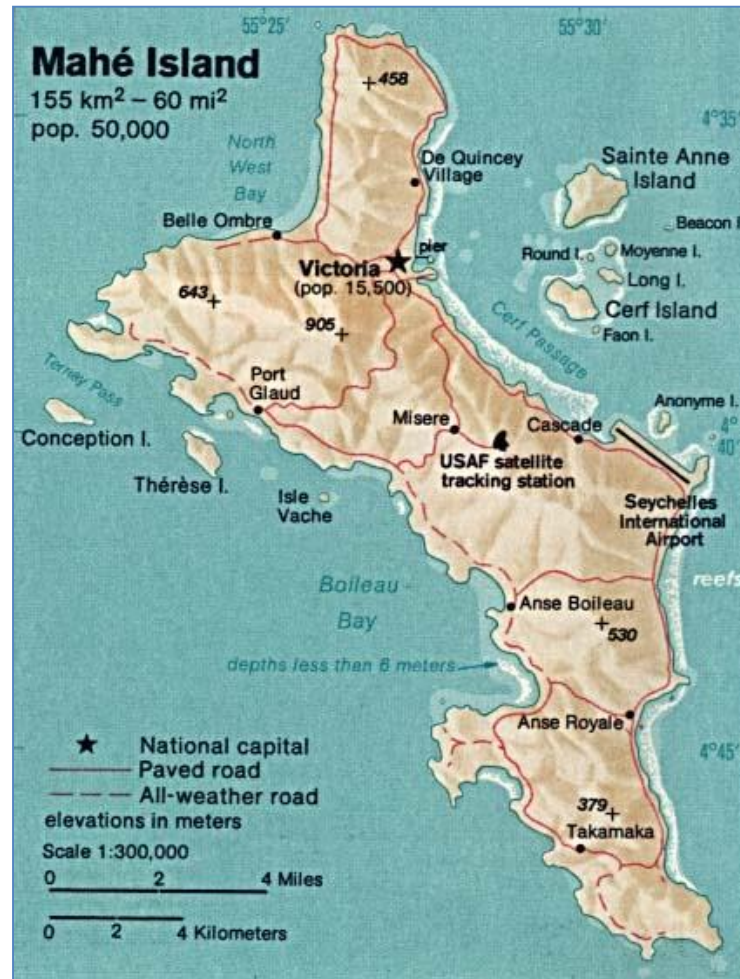
1.1.4 Transportation and Communication

The international airport in Seychelles is near the capital, Victoria, and is called Seychelles International. The airport offers service to South Africa, Ethiopia, Kenya, Emirates, Qatar, and nearby Mauritius, among a few other destinations. The only other option for transportation into the Seychelles is by boat, but this is a very limited option as it may involves a lot of weeks of travelling.

Between the islands, there are flights between Mahe and Praslin, or Mahe and several smaller islands, like Bird and Fregate. In addition, helicopters and boats can be chartered for these short trips. Ferries run fairly frequently between Mahe and Praslin, which is a less expensive option than flights.

Roads on Mahe and Praslin are narrow and winding, but cars are an essential method of travel on the island. In 2010, one in every 4 households had their own motorised land transport. Buses and taxis are other transportation options for travelling inland.

Figure 7: Road network in the Seychelles



Seychelles had a total road network of 508km in 2009 when this was last measured, amounting to a road density of 110 km of road per sq. km of land area. Total road network includes motorways, highways, and main or national roads, secondary or regional roads, and all other roads in the country. The World Bank indicates that in 2009, at least 96% of roads in the Seychelles were paved. All habitable areas of the country are easily accessible, at least by paved roads.

Figure 8: Type of transport per household (2010)

Type of transport/asset	No. of households	% (2010)
Truck	1,439	5.8
Car ¹	5,061	20.4
Motor cycle	159	0.6
Bicycle	1,759	7.1
Boat for business	409	1.7
Boat for pleasure	462	1.9

Telecommunication

According to the National Census 2010, close to 95% of households in the Seychelles has at least one television in the home. Eighty-six percent of the household has access to the radio and reads the newspaper on a daily basis. Forty-eight percent of the households has a landline telephone, but 90% has at least one mobile phone. There are at least 57,012 mobile telephone units and over 12,000 PCs being used in the home in the Seychelles.

Figure 9: Household with access to media at home

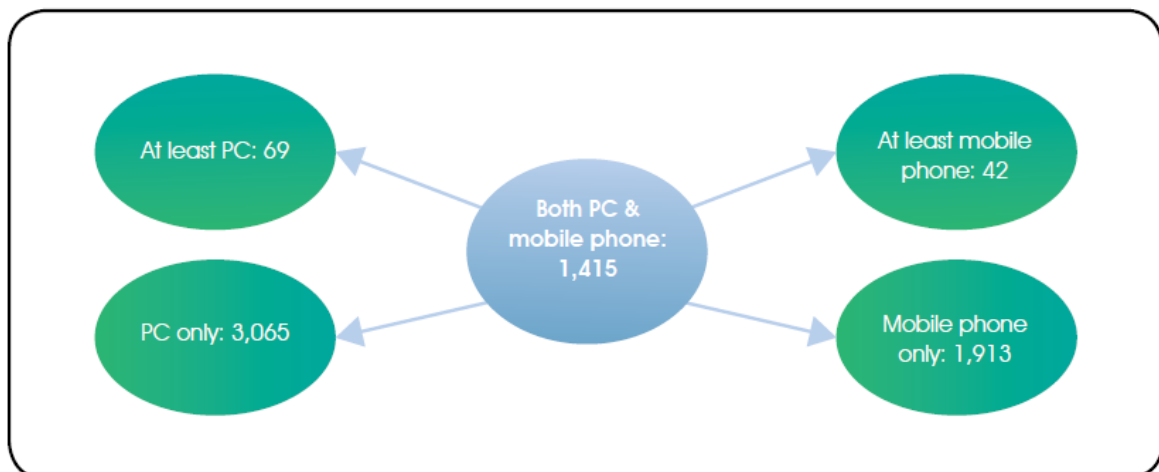
Access to media	No. of households	%	Total number of units
Radio	21,469	86.7	
Television	23,429	94.6	37,332
Access to cable TV	8,677	35.0	
Satellite dish	642	2.6	
Daily newspaper	5,842	23.6	
Weekly newspaper	7,643	30.9	
Video equipment	19,161	77.4	
Other entertainment equipment	13,044	52.7	

Figure 10: Household with communication equipment at home

Communication	2010	
	No. of households	% of households
Land line telephone	12,068	48.7
Mobile telephone	22,296	90.0
Computer	9,354	37.8
Internet connection via PC	4,510	18.2
Internet connection via mobile phone	3,364	13.6

Thirty-seven percent of household has a computer, with 18% having access to the internet in the home. At the same time, 1415 households has both computer and mobile phone with internet access in the home.

Figure 5: Internet penetration via computer & mobile phone in households, 2010



The 2010 National Census indicates that over 93% of households have access to treated water from the main supply. Less than 5% of households draw water from rivers and the same proportion harvest rain water. These households drawing water from rivers use the water for their daily household use, but it is to note that it is a very common practice in the Seychelles for people to boil any water which does not come from the main treated water supply before consumption.

The census also indicates that almost half of all households keep water tanks at home. Water shortage is rather frequent at particular times during the dry season, where households have access to treated water supply for limited periods during the day only. These water tanks are therefore used as storage so that the household can still have running treated water during the few hours when there are restrictions.

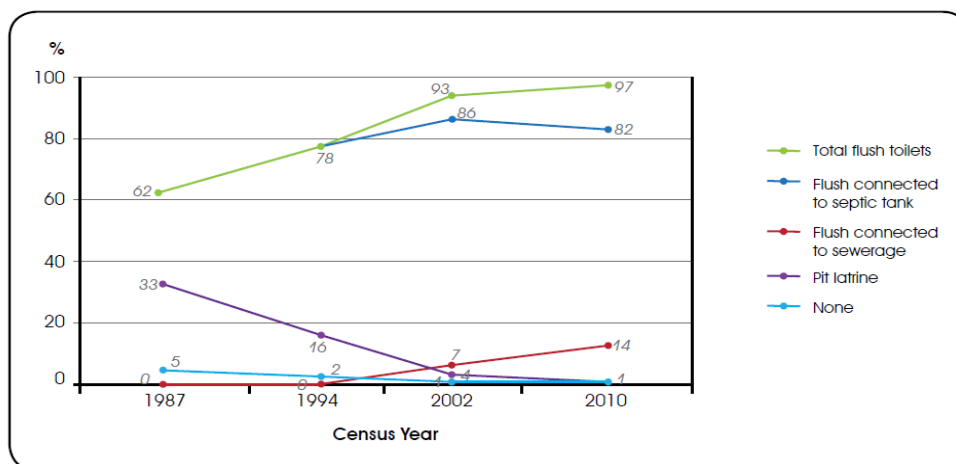
Figure 12: Type of water supply and storage

of which:	Mains (Public utilities)	No. households	% of total households
	Treated	23,111	93.3
	Untreated	6	0.0
	Unknown if treated	2	0.0
	Not stated	1,445	5.8
	Other piped supply	2,418	9.8
	Treated	325	1.3
	Untreated	2,079	8.4
	Unknown if treated	14	0.1
	River or well	1,101	4.4
	Rain water harvest	1,110	4.5
	Has water tank	11,678	47.1

Sanitation

The installation and access to good sanitation facilities in the Seychelles has seen progressive improvements over the last 25 years. In 2010, 97% of households had flush toilets of which 85% was connected to septic tanks and 15% to the sewerage system. Pit latrines in households have almost phased out, but 1% of households reported to be using them still. Households with this type of toilet are spread over all districts on Mahe, Praslin and La Digue.

Figure 13: Type of toilet facilities



There has been an increase in use of public bins over the last 10 years, and proportionally less households are either burying or burning their waste. A higher percentage of households are now making compost.

Table 14: Use of public bins by households, 2010

Means of disposal	2010	
	No. of households	% of households
Public bin	23,334	94.2
Buried or burned	4,823	19.5
Private dumpsite	430	1.7
Composting	2,775	11.2

1.2 Health System Situation Analysis

Ever since its independence in 1976, the government of Seychelles has remained committed to attain the goal of 'Health for all, Health by all' envisioned by the World Health Organisation (WHO) in 1978, so that all its citizens lead socially and economically productive lives at the highest possible level. The Seychelles Constitution's dictates that all Seychellois citizens are entitled to receive free primary health care at the point of use. This has to date brought about remarkable progress in health, with outstanding results particularly in the area of primary health care.

1.2.1 Health system goals and priorities

Vision of the Ministry of Health

For all people in Seychelles to attain the highest possible level of physical, social, mental and spiritual well-being, free from disease or infirmity.

Mission of the Ministry of Health

Health for all people in Seychelles, by all people in Seychelles.

Corporate Motto of the Ministry of Health

Health for all, health by all.

Core functions of the Ministry of Health

1. To improve on the country's health gains.
2. To mobilize national and international resources for the nation's health maintenance and improvement.
3. To spearhead collaboration with all strategic partners in the planning, implementation and evaluation of health services.
4. To effectively and efficiently confront the cure, care and health promotion challenges of the country's current and future disease patterns.
5. To ensure that the health system of the country functions within the boundaries of the constitution and the laws of Seychelles and within the ethical standards of the health professions.
6. To keep pace with technological, scientific and academic developments in health as much as the country's resources allow

1.2.2 Analysis of the overall health system

- **Service delivery**

The Ministry of Health (MOH) is the principal provider of health services in Seychelles. MOH has the overall responsibility for planning, directing and developing the health system for the benefit of the entire population. The Seychelles Health Services has a three-tier system, consisting of one central referral hospital, 3 cottage hospitals, one rehabilitative hospital, one mental hospital, one youth health centre and 17 decentralized district health centres located throughout the country. Seychelles Hospital is the main referral hospital, and it offers some tertiary care. The two referral hospitals in the Seychelles offer psychiatric and rehabilitative care. Primary and secondary care is provided by health centres which are equitably distributed on the major islands. The bulk of highly specialized treatment takes place overseas; such treatment costing SCR9,871,000 in 2010.

In 2013, there were 19 private medical clinics, 9 private dental clinics and 11 private pharmacies. Most private practitioners provide primary treatment, referring patients to government-run secondary and tertiary care services when required.

- **Health workforce**

These health facilities are all equipped with medical practitioners, doctors, nurses, dentists and other health personnel which allows for the infrastructures to operate to an optimal level. The government-funded services are complemented by a private service system.

- Health information**
 The Seychelles hospital is in the process of setting up computerized health information system. Currently patient information is being documented manually. But the disease surveillance system is web-based with weekly reporting of non-communicable and communicable diseases.
 - Medical Products**
 The medical supplies is procured through the procurement unit in the MOH, the majority is imported.
 - Health Financing**
 Seychelles has a 'free' primary health care policy in place for all its citizens, whereby it is the government who funds almost entirely the health care system, through the use of taxes. The government has a strong commitment to the provision of health services, as evidenced by the provision of the highest government sectorial allocation to the health sector. This allocation amounted to 14.5% in 2007 and 13% in 2013 respectively.
- The two main challenges to the health system are financial sustainability and the efficient utilization of resources. Since Seychelles is considered a middle income country, the country doesn't benefit from a number of funding opportunities, grants and technical assistance for health available to many less prosperous African countries.
- Leadership and governance**
 There is political commitment, through the guide of the Minister of Health and the principal secretary.

Table 2: Population per district in the Seychelles

Region/Province	Districts	Total Population	No. of villages/ Communities	Number of health facilities		
				Referral	District Level	Health Centres
Northern	Belombre	3667	4			
Northern	Beau Vallon	4055	5		0	0
Northern	Glacis	3791	5		0	1
Northern	Anse Etoile	4665	5		0	1
Central	English River	4150	5		0	1
Central	Mont Buxton	3055	5		0	2
Central	St Louis	3174	5		0	0
Central	Bel Air	2826	5		0	3
Central	Mont Fleuri	3382	5		0	1
East	Plaisance	3740	5		1	3
East	Roche Caiman	3197	5		0	0
East	Les Mamelles	2638	5		0	1
East	Cascade	4220	5		0	1
East	Pointe Larue	3037	5		0	0
East	Anse Aux Pins	3808	5		0	0
South	Au Cap	4187	5		0	2
South	Anse Royale	4122	5		0	0
South	Takamaka	2794	5		1	1
South	Baie Lazare	3568	5		0	1
West	Anse Boileau	3967	5		0	1
West	Grand Anse Mahe	3072	5		0	1
West	Port Glaud	2544	5		0	2
Inner Islands	Grand AnsePraslin	3686	6		0	1
Inner Islands	Baie Ste Anne	4823	6		0	1

Inner Islands	La Digue	2731	6		1	1
Other Islands	Outer Islands	1031	5		1	2

1.3 NTD situation analysis

NTDs are not issues of significance importance in the Seychelles. In the first place, the diseases were never ‘neglected’ by the government, as the government invested a lot in the management and control of these diseases when they were an issue of concern years back in the Seychelles. Also it is to note that with the exception of STH, the country do not have any of the vectors responsible for the transmission of these diseases.

As such NTDs is not included in the country’s National Strategic Plan. Today, of the 11 goals of the *National Health Strategic Framework (NHSF), 2006-2016*, only one can be linked to the issue of NTD. This is goal four which is to “Improve the detection, prevention and treatment of priority communicable diseases and outbreaks of new diseases”. The objectives of this goal are to:

- Reduce incidence and prevalence of priority communicable diseases
- Reduce morbidity, mortality and disability from priority communicable diseases

The main goal of this NTD master plan will therefore be for the verification of elimination of NTDs available in Seychelles. The Master Plan also aims to establish an effective surveillance system for all NTDs.

Disease	NTD program goal	National goal	Current status	Future plans	Interventions
STH	Elimination of STH transmission	Elimination	Prevalence<1 %	Mapping and control Elimination	CASE DETECTION and treatment
LF	Elimination	Elimination	Non-endemic	Elimination certificate	. Case detection and management . Vector control
Dengue	Outbreak prevention	Outbreak prevention	Last outbreak Jan 2013	Surveillance and control	Vector control
Leprosy	Elimination	Elimination	<1/10,000 people	Elimination	Active case finding and treatment
Schistosomiasis	N/A	N/A	Non-endemic	Confirm Non - Endemicity	Survey: Periodic vector study
Onchocerciasis	N/A	N/A	Non-endemic	IDSR	Surveillance
Trachoma	N/A	N/A	Non-endemic	IDSR	Surveillance
HAT	N/A	N/A	Non-endemic	IDSR	Surveillance

1.3.1 Epidemiology and burden of disease

Neglected tropical diseases in Seychelles features rarely in the annual epidemiological report. This is due to the fact that the majority of NTDs on the list are climately or naturally unfavoured in Seychelles due to absence of vectors, for example fresh water snail for schistosomiasis and blackfly for onchocerciasis. Out of the 17 diseases on WHO list for NTDS, only 4 can be accounted for in Seychelles. These are:

- Soil transmitted helminthiasis
- Lymphatic filariasis
- Dengue, and
- Leprosy.

There is ongoing surveillance (IDSR) for Leprosy, Lymphatic Filariasis and Dengue. The surveillance is however lacking for Soil Transmitted Helminthiasis

Overall NTDs are considered to be of very low burden in Seychelles. As a result of investment in improvement of water and sanitation as well as deworming campaigns in the 1990's and vector control for LF, transmission were successfully interrupted. The government invested a lot of money in social development. Today 95% of all household has access to treated water supply and proper sewage system.

By 1995-1996, intestinal parasites no longer represented a public health problem. Not only was there a successful reduction in prevalence and intensity of infection at low cost, but the control program also strengthen the capacity of the peripheral health care system to manage disease control in general.

Today, the only PCT-NTD known to be prevalent in Seychelles but at very low prevalence, is Soil Transmitted Helminthes (STH). The last reported LF case was in 1992, there is surveillance in place for LF. Although it is to note however that no mapping or survey has been done to confirm elimination. No recent survey done on either of the two NTDs but it is clear that any surveys which could have been conducted would not have followed the recent WHO approved guidelines for NTD mapping.

The other PC-NTDs namely Onchocerciasis, Schistosomiasis and Trachoma are all non-endemic in the Seychelles since no vectors are present.

TABLE 3: Known diseases distribution in the country (STH & LF)

District	Location/Site	Prevalence (numbers/rate/proportion)	Study method	Year of survey and reference	GPS coordinates of study location
Belombre	M				
Beau Vallon	M				
Glacis	M				
Anse Etoile	M				
English River	M				
Mont Buxton	M				
St Louis	M				
Bel Air	M				
Mont Fleuri	M				
Plaisance	M				
Roche Caiman	M				
Les Mamelles	M				
Cascade	M				
Pointe Larue	M				
Anse Aux Pins	M				
Au Cap	M				
Anse Royale	M				
Takamaka	M				
Baie Lazare	M				
Anse Boileau	M				
Grand AnseMahe	M				
Port Glaud	M				
Grand Anse Praslin	M				
Baie Ste Anne	M				
La Digue	M				
Outer Islands	M				

TABLE 4: NTD Co-endemicity

Region	District	Diseases											
		Preventive Chemotherapy Diseases						Case management diseases					
		LF	STH					LEPROSY	DENGUE	TINEA			
Northern	Belombre	M						-					
Northern	Beau Vallon	M						-					
Northern	Glacis	M						-					
Northern	Anse Etoile	M						-					
Central	English River	M						-					
Central	Mont Buxton	M						-					
Central	St Louis	M						-					
Central	Bel Air	M						-					
Central	Mont Fleuri	M						-					
East	Plaisance	M						-					
East	Roche Caiman	M						-					
East	Les Mamelles	M						-					
East	Cascade	M						-					
East	Pointe Larue	M						-					
East	Anse Aux Pins	M						-					
South	Au Cap	M						-					
South	Anse Royale	M						-					
South	Takamaka	M						-					
South	Baie Lazare	M						-					
West	Anse Boileau	M						-					

West	Grand Anse Mahe	M											
West	Port Glaud	M											
Inner Islands	Grand Anse Praslin	M											
Inner Islands	Baie Ste Anne	M											

TABLE 5: NTD mapping status

Endemic NTD	No. of districts suspected to be endemic	No. of districts mapped or known endemicity status	No. of districts remaining to be mapped or assessed for endemicity status
Schistosomiasis	0	0	0
Soil Transmitted Helminthiasis	27	0	27
HAT	0	0	0
LF	2	0	2
ONCHO	0	0	0
TRACHOMA	0	0	0

1.3.2 NTD programme implementation

Past intervention NTD control program

Soil Transmitted Helminthiasis (STH)

In the 1970's Intestinal parasitic infections was perceived as a public health problem in Seychelles. A comprehensive strategy was successfully implemented in the few years following 1993. This was 'The Seychelles Intestinal Parasite Control Programme' which was started by the Seychelles Ministry of Health, in collaboration with the Ministry of Education, with the technical support from WHO. The strategy was based on periodic chemotherapy of schoolchildren, intense health education and improvement of sanitation and safe water supply. The initial objectives of the control programme were met after only 2 years of activities, with an overall reduction in prevalence of intestinal parasitic infections of 44%. The intensity of infection with *Trichuris trichiura*, the commonest parasite, was halved (from 780 to 370 eggs per g of faeces). The programme's integrated approach, in concert with political commitment and limited operational costs, was a warranty for the future sustainability of control activities (Bulletin of the World Health Organization, 1996, 74 (6): 577-586).

Parasite	Survey 1, 1993		Survey 2, 1993		Survey 3, 1993		% reduction in:	
	Prevalence (%)	Intensity (egg) ^c	Prevalence (%)	Intensity (egg)	Prevalence (%)	Intensity (egg)	Prevalence	Intensity
<i>Ascaris lumbricoides</i>	17.7	1 617	9.8	641	4.4 ^d	244 ^d	75	85
<i>Trichuris trichiura</i>	53.3	782	36.1	302	27.3 ^d	367 ^d	49	53
Hookworms	6.3	40	8.6	42	4.2 ^e	27 ^e	33	33
<i>Strongyloides stercoralis</i>	1.1	—	2.7	—	0.3 ^e	—	73	—
<i>Entamoeba histolytica</i>	4.6	—	5.3	—	1.1 ^d	—	76	—
<i>Giardia intestinalis</i>	3.3	—	0.6	—	2.6	—	21	—
Cumulative prevalence	60.5	—	44.4	—	33.8	—	44	—

^a Survey 1 in schoolchildren and survey 2 in pregnant women.

^b Survey 3 in schoolchildren.

^c No of eggs per g of faeces, expressed by arithmetic mean.

^d $P < 0.001$.

^e $P < 0.05$.

Lymphatic Filariasis (LF)

In 1982 the microfilaria index in Mahé was 3.6% among 417 individuals tested with an antigen extract Brugiapahangi. Other results showed that 17% of the Seychellois population was exposed to *W. bancrofti* and 7% had specific antibodies. This was followed by a successful vector control in specific foci where cases were reported, as part of the elimination process of lymphatic filariasis in Seychelles. However, *Culex antennatus* and *Culex sunyaniensis* are found in the country, specifically from Aldabra and Praslin, respectively (Health situation and issues in the Seychelles in 2012: Médecine et Santé Tropicales. Volume 23, Number 3, 267-8, Juillet-Août-Septembre 2013).

With ongoing surveillance, the last LF case in the Seychelles was reported in 1992, which led to W.H.O taking Seychelles out of the list of endemic countries for LF. The WHO 2011 report does not mention Seychelles as part of the global elimination program. There is a need for validation of elimination of LF in the country.

Table 6.1 Summary of intervention information on existing PCT program

NTDs are not problem of public health importance in the Seychelles. The Seychelles is proud of achievement g areas of NTD control which can be seen as a model for other developing countries. As such, currently there is not active PCT program in place in the Seychelles.

Other neglected diseases of importance in the Seychelles

A number of communicable diseases remains a concern for the Seychelles, including vector borne diseases such as leptospirosis and Dengue.

Table 6.2: Summary of intervention information on existing CM program

NTD	Date program started	Total district targeted	Number of district covered	(%) covered	Key strategies used	Key partners
LEPTOSPIROSIS	1985	27	27	100%	Case management Rodent control Vaccination of pets	MOH Veterinary services
DENGUE	1975	27	27	100%	Surveillance Vector control	MOH WHO
LEPROSY	1980	27	27	100%	Active case finding	WHO
TAENIASIS/CYSTERCOSIS	1985	0	0	0	Surveillance at abattoirs	Veterinary services

Dengue fever: During 2013, Seychelles confirmed 17 cases of Dengue fever in the country. A number of cases were admitted to the Seychelles hospital with moderate illness but no fatalities were reported. A total of 16 districts were affected, La Digue reported 25% and BaieSte Anne Praslin reported 15% of the total suspected cases.

Leptospirosis: Leptospirosis in Seychelles remains a major Public Health concern. A total of 28 (26M/2F) confirmed cases of Leptospirosis out of the 584 suspected cases were reported in 2013, representing an increase of 65% in confirmed cases compared to 2012. A total of 5 confirmed leptospirosis related deaths, all males were reported in 2013 age ranging from 30 to 51 years old, case fatality rate of 18% out of the total confirmed cases and a case detection rate of 4.8 per 100 tests. Rodent control with case management is the main focus of Leptospirosis management in the country.

Leprosy: The current leprosy program is supported by WHO, on average the program reports one case per year. There is contact tracing in the household to identify other possible cases. The leprosy incidence 0.01 per 1000 population.

Currently LF is included in the IDSR guidelines, the next implementation step will be to add the other neglected tropical diseases in the surveillance system independent of their endemecity.

Depending on the result of the mapping survey, the NTD program will be integrated as a formal program in the communicable disease control Unit, Ministry of health Seychelles.

1.3.3 Gaps and Priorities

For this NTD master plan to be effective, efficient and sustainably operational, it is vital to fully identify the gaps and come up with priorities as guided by the situational analysis in the sections above. This will help planning for interventions as the Master plan is being implemented in the next five years. The table below gives a detailed SWOT analysis of the national NTD program.

Priorities	Gaps	Activities
Surveillance of NTDs	STH and other NTDs not included	Include all the neglected tropical diseases
Inclusion of other tropical diseases	Some tropical diseases identified as neglected in Seychelles do not feature on WHO list of NTDS.	Include Strongyloidosis in the surveillance for soil transmitted helminthiasis
<ul style="list-style-type: none"> Mapping and survey for STH and LF 	No certification obtained by previous program	WHO certification after mapping
<ul style="list-style-type: none"> Set up a formal NTD program to monitor NTD 	No program	Mapping and master plan
<ul style="list-style-type: none"> Interrupt Transmission of STH 	No database	Case detection and treatment
<ul style="list-style-type: none"> Vector control program 	Expensive so it is done only in outbreak situation	Maintain vector control in outbreak

TABLE 7: SWOT ANALYSIS OF NTD PROGRAMME

SRENGTHS	WEAKNESSES	Strengths counteracting weaknesses	OPPORTUNITIES	THREATS	Opportunities counteracting threats
Strengthen government ownership, advocacy, coordination and partnership					
1. Existence of integration of NTD programme within Communicable diseases Unit at National Level	Inadequate staffing at all levels No Focal point persons at district level	Advocacy for recruitment of staff at all levels and incorporation into civil service structure Existence of communicable diseases specialists at Provincial levels Public Health act in place	Increased partnership and collaboration International meetings and conferences for sharing of practical solutions and experiences Advocacy with Parliamentary Committee on Health Coordination guidelines for NTD programmes by WHO	Funding constraints Frequent change of leadership Different programmes running without knowledge of the Ministry	More partners and donors in NTDs Develop a costed Multi Year plan with identified gaps Reflection of NTDs in the NHSP and NDP as priority diseases Steering committees to engage all stakeholders and partners to discuss the country's goals
2. Political will towards prevention and management of NTDs	Lack of policies on NTDs	Identification of those working in NTDs			
3. Services provided through public and private facilities	Coordination				

Enhance planning for results, resource mobilization and financial sustainability of National NTD programmes					
4. Inco-operation of NTDs in the National Health Strategic Plan 2011-2016	Inadequate resources for implementation	Advocacy and resource mobilization	Relevant personnel in planning	Low awareness levels among policy makers and community members	Increase awareness
5. Constant nominal increase in the annual budget allocations	Lack of approved health care financing policy			High dependence on donor support	
Scale-up access to interventions, treatment and system capacity building					
6. Health centers in close proximity with schools in the catchment areas	Mapping for all NTDs not completed to conduct integrated interventions	Availability of trained personnel for mapping	Increased drugs donated for treatment of NTDs	Increased disease burden	Increased awareness & health education
7. Teachers and health Good drug distribution by Medical Stores Limited (MSL), pharmaco-vigilance system available and pharmaceutical act	Coordination of activities weak	Develop MOU between MoE and Health sector	School health programme looking at various aspects of health in schools	Weak working relationship between DHMTs and DEBS	Strengthen partnership and collaboration
8. Identification of NTD morbidities and mobile services available	No trained personnel in morbidity management	Capacity building	Taskforce in Global Health	No partners in the country to support morbidity management	LF morbidity management to be supported.
Enhance NTD monitoring and evaluation, surveillance and operations research					
9. Computerization of HMIS and broadened capacity to report on a wider range of indicators	Poor data management	Improved capacity for MoH to closely monitor	Existence electronic data capture and transfer	Limited internet access and other forms of communication in remote areas	
10. Existence of IDSR	IDM-NTDs not incorporated	Implementation of various interventions through health performance framework			
11. Existing M&E Unit at the MoH	Inadequate information on NTDs and		M&E guidelines for NTDs being developed by	Integrated M&E may not be possible if	

<p>12. collaboration with research institutions</p>	<p>their interventions</p> <p>Not much research done on NTDs</p>	<p>Inclusion of IDM-NTDs into IDSR</p> <p>Train M&E Personnel in NTD M&E</p> <p>Sensitization, engage them in operational research and TAS</p>	<p>WHO and partners</p> <p>Research institutes available for Tropical Diseases</p>	<p>sentinel sites of different NTDs are in different sites.</p> <p>NTD programmes not known to them</p>	<p>Sensitization and inclusion of them in the steering committee for their expertise</p>
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PART 2: NTD STRATEGIC AGENDA

The Seychelles NTD Master plan primarily embodies the goal of AFRO NTD Strategic Plan which intends to establish, by 2015, sustainable integrated national NTD control programmes capable of achieving the set goals of individual disease specific programmes, thereby leading to the elimination of NTDs as a public health problem in endemic countries in the African region

2.1 Overall NTD Programme Mission and Goals

Mission: To ensure implementation of an integrated strategy to eliminate and control neglected tropical diseases in Seychelles

Vision: To have an NTD free Seychelles

Strategic Goal: To eliminate the morbidity, disabilities and mortality due to NTDs and moving Seychelles towards the attainment of the millennium development goals through an integrated NTD control strategy

2.2 Guiding principles and strategic priorities

The table below summarizes the Strategic priorities and strategic objectives for the NTD programme.

Table 8: Strategic Framework Summary

Strategic Priorities	Strategic Objectives
1.Strengthen Government Ownership, Advocacy, Coordination And Partnership	i. Strengthen coordination mechanism for the NTD control programme at national, provincial, district and community levels
	ii. Strengthen and foster partnership for the control, elimination and eradication of targeted NTDs of national, provincial, district and community levels
	iii. Enhance high level review 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 national, provincial, district and community levels
2.Enhance Planning for results, Resource Mobilization and Financial Sustainability of the National NTD Programme	i. Support development of the Seychelles National integrated multi-year strategic plans and develop gender-sensitive annual operational plans for the control, elimination and eradication of targeted NTDs
	ii. Enhance resource mobilization approaches and strategies at national, provincial and district levels for NTD intervention
	iii. Strengthen the integration and linkages of NTD programme and financial plans into national sector wide budgetary and financing mechanisms
	iv. Support provincial, districts to utilize NTD policies and elaborate guidelines and tools to guide effective policy and programme implementation

3. Scale-Up Access to Intervention, Treatment and System Capacity Building	i. Scale up an integrated prevention chemotherapy (PCT), including access to LF, STH intervention
	ii. Scale up integrated case-management based diseases interventions
	iii. Strengthen capacity at national level for NTD programme management and implementation and accelerated implementation of disease burden assessments and integrated mapping of NTDs
	iv. Strengthen integrated vector management for targeted NTDs
4. Enhance NTD Monitoring and Evaluation, Surveillance and Operations Research	i. Enhance monitoring of national NTD programme performance and outcome
	ii. Strengthen the surveillance system of NTDs and the response and control of epidemics
	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 at national, provincial and district levels
	v. Introduce the pharmaco-vigilance system at all levels of health
	vi. Integration within primary health care for sustainability

PART 3: OPERATIONAL FRAMEWORK

This section describes how the Health sector is going to operationalize the Master plan activities. Capacity and needs required have been reflected in this section of the plan. Resource mobilization strategies and activities have been well stipulated and how potential risks will be dealt with. From the very onset proposed activities have ensured that systems will be supported from the onset so that we gradually move towards sustainable NTD program as early as possible.

3.1 National NTD Programme goals, Objectives, Strategies and Targets

Currently there is no NTD programme in Seychelles, but it is integrated in the Communicable Disease Control Unit. Previously STH elimination campaigns was responsible by maternal and child health as well as ministry of education. Elimination campaign for LF was mainly through the vector control and the last reported case of LF in Seychelles was in 1992. Since then there has been surveillance in place for LF. This resulted in WHO changing the status of LF in Seychelles to non-endemic in 2010 report. This integrated package will be more cost effective and sustainable.

The table below outlines in summary the global disease-specific goals, respective national goals, objectives, interventions, delivery channels and the target population within the country.

Table 9: Summary of NTD disease specific goals and objectives

NTD	GLOBAL GOAL	NATIONAL GOALS	OBJECTIVES	INTERVENTIONS	DELIVERY CHANNELS	TARGET POPN
Soil Transmitted Helminths	To have 50% of preschool and school age children treated in 100% countries by 2015 and 75% by 2020	<ul style="list-style-type: none"> ▪ To map the whole country by 2015 ▪ To achieve 75% therapeutic coverage in all mapped areas by 2015 ▪ To eliminate high intensity of Soil transmitted helminthes in school age and communities at risk. 	<ul style="list-style-type: none"> ▪ To reduce morbidity of STH to a level where it is no longer a public health problem ▪ To reduce the prevalence of STH to less than 10% 	<ul style="list-style-type: none"> ▪ MDA with Albendazol /Mebendazole ▪ Health education and promotion of behavioural change 	<ul style="list-style-type: none"> ▪ Schools & communities in high risk areas ▪ Community-based campaigns behavioural change 	75-100% of all school age children at risk
Lymphatic filariasis	<ul style="list-style-type: none"> ▪ Elimination of lymphatic filariasis as a public health problem by 2020. 	<ul style="list-style-type: none"> ▪ To certify Seychelles free of LF by 2016. 	<ul style="list-style-type: none"> ▪ Control disease through vector control 2016 ▪ Raise LF awareness in Seychelles communities 	<ul style="list-style-type: none"> ▪ Vector control ▪ Health education and promotion of behavioural change, personal hygiene & exercise. 	<ul style="list-style-type: none"> ▪ CDI (community directed interventions) ▪ Community-based campaigns ▪ Residual spraying (outdoor and indoor) 	Patients with elephantiasis and hydrocoeles
Taeniosis/Cyster cecosis (TC)	Validated strategy for control and elimination available by 2015	<ul style="list-style-type: none"> ▪ Mapping to be done by 2015 ▪ Control of taeniosis by 2020 	<ul style="list-style-type: none"> ▪ To reduce prevalence of TC by 80% by detection and treatment of 	<ul style="list-style-type: none"> ▪ Health education and promotion of behavioural change. 	<ul style="list-style-type: none"> ▪ Facility based treatment ▪ Campaigns 	All communities in endemic districts

NTD	GLOBAL GOAL	NATIONAL GOALS	OBJECTIVES	INTERVENTIONS	DELIVERY CHANNELS	TARGET POPN
	Intervention scaled by 2020		human tapeworm carriers by 2015	<ul style="list-style-type: none"> ▪ Mass treatment of whole population in high endemic areas with praziquantel or niclosamide 	<ul style="list-style-type: none"> ▪ Animal vaccination 	
Leprosy elimination	Leprosy elimination by 2020	<ul style="list-style-type: none"> ▪ Provide access to quality leprosy services for all affected communities following the principles of equity and social justice 	To reduce leprosy morbidity to 1/10,000	<ul style="list-style-type: none"> ▪ Early case finding and treatment with multi drug therapy (MDT) ▪ Palliative care ▪ Health Education 	<ul style="list-style-type: none"> ▪ Passive & active case finding and treatment in facilities ▪ Home based care ▪ Campaigns 	100% of all those affected by leprosy

As part of the strategy to enhance the fight against NTDs, objectives and key performance indicators have been developed as part of the master plan and are well elucidated in the table below.

The milestones are such that the number of districts receiving interventions will be done in a phased out approach, until all the 27 districts are covered. With those NTDs requiring case management, the numbers are lower because these NTDs are not found in all the districts.

The NTD program now introduced in the Health sector will work in collaboration with Ministry of Education and other partners and stakeholders for proper implementation of the program so that a higher coverage is reached.

3.2 Strengthening Government Ownership, Advocacy, Coordination and Partnerships

There is need for interaction between national actors, planners, and cooperating partners streamlining NTD activities. This section outlines how the NTD control will be streamlined at sector level to effectively establish long term multi-sectoral involvement at various operation levels as well as being responsive to the National Goals. This will ensure sufficient advocacy to keep the significance of NTDs high on the National agenda. It is encouraged that Government through the Health sector takes up ownership of NTD control programme by promoting advocacy, being actively involved in coordination and promoting partnership.

Table 10: Activities for Strengthen government ownership, advocacy, coordination and partnership

Activity	Details (Sub-activities)	Timeframe/Frequency	Resources needed
Strategic Objective 1: Strengthen coordination mechanism for the NTD control programme at national, provincial and district levels.			
Strengthen Coordination systems for the NTD Programme at national and sub-national levels	Appoint an NTD Coordinator, Secretary/ Administration & Logistics, M&E,	2015 – 2016	Salaries, Office space and equipment
	Advocate for nomination of a health promotion staff and Accountant from other units	2015- 2020	Appointment letters

	within the MOH to support NTD Programme implementation		
	Facilitate identification/ appointment of NTD focal point persons at national level to support NTD activities	2015- 2020	Appointment letters from the MOH
Establish National NTD Steering or task force Committees	Conduct NTD Steering committee meetings	Quarterly 2015- 2020	
Establish National & Provincial Technical (Experts) working group to support NTD Programme Implementation	Facilitate identification and appointment of members	2015	Appointment letters
	Conduct National NTD Technical meetings	Quarterly 2015- 2020	
Support Technical working sub groups	Support meeting for sub working groups under the NTD Programme (M&E, CM, PCT, Research, Drugs)	2015	Appointment letters
Strategic Objective 2: Strengthen and foster partnerships for the control, elimination and eradication of targeted NTDs at national, provincial, district and community levels.			
Strengthen and foster Partner Involvement in the NTD Control programme	Identify partners to support all NTDs, convene NTDs stakeholders meetings	2015- 2020	Travel, lodging and communication
	Develop NTD Forecast activity proposals for Partnership / stakeholders	2015- 2020	Consultancy fee
	Develop/Review MOUs for Partners in NTD Control (New and Old)	2015- 2020	N/A
Strategic Objective 3: Enhance high level reviews of NTD programme performance and the use of lessons learnt to enhance advocacy, awareness and effective implementation.			
Produce reports for presentation to Ministry of Health senior management for policy formulation and implementation	To enhance Ministry of Health NTD human resource capacity to produce quality evidence based papers	Bi-annually, January , 2015 - 2020	Stationery
NTD updates presented in high level meetings at national and international levels	Participate in parliamentary briefs to update NTD programme achievements and needs	2015– 2020	Refreshments, stationery
	Update the MOH on NTD programme during the Joint Annual Review (JAR) meetings	Annually, 2015 - 2020	Stationery, printing costs
	Participate in International meetings sharing NTD experiences	Annually, 2015- 2020	International travel allowances (Air tickets, transit and upkeep)
	Participate in Multisectoral high level meeting (Livestock, Water sanitation, education, Finance, Ministry of Community and social services)	Annually, 2015- 2020	
Strategic Objective 4: Strengthen advocacy, visibility and profile of NTD control elimination and eradication interventions at all levels.			
Strengthen Advocacy activities for NTD	Conduct workshops for journalists on prevention and control of NTD for advocacy	2015-2020	Financial Resource, Fuel, Food, Refreshments, Consultancy fee
	Develop and disseminate IEC/Health Education materials for advocacy	2015-2020	Financial Resource (Printing costs), Venue, Stationary

	Develop Standard and effective NTD Media program at all levels	2015-2020	Media Campaign, Venue, Stationary, IEC Materials
	Conduct Public events for NTD advocacy	2015-2020	Media Campaign, Venue, Stationary, IEC Materials
Procurement of vehicles	Procure 4 x 4 motor vehicles for the programme	2015 – 2016	Money for procurement

3.3 Enhancing planning for results, Resource Mobilization and Financial Sustainability

The table summarises key activities planned to implement in order to achieve the four Strategic Objectives for enhancing planning for results, resource mobilization and financial sustainability of national NTD programmes.

Table 11: Activities for enhancing planning for results, resource mobilization and financial sustainability of national NTD programmes

Activity	Details (Sub-activities)	Timeframe/ Frequency	Resources needed
Strategic Objective 1: Support dissemination of the NTD Master plan and development of gender-sensitive annual operational plans for the control, elimination and eradication of targeted NTDs at national, provincial and district levels			
Conduct orientation and dissemination of the NTD Master Plan	Publish and disseminate the NTD master plan at national level	2015	Printed Master plans, transport refund, refreshments, Printing costs
	Disseminate & orient on the Master plan at provincial and district levels	2015	Printed Master plans, transport refund, refreshments, Printing costs
Development of Operational annual action Plan for the national, and District levels	Facilitate the development of annual NTD operational plan at the national level	Annually 2015-2020	Venue, per diems, transport refund, stationery
	Facilitate the development of annual NTD operational plan at provincial and district levels	Annually 2015-2020	Venue, per diems, transport refund, stationery
Strategic Objective 2: Enhance resource mobilization approaches and strategies at national and provincial levels for NTD interventions			
Strengthen systems for NTD resource mobilization at national and provincial levels	Develop a resource mobilization strategy for the NTD programme	2014	Consultancy fees
	Develop Resource Mobilisation Plan	2015-2020	NTD Coordinator/NTD Specialist
	Within the technical team identify NTD resource mobilizers and build their capacity in proposal writing	Quarter 1 - 2015	Venue, per diems, transport refund, stationery, Consultancy fees
Mobilise resources to support NTD programme Implementation	National Steering Committee meetings	2015-2020	
	NTD participation at SAG meetings	2015-2020	
	Contribute to Mid Term review report on water and sanitation by UN agencies (UNDP and UNICEF)	Quarter 3, 2015/16	Human Resource
	Write letter of intent to WHO for mobilising resources	Quarter 4, 2015/16	Venue, per diems, transport refund, stationery & printing
	Send NTD master plan to Ministry of Finance by either Minister and or PS	Quarter 3 / 4 2015	Human Resource
	Conduct resource mobilisation through Partner invitation	Quarter ¾ 2015- 2016	Conference package

	meetings to support NTD funding at national level		
Strategic Objective 3: Strengthen the integration and linkages of NTD programme and financial plans into national sector wide budgetary and financing mechanisms			
Advocate for increase in budget allocation for NTD	Request Policy and planning to fund NTDs	Quarter 2, 2015	MOH in house activity, stationery
	Minister and PS to present NTD budget to Ministry of Finance for more financial allocation	2015	Minister to Minister Discussions or PS to PS discussion (MoH)
Ensure NTD planning and budgets are reflected within the sector wide and government financial systems	Ensure that NTD budgets are integrated within sector wide and government planning & budgets at all levels	2015-2020	MOH in house activity, stationery
Strategic Objective 4: Support provincial, districts to utilize NTD policies and elaborate guidelines and tools to guide effective policy and programme implementation			
NTD Policy & guideline dissemination	Review the NTD at NDP and NHSP	2015	
	Finalise the development of the NTD Operational guidelines	2015	Consultancy fees
	Publish and distribution and orientation of NTD Guidelines	2016	Printing costs, Venue, per diems, transport refund, stationery

3.4 Scaling up access to NTD Interventions and treatment and service delivery capacity

The section provides a detailed description of activities that forms the basis for scaling up NTD control and elimination activities in Seychelles which takes into consideration the three package as recommended by WHO and include:

- Preventive Chemotherapy;
- Case Management/ Chronic care; and
- Transmission control

As earlier mentioned, activities with similar recommended control approaches have been combined for co-implementation along the three different packages above.

3.4.1 Scaling up preventive chemotherapy interventions

Preventive chemotherapy is the administration of drugs to targeted populations who qualify using a certain scientific criteria. A number of such interventions are cross cutting as summarized in the table below. As per the WHO guideline, there is a coordinated algorithm for drugs to be distributed for the targeted diseases (see annex). Preventive Chemotherapy set up plans in this master plan have been guided by mapping results already discussed in the situational analysis.

Table 12: Districts requiring intervention or mapping for each targeted NTD

Name of Endemic NTD	Total No districts of Districts suspected to be endemic	Number of districts mapped or known endemicity	Total No. of districts remaining to be mapped	No of Diagnostic kits and other inputs required
Lymphatic filariasis	2	0	2	200 ICT cards and counting chambers for mf for

				baseline studies
STH	0	0	5	5 Kato-Katz kits (400 tests/kit) for baseline surveys

Table 13: Types of Mass drug Administration

Intervention Package	MDA TYPES	DELIVERY CHANNELS	TIMING OF TREATMENT	TARGET DISEASE COMBINATION	REQUIREMENTS	NO OF DISTRICTS (List names in footnote)	OTHER MASS DISEASE CONTROL INTERVENTIONS
1.	MDA2 & T3	Community based campaigns, -School based	One annual round of MDA using Diethyl carbamazine and albendazole/mebendazole A 2nd annual round of mass treatment with albendazole/mebendazole for STH control through CDD six months later	LF + STH	<ul style="list-style-type: none"> • Drug procurement • Training teachers in MDA/PCT • Tools for M&E • Data management • Logistics for MDA/PCT • Operational research 	0	

T3 = Albendazole or mebendazole only
MDA2 = DEC + Albendazole

Note:

** Note that this column has been left blank as mapping is still ongoing and will be updated once mapping for all PCT NTDs are mapped

- As a general rule PZQ should not be administered in large scale interventions to individuals reporting with a history of recurrent seizures and/ or other signs of potential central nervous system involvement suggestive of cysticercosis.
- Evidence shows that women can be treated with PZQ at any stage of pregnancy and during lactation.
- Pregnant women are ineligible for treatment with DEC
- Albendazole and Mebendazole should be offered to pregnant women in the 2nd and 3rd trimesters of pregnancy to lactating women.

Table 14: Activities for PCT interventions

Activity	Details (Sub-activities)	Timeframe/Frequency	Resources needed
Strategic Objective 1: Scale up an integrated preventive chemotherapy, including access to STH, and LF			
Conduct Planning meetings for MDA at all levels	Facilitate MDA planning meeting at National level	Annually, February, 2015-2020	Venue, refreshments, stationary
	Facilitate MDA planning meeting at Province level	Annually, March, 2015-2020	Venue, refreshments, stationary
Training	Develop an Integrated NTD training manual (MDA for TOT)	April – May, 2015	Venue, accommodation, meals, per diem, transport, printing
	Training of health workers, teachers and community health workers on	2015-2017	Training modules, allowances, LCD Projector and stationary

	MDA		
Conduct Mass drug administration for PCT NTDS in schools and all eligible communities for STH and LF	conduct sensitisation and awareness campaigns at national and district	2015-2017	Transport , data collection tools, bags, stationary, lunch allowance, IEC materials, media coverage, Dose poles, buying of Scales
	Conduct mass drug administration.	2015	Lunch and transport
Data management for MDA coverage	Develop /adopt/review data collecting tools for MDA (registers, drug inventory	Annually, August 2015-2020	Printing
	create a database for NTDS	2015	
	data processing	2015-2020	
Other Logistics for MDA	procurement and delivery of Dose poles and weighing scales	Dec of the former year – Jan 2013	Procurement of drugs, transport for drug distribution,
	procurement and distribution of drugs and other medical supplies	Annually, January, 201- 2017	Bank charges

3.4.2 Scaling up NTD Case management Interventions

Case management NTDs is one of the broad categories of strategies common in the control of NTDs. Case management has also recognized the commonalities in diseases presentation, transmission patterns, treatment or management style such that their interventions will as well be jointly co-implemented to support leverage meagre resources available for the NTD control program.

Table 15 Case management and chronic care

Cross-cutting interventions	NTDs targeted	Requirements	Other non-NTD opportunities for intergration
Surgery Hydrocele Skin grafting	LF hydrocele	Training of medical doctors and nurses	Capacity building in basic surgical skills

Table 16: Activities for case management interventions

Activity	Details (Sub-activities)	Timeframe/ Frequency	Resources needed
Strategic Objective 1: Scale up integrated case-management based diseases interventions			
Develop SOPs for Case management NTDS	Conduct a technical meeting to develop SOPs for CM of NTD(cystercecosis, LF, Leprosy and home based care guides	2015-2016	Stationery, Allowances/Fuel, refreshments
Capacity Building in Case management of NTD at facility level	Case detection		
	Develop/adopt training manuals for case management, prevention of disability for	2015-2016	Training modules,

	NTDs to clinicians, laboratory, Physiotherapists and ultra-sonographers		allowances, LCD Projector and stationery
	Capacity building for clinicians and physiotherapists on surgeries and prevention of disability for Trachoma and LF	2015-17	Training modules, allowances, LCD Projector and stationery
	procurements and distribution of CM NTD medical supplies and equipment	2015-17	
Meeting for the CM NTD working group	Support national meetings for NTD CM working group	2015-2017	Drug Register forms Drug Procurement forms
Health Promotion and outreach	Social mobilisation/ awareness campaigns and health education	2015-2017	Stationery, Allowances/Fuel, refreshments

3.4.3 Scaling up NTD transmission control interventions

A variety of vector-borne diseases, which often coexist in the same environments, impose a heavy burden on human populations, particularly in developing countries in tropical and subtropical zones. Besides the direct human suffering they cause, vector-borne diseases are also a significant obstacle to socioeconomic development. Vector control is an important component of the prevention and management of these diseases, as, for some diseases, the vector is the only feasible target for control. When well-planned and well-targeted, vector control can reduce or interrupt transmission. Vector control reduces illness and saves lives: this has been shown repeatedly and convincingly in areas where malaria has been eliminated.

Transmission Control activities are cross-cutting for both vector-borne and other diseases that do not involve a vector for their transmission. In effect, transmission control interventions are complementary to preventive chemotherapy and case-based interventions and as such they need to be conducted in all NTD endemic areas. These activities include vector control and environment measures and health education. Depending on the types of diseases targeted, and their overlaps, there may be variations in types of activities that require to be implemented. According to the disease combinations in the targeted areas, the table below summarises the various categories of interventions that will be conducted for a group of diseases in your targeted districts.

Table 17: Intervention packages for Transmission Control

INTERVENTIONS PACKAGE	TARGETED NTDS	METHODS OF INTERVENTION DELIVERY	REQUIREMENTS	OTHER NON-NTD OPPORTUNITIES FOR INTEGRATION
Vector Control	Lymphatic Filariasis Malaria	- insecticide treated nets -In-door residual spraying -Environmental management	Mosquito and tsetse fly control using: -insecticide treated nets -In-door residual	Malaria vector control Integrated Vector Management (IVM).

			spraying -Environmental management and personal hygiene -Larviciding	
Health education	LF Scisto STH Leprosy Cysticercosis Trachoma HAT	Distribution of IEC materials Print and electronic media Meetings	IEC materials Media costs Stakeholders meetings Sensitization meetings	Health education programmes in the Ministry

The table below provides a summary table on the key activities planned to be carried out in order to implement the transmission control package stipulated above.

Table 18: Activities for transmission control

Activity	Details (Sub-activities)	Timeframe/ Frequency	Resources needed
Strategic Objective 3: Strengthen integrated vector management for targeted NTDs			
Needs assessment in integrated vector management	Develop needs assessments tools	ongoing	Consultancy fees
	Conduct needs assessment	2015	Perdiem,fuel,transport,stationery
Training for integrated vector management	Develop training tools	2015	Perdiem,fuel,transport,stationery, meals, accommodation
	Train TOT in IVM	2015	Perdiem,fuel,transport,stationery
Integrated Vector Management	Integrate NTD Vector Control with other Existing programmes	ongoing	Perdiem,fuel,transport,stationery
Conduct entomological studies	Conduct and analyse baseline studies	2015-2017	Perdiem,fuel,transport,stationery
	Disseminate baseline findings	2015-2016	
	Update guidelines for IVM	2015-2016	Perdiem,fuel,transport,stationery
Environmental manipulation	Georeferencing of disease burden areas for use by line Ministries (local government, MCDMCH etc.)	2015-2016	Perdiem,fuel,transport,stationery
	Provision of safe water sources and sanitation	On-going	
	Conduct health promotion and social practice impacting on environment		

	Diversify the economic activities that promote transmission of NTDs in the environment		
Procure supplies	Procurement of supplies and equipment for integrated vector management	2015-2020	Perdiem,fuel,transport,stationery
Capacity building in NTD programme	Training coordinators in programme management	2015-2020	Perdiem,fuel,transport,stationery
Conduct planning meeting on mapping at all levels	Meeting at national level to develop mapping protocols	2014-2015	Perdiem,fuel,transport,stationery
	Mapping planning meeting central, province & district		
Training			

3.5 Strengthening capacity at national level for NTD programme management and implementation

In order to have a successful NTD programme, the National capacity should be effected and key people identified. In order to build capacity at national level, there will be need to ensure the programme managers have an understanding of the disease epidemiology, transmission and management of NTD control programmes.

The table below outlines the activities to strengthen the NTD control programme.

Table 19: Activities and resources needed for strengthening capacity of NTD program

Activity	Details (Sub-activities)	Timeframe/ Frequency	Resources needed
Strategic Objective 4: Strengthening capacity at national level for NTD programme management and implementation and accelerated implementation of disease burden assessment and integrated mapping for NTD.			
Capacity building in NTD programme	Training coordinators in programme management	Quarter 1 2014-2016	Identification of training courses Training modules
Conduct planning meeting on mapping at all levels	Meeting at national level to develop mapping protocols	Quarter 3 2014	Personnel, Training materials, accommodations and meals, allowances, transport, stationary,
	Mapping planning meeting central, province & district	Quarter 3 2014	Training materials, accommodations and meals, allowances, transport, stationary
Training	orientation on the mapping tools at central level	Quarter 3 or 4 2014/15	Procurement of 3 vehicles Fuel, drivers and maintenance costs
	orientation on the mapping tools at provincial and district level	Quarter 3 or 4 2014/2015	Procurement of 73 motorbikes and maintenance costs
integrated mapping for STH, LF	community, district , provincial and central level sensitisation	2014/2015	Procurement of three computers, a work station, three laptops, scanner, printer, LCD, stationary,
	mapping Exercise according to	2013 quarter 1	Procurement of 80 computers

	the protocols		Office furniture, office equipment,
	Procurement of supplies and equipment for mapping	August 2014	Venue, refreshments, stationary

Table 20: Phasing in targeted districts in scaling up an NTD program

	NTD PROGRAMME	Activity	KEY PERFORMANCE INDICATORS	Total district targeted by end of NTD master plan	Geographical coverage				
					Number and percentage of districts to be targeted each year				
					Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
1	Soil Transmitted Helminths Control	. data recordings .surveillance .treatment of cases	Mapping data available in all districts	27	6	12	18	27	0
			Number of Districts reached through PCT	27	6	12	18	27	27
2	Lymphatic Filariasis Elimination	.Mapping .Certified LF free by 2016 .treatment of cases	Number of Districts reached through MDA	2	2	0	0	0	0
			Mapping data available	2	2	2	2	2	
5	Taeniosis/Cystercosis (TC)	Surveillance at abattoirs	Case detection Mapping data available	5	5	5	5	5	5
			Number of Health Facilities Treating Cystercosis	1	1	1	1	1	
7	Leprosy	Active case finding and treatment	Prevalence rate Case per 10,000 population in all districts and provinces	<1	<1	<1	<1	<1	0
			Detection rate per 100,000	0	<10	<10	<5	<5	0

3.6 Monitoring and Evaluation

This section contains information on monitoring and evaluation including the following:

- a) the indicators to be monitored for each disease,*
- b) logical framework, and*
- c) Major M&E activities to be conducted.*

Monitoring is the process of continuous observation and collection of data on the NTD programme to ensure that the programme is progressing as planned.

Evaluation is the systematic and critical analysis of the adequacy, efficiency and effectiveness of the programme, its strategies as well as progress. Evaluation refers to long, mid-term and annual analysis of performance in relation to the goals, objectives and target sets.

The table below describes how

- i. The NTD information will fit in The existing system of M&E in the Ministry of Health including the HMIS and IDSR systems
- ii. The data flow from peripheral level to national level and periodicity
- iii. Independent evaluation will be conducted (e.g. at least every 3 years for outcome and every 5 years for impact depending on the type of disease to be evaluated)

Table 21: Strategic Priority 4: Enhance NTD monitoring and evaluation, surveillance and operations research

Activity	Details (Sub-activities)	Timeframe/Frequency	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 system			
Strengthen monitoring of NTD programme performance & outcomes.	Hire consultant to help design M&E programme.	October 2015	Consultant fee Transport Venue
	Develop and review indicators and tools for monitoring NTD program.	2015	Human resource Stationery Transport Venue
	Conduct M &E Review meetings at national, Provincial and District level	2015– 2020	Human resource Stationery Transport Venue
	Training Health workers on Monitoring NTD program performance	2015	Human resource Stationery Transport Venue
Conduct Supportive supervisory visits at all levels	Conduct supervisory visits to provinces and districts during MDA and other related NTD activities e.g. Technical support.	Annually	Human resource Stationery Transport
Conduct Epidemiological, geographical and therapeutic assessments.	Assess geographical, epidemiological and therapeutic coverage of MDA activities to monitor performance	2015– 2020	Human resource Stationery Transport
Strategic Objective 2: Strengthen the surveillance of NTDs and strengthen the response and control of epidemic prone NTD, in particular Dengue and Leishmaniasis			
Adapt IDSR guidelines in relation to the NTD Surveillance and Response	Conduct meeting of stakeholders to adapt/adopt the revised IDSR technical guidelines to integrate NTDs	Sept 2013	Human resource Stationery Transport Venue
Identify Sentinel & Spot check sites	Set up Sentinel sites and conduct Spot check activities	May 2015 Annually	Human resource Stationery Transport
	Procure laboratory consumables and equipment for selected sites	June 2015	Human resource Stationery Transport Venue

Capacity building in Surveillance of Case Management of NTDs	Train surveillance officers in active detection of NTDs and disabilities	November 2015 – 2016	Human resource Stationery Transport Venue Meals Accommodation
Strategic Objective 3: Strengthen and foster partnerships for the control, elimination and eradication of targeted NTDs at national, district level			
Strategic Objective 4: Establish integrated data management systems and support impact analysis for NTD at national level			
Incorporate the NTD Indicators in the HMIS	Organize a meeting to identify appropriate NTD Indicators for the HMIS	2015 – 2016	Human resource Stationery Transport Venue
Integration of NTD database	Adapt the WHO integrated NTD database to the Seychelles context	2015 – 2016	Human resource Accommodation Meals Venue Stationery Transport

3.7. Pharmacovigilance in NTD control activities

The National Pharmacovigilance system is already in place for other health programmes. With the introduction of the NTD programme and the medicines that will be needed for preventive chemotherapy and case management there is need to integrate these drugs into the system so that the system can monitor and ensure satisfactory reporting and management of side-effects and adverse events that may be linked to NTD interventions under the programme setting.

Table 22: Activities for strengthening pharmacovigilance in NTD program

Activity	Details (Sub-activities)	Timing/ Frequency	Resources needed
Strategic Objective : Strengthen monitoring of NTD serious side effects (SAE)			
Monitoring pharmacovigilance activities	To document NTD drugs in the Pharmaceutical drug lists	2015	Draft letter from Permanent Secretary
	Monitoring drug supply, distribution and storage	Quarter 1, 2 for all years	Personnel, per diem, hall hire, meals, stationary, fuel refund, communications, technical support
	Monitoring drug quality	Quarter 4, 1 all years	Personel, per diem, hall hire, meals, stationary, fuel refund, communications, technical support
	Monitoring Drug administration	Quarter 3, 4 all years	Personnel, per diem, hall hire, meals, stationary, fuel refund, communications, technical

			support
	Monitoring Serious adverse events	Quarter 2, 3 all years	Personnel, perdiem, hall hire, meals, stationary, fuel refund, communications, technical support
	Train health workers on recognizing SAE	Quarter 1, 2 all years	Personnel, perdiem, hall hire, meals, stationary, fuel refund, communications, technical support

3.8. POST INTERVENTION SURVEILLANCE AND INTEGRATION WITHIN PRIMARY HEALTH CARE

The success in maintaining the NTD disease levels below thresholds where they are not of public health significant following intense period of interventions depend on strong post-intervention surveillance and ability by the primary health care to incorporate the surveillance and residual control activities within routine health care delivery. Seychelles will identify sentinel sites for spot checks in the following areas.

Table 23: Activities for surveillance and sustainability

Activity	Details (Sub-activities)	Timeframe/ Frequency	Resources needed
Strategic Objective : Strengthening monitoring program performance impact and outcome and sustainability			
Capacity building	To train the clinic managers in case identification and management and referral system	2015-2020	Venue, accommodation, stationary
	Health centres to actively participate during the PCT and MDA and monitor the SAEs	2015-2020	Transport, lunch allowance
NTD reporting	Data base at district level	2015-2020	
To incorporate the surveillance and residual control activities within routine health care delivery.	Monitor drug distribution in Health facilities	2015-2020	Human resource Transport Stationary
To Conduct impact assessment	Conduct impact assessment by independent	2017	Human resource Transport Stationary
	Monitor drug access from health facilities	2015-2020	Human resource transport stationary

Budget table

Budget & Schedule for Finalizing the NTD Master Plan & 2015 Annual

Table 24: **Budget & Schedule for Finalizing the NTD Master Plan & 2015 Annual Plan**

Objective	Activity	Sub-Activity/Tasks	Participants	Date	Cost (USD)	Funding Source
Validation of mapping Mapping result and dissemination	Stakeholders meeting	meeting	MOH management	Jan-15	\$1500	MOH
		print report			\$1500	WHO
		dissemination of report			\$2000	
1. Strengthen Government Ownership, Advocacy, Coordination And Partnership	Stakeholders meeting	meeting	general population, MOH	Feb-15	\$1000	MOH
		media awareness			\$2000	
Resource mobilisation and sustainability of NTD program	Integration of NTD program in the national budgetary and financing mechanism	Advocacy	Ministry of Finance	Mar-15	\$2000	MOFinance
		Staff salaries			\$58000	
Scaleup/down access to treatment and intervention in NTD program	Scale up case detection and management in the NTD program	Training of staff in NTD management	MOH management	Mar-15	\$10000	MOH
		Drug procurement			\$2000	
		Case management			\$3000	
		Vector control program			\$10000	
Enhance NTD monitoring and evaluation integration in the M&E unit/ disease surveillance	Integration of NTD in IDSR	Database upgrading	MOH management	Jan-15	\$5000	MOH
		Periodic reports				
		Training of staff in NTD reporting				
		Surveillance of vectors				
Certification for Elimination of NTD	Verification by WHO	disease surveillance	MOH	2015-2020	\$10000	MOH
		active case				WHO

		detection			
		active case			
		treatment			
		vector control			
TOTAL(USD)					\$108000

Organisation of the Ministry of Health

