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Ministry of Health and Wellness

Republic of Mauritius

NATIONAL INTEGRATED NON-COMMUNICABLE DISEASES (NCDs) ACTION PLAN

2023-2028

Republic of Mauritius

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ACRONYMS AND ABBREVIATIONS

AHC	Area Health Centre	**LHC**	Local Health Committee
AMI	Acute Myocardial Infarction	**LCST**	Locality clinical specialists' team
BAC	Blood alcohol concentration	**MOHW**	Ministry of Health and Wellness
BHBM	Be healthy, be mobile	**NAPPA**	National Action Plan for Physical Activity
BIA	Beneficiary incidence assessment	**NCD**	Non-communicable diseases
CBO	Community based organisation	**NCD-GAP**	NCD-Global Action Plan
CCS	Country Cooperation Strategy	**NGO**	Non-governmental organization
CHC	Community Health Centre	**NHI**	National Health Insurance
CHOICE	CHOsing Interventions that are Cost-Effective	**NINAP**	National Integrated NCD Action Plan
CHW	Community health worker	**NPAN**	National Plan of action for nutrition
COPD	Chronic Obstructive Pulmonary Disease	**NSF**	National Service Framework
CRD	Chronic respiratory diseases	**OHT**	One health tool
CVD	Cardiovascular diseases	**OOP**	Out of pocket
DCP	Disease control priorities	**PEN**	Package of Essential NCD interventions
DHIS2	District health information - 2	**PHC**	Primary health care
FBO	Faith based organization	**ROI**	Return on investment
FCTC	Framework Convention on Tobacco Control	**SDH**	Social determinants of health
FIA	Financial incidence assessment	**SDG**	Sustainable Development Goals
GPAS	Global strategy on diet, physical activity and health	**STDR**	Sight threatening diabetic retinopathy
GPW	Global Program of work	**TAFISA**	The Association For International Sport for All
HBSC	Health behavior of school children	**TWG**	Technical Working Group
HDC	Health Data Collaborative	**UHC**	Universal Health Coverage
HiAP	Health in All Policies	**UN**	United Nations
HIV	Human immunodeficiency Virus	**WHO**	World Health Organization
HPV	Human Papilloma virus		

EXECUTIVE SUMMARY

The Government of the Republic of Mauritius and Country Office of the World Health Organisation (WHO) commissioned the development of a 5-year National Service Framework (NSF) for Non-Communicable Diseases (NCDs) and National Integrated NCD Action Plan (NINAP) for Mauritius based on voluntary global targets set in the WHO Global Action Plan for the prevention and control of Non-Communicable Diseases (NCD-GAP 2013-20), in two interlinked volumes.

Non-communicable diseases and Injuries in Mauritius are estimated to account for 84% and 7% respectively of the total burden of disease (HSSP 2020-24). According to Health Statistics Report 2021, heart diseases and diabetes mellitus were the first two principal underlying causes of mortality, with 2,772 (21.3%) and 2,593 (20.0%) deaths respectively. Cancer and other neoplasm of all sites taken together was in the third position with 1,376 (10.6%) deaths. Deaths due to cerebrovascular diseases which amounted to 1,041 (8.0%) was in the fifth position. Hypertensive diseases were the cause of 629 deaths (4.8%). Mortality due to "Diabetes Mellitus" followed a decreasing trend from 26.5% in 2012 to 20.0% in 2021. According to the NCD Survey 2021, prevalence of type 2 diabetes in the Mauritian population aged 25-74 years was 19.9%: 21.6% (Male) and 18.5% (Female). Prevalence of hypertension was 27.2%. High prevalence level of NCDs risk factors, including overweight/obesity (36.0%/36.2%), harmful alcohol consumption (15.4%), tobacco use (18.1%) and low prevalence of physical activity (40.2%) are causes for concern despite successful gains in previous years.

The purpose of the NINAP (2023-28) is to provide a vision for identifying barriers and opportunities for NCDs and scaling up proven interventions through an implementation roadmap for the delivery of NCD-GAP by implementing the WHO General Programme of Work (GPW 13) and aligning it with 'Mauritius Vision 2030' and Sustainable Development Goals (SDGs). Seven Strategic Objectives of the NINAP 2023-28 aim to achieve the prevention, control and management of NCDs by providing vision, strategic leadership and engaging in partnerships, shaping the research agenda, setting norms and standards, promoting and monitoring their implementation, articulating ethical and evidence-based policy options, strengthening technical support, catalysing innovation and change, building sustainable institutional capacity, monitoring health situation and assessing health trends.

A **Stakeholder Survey** conducted for the development of the NINAP took account of the enormous efforts undertaken and proud achievements by the Government of the Republic of

Mauritius, the Ministry of Health and Wellness (MOHW), and multi-sectorial efforts of other Ministries, civil society, academia, private sector, and stakeholders. These include NCD Legislation, National Service Framework for Diabetes (NSFD), Diabetes retinopathy and foot clinics, screening programmes for cervical cancer, students screening, mobile clinics, action plans for physical activity, nutrition, alcohol, smoking, establishment of NCD Clinics, Cancer Registry, and a new cancer hospital. It also identified strategic needs and service delivery gaps for NINAP.

In the backdrop of COVID-19 pandemic, the NINAP 2023-28 **Situation Analysis** assesses and elaborates upon leading practices and research for integrating NCD service provision through Primary Health Care (PHC) as part of Universal Health Coverage (UHC) and helped in designing the NINAP methodology. NINAP reiterates the role of social, economic and political factors in optimizing health outcomes and decreasing health inequalities. The NINAP combines NCD policy, strategies, good practices and Best Buys for addressing challenges to reduction of premature mortality and morbidity from NCDs. The plan explains prevention, screening, surveillance, detection, treatment, palliative care and rehabilitation. The NSF for Diabetes describes WHO's Package of Essential NCDs (PEN).

The NINAP **Implementation Plan** focuses on actions to improve health and wellbeing across the life-course using WHO CHOICE and Disease control priorities (DCP) tools. A **stepwise** and **costed approach** is stressed for individual and population-based interventions to tackle the disease burden by addressing unhealthy life/dietary patterns, physical/chemical/microbiological contamination of food, malnutrition, overweight and obesity, tobacco and alcohol consumption and environmental factors.

Monitoring and Evaluation section explains ways to supervise and review the workplan progress, steps for effective implementation, strengthen technical leadership, and monitoring and reporting of activities.

Finally, the **Recommendations** articulate Government policy with wider health determinants, system reforms, political/multi-sectorial commitments, legislation to consolidate decision-making and integrating NCDs plan with climate change policies to ascertain the direction of travel and health gains for Mauritians.

CHAPTER 1: SITUATION ANALYSIS

1.1 Introduction

This document constitutes of a multi-sectorial National Integrated NCD Action Plan for Non-Communicable Diseases (NCDs) in Mauritius to be considered for implementation with the National Service Frameworks for NCDs. It captures findings from NCD Survey 2021, National Assessment of Health System Challenges and Opportunities for better Non-Communicable Disease Outcomes-2018, and various plans (Health Sector Strategic Plan 2020-24, Harmful use of Alcohol 2020-24, Tobacco Control 2023-27, Sports and Physical Activity Policy 2018-28), two stakeholder surveys and other NCD related plans.

As per WHO's latest recommendation (*Strategic Direction 1: To understand the drivers and trajectories of NCD burden),* Chapter 1 gives a comprehensive situation analysis encompassing the country profile, it's health system, the NCD epidemiology (burden of disease), challenges and opportunities, and current NCD response to establish readiness for the NCD task ahead.

Non-Communicable Diseases mainly cardiovascular diseases, cancers, chronic respiratory diseases, and diabetes, are the biggest cause of deaths worldwide. More than 41 million people die annually from NCDs (74% of global deaths), including 17 million people who die too young before the age of 70. Most premature deaths are linked to preventable common risk factors, namely tobacco use, unhealthy diet, physical inactivity, and harmful use of alcohol. Emergence of NCDs as the leading cause of death globally and in Mauritius are due to many changes occurring in socio-economic determinants of health such as globalization trends, lifestyle changes, demographic shift, economic transition, trade and marketing of unhealthy products, leading to high-risk behaviours including the increased metabolic risks.

In line with the WHO resolution World Health Assembly (WHA) 74, this National Integrated NCD Action Plan (NINAP) for the prevention and management of NCDs in Mauritius with the National Service Framework (NSF) for NCDs is a key policy tool and roadmap for delivering a real change in the way health and social care bodies and their local partners will work with people with long-term conditions to plan and deliver the services which they need to make their lives better. Its main aim is to support prevention and management of NCDs, maintaining independence and achieving the best possible quality of life through an integrated process of population and individual level interventions. It supports a benefit package of inter-sectorial integration for NCDs education, information sharing, assessment, care planning and service delivery. As Both NINAP and NSF for NCDs advocate health and social care services to work

together with local agencies involved in supporting people to live independently with population empowerment, thereby fostering a life-course approach to meet demand and supply factors for the continuum of NCD care.

Effective approaches to reducing the NCD burden in countries with a similar socio-demographic profile as Mauritius include a mixture of population-wide and individual interventions. Such cost-effective interventions are available and include methods for early detection of NCDs and their diagnoses using inexpensive technologies, non-pharmacological and pharmacological approaches for modification of NCD risk factors and affordable medications for prevention and treatment of heart attacks and strokes, diabetes, cancer, and asthma. These low technology interventions, if effectively delivered, can reap future savings in terms of reduced medical costs and improved quality of life and productivity. However, due to overall governance issues and limited health system capacities, there can be substantive gaps in their implementation, particularly in collaboration with other sectors of the country.

The main focus of both documents are to set the minimum standards for NCDs to strengthen national capacity to integrate and scale-up the care of heart disease, stroke, cardiovascular risk, diabetes, cancer, asthma and chronic obstructive pulmonary disease in primary health care settings. NSF for NCDs also focuses on mental and oral health, self-care, palliative care, and rehabilitation. Both NINAP and NSF for NCDs define a minimum set of essential NCD interventions for Mauritius in order to pursue Universal Health Coverage reforms to ensure that a UHC-NCD health benefit package contributes to health equity, social justice, community solidarity and human rights with a state of readiness to deliver.

1.2 Mauritius - Country Profile

The island country of Mauritius is located off the south-east coast of Africa in the Indian Ocean. It is separated from mainland Africa by about 2,000 km. It is located in the Southern and Eastern Hemispheres of the Earth. Mauritius occupies a total area of 2,040 sq. km in the Indian Ocean. It is made up of the main island of Mauritius, island of Rodrigues and several outlying islands like the Ile D'Ambre, Ile aux Cerfs, Ile aux Benitiers, etc. Mauritius is a volcanic island formed by volcanic activity around 8 million years ago. However, no volcanic activity has been recorded on the island for over 100,000 years. Coral reefs surround the island, protecting the land from storms and high waves.

The spectacular white sand beaches of Mauritius give way to a broken ring of coastal mountain ranges. A plain covers the northern part of Mauritius gradually giving way to a central plateau

with elevations ranging from 270 to 730 m. Bordering the plateau are low mountains. The highest mountain peak in Mauritius, the 828m tall Piton de la Petite Rivière Noire, is in the southwest of the plateau. Off the coast of mainland Mauritius, there are nearly a hundred islets and rocks without any human habitation. Mare aux Vacoas is the largest reservoir and the primary source of water for the islanders. Important rivers include the Grand River South East and the Black River.

Ageing and Dependency

Mauritius is at an advanced stage in its epidemiological transition. The demographic status is marked by a rapid ageing population while total fertility rate is below replacement level. The changes in the age structure will result in an increasing total dependency ratio so that the economically active population will decrease, and the dependent population will increase. The total dependency ratio is 413.0 in 2021, and it is projected to increase to 697.0 in 2037 and 886.9 in 2057. Demographic ageing has major implications for all facets of human life, including economic growth, savings, investments, consumption, and labour force participation. The prevalence of NCDs and the chronic conditions associated with these diseases as well as disability will scale-up radically with ageing (*Annex G: Selected Sectorial and Economic Indicators*).

1.3 Relevance to Global, Regional and National commitments

Mauritius, as a member state of WHO is committed to achieving Sustainable Development Goals (SDGs), target 3.4 - to reduce premature mortality from non-communicable diseases. It is providing leadership, governance, and enhanced collaboration to implement strategic priorities of GPW-13 (2019-23) and WHO Country Cooperation Strategy 2022 - 2025 to drive impact in an aligned manner at the country level, and in accordance with the Political Declaration of the High-Level Meeting of the General Assembly on the Prevention and Control of Non-Communicable Diseases. It will ensure that the NINAP planning, allocation of resources, implementation, monitoring and reporting are based on country NCD priorities, Strategic Priorities Framework (SPF) and UN Joint Initiatives to achieve development impact as per Mauritius Vision 2030. Most strategic priorities of Mauritius Health Sector Strategic Plan 2020-2024 are strongly linked to the 13 outcomes of GPW-13.

Table 1: Achievements on SDG 3 health related targets (2021)

Under 5 mortality rate per 1000 live births compared to the global target of 25	15.1
Neonatal mortality rate per 1000 live births, compared to the global target of 12	9.7
Maternal mortality ratio per 100,000 live births, as compared to global target of 70	54
Tuberculosis incidence rate per 100,000 population	0.1
Number of doctors/nurses and midwives per 10, 000 population,	29.9/34.7
% of population with access to affordable medicines and vaccines (sustainable basis)	100
Immunisation rate	>95%
Universal Health Coverage Index	65
Catastrophic expenditure on health	Low (3.6%)
% Increase in General Government Expenditure on health over the past five years	237%

1.4 Universal Health Coverage (UHC-NCD Benefit Package)

According to WHO Global Monitoring Report 2021, the SDG Indicator of Universal Health Coverage (UHC) for Mauritius was 65 in 2019. Mauritius has prioritised health financing policy reforms to achieve the UHC. Mauritius aims to increase its domestic general government investments into the national health system and requisite multi-sectorial actions to address the priority health system challenges with a view of bridging the existing gaps in coverage of NCD population-based interventions and individual services.

National Health Accounts (NHA 2018) report indicates that Total Government Expenditure on Health (TGEH) was around 44.01% of Total Health Expenditure (THE) in 2016. For financial year 2019/2020, Government's allocation to health as a percentage of General Government Expenditure (GGE) was 7.3%, around 2.6% of GDP.

The Government spending on public healthcare has resulted in significant pro-poor services distribution. This is largely offset by pro-rich distribution in the private sector. Thus, implying health financing strategies must be reviewed to promote financial protection against catastrophic health payments and bolster efforts to improve UHC Service Coverage Index and achieve UHC Target 3.8 under SDG-3.

1.5 Global Health Security – COVID-19 and NCD Comorbidities

COVID-19 pandemic has both exacerbated and highlighted the relevance and urgency of addressing NCDs in UHC programming. A number of factors have contributed significantly to controlling the propagation of the novel coronavirus in Mauritius. In particular, the sanitary curfew/lockdown, sanitization and sensitization campaigns, and safe shopping guidelines have helped to curb down, to a large extent, the number of COVID-19 cases. COVID -19 has exposed the fragility of the health system but essential health services can be supported by implementing Pillar-9 interventions with WHO's Strategic Preparedness and Response Plan (SPRP) for COVID -19 and during an emergency response.

The coinciding of the COVID-19 pandemic and NCD epidemic has highlighted and amplified chronic underinvestment in the prevention, screening, treatment and rehabilitation for NCDs. In February 2021, most countries reported disruptions in services related to mental health services (45%) and non-communicable diseases (37%). These disruptions relate to preventive services such as cancer screening, as well as to treatment services, such as cancer treatment, hypertension management, and rehabilitation services. Preliminary estimates suggest the total number of global deaths attributable to COVID-19 in 2020 due to these disruptions to be at least 3 million, with similar estimates expected for 2021. Preliminary studies seem to indicate that majority of these deaths were due to co-morbidities with NCDs (WHO Consultations, 2021).

1.6 Mauritius – Health System

National Health Policies, Strategies and Plans (NHPSP) for NCDs

The Non-Communicable Diseases (NCDs) Unit of the Ministry of Health and Wellness (MOHW) with several full-time technical and professional staff is responsible for tackling NCDs and their risk factors. As a Welfare state, the largest source of funding comes from government revenues. The government has also applied certain fiscal interventions, including taxation on tobacco and alcohol. In 2017, MOHW established a Multi-sectorial NCD Commission chaired by the Minister/Director General of MOHW with membership of all stakeholders and sectors. The Committee is functional, and health services are in place to enhance its working.

NCDs are reflected in National Development Agenda (Mauritius Vision 2030) in relation to Sustainable Development Goals theme. A list of various Health Sector Plans developed for Mauritius is accessible on the webpage of the Ministry of Health and Wellness.

MOHW's Health Sector Strategic Plan (HSSP 2020-24) was developed with time bound national targets including some of the 9 voluntary global targets from WHO-NCDs Global Monitoring Framework. HSSP 2020-24 addresses all NCD risk factors such as harmful use of alcohol, unhealthy diet and tobacco. It includes early detection, treatment and care for cancer, cardiovascular diseases, respiratory diseases, diabetes and physical inactivity and palliative care for patients with NCDs.

There is emphasis on reduction of consumption of food and drinks high in saturated fats, trans-fatty acids, free sugars and salt/sodium. Government of Mauritius considered mandatory policies on front-of-pack labelling to identify foods high in saturated fatty acids, trans-fatty acids (<1%), free sugars, or salt, national policies to eliminate industrially produced trans-fatty acids (i.e. partially hydrogenated oils) in the food supply and targeted product reformulation by industry across the food supply. Important standards are included in Food Regulation which is being currently reviewed while awaiting the set-up of a Mauritian Food Standards Agency under the aegis of Ministry of Health and Wellness.

Public education and awareness campaign for nutrition are carried out on mass media (TV and Radio), pamphlets production, and health promotion activities such as talks on Nutrition for all age groups. NCDs cause malnutrition due to obesity (including childhood obesity), micro-nutrient deficiency anaemia (in school children as precursor to safe-childbearing concept, in adolescents and reproductive age groups), and osteoporosis (more specifically in neglected NCDs and cancer survivors). Food fortification has been announced as budgetary measure 2023 for wheat fortification, as well as 'sin-taxing' on sugar-sweetened beverages and imported food products to reduce child obesity. Measures are being undertaken with stakeholders to prevent food adulteration, pesticide control, reformulation of fast-food regulation 1999, proposal for calcium supplementation for cancer survivors and for palliative care (with high proteins and calories).

Mauritius implements national public education and awareness campaigns and diet education through health programmes, talks on alcohol abuse in communities, worksites and schools and mass media sensitization through television/radio. Campaigns integrate with community-based programmes and are supported by environmental changes to enable physical activity, and address any of the social, environmental, and economic benefits of physical activity, in addition to the health benefits. National/subnational mass participation events encouraged participation by the public in physical activities such as Health Day, Cycling, National Relay Walk, TAFISA, Summer camp, Jog-Run for Health and Fun. E-Health initiatives for NCDs are being developed to promote Mobile Clinic Screening and School Health Programme.

NCD surveillance responsibility is shared across several departments within MOHW with a system for collecting mortality data by cause of death on a routine basis, including civil/vital registration system. Surveillance relating to the mortality, morbidity, and risk factors reporting systems of the country and NCD mortality, morbidity, and risk factors data are included in national health reporting system.

Mauritius has a National Cancer Registry since 1990 that collects hospital and population-based data respectively. Mauritius aims to use Service availability and readiness Index to achieve the hospitals target of >90 and PHCs >95% for NCDs.

Health care system's capacity related to NCD is assessed through early detection, treatment, and availability of palliative care services within the health care sector. Specific focus is on the availability of guidelines or protocols to treat major NCDs. These initiatives enabled reporting against NCD Global Action Plan process indicators and UN High Level Meeting national commitment progress indicators. Evidence-based national guidelines/protocols/standards are available for the management (diagnosis and treatment) of CVD (2019), Diabetes (2019) and Cancer (2020) through a primary care approach recognized/approved by government authorities. Drug and dose specific guidelines/protocols/standards are available for diabetes and hypertension at public sector health facilities.

Evidence-based national guidelines/protocols/standards for the management of NCD risk factors through a primary care approach recognized/approved by government or competent authorities for alcohol and tobacco dependence were developed in 2018. Nutrient-based guidelines for overweight/obesity (2019) are utilized in most public sector health facilities, including referral criteria. National Sports and Physical Activity Policy 2018-28 is also being implemented in the country.

Basic technologies for early detection, diagnosis/monitoring of NCDs in the primary care facilities of the public and private health care sectors are available. Early detection of cancers of breast and cervix by means of rapid identification of the first symptoms is integrated into primary health care services and there is a clearly defined referral system from primary care to secondary/tertiary care for suspect cases. HPV vaccination was included in the national immunization schedule and has a coverage of 80% in 2019.

Most necessary pharmaceutical products and procedures for treating NCDs in the primary care facilities or broader public health sector are available except for bone-marrow transplantation. Cancer diagnosis and treatment services in the public sector has been enhanced with a dedicated

Cancer Centre in the country providing multi-disciplinary care including pathology, surgery, systematic therapy, and radiotherapy.

Palliative care for patients with NCDs is available in the public health system in some primary health care facilities and community or home-based care. Services are generally available for provision of care for acute stroke and rehabilitation for stroke patients in the public health system. There is a register of patients who have had rheumatic fever and rheumatic heart disease and systems for follow-up/recall to deliver long-term penicillin prophylaxis are in place (NCD *stakeholder survey 2022*).

Table 2: Main NCD Policies and Plans

Plan	Year	Remarks
National Action Plan to reduce harmful use of alcohol	2020-24	Mid-term review in December 2022
National Action Plan for Tobacco Control	2022-26	Approved by the cabinet.
National Action Plan for breastfeeding	2023-27	Being implemented
National Action Plan on physical activity Policy	2018-28	Last Action plan, 2011-14
National Plan of Action for Nutrition	Action Plan 2023 -2028 is being finalised	Mauritius Nutrition Survey 2022 report published in May 2023
National Action Plan on cancer control	2022-25	Originally meant for 2019-23

Health Infrastructure and services

In the public sector, there are five Regional Hospitals, two District Hospitals, two Community Hospital, six Specialized Hospitals (for psychiatric hospital, one for chest diseases, one for eye diseases, one for ear, nose and throat (E.N.T.) diseases, one Cardiac Centre and a National Cancer Centre). In the private sector, there are 18 private health institutions. As at end of 2021, there were 3,803 beds in public health institutions and 776 in the private sector.

All regional, district and specialized hospitals have an out-patient department. Out-patient services are also delivered in 2 Community Hospitals, 6 Mediclinics, 19 Area Health Centers (AHC) and 114 Community Health Centers (CHCs) and 6 Ayurvedic Clinics. The public sector caters for around 73% of total health care requirements and the remaining 27% is catered by the private sector. It is also to be pointed out that many patients make use of both public and private health facilities. Support services include laboratory and imaging services. In Mauritius, public health services at all levels are offered free of cost (including specialized medical care to the entire population.

Regional hospitals comprise an emergency department and well-equipped cardiology services (intensive cardiac care unit with the necessary equipment for conducting electrocardiogram, echocardiography, and stress test). In 2021, the number of admissions (including re-admissions) to public hospitals in the Island of Mauritius was 149,259. A total of 2.8 million cases were seen by doctors at the out-patient service points of all hospitals, and the number of attendances for treatment and follow-up at the primary health care level was 4.4 million (HSR 2021).

Human Resources for Health – At the end of 2021, there were 3,775 Doctors (29.9/10,000 population), 449 Dentists, 555 Pharmacists, and 4,386 nurses and midwives (34.7/10,000 population). The Mauritius Institute of Health (MIH) is a parastatal body which caters to some extent for the training needs of health professionals.

Table 3: Key health indicators of Mauritius

SN	KEY HEALTH INDICATORS	VALUE
1	Non-communicable diseases (NCDs) burden, 2015	80%
2	Non-communicable diseases (NCDs) mortality, 2015	85%
3	Deaths due to circulatory system, diabetes, neoplasms, respiratory system respectively in 2021.	34.5%, 20.4% 10.6%, 9.2%
4	Probably of dying between ages 30 and 70 years from one of the main NCDs, 2015	22.5%
5	Total Fertility Rate in 2021	1.40
6	Birth rate per 1000 mid-year population in 2021	10.3
7	Increase in elderly population by 2025	21.6%
8	Infant mortality rate/100,000 live births -2021	13.6
9	Under 5 mortality rate/1000 live births, 2021	15.1
10	Maternal mortality ratio/100,000 live births, 2021	58
11	Prevalence of harmful alcohol consumption, 2021	16.9%
12	Number of liters of imported or locally produced alcoholic products in 2021	57 million
13	Yearly per capita liters of alcoholic beverage intake in 2021	45 liters
14	Mental and behavioural disorders treated due to use of alcohol, 2021	1.9%
15	Age groups not eating fruits daily as per Mauritius Nutrition Survey 2012: 20-49 years 50-64 years	 29.2% 26.9%
16	Overall age-sex standardized mean salt was estimated at (Mauritius salt intake study 2012). WHO recommended level of daily salt intake < 5.0g/d	7.9 g/day

1.7 Epidemiology of NCDs and Health Systems Response

According to WHO's latest recommendation (Strategic Direction 3: Ensure timely and reliable data on NCD risk factors, diseases and mortality for informed decision making and accountability), this section gives a detailed account of NCD epidemiology in Mauritius for informed decision making.

To achieve the Second Economic Miracle and Vision 2030, Mauritius must tackle the increase in NCDs accounting for increased morbidity and medical costs as a heavy burden on health systems. Addressing the increasing burden of NCD morbidity and mortality needs to reflect in the Primary Health Care (PHC) and Universal Health Coverage (UHC) agendas and should be central to the achievement of the WHO's Thirteenth General Programme of Work (GPW-13), Triple Billion targets (WHO Consultations, 2021).

The Mauritius NCD Survey 2021 results aim to strengthen national strategies for the prevention and control of NCDs. This will help in improving Health Benefit Package (HBP) design and

financing as per Disease Control Priorities (DCP3) on NCDs (11-17) and International Classification of Health Interventions (ICHI)

Mortality due to NCDs

In Mauritius, heart diseases and diabetes mellitus were the first two principal underlying causes of mortality in 2021, with 2,772 (21.3%) and 2,593 (20.0%) deaths respectively. Cancer and other neoplasm of all sites taken together was in the third position with 1,376 (10.6%) deaths. Deaths due to cerebrovascular diseases which amounted to 1,041 (8.0%) was in the fifth position. Hypertensive diseases were the cause of 629 deaths (4.8%). Mortality due to "Diabetes Mellitus" followed a decreasing trend from 26.5% in 2012 to 20.0% in 2021.

Current response: Important developments have taken place in Mauritius for the promotion of health and prevention of NCD diseases, attainment of better management and control and for strengthening effective rehabilitation and palliative care. Albeit it is acknowledged that much more is still required. During the recent years, Mauritius has made substantial efforts and progress through various responses to NCDs. However, the responses have been often fragmented and there is an increasing need for a more holistic health system approach with pragmatic implementable policy recommendations to further improve prevention and care of NCDs at population and individual levels.

Morbidity

Prevalence of diabetes

In 2021, the prevalence of diabetes (age and sex standardised) in adults aged 25-74 years was 19.9%: 21.6% for men and 18.5% for women. The proportion of newly diagnosed diabetes (NDM) was 26.3%: 27.5% for men and 24.9% for women. The age and sex standardised prevalence of pre-diabetes (IFG and IGT combined) was 15.9%: 14.4% for men and 17.1% for women. The prevalence of IFG was 5.8%: 6.1% for men and 5.6% for women, and the prevalence of IGT was 10.0%: 8.2% for men and 11.5% for women. Thus, the prevalence of diabetes, pre-diabetes and IGT has thus gone down numerically since 2015. Type 1 diabetes register shows that by the end of 2021, there were 880 T1DM patients, of whom 55% were females and 41% were aged less than 25 years.

Current response: The public awareness of diabetes has increased. NCD Mobile Clinic Service (caravan de santé) screen people for NCDs at worksites, secondary schools and outreach regions and in the community. In addition to the caravan de santé, visits to PHC centers provide excellent

opportunities for opportunistic and systematic screening of CVD/diabetes risk factors and counselling about risk behaviour modification. Diabetic patients are regularly followed up in NCD clinics. Customised patient education through counselling is provided by diabetes specialist nurses. All patients with diabetes attending NCD clinics are referred for electrocardiography, retinal and foot screening as per existing protocols. Patients with complicated/ uncontrolled diabetes cases are referred to the community based diabetologists in regional hospitals.

Cancer incidence

In 2021, 2,866 new cases of cancer (1185 males and 1681 females) were registered by the Mauritius National Cancer Registry (MNCR). The age standardized incidence rate among men is 130 per 100,000 and 168 per 100,000 among women. In 2021, the most frequently registered sites of cancer in male were prostate (18.7%), colorectal (13.8%), lungs (9.3%), lymphoma (6.1%) and bladder (4.7%). Among female, breast cancer was the most prevalent (35.2%) followed by that of colorectal (8.7%), corpus uteri (8.0%), ovary (6.7%) and cervix uteri (5.5%). Breast cancer age standardized incidence rate (ASR (W)) was 59.3 per 100,000 in 2021. The mean age for cancer incidence is 63.8 years in males and 60.2 years in females. 60% of all male and female cancers occur in age group of >60 years.

Current response: National Action Plan for Cancer Control 2022-25 activates political will to make a cancer control plan founded on UHC. It strengthens governance and identifies priorities that are evidence-based as in WHO "Best Buys" for NCD primary prevention. It prioritizes early diagnosis, implement effective, high-quality and value-based cancer management interventions, strengthen information systems, ensure financial protection, optimise the work force and access to reliable care.

Kidney disease

The standardized prevalence of reduced kidney function (<60 ml/min) was 3.9% in 2021: 3.7% in men and 4.1% in women. Albuminuria (ACR ≥3mg/mol) as index of kidney disease, was 6.3 % of the survey population in 2021: 6.4% men and 6.2% women.

Of those with diabetes, 16.3% had reduced kidney function, compared to 5.8% in people with pre-diabetes. Of those with hypertension or previous CVD, 14.0% and 24.8%, respectively had reduced eGFR. Of those with diabetes, 16.8% had albuminuria and the same was observed in 6.7% of people with pre-diabetes. Of those with hypertension or previous CVD, 14.4% and 15.2%, respectively had albuminuria. Reduced kidney function and micro-albuminuria are

relatively higher in subjects with known CVD, hypertension, and diabetes. At the end of 2021, 5,421 dialysis were carried in the Hemodialysis Unit. In total, there were 1,458 patients on dialysis in both private and public health sector.

Asthma

In 2021, the prevalence of asthma in adults was 7.5%: 6.8% in men and 8.0% in women. The prevalence was similar between non-smokers (7.3%), ex-smokers (9.0%) and smokers (8.3%).

Amputations and blindness resulting from NCDs

In 2021, 658 amputations (including re-amputations) were performed in 507 patients (89% of these patients were diabetic). The number of attendances for retinal screening was 21,189. According to the NCD Survey 2021, of the 1,010 persons, mostly those with reduced glucose tolerance, who had their retinas examined, 12.8% were found with sight threatening diabetics retinopathy (STDR). A total of 4,750 surgeries for removal of cataract has been performed in 2021, mostly among diabetic patients (Government Health Services Statistics 2021).

Metabolic Risk Factors

Hypertension and Lipids - In 2021, the prevalence of hypertension was 27.2%: 26.9% (Male) and 27.5% (Female). Of those with hypertension, only 60.5% of individuals were currently on medication for hypertension. The overall prevalence of elevated total serum cholesterol (≥ 5.2 mml/l) was 34.8 % (39.6% for men and 30.8% for women). It has decreased compared to the NCD Survey 2015 (44.1%).

Current response: Patients with acute coronary syndrome reach the hospital and receive standard care and thrombolytic therapy which is nationally available. Invasive cardiac procedures are carried out at the Cardiac Centre in Pamplemousses and a new wing for cardiac surgery which has been set up at Victoria hospital in 2016 to cater for patients coming from the southern part of the country. The Emergency Medical Services ("Service d'Aide Médicale Urgence" or SAMU), launched in 1997 and functional 24 hours a day across the island transports and institutes treatment to the severely ill or injured from site of illness or injury to the nearest hospital in especially equipped and staffed ambulance vehicles.

Overweight and Obesity

In 2021, the prevalence of overweight was 36.0%: 38.7% in males and 33.8% in females. The prevalence of obesity was 36.2%: 29.9% in males and 41.6% in females. Women are more often obese than men in all age groups. Similarly, 62.8% had a large waist circumference - 54.7% in men and 69.9% in women.

Current response: An Action Plan on Obesity is under preparation. Since 2000, regulations (amended FOOD ACT 1998) are in place to control the percentage of saturated fatty acids and palm oil in cooking oils. The new draft Food Regulation under the FOOD ACT 2022 has been amended to include the permissible level of Trans Fatty Acid safe for human consumption.

Table 4: Mauritius Diseases Profile

1	Deaths due to circulatory system, diabetes, neoplasms, respiratory system respectively in 2021.	34.5%, 20.4% 10.6%, 9.2%
2	Mortality (for both sexes and all ages) from chronic liver disease and cirrhosis, 2020	1.9%
3	Probability of dying between ages 30 and 70 years from any of the 4 main NCDs 2015	22.5%
4	Prevalence of type 2 diabetes in the Mauritian population aged 25 -74 years, 2021	19.9%
5	Cancer incidence in 2020 (per 100,000). Males/females	M-135.4 F-170.3
6	Prevalence of asthma in adults, 2021	5.9%
7	Albuminuria, an index of kidney disease, 2021	6.3%
8	Number of patients on dialysis in 2021	1458
9	Number of amputations performed (including re-amputations) in 2021	658
10	Number of attendances for retinal screening in 2021.	21,189
11	Sight threatening diabetic retinopathy (STDR) cases detected as % of all screenings.	10.8%
12	Physical disability (defined as requiring some assistance with activities of daily life such as washing and dressing) population aged 50 years and above in 2015 (9.8%)	M-6.7% F12.5%

1.8 Behavioural risk factors for NCDs and other determinants

WHO has identified and highlighted 5 highly influential and reversible risk factors which are important in the development of NCDs. These are:

Tobacco smoking

Tobacco is one of the main causes of premature deaths in the world. In 2021 the prevalence of smoking in Mauritius was 18.1 % (35.3% in men and 3.7% in women). Highest prevalence was noted in the younger age-groups with 48% of men aged 25-34 years reporting smoking. Some 19% of students aged 13 to 15 years in Mauritius (28.5% boys and 10.2% girls) were current users of tobacco products (Global Youth Tobacco Survey 2016). According to Global school-based student health survey (GSHS) 2017, 15.3% of students age 13-15 years and 21.8% of students aged 16-17 years currently smoke cigarettes at the time of survey.

Current response: As a party to the WHO Framework Convention on Tobacco Control (FCTC) since 2004, Mauritius has taken significant steps to fulfil its obligations under the FCTC. In 2009, Mauritius became the first nation in the African Region to implement pictorial warnings on cigarette packages. Mauritius was also the first African country to adopt a comprehensive smoke free law and the first country in the world to ban smoking in vehicles carrying passengers.

National Action Plan for Tobacco Control 2022-2026 proposes new strategies devised through consultation with stakeholders from various Ministries and organisations to reduce consumption of tobacco products, plain-packaging project and global networking (Global Coordination Mechanism-GCM) on sensitive issues like tobacco taxation policies, have been proposed. As from 31st May 2023, Mauritius has implemented new amended regulations of the Public Health (Restrictions on Tobacco Products) Act 2022, thus complementing the National Action Plan for Tobacco Control 2022-2026. The amendments include implementation of the plain packaging of all tobacco packages and restriction of vending licenses to new retailers located within a perimeter of 200m of educational institutions, sports and leisure facilities.

Alcohol consumption

Alcohol has been associated with all the main NCDs. In 2021, the prevalence of heavy drinkers (those who drink on two or more days per week and have at least 3 pegs/day or those who drink once a week but have more than 5 drinks per day) was 15.4%: 26.3% in men and 4.5% in women. If diseases and/or hospital admissions due to alcohol were included, the prevalence was 16.9% (30.4% in men and 5.4% in women). The prevalence of ex-drinkers was 3.2%: 3.8% in men and

2.7% in women and harmful alcohol consumption was 19.0% (31.3% in men and 8.7% in women).

The GSHS in June 2017 showed that 21% of students aged 13-15 years and 34.5% age 16-17years consumed alcohol during past 30 days preceding the survey.

Current response: The National Action Plan to reduce the harmful use of alcohol 2020-2024 aims, inter alia, at reducing the harmful use of alcohol by at least 10 percent by year 2025 and to address alcohol related harmful effects through awareness campaigns. One of the recommendations of the National Action Plan is to strengthen and enforce the Public Health (Prohibition on Advertisement, Sponsorship and Restriction on Sale and Consumption in Public Places of Alcoholic Drinks) Regulations 2008. Taxes on alcohol are increased almost yearly. A full ban on alcohol advertising and promotion is well enforced. Additionally, every alcoholic drink offered for sale is required legally to have health warning label that an excessive consumption of alcoholic drinks causes serious health, social and domestic problems. Regulations restricting hours of sale exist but there are enforcement problems.

Physical Activity (PA)

Physical inactivity has been estimated to cause 6% of the global burden of disease from coronary heart disease, 7% of T2D, 10% of breast cancer, and 10% of colon cancer. Inactivity causes 9% of premature mortality. NCD Survey 2021 altogether shows 14.0% and 38.8%, respectively, reported vigorous and moderate intensive physical activity (PA) at work, and 11.6% and 39.5%, respectively, reported vigorous and moderate intensive PA during leisure time. In GSHS 2017, 19.9% of students aged 13-15 years and 17.6% of students aged 16-17 years were physically active for at least 60 minutes per day on all 7 days during the 7 days before the surveys.

Current response: National Sports and Physical Activity Policy 2018 - 2028 has been developed and implemented. A new National Action Plan on Physical Activity is under preparation. The National Sport and Physical Activity Policy lays the foundations for the development of sport and physical activity in Mauritius for the 10-year period 2018-2028. The overarching vision statement for community and elite sport inform the direction of travel for the next ten years. The twenty transformative actions outlined by the Policy form the basis of long-term strategy and delivery. Multiple organisations, including government, sport and physical activity bodies, private sector as well as all individuals have a crucial role to play in shaping the future. The Policy comes to life through a series of targeted programmes that engage and activate the Nation.

Unhealthy Diet

Many low and middle income countries suffer from the coexistence of undernutrition along with overweight, obesity, or diet-related NCDs. Mauritius Nutrition Survey in 2012 showed that in the age group 20-49 years and 50 to 64 years, 29.2% and 26.9% respectively reported not eating any fruit daily. In the age group 12 to 19 years, 26.5 % did not consume any fruit daily as compared to 38.4% in 2004. Almost 37.0% and 31.2% among 20-49- and 50-64-year age-groups respectively reported not eating any vegetable or only once daily. Consumption of soft drinks from two thirds of the respondents taking these drinks on one or more days in a week, and highest (75%) among adolescents aged 12-19 years. Mauritius salt intake study 2012 shows mean salt intake was 7.9 g daily (WHO rec = < 5.0 gm/day).

According to Mauritius Institute of Health's Survey in 2017, among 480 mothers only 39% exclusively had breastfed their babies for the first four months and only 24% of mothers who ever breastfed did so within one hour of giving birth. Moreover, 60% of mothers were assisted to start breastfeeding.

Current response: A new National Action Plan on Nutrition is under preparation, based on the Mauritius Nutrition Survey 2022 but the implementations of the National Plan of Action for Nutrition (2016-2020) still stand today, such as promotion of appropriate diets and healthy lifestyles, including raising the consumption of fruits and vegetables by two-fold, decreasing the consumption of oils and fats by 5%, protecting consumers through improved food quality and safety and enforcement of food regulations, preventing specific micro-nutrient deficiencies, particularly minimizing anaemia, mounting aggressive sensitization campaigns so as to reduce underweight to half the 2012 level in children aged 5-11 years and obesity in the adult population by 1%. Since 2010, the "Food (Sale of Food on Premises of Educational Institutions) Regulations 2009" was implemented, whereby only specific healthy food items were allowed for sale in school canteens. Additionally, Sugar Tax has been introduced as from 2013 for non-alcoholic beverages containing sugar, including juices, milk-based beverages and soft drinks and non-staple sugar sweetened food products

Education and Health Inequalities

Mauritius NCD Survey 2009 shows that those with low levels of education are far more disadvantaged than those with a higher education level with respect to prevalence of diabetes, hypertension, and metabolic syndrome. Physical inactivity, smoking, and alcohol consumption

have a positive Concentration Index, suggesting a higher concentration among those with higher levels of education.

Air Pollution

WHO reported that globally 25-33% of deaths from heart disease, stroke, lung disease, and cancers are due to air pollution. The Forum of International Respiratory Societies' Environmental Committee estimated that about 500,000 lung cancer deaths, 1.6 million Chronic Obstructive Pulmonary diseases (COPD) deaths, 19% of all cardiovascular deaths, 21% of all stroke deaths and many other NCDs including diabetes could be associated with or attributed to air pollution.

NCDs Summary

Based on the findings of NCD survey 2021, there has been reduction in diabetes prevalence, cholesterol levels, and smoking in older men. Improvement has been observed in overall awareness about NCDs and an increase in the physical activity. The work should be reinforced in these areas and further expanded to reduce, obesity, hypertension, cardiovascular, kidney, chronic respiratory, cerebrovascular diseases. The aim should be to strengthen national strategies for the prevention and control of NCDs through all available pharmacological and non-pharmacological interventions.

1.9 MOHW achievements and readiness level for NCDs

Political commitment to NCD prevention and control

Achievements: As a new development model, Mauritius Vision 2030 has identified health as growth enabler, quality of life to measure performance, reaffirmed its commitment to Universal Health Coverage, and this explicit political commitment is also reflected in MOHW's mission.

In June 2018, Mauritius acceded to the WHO FCTC Protocol to Eliminate Illicit Trade in Tobacco Products. A clear indication of the concern of the government of the scale of the NCD problem is evident from launching of a national sensitization campaign on NCDs on 7th April, 2017, enactment of various Public Health Legislation and taxation policies, institutionalized regular conduct of NCD surveys and formulated action plans on NCD risk factors, National Service Framework for Diabetes 2007, Centre of Excellence for diabetes care, Diabetes and Vascular Health Center at Souillac in 2008, the provision of Digital Retinal Screening Service in all five health regions since 2010 and setting up of a structured Diabetic Foot Care Service in 2011.

Opportunities: The country has had experience in a multisectorial approach for risk factors such

as nutrition and physical activity. The challenge now is to move towards a coordinated approach for the implementation of this integrated and multi-sectorial National Action Plan for NCDs.

Explicit process for setting priorities and limits

Achievements: In Mauritius, there is an opportunity to link the budget or expenditure to the disease burden in the National Health Accounts (NHA) process. Significant emphasis has been placed on expanding the coverage of the prevention of NCDs by providing more funding, human resources, and sin taxes.

Opportunities: Disproportionate budget allocations with focus on hospitals and specialized services appear to indicate a low priority for achieving a healthy lifestyle, while the latter should be one of the most important priorities. The NHA refers to link the process of national health policy development to allocation and reallocation of resources.

Interagency cooperation

Achievements: MOHW has been increasingly engaged in mobilising multisectorial action to tackle NCDs and strengthening collaboration through a Health in All Policies (HiAP) approach.
The Ministry of Social Integration, Social Security and National Solidarity (MSISSNS) provides preventive, promotive, curative and rehabilitative services to elderly and disabled people. Medical Officers of the MSISSNS do regular domiciliary visits.

The Ministry of Agro Industry and Food Security is collaborating with the MOHW to ensure food security and safety and to encourage consumers to adopt healthy eating habits by promoting bio-farming and discouraging use of pesticides to minimise risks to human health and the environment.

Ministry of Youth Empowerment, Sports and Recreation promotes physical activities by providing incentives for purchase of sports equipment, higher accessibility of sports infrastructure and allocation of grants to clubs.

The Ministry of Gender Equality and Family Welfare organises sensitisation campaigns on healthy eating habits, physical activities and cancer through women networks.

MOHW provides grants and technical assistance to NGOs and engages Civil society organisations / disease-specific groups for effective policy implementation, and service delivery.

Opportunities: There is little attention on addressing the underlying social determinants of health. Initiatives are ad hoc or sporadic with lack of synergy due to absence of an inter-sectorial

mechanism. An NCD Steering Committee instituted in December 2017 is active and conducts regular meetings for monitoring and evaluation to provide a strong and sustainable basis for joint cross-sectorial actions.

One important aspect for this integrated NINAP to be successful remains the clear identification of a high-powered lead or coordinating agency with convening potential for HiAP implementation.

Population empowerment

Achievements: Emphasis is being placed upon citizen empowerment and community mobilization with the establishment of Local Health Committees and training of community health leaders to sensitize the community on health matters. Examples are - National Service Framework for Diabetes, Health Literacy Framework, 'sponge' media campaign and health education sessions.

Opportunities: Local Health committee is being set up to engage and empower people. Health literacy survey of people in the community will be conducted to evaluate the status of people awareness and health literacy.

Model of service delivery

Achievements: Examples of good models of service delivery: strong primary health care system, good geographical accessibility, free healthcare, convenient opening hours of public health facilities, multidisciplinary team of health professionals, task profile of PHC provider comprising of preventive services, patients' referral to specialist care and back referral, presence of NCD Mobile Clinics, recording of assessment details, availability of key diagnostic tests.

Opportunities: More efforts are needed to revive the gatekeeper role of health care providers e.g. create peer to peer groups for patient health education in case of high risk people.

Coordination across providers

Achievements: The coordination across providers at the different levels are patient-focused with a referral system. The NCD, Health Promotion and Research Unit has developed a coordinating mechanism with primary care providers for carrying out screening and other primary prevention activities, service providers at hospital level and community-based rehabilitation.

Opportunities: The current system cannot track patients due to absence of individual patient identifier and e-tools and being based on hand-written 'memo'. Duplication or fragmentation of NCD care can lead to duplication of laboratory and diagnostic tests. Coordination between

Ministry of Social Integration, Social Security and National Solidarity and MOHW is a key for the improvement of domiciliary NCD care of the elderly people.

Regionalisation, economies of scale and specialisation

Achievements: The overall public healthcare system is well structured with three distinct levels of care i.e., primary, secondary and tertiary. Effective regionalisation of care has been achieved with a regional hospital and an extensive PHC network in each of the five health regions with a defined catchment population. There is a protocol for the treatment of acute cardiovascular events. All five regional hospitals have a fully equipped cardiac unit. Angiography and percutaneous coronary intervention (PCI) are available in two regional hospitals and cardiac surgery is available at the Cardiac Centre and Victoria hospital. A 24-hr ambulance service is available. An algorithm has already been developed for the treatment of NCDs. There is a Diabetic Clinic at hospitals and primary health care with trained NCD and Specialized Diabetes Nurses. A National Action Plan on Cancer Control has been developed and being implemented.

Opportunities: PET-CT (Positron Emission Tomography- Computed Tomography) and SPECT-CT (Single Photon Emission Computed Tomography) are indicated for the diagnosis of malignancy, staging, tumour characterization, response assessment, re-staging and surveillance. A PET CT Scan will be procured and installed at the National Cancer Hospital.

Incentive systems

Achievements: Public health professionals receive their salaries and allowances based on the recommendations of the Pay Research Bureau and linked to position levels, years of service and responsibilities. Opportunities exist for staff to gain new competencies for career advancement.

Opportunities: There are no financial or other motivating incentives linked to NCD outcomes and for rewarding high performing health centers. Little emphasis has been given to demand-side incentives and few examples are for tobacco cessation, free access to health clubs, and HIV testing. Incentive mechanisms for peer-to-peer education and support-groups do not exist.

Integration of evidence into practice

Achievements: Specific education and sensitisation measures have been taken in light of findings of the NCD Surveys. Examples are: application of vaccination strategy against cervical cancer, Mauritius National Cancer Registry (MNCR) data used for new technologies and programmes, clinical guidelines for the management of NCDs, dietary guidelines for the prevention of NCDs,

diabetes clinical practice guideline, etc. A Virtual Health Library (VHL) Mauritius was set up in 2015.

Opportunities: There is a need to regularly review and update the current guidelines and clinical audit for reducing unwarranted variations. There is no dedicated agency responsible for the coordination of adherence to clinical practice guidelines and protocols and no health technology assessment system to guide policymakers to make the right and most appropriate choices.

Human Resources for health (HRH)

Achievements: The numbers in all categories of health professionals per 100,000 people, such as doctors, dentists, pharmacists, nurses have increased over time, and are in line with those of upper-middle-income countries. Human resources are evenly distributed across the urban and rural areas. Several new posts have been created (NCD Coordinators, Diabetologists).

The Mauritius Institute of Health (MIH) undertakes training and research activities. Since 2016, continuing professional development (CPD) has become mandatory for doctors registered with the Medical Council. Collaboration between the public and private health sectors is good.

Opportunities: A formal HRH policy/plan is required in relation to assessing functions of the health system and HRH for performance optimization, quality and impact of health workforce.

Access to quality medicines

Achievements: MOHW has developed its medicine list, covering NCD drugs for both in-patient and outpatients due to an efficient procurement system. National pharmacovigilance committee collects and analyse data on adverse drug reactions and reporting of suspected quality issues.

Opportunities: There is limited health insurance coverage through voluntary schemes and patients who avail private sector services may face financial constraints. In the private sector there are gaps in monitoring the sale of medicines without prescription and for enforcing legal framework, as well as evidence-based guidelines and auditing of prescriptions, real time monitoring of medicine consumption at health facilities and to detect counterfeit medicines.

Health systems management

Achievements: Facility managers are Community Physicians conducting NCD clinics and they report to the NCD Coordinator and the Senior Community Physician at all the five health regions.

Opportunities: The regional health facilities are managed in a hierarchical manner, with top-down control. The decision-making powers related to financial resource allocation, staffing levels

and types of services to be provided are centralized at national level. PHC level showed lack of clarity on the reporting channel. Internal clinical audit does not assess comprehensively the quality of NCD care, patient satisfaction and ethical considerations.

Adequate information solutions

Achievements: Mauritius has a civil registration system with almost 100% births and deaths recorded and coded according to WHO International Classification of Diseases (ICD-10). The Health Statistics Report is published annually and includes NCDs. Regular population based surveys are carried out to record salt intake, tobacco control, household out-of-pocket expenditure, risky behaviors. There are also reports and registers, such as Mauritius National Cancer Registry, Health Services Statistics, NCD registry, type 1 diabetes register, maintained at national level, National Health Accounts, and Cost Centre Projects.

Opportunities: Policies are reoriented, and timely and appropriate actions are initiated based on annual reports prepared for different programme activities. NCD Surveys are conducted every 5 years and their findings are compared to the previous surveys. Central computerized data repository, including that from clinics and doctors in the private sector can be more helpful in the flow of this information throughout the health system.

Change management

Achievements: A number of changes have been introduced successfully at PHC, hospital and population levels for improving health services delivery, such as regionalisation of NCD services, introduction of diabetes and other specialized clinics in PHCs, reduction in risk behaviors (tobacco control, ban on alcohol advertising, tax on soft drinks, sale of unhealthy food items in school canteens, and regulation of amount of salt in bread production).

Opportunities: Any changes made in the health delivery system is backed-up by training of health personnel, which should also involve intersectorial involvement, regular monitoring, and advocacy for change management across the board.

Ensuring access and financial protection

Achievements: In Mauritius, all government healthcare services including medicines and laboratory tests are free to users and most people have physical access to a PHC centre within 3 km with a range of free domiciliary health care services and transport for eligible patients. According to the 2015 NHA Report, 73% of the population attends public health care institutions whereas 27% seek care and treatment from the non-state sector on a user-fee basis.

Total Health Expenditure (THE) in 2018 was Rs25.91 bn. It accounted for 5.67 % of GDP (compared to 4.30% in 2001). The household out-of-pocket (OOP) payments were Rs11.63 bn which represents 53.52% of the Total Health Expenditure (NHA 2018). Measures taken to curb financial burden on patients include the cases which cannot be treated locally are sent abroad at the expense of the government or financial assistance from the National Solidarity Fund. Access and financial burden do not present any barriers for scaling up core NCD interventions.

Opportunities: The burden of out-of-pocket payments amongst the two lower income groups was more (12% and 8% as compared to only 4% among households with higher incomes). 3.7% of households experienced catastrophic expenditure on health i.e., greater than or equal to 40% of a household's non-subsistence income, (WHO 2003).

Source: Non-communicable Diseases Progress Monitor 2022(who.int)

Figure 1: Current situation - WHO's Ten Progress Indicators to report NCD Progress

Many reforms targeting diabetes care and management have been undertaken by MOHW which include the National Service Framework for Diabetes in 2007, the setting up of a center of excellence for

NSFD - Pursuing a Mauritian success story

The National Service Framework for Diabetes (NSFD), initiated in 2007, reviewed, strengthened and re-engineered primary, secondary and tertiary prevention strategies with well-defined ten-year targets to reduce complications of diabetes (blindness and end-stage diabetic renal failure by at least one third, amputations related to diabetes by half, and reduce morbidity and mortality from coronary heart disease).

Some of the key service standards identified under the NSFD for implementation include (inter-alia):

- Establishment of national computerized diabetes register
- Implementation of a culturally sensitive diabetes prevention programme
- Development of a national strategy for improving case ascertainment
- Provision of evidence-based and protocol-driven clinical management
- Provision of specific support and clinical care programme for young people with type 1 and 2 diabetes
- Development of a protocol-driven effective management of diabetic emergencies and long-term complications
- Provision of multidisciplinary gestational diabetes clinics to improve care during pregnancy to enhance maternal and foetal pregnancy outcomes.

Over the last 10 years, most of the milestones have been achieved. The NCD Survey (2015) has demonstrated stabilization of the prevalence of diabetes and pre-diabetes and a fall in the proportion of undiagnosed cases of diabetes.

Over the last 5 years (2012-2016), mortality from diabetes has stabilized and mortality from renal failure has almost halved.

One of the objectives of the NSFD initiated in 2007 was to undertake a vast empowerment programme for people living with diabetes and to reorganize primary, secondary, and tertiary prevention strategies.

The health literacy of the population has improved over the last decade and is reflected in increased awareness of potential health risks associated with smoking, alcohol consumption, unhealthy diet and physical inactivity.

More NCDs success stories in Mauritius:

Mobile Clinic Service for early detection of NCDs

Many people with early stages of NCDs are not identified through the standard primary and secondary care services as NCDs usually do not show any symptoms at an early stage. In order to screen those people who are considered healthy and who represent the majority of the population, the NCD Mobile Clinic Service (MCS), popularly known as "Caravane de la Santé" was introduced in March 2001. The main objectives of the MCS are:

- To detect NCDs and their risk factors (diabetes, hypertension, problem of vision, obesity and breast and cervical cancer) at an early stage.
- To provide opportunity for timely treatment and reduce risks of complications.
- To promote healthy lifestyle with aggressive health education programmes in order to prevent or delay the onset of NCDs in the community.

Presently, there is an MCS in each of the five health regions. Each MCS team consists of Medical Health Officers, specialized nursing officers and Health Care Assistants in health promotion, community health care officers and community health development motivator.

NCD Screening Programmes

Screening programme for students of secondary schools started in 2007 for students of Form III and Lower VI. As from January 2016 screening for students of Form I has also been included in the programme. Yearly, about 40,000 students of 177 secondary schools of Form I (Grade 7), Form III (Grade 9) and Lower VI (Grade 12) are screened for NCDs. Screening for Breast and Cervical cancer screening is carried out among married and sexually active women aged 25 to 65 years. Women are also sensitized on the importance of carrying out regular breast self-examination and are given guidance on self-palpation of breasts to be practiced at home monthly. 8,000 to 10,000 women are targeted yearly by this screening programme. Since, 2022 the liquid-based cytology is being used instead of the traditional PAP smear, enabling HPV co-testing.

Additionally, NCD screening programme is also carried out in worksites and localities in the community by the mobile clinic service and about 30,000 adults are screened each year according to the existing NCDs screening guidelines.

Diabetes Retinopathy Screening Service

Diabetes Retinopathy Screening Service (DRSS) was introduced in 2008 in two regional hospitals of Mauritius. It was then extended to the three remaining regional hospitals as well as in Rodrigues as from 2010 onwards. Presently, there are six retinal screening units in Mauritius and one in Rodrigues. Each retinal unit is equipped with a digital retinal camera, personal computers for retrieving fundus images and for grading of the images, uninterruptible power supply, visual acuity charts etc.

Diabetes foot care clinics

The first Diabetes Foot Care Clinic (DFCC) was set up in Mauritius in 2011 (at the Diabetes and Vascular Health Centre) and by 2014, DFCCs have been operational in all the five regional hospitals, which is in line with the NSFD to set up a comprehensive foot care service. The aim of DFCCs is to provide effective surveillance of diabetic foot complications, related to diabetes, provide timely treatment of diabetic foot ulcers with the ultimate aim of reducing the number of amputations. Twenty nurses have been trained in diabetes foot care and are currently posted in the six DFCCs. Once a week, diabetologists in collaboration with general surgeons, review referred patients at the DFCC on an outpatients basis. The DFCC are adequately equipped to screen for diabetic neuropathy and peripheral vascular disease. The DFCC also refers patients to colleagues

forming part of a multidisciplinary team, comprising of a surgeon trained for management of complex cases, a podiatrist, an orthotist based at the orthopaedic workshop and a tobacco cessation clinic for further appropriate interventions. Overall 60,857 patients with diabetes received comprehensive foot screening in 2017. These patients were all made aware of their risk category (low, moderate or high-risk foot) and given counselling on foot care.

Diabetes Specialised Clinics

The proportion of patients with type-2 diabetes with poor and inadequate glycaemic control is high in Mauritius as evidenced in by the various NCD Surveys (35.6% in 2015 and 31.7% in 2021). To address this problem, Diabetes Specialised Clinics were introduced in 2015 at primary care level to cater for these patients. These patients are referred to these specialised clinics through a specific referral pathway (patients with Type 2 Diabetes who are not achieving optimum glycaemic control and have an HbA1c >11% on more than 2 occasions). These weekly clinics are conducted by a multidisciplinary team comprising the diabetologist, the nutritionist and the diabetes specialised nurse; aiming to provide quality care to these patients with particular focus on improving adherence to treatment regimen, encouraging patient empowerment/self-reliance and avoiding potential complications through provision of foot care and referral to retinal screening services. The number of patients seen during a clinic session is limited to 15 (3 new cases and 12 follow-ups). This enables for more time to discuss and set goals with the patients.

Mauritius National Cancer Registry

The Mauritius National Cancer Registry (MNCR) was set up in 1993 with technical assistance from the French government. It has since then been maintained with funding from WHO. The first publication with statistics on cancer incidence and mortality for the period 1989-1996 was issued in 1999. It became a population-based registry in 2000 and since has been producing cancer data on a continuous basis. The MNCR provides one of the most comprehensive cancer data within the African region.

Supportive Legislative Framework in Preventing NCDs

Many laws for NCD control and prevention have already been implemented. Some examples are:

Tobacco use • As a Party to the WHO FCTC since 2005 Mauritius adopted the FCTC-compliant tobacco legislation 'The Public Health (Restrictions on Tobacco Products) Regulations 2008' which became effective as from June 2009. These regulations are comprehensive covering major

areas of tobacco control such as restrictions on smoking in public places, tobacco product packaging and labelling requirements including graphical health warnings, total ban on tobacco advertising, promotion and sponsorship, ban on product display at point of sale and prohibition of sale to minors. These regulations are presently being reviewed to further strengthen the implementation of the FCTC in Mauritius. The government of Mauritius has been moving in the direction of higher tobacco taxes as a deterrent to consumption, with successive annual increases during the recent years. Thus, the custom excise rate on cigarettes which was Rs 2,200 per thousand sticks in 2008 is at present Rs 5,110 per thousand sticks and the excise tax share of retail price of the most sold brand of cigarette in Mauritius is presently 57%. Additionally, in an effort to curb illicit trade, an affixed excise stamp must appear on cigarette packages.

Alcohol consumption • The Public Health (Prohibition on Advertisement, Sponsorship and Restriction on Sale and Consumption, in Public Places of Alcoholic Drinks) Regulations 2008 is another important piece of Public Health Legislation with regard to NCD prevention and control in Mauritius. It restricts the sale and consumption of alcoholic products in public places as well as advertising, promotion and sponsorship of alcohol. There is also a legal ban on sale of alcohol to minors. There are restrictions on the hours when alcohol can be sold. The drink driving law in Mauritius is very restrictive: the maximum prescribed blood alcohol concentration limit for drivers is presently 0.02 %. (No more than 20mg per 100ml of blood). Provision in the law has also been made so as to keep the driver in police custody until he/she is sober. Taxes on alcoholic beverages are regularly raised to reduce affordability and minimize the harmful effects of alcohol. In 2017-2018 budget, the rates of excise duty on beer and other alcoholic drinks increased by 5%. The laws on tobacco products and alcohol make provisions for heavy penalties at first conviction and even imprisonment for repeated contraveners.

Unhealthy diet and physical activity • Regulations have been promulgated under The Food Act 1998 operational since January 2000 to control the percentage of saturated fatty acids and palm oil in cooking oils. The Food Act of 1998 was amended to include “Food (Sale of Food on Premises of Educational Institutions) Regulations 2009” and was implemented as from January 2010. Sale of foods and beverages with high contents of fats, sugar and salt is prohibited in school canteens whereas only nutritious and healthy foods and drinks are allowed for sale. An excise duty of 2 cents per gram on sugars in soft drinks was introduced in February 2013 and was increased to 3 cents per gram in 2014. This sugar tax was extended to all sugar sweetened beverages (SSB) as from October 2016 in the Government budget 2016-2017. Food reformulation, especially salt reduction is being encouraged. Salt level standards in bread will become mandatory in the new

Food Regulations which are being finalized. There is a Nutritional Surveillance System for children 0–5-year, procurement of weighing scales, growth recording, production of educational material for mothers concerning feeding practices, wheat fortifications programme with Iron, Folic Acid, B12 and Zinc, National Nutritional Survey for 0-7 years. Nutritional Profiling Model adapted to set cut-off values on fats, sugar, salt, to ban advertising, promotion and marketing of such items for children. Mauritius provides fiscal concessions on all sports equipment in order to make such equipment more affordable and to promote physical activity in the population.

National Blood Transfusion Services

Blood transfusion forms the cornerstone of acute healthcare. Provision of adequate, safe and quality blood products in a timely manner is life-saving. As blood and blood products are of biological origin, blood safety remains a concern for blood services universally. Mauritius has a centralized and nationally coordinated blood transfusion service. National Blood Transfusion Service (NBTS) of Mauritius provides blood and blood products to all private and public health institutions in the country.

Exercise Referral Project

This recently launched project analyses the effectiveness of a 20-week Exercise Referral Scheme (ERS) in a cohort of 300 Mauritian adults diagnosed with one or more NCDs.

Despite all the above achievements, the figure 2 below shows significant increase in mortality registered mostly among people with NCDs co-morbidities in 2021, besides 785 Covid-19 deaths.

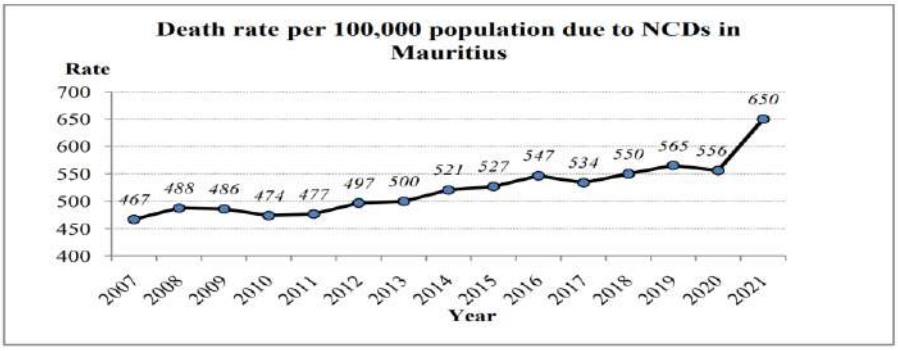


Figure 2: Mortality Rate

CHAPTER 2: STRATEGIC PRIORITIES AND GLOBAL BEST PRACTICES FOR NATIONAL INTEGRATED NCD ACTION PLAN

This chapter draws consistency with WHO's latest recommendation - Strategic Direction 2: Scale-up the implementation of most impactful and feasible interventions in the national context, (WHO, August 2021). Various sections of this chapter incorporate WHO recommendations including core NCD intervention frameworks for the development of NCD roadmap with the ethical, socio-economic, political and commercial determinants to align with the national context. Finally, the NCD scaling-up process will integrate all into one multi-sectorial approach based on Health in All Policies with whole of the government and whole of the society partnership model.

2.1. WHO's impactful interventions for NCD prevention and control

The WHO recommended actions for Member States in 2022 include:

- Assess the current status of domestic NCD GAP implementation against the nine voluntary NCD global extended NCD targets and the SDG target on NCDs, identify high-impact interventions, and identify barriers to their implementation and opportunities for acceleration.

- Strengthen national monitoring and surveillance systems for NCDs and their risk factors for reliable and timely data. (This includes various interventions, such as Global Diabetes Compact).

Table 5: Fifteen health challenges and opportunities to improve NCD outcomes

Political commitment of NCDs	**Explicit priority setting approaches**	**Interagency cooperation**	**Population empowerment**
Effective model of service delivery	**Coordination across providers**	**Regionalization**	**Incentive systems**
Integration of evidence into practice	**Distribution of mix of human resources**	**Access to quality medicines**	**Effective management**
Adequate information solutions	**Managing change**	**Ensuring access and financial protection**	

Based on above WHO recommendations, the NINAP country package will align with 15 interventions related to prevention and control of NCDs as shown in Table 5 and discussed in section 1.9. By 2028, Mauritius will have completed a national assessment, adopted a national plan, invested a national budget, adopted national targets, and made objectively verifiable improvements in compliance with global and regional mandates on tobacco, alcohol, nutrition, physical activity, and NCD management. By 2028, Mauritius will have full compliance with the entire package to meet the following criteria. Some of these important initiatives have already been completed in Mauritius and others are underway:

- A national intersectorial plan for the prevention and control of NCDs consistent with Health WHO Global Plan has been adopted at the highest level of the government.
- Where appropriate the national United Nations Development Cooperation Framework (UNSDCF) has been completed and specific NCD results are included in the results matrix.
- The national budget includes specific line items that demonstrate a national commitment to investment in a sustainable NCD prevention and control program; such a budget uses domestic funds and human resources and is not merely a reliance on aid.
- National targets have been adopted that are based on NCD Global Monitoring Framework
- A national health system assessment has been conducted and recommendations adopted.
- National survey on risk factors conducted
- A population-based cancer registry is operating (International Agency for Research on Cancer).
- Other more specialized risk factor surveys are considered including global youth and adult tobacco surveys (GYTS and GATS), the WHO European Childhood Obesity Surveillance Initiative (COSI) and the Health Behavior of School-aged Children (HBSC) study.
- A clear assessment of the inequalities in the risk and burden of NCDs has been conducted and all interventions are designed to minimize inequalities and promote health of vulnerable groups.
- A high level of compliance with the WHO Framework Convention on Tobacco Control is demonstrated including both measures to reduce demand and to control tobacco supply.
- Specific improvements are demonstrated in compliance with global and regional action plans on nutrition and physical activity particularly on the control of salt, marketing, consumption of fats, and sugar. Environmental policies are adopted to improve physical activity and reduce pollution.
- An essential package of interventions (i.e., NSF for NCDs) in primary care for the prevention and control of NCDs has been designed along with the NINAP document and it will be universally accessible. This package includes cardio-metabolic risk assessment and management.

- A system for monitoring and evaluation of the above has been established and report published.
- A comprehensive approach to NCDs is applied across the life-course (from conception to old age) and in appropriate linkages with mental health and injury prevention.

2.2. Prioritization against key NCD risk factors – WHO 'Best Buys'

Mauritius has adopted WHO recommended set of population and individual level interventions which are affordable, feasible and cost-effective to reduce the burden of NCDs. These high priority interventions are known as "Best Buys".

- Increase excise taxes and prices on tobacco products
- Implement plain/standardized packaging and/or large graphic health warnings on all tobacco packages
- Enact and enforce comprehensive bans on tobacco advertising, promotion and sponsorship
- Eliminate exposure to second-hand tobacco smoke in all indoor workplaces, public places, public transport
- Implement effective mass media campaigns that educate the public about the harms of smoking/tobacco use and second-hand smoke
- Increase excise taxes on alcoholic beverages
- Enact and enforce bans or comprehensive restrictions on exposure to alcohol advertising (across multiple types of media)
- Enact and enforce restrictions on the physical availability of retailed alcohol (via reduced hours of sale)
- Reduce salt intake through the reformulation of food products to contain less salt and the setting of target levels for the amount of salt in foods and meals
- Reduce salt intake through the establishment of a supportive environment in public institutions such as hospitals, schools, workplaces and nursing homes, to enable lower sodium options to be provided
- Reduce salt/sugar intake through a behaviour change communication and mass media campaign.
- Reduce salt/sugar intake through the implementation of front-of pack labelling
- Implement community wide public education and awareness campaign for physical activity which includes a mass media campaign combined with other community-based education, motivational and environmental programmes aimed at supporting behavioural change of physical activity levels

- Drug therapy and counselling to individuals who have had a heart attack or stroke and to persons with high risk (≥ 30%) of a fatal and non-fatal cardiovascular event in the next 10 years.
- HPV vaccination has started for girls, but for boys aged 9 – 15 years, it will start in 2023.
- Prevention of cervical cancer by screening women aged 25–65.

2.3 Assessment of capacity of primary care facilities – implications for service readiness for the roadmap

An important step in the preliminary phase of integrating the NSF for NCDs into primary health care is to assess the capabilities of the health infrastructure to implement the NSF. Therefore, there is a need to collate information on the institutions that provide general health services, their organization, the number, type and distribution of the health facilities, the available resources (equipment, medicines, health workforce), the access to and the utilization of the health services by the population. WHO's "facility capacity questionnaire" have been used for NINAP and NSF for NCDs development. This tool helped to gather information on:

- public health sector policies in relation to program priorities, management of health care, planning and financial decentralization, community involvement, budget priorities and contribution of external financial aid to the health sector.
- managerial organization in the form of an organizational chart of the MOHW at central, regional and local levels; lines of authority and linkages with primary health care.
- managerial activities to implement interventions such as training and supervision.
- structure of general health facilities: Number and distribution of hospitals by level of complexity, Area Health Centers (AHC) and Community Health Centers (CHCs).
- average catchment population for district hospitals, Area Health Centers, Community Health Centers, and maps marking their location and the major roads nearby.

Package of Essential Non-communicable (PEN) Disease Interventions for Primary Health Care includes:

- Categories of frontline workers managing NCD patients at hospitals and first level care facilities
- Number of persons in each category: specialists, general physicians, nurses, other paramedical staff and community health workers.
- Specialized services for NCDs at hospitals and health centers.
- Availability of equipment and materials for diagnosis of major NCDs at hospitals and health centers: blood tests, ECG, radiology, peak flow meters and other relevant equipment.
- Availability and quantities of medicines used for NCDs that are included in the national list of essential drugs.
- Availability of equipment for treatment of NCDs in PHC.
- Usual referral practices at first level health facilities for patients who need specialized or hospital care and types of transportation.
- Description of health information system at PHC network: type of information collected, frequency, forms and periodic reports.
- Training needs for personnel at peripheral health units, district hospitals and laboratories. Training and supervision of the PHC workforce-Health workers need to be prepared to assess, diagnose, manage and refer patients appropriately based on the guidance provided in NSF/PEN package. They also need to be guided on counselling activities and on recording and reporting of data.

2.3.1 Training of health workforce

Workshops need to be conducted to train primary care workers to deliver integrated NCD care. According to a scheduled plan, the health personnel at first level health facilities need to be convened to participate in training workshops by local or regional health administration/committees. Workshop facilitators/ trainers have to be identified from among the members of the national/Regional working group or a team of master trainers or general physicians or specialists at national or Regional levels.

The training workshop program may differ among different settings after taking into account the knowledge and skills acquired by local health personnel in their basic training and previous in-service training. The main objectives of a training workshop are to provide the essential knowledge and skills to deliver NSF through PEN/HEARTS and to comply with the recording and

reporting procedures of the information system. In addition, health workers need to acquire the appropriate skills to deliver preventive health interventions. Communicating health education messages and individual counselling are integral parts of the delivery of preventive health interventions at PHC level.

2.3.2 Multi-sectorial Approach - Structure and Scope of the Plan

In order to address the multi-sectorial approach, a stakeholder survey was conducted. Brief report of the survey conclusions is mentioned in section 1.2.

Multi-sectorial approach encompasses the numerous public sectors that influence or relate to NCDs, including health, education, trade, agriculture, transportation, energy, urban planning, and sport. Across these multiple sectors, there are a variety of stakeholders and parliamentarians with interest and influence, including governments (national, regional), civil society (including faith-based and community-based organizations), academia and research institutions, media, and the private sector. These sectors and stakeholders overlap and influence each other in complex ways and ultimately influences the prevalence and susceptibility to NCD risk factors, including tobacco use, alcohol abuse, poor diet, and physical inactivity (see Figure 3).

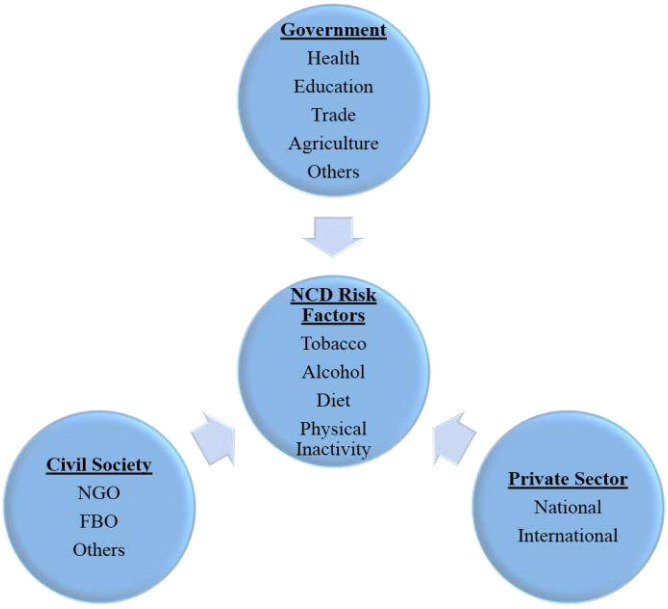


Figure 3: NCD Multi-sectorial approach

Stakeholders survey results found that relevant government ministries or departments put some consideration to coordinate their efforts around "whole-of-the-government" approach which is constrained by the size and complexity of ministries that influence NCD outcomes, with little correlation in mutuality of interest, specificity of purpose, and clear allocation of resources.

Outside the government, pluralistic nature of society and the rise of diverse actors, a broader "whole -of-the-society" approach seems to be in a nascent stage to enable collaboration and coordination to take place across these actors. Coordination must take place on a variety of fronts, and all contributing to a broader NCD aim. Little understanding exists of roles, responsibilities, interests and incentives of any current partnerships that are inclusive of private sector actors who have their comparative advantages in global supply chain, training and research capacity, and information dissemination to create effective results for NCDs (NCDs *stakeholder survey).*

Before partnering externally, MOHW and other government ministries are facing the first challenge of understanding the scope of work and points of contact internally. This internal challenge is making it harder to interact with partners outside the government, to give them clarity and understanding of their roles, responsibilities, interests, and incentives for a productive partnership across all of them. Finally, in this spectrum the end users and communities may find themselves at a hazy juncture where it is difficult for them to provide the actual context, access points, and feedback mechanism that appropriately tailor and sustain NCD interventions (*see Annex-E*).

All the above-mentioned partners are dynamic entities in need of critical thinking and strategic direction. Commitment by all partners is key to engage meaningfully and harness sustained contributions to the partnership. Efforts are needed to apprise them through NCDs Sectorial Advocacy Packages.

2.4 Integration of the Core Population-based and Individual NCD Interventions and Targets at the PHC level

This section presents core population and individual level interventions being implemented by the Mauritian Government and recommended needs for further consolidation through the NINAP document together with available COVID-19 socio-economic recovery plans (SERPs).

In order to combat the NCD pandemic, Mauritius adopted a multipronged approach consisting of a series of individual and population-based interventions (Tables 6 and 7) with a view to reducing major behavioural risk factors and Table 10 to implement them at PHC level.

Table 6: Core population based NCD interventions and global targets

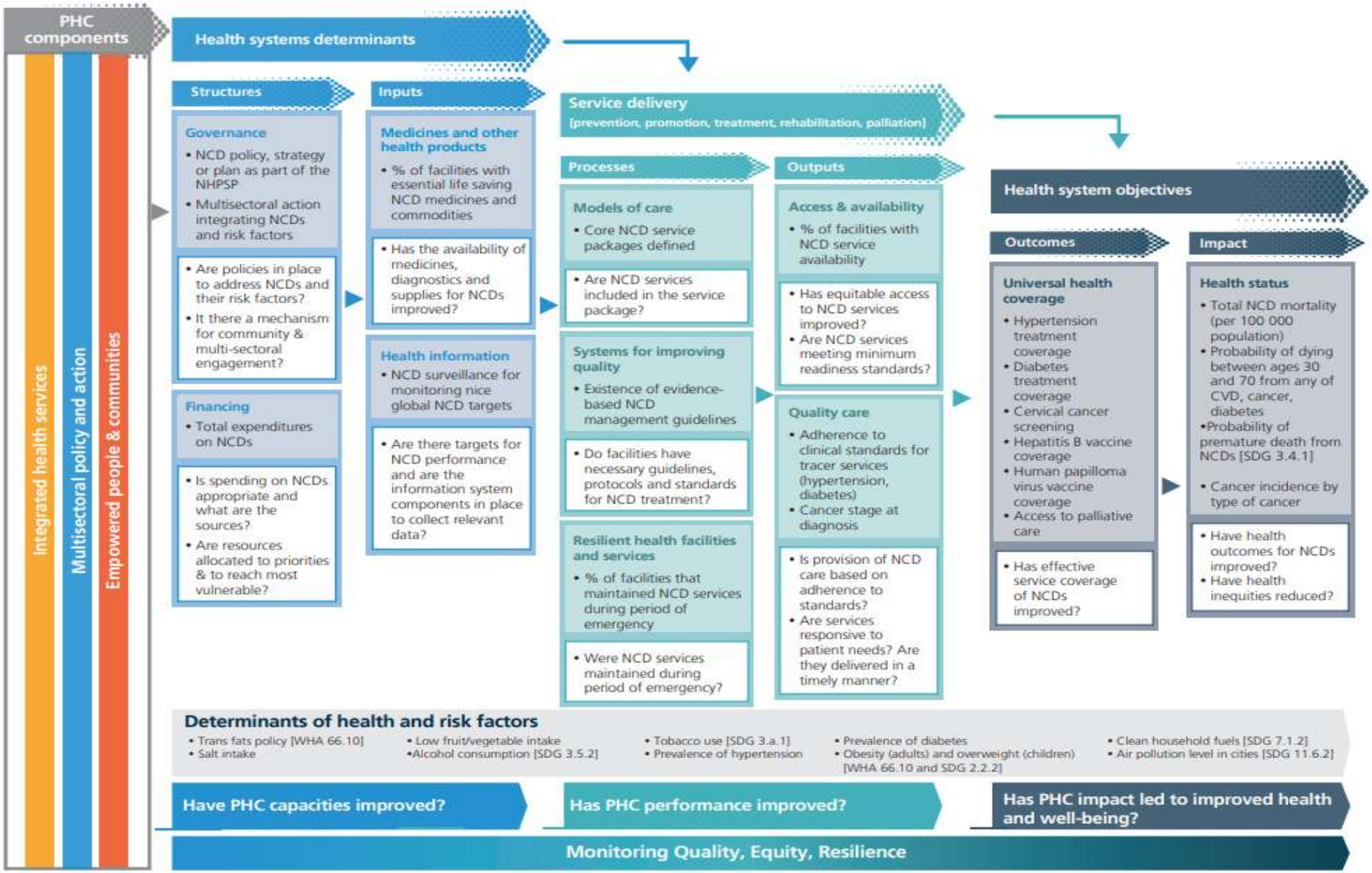
Relevant voluntary global targets by 2025	Core interventions
30% reduction in the prevalence of current tobacco use in persons aged 15+	Wide range of anti-smoking interventions • In Increase tobacco taxes and prices to reduce affordability • Implement plain/standardized packaging and/or large graphic health warnings on all tobacco packages • Enact and enforce comprehensive bans on tobacco advertising, promotion and sponsorship • Eliminate exposure to second-hand tobacco smoke in all indoor workplaces, public places and public transport • Implement effective mass media campaigns to educate the public about the harms of smoking /tobacco use and secondhand smoke • Provide effective and population-wide support (including brief advice, national toll-free quit line services, nicotine replacement therapy) for tobacco cessation to all those who want to quit smoking
At least 10% reduction in the harmful use of alcohol	Interventions to prevent harmful alcohol use • Use pricing policies on alcohol including taxes on alcohol • Restrictions and bans on alcohol advertising and promotion • Restrictions on the availability of alcohol in the retail sector • Minimum purchase age regulation and enforcement* • Low permissible blood alcohol level for driving*
Halt the rise in diabetes and obesity **• 30% reduction in mean population intake of salt/ sodium** **• 10% reduction in the prevalence of physical inactivity**	Interventions to improve diet and physical activity • Reduce salt intake and salt content • Virtually eliminate trans-fatty acids • Implement public awareness programmes on diet and physical activity • Reduce free sugar intake* • Increase intake of fruit and vegetables* • Reduce marketing of food and non-alcoholic beverages to children* • Promote awareness about diet and physical activity*

Table 7 - Core individual NCD services and global targets

Relevant voluntary global targets by 2025	Core Services
At least 50% of eligible people receive drug therapy and counselling to prevent AMI and stroke 25% reduction in the prevalence of raised blood pressure or contain the prevalence of raised blood pressure	**CVD and diabetes – first line** • Risk stratification in primary health care, including hypertension, cholesterol, diabetes and other CVD risk factors • Effective detection and management of hypertension, cholesterol, and diabetes through multidrug therapy based on risk stratification – Effective prevention in high-risk groups and secondary prevention after AMI, including acetylsalicylic acid **CVD and diabetes – second line** • Rapid response and secondary care interventions after AMI and stroke*
	Diabetes • Effective detection and general follow-up* • Patient education and intensive glucose management • Hypertension management among diabetes patients • Prevention of complications (e.g., eye and foot examination)
	Cancer – first line • Prevention of liver cancer through hepatitis B immunization • Screening for cervical cancer and treatment of precancerous lesions **Cancer – second line** • Vaccination against human papilloma virus as appropriate • Early case finding for breast cancer and timely treatment of all stages • Population-based colorectal cancer screening at age >50 linked with timely treatment • Oral cancer screening in high-risk groups linked with timely treatment

Source: Global Action Plan for the Prevention and Control of Non-Communicable Diseases 2013-2020; *

Table 8: NCD National Action Planning and monitoring model at the PHC level



2.5. Setting a National Strategic Agenda for NCDs interventions

The National Integrated NCD Action Plan targets and indicators for Mauritius are based on the Health Target of Sustainable Development Goals 2023. These are developed in collaboration with multiple stakeholders and track implementation on 14 indicators which are at the center of this Action Plan (Table 9) for monitoring and evaluation purpose.

Table 9: Baseline NCDs figures of 2009, observed trends since then and projected targets 2028

Non-communicable diseases	NCD Survey 2021 (Baseline) Prevalence Age (25-74 yrs)	Targets for 2028
Mortality due to NCDs (Per 100,000 population)	650 (2021)	**550**
Standardized prevalence of type-II Diabetes (25-74 yrs)	19.9%	**17.0%**
Pre-diabetes (impaired glucose tolerance or impaired fasting glycemia (IGT/IFG)	15.9%	**11.9%**
Blood glucose level of people known to have diabetes (HbA1c ≥9.0%)	31.7%	**26.1%**
Hypertension Prevalence (25-74 yrs)	27.2%	**25.0%**
Overweight	36.0%	**32.0%**
Obesity (BMI ≥ 30)	36.2%	**32.0%**
Total Cholesterol (≥5.2mmol/L)	34.8%	**30.0%**
Smoking (current)	18.1%	**16.0%**
Alcohol use (harmful consumption)	15.4% (harmful consumption)	**12.0%**
Physical Activity (≥ 30 minutes of leisure activity/day)	40.2%	**45.0%**
Albuminuria	6.3%	**5.8%**
Asthma	7.5%	**5.9%**

2.6. Proposed roadmap to implement NCD strategic agenda

Technical and operational outline

Investing in NCDs and mental health provides a significant return on investment. At the global level, the 2018 publication, saving lives, spending less: a strategic response to NCDs sets out the health and economic benefits of implementing the most cost-effective and feasible interventions to prevent and control NCDs (WHO 'best buys') in low and middle-income countries.

Sustainable scaling-up of prevention and control of major NCDs in primary care using NSFs based on WHO's Package of Essential Non-Communicable (PEN) disease interventions depends on acceptance and political commitment on the part of the national health authorities. Political commitment can be secured through policy briefs and advocacy meetings that discuss NCD issues and by highlighting WHO NCD action plan endorsed by the World Health Assembly in May 2008.

The production of the policy briefs and the convening of the advocacy seminars can be organized by the NCDHPRU of MOHW or any academic or teaching institution interested in enlisting support in developing courses. Advocacy seminars provide a forum for a large group of interested professionals to reach a common understanding of the practical concepts of the WHO PEN and its advantages to bring health equity to low-resource settings. The meetings could discuss the following steps:

- start a feasibility project to gain experience with the implementation of the WHO PEN.
- allocate initial resources for conducting the facility capacity assessment and feasibility study.
- establish coordination mechanisms with next referral level other institutions and agencies.
- prepare and issue an official statement announcing that the WHO PEN will be introduced into the local health system, beginning with a pilot phase.
- designate an officer as the focal point within the MOHW to coordinate all relevant PEN programmes and departments (the focal point may be the NCD focal point in the MOHW or an officer from the PHC services).
- request that WHO or any technical agency provide technical collaboration to assist in the process of initiating the adaptation and implementation of NSF for NCDs based on WHO PEN.

The WHO PEN activities as elaborated in the accompanying NSF for NCDs and need to be linked to various levels of the health system and various departments within the MOHW. The coordination and linkages need to be strengthened through regular meetings of national, regional and local level health managers/leaders with the participation of specific and support programmes involved in NCD prevention and control.

The coordination between NCD prevention and control and PHC services should result in:

- adopting the WHO PEN protocols for diagnosis and treatment of major NCDs at MediClinics, AHCs, CHCs, Diabetes Clinics, NCD Clinics, first level referral facilities and Regional Hospitals.
- developing materials and organizing activities to train health workers in integrated case management.
- ensuring the supply of essential medicines and equipment.
- delivering educational messages on prevention of NCDs.
- expanding the information system so that it covers all major NCDs.
- monitoring activities for assessment of progress in implementation and impact.

Collaboration with multilateral organizations and bilateral cooperation agencies is useful in cross-fertilization of ideas and expertise for various activities and implementation of research projects.

2.7 Social Determinants, Health Policy Interventions and National context

In Mauritius, the health sector itself has a vital and dynamic role to play in a continuum starting with promotion/prevention/protection and encompassing early identification, control, rehabilitation and palliative care at all levels within a health system by addressing social determinants.

2.7.1 Integrated care

This Plan takes a comprehensive and integrated policy approach to dealing with NCDs rather than creating a separate parallel service for NCDs. In particular, the integration of NCD care at PHC level with other health service areas is critical, predominantly with maternal, youth, child health and nutrition services and multi-sectorial planning under policy levers of Organization, Financing, Regulation, Behaviour Change and Public Health.

Many people live with multiple morbid chronic conditions (whether communicable or non-communicable or both) and many women have pregnancy and maternal related NCDs that have both short- and longer-term health consequences. Hence, an approach that treats the person holistically rather than a particular disease within a single integrated system is central with ethical policy options.

2.7.2 Equity in Health Service Delivery

Achieving equity in health service delivery is fundamental to achieve the target sets under the plan. This would include ensuring access to services for vulnerable and disadvantaged communities and those requiring inter-regional services as well as addressing stigma associated with diseases such as breast cancer. Doing so would require redistributing public sector health care resources between and within regions, increasing primary care utilization levels for currently disadvantaged groups.

More value can be added by implementing the Social Marketing and behaviour change communications campaigns for the adoption of healthy, active and less sedentary lifestyles (figure 5 below).

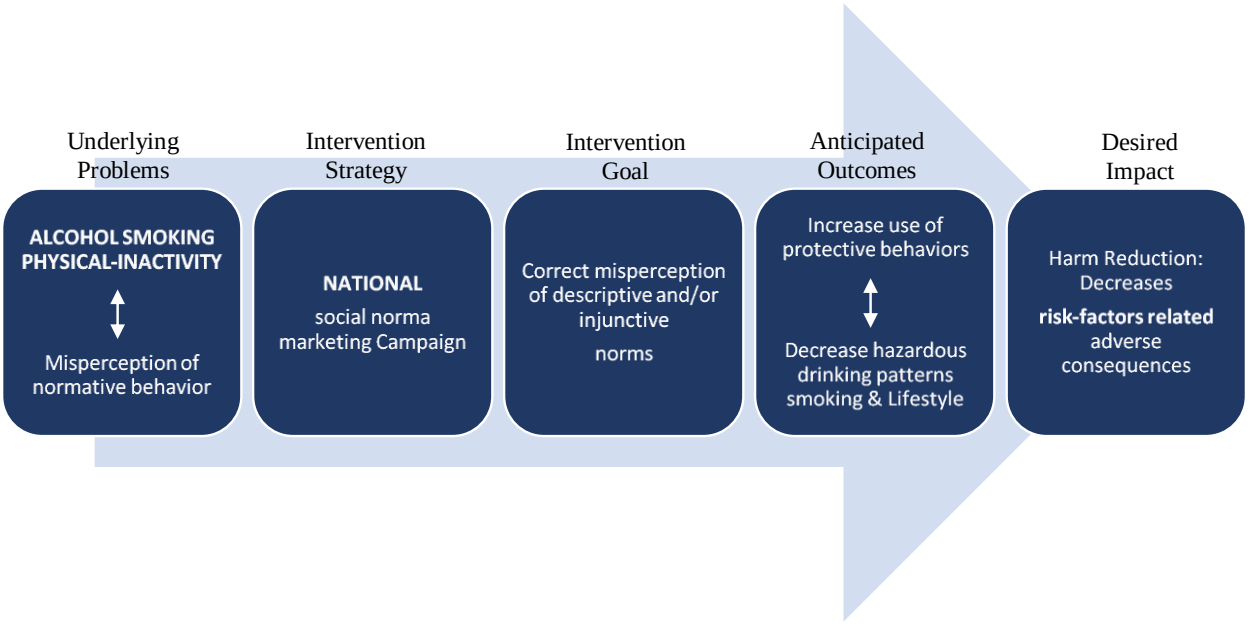


Figure 4: Social Marketing and behaviour change

CHAPTER 3: METHODOLOGY AND APPROACH

This chapter explains the methodology and approach used to develop the Integrated and Multi-sectorial National Integrated NCD Action Plan based on WHO's strategic direction and global best practices. The process for developing a NINAP in Mauritius has used a holistic, systematic approach anchored in using mixed-methods research and triangulation of findings to generate a comprehensive and comparative overview of the processes, experiences, and outcomes of the NCD interventions over the period of its implementation. The mixed methods approach employed quantitative, qualitative, participatory, and blended (e.g., quantifying qualitative data) approaches into evaluation, while integrating gender, human rights-based, and equity considerations into an Integrated multi-sectorial NINAP development process.

Initially it was planned to conduct a 'Societal Dialogue Approach', but due to COVID-19 restrictions, the process was restricted to 4 consultative workshops and 2 field surveys to solicit stakeholders' inputs. Therefore, NINAP was formulated following a comprehensive analysis of the health systems conducted through an inclusive and participatory methodology to ensure involvement and contributions from a wide range of stakeholders, including key health partners and civil society organizations.

The methodology incorporates NCD document reviews from Mauritius and countries with similar socio-demographic profiles to understand what works and what doesn't in terms of multi-stakeholder coordination for the development of the NINAP.

Document and Literature Review

Key documents, reference studies, background information, as well as progress reports have been scrutinized in the inception phase to inform the process of developing 2 survey tools for NSF for NCDs and NINAP. Further study material in the desk phase framed targeted inquiries for Key Informant Interviews (KIIs), as well as reconciliation of survey data with health facilities visits to forming a well-grounded first draft.

NCD Stakeholders' Workshop-1 in Mauritius

As part of the preparation of the National Service Framework for NCDs and the National Integrated NCD Action Plan for Mauritius, a half-day stakeholders' workshop was held on Tuesday 21 December 2021, by the Ministry of Health and Wellness in collaboration with the World Health Organization Country Office in Mauritius.

The objective of the workshop was to assess the existing country capacity of stakeholders for responding to NCDs in terms of policies and programmes, and Government institutions and NGOs were invited to participate. Three presentations formed part of the programme:

- The Mauritius Response to the NCD epidemic
- Global response to NCDs
- Promoting a coordinated and multi-sectorial approach to tackle NCDs

Following the presentations, a standard questionnaire was distributed to the participants. This questionnaire enabled the analysis of country capacities and responses to NCDs.

Methodological Framework

Based on the document and literature review, a comprehensive Design Framework has been developed, that provided details of the line of inquiry for each of the given criteria, indicators, their standards if any, sources of information, types of information to be collected, methods of data collection and alternate strategies in NCDs case-studies information if not available in the form sought.

Key Informant surveys and interviews

The NCD Consultant conducted structured surveys and added semi-structured interviews based on a standard questions list with the representatives of partner organizations, Ministry of Health and Wellness, both at central and regional levels, technical agencies and representatives of the stakeholders.

This NINAP methodology has been designed to address the primary health system's readiness to prevent and manage NCDs, including integration with other sectors of the society, and eventually help to guide public health decisions from a demand and supply sides of the NCD spectrum.

The purpose of the KIIs was to gain insights from different stakeholders' experience of NCD coordination mechanisms, in particular coordination across actors in decentralized settings, to discuss and identify factors promoting and/or constraining effective coordination, based on practical NINAP delivery experiences and in different geographical contexts. Both health facility and stakeholder surveys are based on WHO's HEARTS Technical package, PENS and country readiness assessments.

Country Case Studies and surveys

The purpose of the case studies from WHO-EURO countries with similar socio-demographic profiles is to examine where, how, and why NINAP implementation has been effective in specific contexts. In addition to 2 Mauritius specific NCD consultancy surveys, documented examples of NINAP implementation and identified modalities that have been tried and tested in different countries.

By undertaking two surveys on (a) sample of PHC centers, (b) NCD stakeholder, an investigation was done on demand and supply side factors to assess the healthcare system readiness for NCDs (i.e., medicine, basic amenities, medical products and technologies) as devised in the WHO Service Availability and Readiness Assessment (SARA) methodology and/or WHO PEN interventions.

Analysis of results

The survey findings and KII notes, data from health facilities visits, as well as country document reviews were coded using qualitative data analysis software. The code list was aligned with the core questions and outputs of this analysis to consolidate according to the overarching framework. This enabled the answering of the questions within each study variable and is relevance to Mauritius.

Consultative Workshops

Three stakeholders' consultative workshops were held in Port Louis in April 2022 to ensure that the specificities of the health profiles and needs of the population were well captured in the National Action Plan. The draft document was presented to stakeholders for comments and reviews as well as additional inputs from local and international technical experts from Sweden, UK, Australia and 3 levels of WHO.

Synthesis of findings and Final Report

After the workshops in April 2022, synthesis of the core expert evidence was undertaken that were aimed to identify and highlight examples of successful approaches, clinical protocols, and national treatment guidelines to NINAP implementation and conducive operational conditions and technical characteristics were indicated. This provided practical examples of various interventions to improve NCDs status of the Mauritians. Final report contains detailed NINAP document based on analysis/ synthesis of 2 surveys, highlighting the implications of NCDs policy and practice in Mauritius.

CHAPTER 4: National Integrated NCD Action Plan 2023-28

This chapter is comprised of the main ***National Integrated NCD Action Plan*** (NINAP) for Mauritius based on the Government guidance and the stakeholders' feedback and all core components alluded to in the earlier chapters and WHO's most recent strategic directions.

The National Action Plan for the prevention and control of Non-Communicable Diseases incorporates all relevant elements such as vision, mission, targets, objectives, strategic areas and actions, implementation plan, and monitoring and evaluation of the national NINAP. The logic model for the NINAP was utilized to provide a linkage among NINAP resources, activities, outputs, audiences, and short-, intermediate- and long-term outcomes related to a specific NCD or risk factor. Please see Annex A for details of all the action areas.

Target: The comprehensive target in accordance with the SDG Goal 3.4, is to "Reduce, by one-third, premature mortality from non-communicable diseases (NCDs) through prevention and treatment and promote mental health and well-being by 2030."

The specific targets of this NINAP are 25 indicators (mainly nine voluntary targets) agreed to by Member States of the WHO to be reached by 2025. The WHO targets consist of mortality and morbidity goals, behavioural risk factors and national health sector response. Certain salt, nutritional and diet related targets will be reviewed upon availability of the results of salt intake survey and National Plan of action on Nutrition.

4.1 Strategic Action Areas and Objectives

STRATEGIC OBJECTIVE 1

Strategic Objective 1: To raise the priority accorded to the prevention and control of NCDs at all levels through advocacy

The NCDs have now become a priority area for the Government of Mauritius. In order to sustain the attention and commitment of the Government, it would require active and continuing advocacy for NCDs. Therefore, comprehensive advocacy to both government and partners will be required to highlight the huge burden of NCDs in terms of morbidity, mortality and disability as well as ensure that Government at all levels prioritize prevention and control of NCDs through a *whole of*

the government and multi-sectorial approach (HiAP), acknowledging that investment in NCDs is a priority for social and economic development.

Key actions:

- Lobby for NCD prevention and control as national priority to the Cabinet Members
- Conduct dialogue with other Ministries, private sectors, NGOs, FBOs in understanding policy links and a multi-sectorial and ethical approach for NCD prevention and control
- Develop a "Joint Operational Plan" for an effective implementation of the Multi-Sectorial Action Plan preceded by readiness assessment results and disseminate them widely
- Raising public and political awareness and commitment on the burden and socio-economic impact of NCDs and the benefit of preventing them
- Advocating for prioritization of NCDs in the national, regional and local development agenda and planning process
- Orienting other sectors and stakeholders, including civil society and the private sector, to create enabling ethical, legal, policy and regulatory environment which is conducive for the prevention and control of NCDs

Roles and Responsibilities for Government: The Government will, through its various Departments, formulate policies and guidelines that will address various facets of NCDs and will enable an environment for effective coordination and implementation of comprehensive NCDs prevention and control program. This will ensure that NCDs are embedded into the national, regional and local health-planning processes and broader development agendas. In addition, it will generate actionable evidence using HiAP framework on linkages between NCDs, UHC and SDGs, including other related issues such as poverty alleviation, economic development, sustainable cities, non-toxic environment, food security, air quality, climate change, disaster preparedness, peace and security and gender equality. The Government will also ensure that appropriate multi-sectorial partnerships are forged at the national, regional and local levels. 'Government' refers here to all relevant ministries (i.e Finance, Education, Sports, Food, Agriculture, Industries, Commerce, etc. See Annex-E).

Role of Partners: Partners will support the Government's advocacy efforts to raise the priority accorded to NCDs. This is through encouraging the continued inclusion of NCDs in their respective development cooperation agendas and initiatives, internationally and nationally agreed development goals, economic development policies, sustainable development frameworks and poverty-reduction strategies. 'Partners' refers here to all others outside the remit of the government, such as Private sector, Academia, UN System, Development Partners, NGOs, CSOs, FBOs, Non-state actors, etc.).

STRATEGIC OBJECTIVE 2

Strategic Objective 2: To strengthen national capacity, leadership, governance, multi-sectorial collaboration and partnerships to accelerate country response for the prevention and control of NCDs.

A *whole-of the government and whole of the society* response through Health in All Policies (HiAP) to the prevention and control of NCDs would assist in reducing the prevalence of NCDs. This would require the existence of a comprehensive mandate for multi-sectorial action and mechanisms to develop and implement policies that take the interests of different sectors into account and a framework for accountability that sets out the responsibilities of all Government Ministries/Departments and partners to achieve shared goals.

The Ministry of Health and Wellness (MOHW) will ensure a multi-sectorial approach and implementation of key policies. Strengthening the capacity of the NCDs Prevention and Control Programme at all levels (National, Regional and Local) is a pre-requisite for the successful implementation and monitoring of the national response to NCDs. This will specifically be done through integration between hospital based public health medicine specialist and PHC trained nurse, in line with the Clinical Specialist teams for maternal and Child Health. They would provide requisite skills and capacities at the grass root level. They would enhance the existing NCDs program structures at regional and local levels to support implementation of planned activities as well as to work with other sectors.

In addition to multi-sectorial collaboration, implementation of interventions for prevention and control of NCDs will require a focus on population wide interventions. Effective implementation of all population-wide interventions requires the emphasis to shift from information and health education for individuals to legal, fiscal, and regulatory actions by Governments. Active involvement of civil society organizations and advocacy groups will be required to resist attempts

by powerful organizations with vested interests (such as the tobacco, food, and alcohol industries) to undermine the development and implementation of effective policies and laws.

Key actions

- Establish high level NCDs multi-sectorial coordination mechanisms at National, Provincial and District levels for engagement, policy coherence and mutual accountability of different spheres of policy-making that have a bearing on NCDs and follow WHO's SAFER approach at policy level.
- Develop annual NCDs operational plans at all levels and allocate resources
- Strengthen Regional and local health services through appointment of and training of specialists and nurses
- Create registry of all policies and regulations that might influence prevention and control of NCDs. Enforcement of existing Public Health Legislation with a special focus on NCDs, and regular reporting of breaches/offences at local, regional and national levels.
- Provision for a referral pathway to tobacco cessation clinic for underage children.
- Empower communities to adopt healthy lifestyles and prevent NCDs.
- Strengthen Public Private Partnerships (PPP) to enhance collaboration on NCDs prevention and control interventions. Include NGOs and representatives of the private sector in 3 level sub-committees to enhance the PPP. Use of social media to promote healthy lifestyles, re-engineering of community campaigns, etc. Promote additional endeavours such as setting-up of the health promotion clubs in civil service.
- Accelerate the setting-up of Food Standards Agenda and food fortification programme with subsidies for health food as well as mandatory food labelling even in takeaways.

Role of Government: The Government will be responsible for setting-up the NCDs multi-sectorial coordination mechanism and will ensure a *whole-of-government* and *whole-of-society* approaches. It will convene multi-stakeholder working groups, secure budgetary allocations for implementing and evaluating multi-sectorial action and monitor and act on Social Determinants of Health (SDH).

The Government will also integrate the prevention and control of NCDs into planning processes with special attention to SDH, gender equity and the needs of vulnerable populations. It will also attempt to provide adequate, predictable and sustained resources for prevention and control of NCDs and for UHC through an increase in annual budgetary allocations, and other finance mechanism of Government. It will as well provide training and appropriately deploy work forces and strengthen institutional capacity for implementing this plan.

Role of Partners: Partners will support authorities at various levels (National, Regional and local) in implementing evidence-based multi-sectorial action. They will support the mobilization of adequate, predictable and sustained financial resources and the necessary human and technical resources to support the implementation of national action plan and the monitoring and evaluation of progress. They will also promote capacity-building of relevant NGOs at the national, regional and local levels, in order to realize their full potential as partners in the prevention and control of NCDs.

STRATEGIC OBJECTIVE 3

Objective 3: To reduce modifiable risk factors for NCDs and its co-morbidities and underlying SDH through the creation of health promoting and enabling environments.

The **five major shared risk factors** namely use of tobacco products, unhealthy diet, physical inactivity harmful use of alcohol and air pollution contribute significantly to the growing burden of NCDs. Reduction in the levels of these modifiable risk factors in the population significantly reduces the disease burden due to NCDs. Prevention and control of NCDs should target people at entire life span ranging from pre-natal life, infancy, childhood adolescence, adulthood and old age. Even though the NCDs often appear in adulthood, exposure to the risk factors starts early in life.

Reducing exposure to the NCDs risk factors requires engagement of non-health sectors and non-state actors in the prevention of tobacco products use, reduction of physical inactivity, unhealthy diet, obesity, harmful use of alcohol and the protection of children from adverse impacts of marketing of unhealthy foods and beverages. This calls for strengthening the capacity of individuals and populations to adoption of healthier behaviour and lifestyle that foster health and well-being.

Key actions:

- Creation of an enabling fiscal, legal and legislative environment and provision of a leading role in management of the behavioural risk factors
- Implementation of policies for prevention and control of NCDs at all levels including workplace, community, public and private institutions, schools and workplaces.
- Implementation of the WHO recommendations on the import and marketing of foods and non-alcoholic beverages to children and adolescents
- Promoting existing initiatives for optimal breastfeeding and complementary feeding
- Advocating for policy and regulations for improved urban design conducive for physical activity
- Raising public awareness on the dangers of smoking/ tobacco products, alcohol and substance use and exposure to second-hand tobacco smoke, especially through effective mass media campaigns.
- Assessment of the magnitude of environmental, biological and occupational hazards creation of public awareness on prevention and control of exposure to environmental, biological and occupational risk factors for NCDs

Roles and responsibilities of Government: The Government will provide enabling fiscal, legal and legislative environments and will play a leading role in developing, strengthening and enforcing national policies and guidelines on behavioural risk factors for NCDs. In addition, Government will put mechanisms in place to ensure that these policies are being implemented effectively through multi-sectorial action and whole-of the government approach.

Role of partners: Partners will facilitate the implementation of the WHO Framework Convention on Tobacco Control (FCTC); the global and national strategies for reduction of harmful use of alcohol, global and national strategies for diet, physical activity and marketing of foods and non-alcoholic beverages to children, by supporting and participating in capacity strengthening, shaping the research agenda, development and implementation of technical guidance, mobilizing financial support and regular monitoring of their implementation. Will advocate and legislate for the industry to minimize air pollution.

STRATEGIC OBJECTIVE 4

Objective 4: To reduce morbidity, disability and mortality associated with NCDs.

Reduction of morbidity, disability and mortality would require an integrated approach to NCDs management clinical care, rehabilitative and palliative care, and improving secondary and tertiary prevention.

Key actions: Creation of an integrated approach to health care and enabling referral system through availability of SMART guidelines

a) Clinical guidelines (NSF for NCDs)

b) Health technology

c) Medicine and consumables

d) Health work force and above all

e) Integrated patient records to allow case monitoring of Monitoring and Evaluation frameworks.

A cascading effect will be implemented to manage the various NCDs. This would be based on integration of care at all levels of health services would focus not only on five major NCDs (namely cardiovascular diseases, Chronic Respiratory diseases, Cancer, Diabetes, Mental and Neurological diseases) but also other NCDs as the majority of these NCDs cause significant morbidity and disability.

Roles and responsibilities of Government: The Government will provide enabling fiscal, legal and legislative environment and has a leading role in developing, strengthening existing health system for availability of modern health technology and access to essential medication.

Government will put mechanisms in place to ensure that clinical guidelines are updated and implemented at all levels of health care. In addition, it will ensure synergies among these guidelines to ensure proper management of multi morbidities.

Role of partners: Partners will facilitate the implementation of these guidelines as well as raising awareness among population about the NCDs and support them to improve adherence.

STRATEGIC OBJECTIVE 5

Objective 5: To strengthen and orient health systems to address the prevention and control of NCDs at PHC level by addressing SDH through a people-centred cascading model at NCD Clinics for UHC.

Implementation of the NCDs interventions needs a functioning health-care system and a stepwise approach for improvement health planning processes, health financing, capacity building of health workers, supply of essential drugs and technologies, and health-information systems. This would assist in implementation of comprehensive health services delivery models for long-term patient-centred care that is universally accessible and affordable. This could require strengthening PHC as part of a service hub that provides the support needed to deliver these critical prevention and treatment services for NCDs with well-functioning referral linkages to secondary and tertiary care services. Development and implementation of a cascading model is realistic first step that need to be integrated into the primary health-care services.

The key features of a cascading model where PHC is the focus of the delivery of care are:

a) Person focus across the lifespan rather than a disease focus

b) Accessibility with no out-of-pocket payments

c) Distribution of resources according to population needs rather than demand; and

d) Availability of a broad range of services including preventive services and coordination between different levels in the health system.

This will ensure setting targets for 2028 for:

- People living with NCDs to know their NCD status.
- People diagnosed with NCDs to receive sustained treatment
- People receiving treatment to achieve control and to prevent complications

Key actions:

a) Continuation of cost effective NCDs interventions into the PHC package with referral systems to all levels of care;

b) Development and dissemination of integrated clinical guidelines and treatment protocols for NCDs prevention, care and treatment for all levels of health care;

c) Building the capacity of the health workforce (including CHWs in terms of numbers and skills mix, at all levels, for the prevention and control of the NCDs;

d) Ensuring availability of essential NCDs prevention and care medicines, supplies, technologies and link this to financing mechanisms to foster access, affordability and sustainability at all levels.

Roles and responsibilities of Government: The Government will exercise responsibility and accountability in ensuring the availability of effective and efficient NCD services within the entire health system. It will also make progress towards UHC and NHI giving priority to financing a combination of cost-effective preventive, curative and palliative care interventions at different levels of care for NCDs and their comorbidities. It will identify competencies required and invest in improving the knowledge, skills and motivation of the current health care workers. In addition, the Government will incorporate the prevention and control of NCDs in the training curricula of all health personnel including Community Health Workers (CHWs) with an emphasis on primary health care.

Role of Partners: Partners will support the mobilization of adequate, predictable and sustained financial resources to advance universal coverage in national health systems, especially through PHC. They will support efforts of Government in strengthening health systems and expanding quality service coverage through development of appropriate health care infrastructure and institutional capacity for training of health personnel such as public health institutions, medical and nursing schools. In addition, they contribute to efforts to improve access to affordable, safe, effective and quality medicines and technologies for the prevention and control of NCDs.

STRATEGIC OBJECTIVE 6

Objective 6: To promote and support national capacity for high-quality research and development for the prevention and control of NCDs

The National research agenda needs to be agreed upon to set priorities for research that might answer specific problems and generate information and knowledge that will support efforts for resource mobilization and monitoring effectiveness of interventions being implemented. Research in the NCDs field will be promoted to continuously strive to improve the prevention and control of NCDs as well as to inform and advocate for NCDs.

Key actions:

(a) Identification for priority research areas on NCDs and their risk factors;

(b) Strengthening capacity for NCDs research;

(c) Advocacy for resources for research on priority NCDs and

(d) Facilitation of knowledge translation on conducted operational research to guide decision making by national government

Roles and Responsibilities of Government: Government will strengthen national institutional capacity for operational research and development, including research infrastructure, equipment and supplies in research institutions and human resources especially the competence of researchers to conduct quality research. In collaboration with research institutions and academia. Government through Mauritius Institute of Health (MIH), Academia, and other national and international partners will develop and implement NCDs operational/implementation research agenda and increase investment in research, innovation and development as an integral part of the national response to NCDs.

It will effectively use academic institutions and multidisciplinary agencies to promote operational research, retain research workforce, incentivize innovation and encourage the establishment of networks to conduct policy-relevant operational research. It will also strengthen the scientific basis for decision making through NCD-related operational research and its translation to enhance the knowledge base for ongoing national action.

Role of Partners: Partners will promote investment and strengthen national capacity for quality research, development and innovation, for all aspects related to the prevention and control of NCDs in a sustainable and cost-effective manner, including through strengthening of institutional capacity and creation of research fellowships and scholarships. They will facilitate NCD-related research and its translation to enhance the knowledge base for implementation of the national action plan. In addition, partners will disseminate, as appropriate, information on affordable, cost effective, sustainable and quality interventions, best practices and lessons learnt in the field of NCDs.

STRATEGIC OBJECTIVE 7

Objective 7: To monitor the trends and determinants of NCDs and to evaluate progress in their prevention and control.

For better-informed programme planning, the NCDs surveillance, monitoring and evaluation mechanisms need to be integrated in the existing routine data collection and reporting systems and tools for population-based surveys and making NCDs interventions costing and investment cases. A framework for national and global monitoring, reporting, and accountability, with agreed sets of indicators, is essential to ensure that the returns on investments in NCDs that meet the expectations of all partners. Continuous monitoring of the national progress will provide the foundation for advocacy, policy development and coordinated action, as well as to reinforce political commitment. In addition, the monitoring and evaluation framework will serve to monitor progress of national, regional and local level strategies for the prevention and control of NCDs.

Key actions:

a) Strengthening capacity for NCDs surveillance;

b) Integration of key NCDs monitoring indicators into the routine Health Management Information System (HMIS) data collection and reporting systems;

c) Conducting baseline and periodic NCDs and their risk factors surveys;

d) Establishment and maintenance of National Registries on NCDs

e) Building investment cases and allocation of resources for routine and periodic surveillance of NCDs and their risk factors at all levels; and

f) Dissemination of surveillance results to guide decision making.

Roles and Responsibilities of Government: Government will strengthen technical and institutional capacity through Training of Trainers to manage and to implement surveillance and monitoring systems that will be integrated into existing District Health Information Systems (DHIS2), for improved management, analysis and reporting. It will also integrate monitoring systems for the prevention and control of NCDs, including prevalence of relevant key interventions into DHIS2 to assess progress and impact of interventions. It will identify and integrate data sources into health information systems and undertake periodic data collection on the behavioural and metabolic risk factors. It will generate disaggregated data and inform WHO

on NCDs trends of morbidity, mortality by cause, risk factors, determinants, with the progress made in the implementation of NINAP to achieve target sets around 25 indicators within the "*Global monitoring framework on NCDs*".

Role of Partners: Partners will mobilize resources, promote investment and strengthen capacity for surveillance, monitoring and evaluation, on all aspects of prevention and control of NCDs. They will facilitate surveillance and monitoring and the translation of results to provide the basis for advocacy, policy development and coordinated action and to reinforce political commitment. In addition, partners will promote social marketing for behaviour change through the use of media and communications, improve capacity for surveillance and monitoring and to disseminate, as appropriate, data on trends in risk factors, determinants and NCDs.

ANTICIPATED IMPACT OF THE ABOVE INTERVENTIONS AND THE DIRECTION OF JOURNEY

In the Political Declaration on UHC from 2019, governments committed to “progressively cover 1 billion additional people by 2023 with essential health services and affordable essential medicines, by 2023.” Fulfilling this commitment requires progressively embedding and expanding coverage for NCD prevention and management within UHC entitlements included in a UHC health benefits package. The translation of NCD plans toward prioritization of services, with explicit definitions of benefit entitlements in essential or NCD benefit packages to achieve SDG targets.

CHAPTER 5: NINAP IMPLEMENTATION PLAN

This chapter outlines the detailed implementation plan including the implementation activities and how the plan should be conducted. In addition, this chapter also provides guidance on the establishment of the national coordination mechanism and summarizes the roles and responsibilities of the relevant sectors, stakeholders, and the multi-sectorial NCD Committees (see annexes C-E).

5.1 NINAP Implementation - Guiding Principles

Guiding principles for action to implement the plan are described below:

Efficient Resource Utilization: To provide health promotive and preventive actions as well as continued primary health care and hospital care based on available resources and infrastructure.

Empowerment of People and Communities: To enable healthy supportive environments in communities to adopt healthy lifestyle and thereby reduce modifiable NCDs risk factors through their involvement in advocacy, policy, planning, legislation, service provision, monitoring, research and evaluation.

Equity-Based Approach: To realize that the creation of inclusive, equitable and economically productive services for NCDs to cater for both the vulnerable groups and the entire society, to address the inequitable distribution of social determinants of health.

Evidence Based Strategies: To provide comprehensive, affordable, culturally sensitive, cost-effective patient and people at risk- and population-oriented approaches, based on latest scientific evidence and/or best practice.

Human Rights Approach: To assure the rights of all people with NCDs to access quality and affordable health care and interventions irrespective of ethnicity, gender, language, religion, political or other opinion, nationality.

Integration: To provide integrated comprehensive approaches towards reducing common risk factors of major NCDs including policy making, capacity building, partnership, information dissemination and implementation in all aspects.

Management of multi-morbidities: To take into account care of people with multiple health conditions (multi-morbidity) which is more common in disadvantaged groups, thus contributing to health inequalities.

Multi-sectorial Action: To ensure participation of individuals, families, communities, government departments and non-governmental organizations (NGOs), Faith Based Organizations (FBOs), Community Based Organizations (CBOs), private sector and bilateral development partners for the effective prevention and control of Non-Communicable Disease using approach of Health in All Policies (HiAP) framework.

Universal Health Coverage: To provide access; without discrimination, to nationally determined sets of comprehensive promotive, preventive, curative, rehabilitative and palliative health care through a package of services for the whole nation. Introduction of National Health Insurance (NHI) at an appropriate stage may also accelerate the NCD interventions in certain situations.

5.2 Effective Implementation Approach for NCDs

Effective and efficient implementation of NCD interventions would require overarching health system interventions with a cross-programmatic efficiency analysis, which may include following actions:

- Strengthen and orient the health system to address NCDs and to mitigate risk factors through people cantered health care and UHC.
- Integrate very cost-effective NCDs interventions into the basic PHC package with referral systems to all levels of care.
- Explore viable health financing mechanisms and innovative economic tools supported by evidence to ensure universal coverage of NCDs interventions and services.
- Scale up cost-effective high-impact interventions including interventions to address behavioural risk factors and early detection and long-term care of people affected by NCDs.
- Train the health workforce and strengthen the capacity of health systems, particularly at the primary care level, to address the prevention and control of Non-Communicable Diseases.
- Improve the availability of the affordable basic technologies and essential medicines, including generics, required to treat major NCDs, in both public and private facilities.
- Develop and implement a rehabilitation and palliative care policy, including access to opioids analgesics for pain relief, together with training for health workers.

- Expand the use of digital technologies (i.e., electronic health records), Artificial Intelligence, to increase health service access and efficacy for NCD prevention, and to reduce health care costs.
- Strengthen human resources and institutional capacity for surveillance, Monitoring and Evaluation, and research at local levels as a part of strengthening PHC services. Ensure reliable registration of deaths by cause, cancer registration, periodic data collection on risk factors, and monitoring national response.

5.3 Mechanisms to facilitate implementation of NINAP

Coordination and implementation mechanism

In order to effectively coordinate the national NCDs response, including the implementation of the NCDs strategy, there is a need to strengthen the current NCD programme as part of the continued commitment of the Government for the prevention and control of NCDs. It should be highlighted that strengthening of NCDs programme is required at all levels, (namely National, Regional and Local levels).

National level

Firstly, the mechanism has the mandate of developing policies, ensuring coordination between different sectors, mobilizing and allocating resources, reviewing progress in the implementation of the agreed action plan at the national and regional levels, addressing obstacles to progress and reporting on international commitments. The National level committee (annex A) will be coordinated by the Minister of Health and Wellness and the Secretariat would be the MOHW (preferably a higher office, such as the Prime Minister), while all ministries, stakeholders and relevant partner organizations would be members.

Nominate a National Focal Person to coordinate the tasks on each of the NCDs and their complications – e.g. Nephrologist and Diabetologist, who will look at the overall national picture of important complications of NCDS (CVA, CRF, CHF, Foot amputation, blindness, etc.) and a Neurologist for comprehensive care plan for those affected with CVA.

Roles and responsibilities for National Multi-Sectorial Coordination Mechanism for NCDs

- Provide political leadership and guidance to relevant sectors for NCDs prevention/control
- Enhance the integration of NCDs prevention and control in the policies and programmes of relevant ministries and government agencies

- Provide a dynamic platform for dialogue, stocktaking and agenda-setting, and development of public policies for NCDs prevention and control
- Facilitate development and resourcing of the NINAP
- Please see Annex-C and Annex-D for the details of the structure and role of the National NCD Committee.

Regional level

The Regional level mechanisms are largely concerned with implementation of programmes, enforcement of relevant laws and reporting on activities. The regional level committee will be coordinated by the Regional Executive of Health and the secretariat would be the Regional Health Offices, while heads of Units, departments and relevant NGOs in the region would be members.

Role of the Regional Multi-Sectorial Coordination Mechanisms for NCDs

- Ensure effective implementation of the NINAP in the region
- Coordinate with relevant sectors to mainstream NCDs prevention and control in their program implementation at regional levels
- Develop regional NCD plan and identify and access resources for implementation of the plan
- Report on implementation of the plan to the National Coordination Mechanism
- Request reports on progress of work from stakeholders (such as Departments, NGOs, FBOs, CBOs), and local health committees. Follow-up on decisions taken by the coordination body.

Local level (Local Health Committees-LHCs)

The Strategic Goal 2 of HSSP 2020-24 mentions, ‘to attain its goal, this Plan, inter-alia, proposes the setting up of Local Health Committees (LHCs). The LHCs should be facilitated by the Regional Health Offices, while heads of departments and relevant NGOs in the locality would be the members of the committee.

Role of the Local Health Committees for NCDs - Take part in the planning and development of health services by being involved in consultations with the community and healthcare workers to:

- Identify the needs of patients and carers in the community, as well as the preventive health needs of the community and undertake assessment of the health literacy of their community
- Keep the community informed, raise awareness about the risk factors of communicable and non-communicable diseases, promote health activities and healthy lifestyle choices, assist in the organization of mass screening programs, provide community monitoring of programmes through patient feedback (e.g. Surveys/questionnaires) and performance indicators
- Undertake fundraising and mobilization of resources for activities pertaining to the local community for community-based services, subject to approval of the National Health Advisory Committee
- Ensure regular upkeep and updating of local health facilities and centres using available local resources and organize activities to improve public spaces within the community by the people.

CHAPTER 6: COSTING and FINANCING OF NINAP

6.1 A Cost-effectiveness Approach

“Maximizing the impact of every dollar spent is crucial for tackling one of the biggest health challenges of our time: NCDs” (WHO 2018). This is important in every country, but particularly where pressures on the public health system are impacting on access and quality of care. Return on Investment (ROI), encompasses the range of approaches that assess the value generated by an investment, compared to the resources put in. While the WHO have recommended 88 interventions based on cost, 16 are considered the most cost-effective and feasible for implementation. These are interventions where a WHO CHOICE and ICER analysis found an average cost effectiveness ratio of ≤ $ 100 per DALY averted in lower and middle-income countries.

6.2 NCD services - Costing considerations

This section calls for an NCDs Investment Case Initiative for Mauritius. The default methodology for costing interventions in an investment case is a bottom-up 'ingredients-based' approach in which unit costs and resource quantities are used to develop estimates for the total cost of interventions. The cost estimates reflect the resources needed for a country to implement interventions and are used to calculate return on investments (ROI) as per step four of investment case development. These estimates are intended to show, by year and intervention or intervention package, the inputs needed to produce the economic outputs which make up the complete investment case. An Intervention costing makes cost comparisons between interventions, including between clinical and policy interventions.

WHO’s One Health Tool (OHT) enables such comparisons because, despite using tailored methodologies, it relies on WHO expert assumptions based on the same set of standards and delivery mechanisms. As such, use of external models and altering assumptions would make it difficult to establish a fair comparison of results between countries and regions. All aspects of the NCD investment case are tailored to the needs of the country concerned to ensure national stakeholders' acceptance and interest. This implies that, in the costing analysis, a country should decide which methods and/or models are applied to establish intervention cost estimates. However, the experience gained by WHO in trialling methods to conduct cost effectiveness analyses in low-resource settings shows that LMICs tend to underestimate resource needs and thus total the costs of health interventions in upper-middle income countries as Mauritius. Based on

these experiences, in ordinary circumstances, it is advisable to use WHO's costing methods employed in the OHT and NCD Costing Tool for building an investment case as a new project. Further details can be accessed from WHO’s UHC Compendium and database.

6.3 Financing NCD prevention and control

The Mauritius Vision 2030 has set a strategic long-term direction for development plans and priorities in Mauritius. The National Health Accounts (NHA, 2015) recommended an increase in the fiscal space in respect of budget allocated to MOHW and an allocation of a fair share of the revenue raised through “sin taxes” (i.e. taxes on tobacco, alcohol and sugar) for enhancing health promotion activities. The share of funds for preventive and primary care hovers around 10% and 1% respectively. Budget for NCDs is 0.93%. Tracking of expenditure through disease classification (DCP3) can improve NCD budgeting and by undertaking Health Technology Assessment (HTA) and Cost-effectiveness Analyses.

An NCD financing framework based on benefit incidence analysis (BIA) and fiscal incidence analysis (FIA) helps informed decision-making on where to prioritise budget allocation and spending on priority public health services. It helps in the distribution of healthcare utilization and spending and progressivity of the health financing systems-a key step for sound health policy making and planning for NCDs. Table 10 shows an estimated budget for the plan concerning new actions only as most of them are already covered and catered in other national action plans.

Table 10: Indicative cost projections extrapolated for NCD clinical and policy packages (million Rs) 2023-28

Activities	Annual Cost Estimates (Rs)						
	2023	**2024**	**2025**	**2026**	**2027**	**2028**	**Total Estimated Cost**
1.1.2 - Conduct advocacy forums for raising public and political awareness on the burden of NCDs and the economic benefit of preventing them		238,000		255,000			**493,000**
1.2.1 - Conduct advocacy and sensitization forums for other sectors and stakeholders on prevention and control of NCDs		168,000		180,000		192,000	**540,000**
3.5.1.1-Assess magnitude of environmental and occupational hazards		1,184,000					**1,184,000**
3.5.2.1-Advocacy sessions conducted for policy makers and key stakeholders		238,000	493,000				**731,000**
3.5.3.1-Develop and disseminate IEC materials/mass media messages (text, social media, communication campaigns)	85,000	36,000	37,000	3,038,000	39,000	40,000	**3,275,000**
4.8.1- Develop guidelines on Palliative care and end-of-life care		1,497,000					**1,497,000**
5.3.5-Recuit Community Based Rehabilitation (CBR) workers and train Social Security Doctors		1,715,500					**1,715,500**
5.5.1-Train health workers, program managers on the prevention and control of NCDs at local level			1,092,000				**1,092,000**
6.2.3- Strengthen capacity for NCDs research (human resource, infrastructure, equipment and supplies)	479,350						**479,350**
7.1.1-Conduct training workshops for NCDs surveillance (personnel, infrastructure, equipment, and supplies)		168,000					**168,000**
GRAND TOTAL	**564,350**	**5,244,500**	**1,622,000**	**473,000**	**39,000**	**232,000**	***11,174,850***

CHAPTER 7: MONITORING AND EVALUATION

7.1 National Monitoring Framework

This section describes the establishment of a national NCD surveillance, monitoring, and evaluation system and presents the process for development. The implementation of the strategy will be monitored and evaluated through the Monitoring and Evaluation Framework, which will cover all aspects of the strategy and complementing policies (see Annex-D). The NCDs program together with relevant programs within the MOHW and other stakeholders will conduct monitoring and evaluation activities over the course of the implementation phase. Monitoring and evaluation will capture the various process measures and outputs, which will guide program implementation. Overall outcome will be evident through demonstration of NCDs risk reduction and reduction in morbidity and mortality compared to base year. Health Data Collaborative (HDC) can be used as a resource for this purpose.

The monitoring and evaluation framework is described in Table 5 and Annex-B, incorporating the strategic goals, objectives, and set of 9 voluntary global NCD targets (Figure 5).

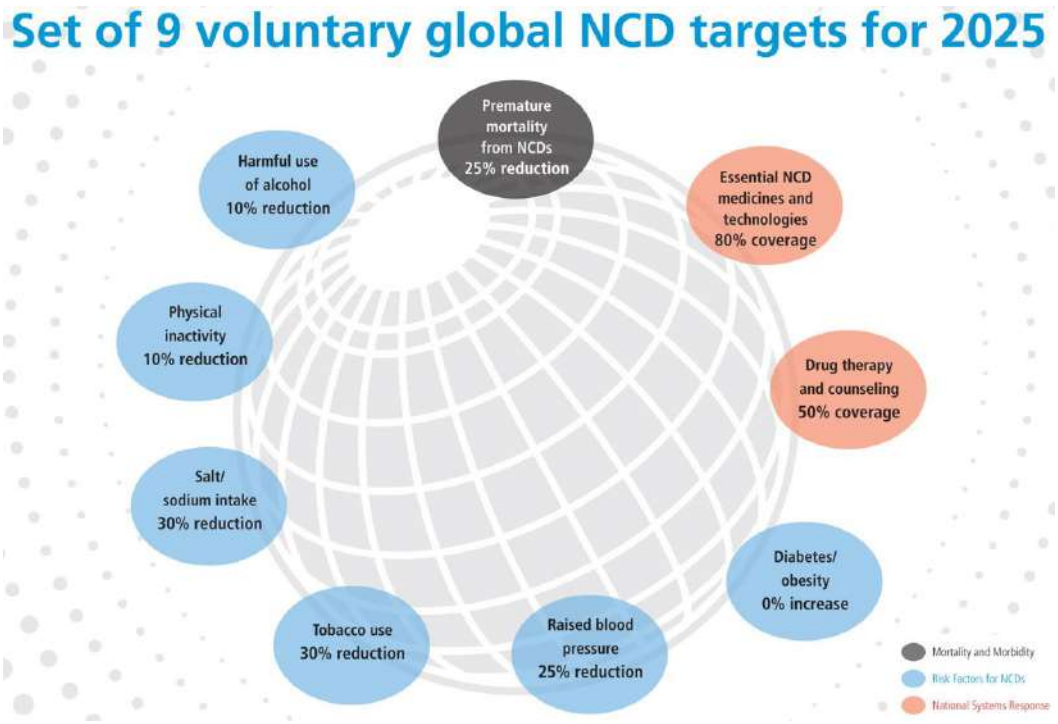


Figure 5: NCD Targets

7.2 Reporting mechanism

Most of the reports would be submitted monthly through District Health Information System (DHIS2). This would require updating National Indicator Data Set to incorporate these indicators (such as mortality and morbidity Data, Prevalence of risk factors, Epidemiological data). In addition, each DHIS district would submit a comprehensive annual report of activities (such as information/ data from the coordination mechanisms, all outcome measures (input and process indicators, outputs/milestones, and impact and outcome indicators).

Based on the experiences from implementation of various NCD activities, first 2 years of this plan would focus on collection of data from demonstration sites selected across 5 regions. The selection of these sites will be decided after consultation with the MOHW. Subsequently from year 4, authorized or approved indicators will be included in DHIS2. Among the 30 targets set for 36 indicators (25 of them are from Global framework), 15 targets are created especially for this plan to monitor these indicators from the Monitoring and Evaluation framework.

CHAPTER 8: CONCLUSION AND RECOMMENDATIONS

Mauritius has already achieved significant improvements in health and poverty reduction due to stable economic growth but needs to continue working to reverse the increasing prevalence of NCDs in the future generations. Furthermore, it is to be noted that Mauritius is the first country in the AFRO Region to have carried out a National Assessment of Health System Challenges and opportunities followed by work on a NINAP and NSF for NCDs.

In the Political Declaration on UHC from 2019, governments committed to "progressively cover 1 billion additional people by 2023 with essential health services and affordable essential medicines, by 2023." Fulfilling this commitment requires progressively embedding and expanding coverage for NCD prevention and management within UHC entitlements included in a UHC health benefits package. The translation of NCD plans toward prioritization of services, with explicit definitions of benefit entitlements in essential and it should be included in the UHC Package for NCD Care.

This ***National Integrated NCDs Action Plan in primary care settings*** is an innovative and action-oriented response to the above challenges. It is a prioritized set of cost-effective interventions that can be delivered to an acceptable quality of care. It will reinforce the health system by contributing to the building blocks of the health system. Cost effectiveness of the selected interventions will help to make limited resources go further and the user-friendly nature of the tools that will be developed, to empower primary care professionals to contribute to NCD care. It should not be considered yet another package of basic services but, rather, an important step for integration of NCD into PHC and for reforms that need to cut across the established boundaries of the building blocks of national health system in Mauritius.

This NINAP framework directs toward an NCD investment case that the social and economic costs from NCDs will only grow without an accelerated national response. Conversely, implementing proven cost-effective policies now would save lives, avoid widespread human suffering, and avert a substantial portion of the projected economic losses. Mauritius NINAP led by its Ministry of Health and Wellness and its multi-sectorial partners, is expected to make great strides in protecting its population from NCDs in coming years. The NINAP in combination with NSF for NCDs and an NCD investment case can offer an opportunity to take the national response to new heights.

NCD Business plan and Investment Case for NSF for NCDs and NINAP will model the costs and benefits of implementing prevention policies and clinical interventions, in line with WHO's 'Best

Buys' for the prevention and control of NCDs. Implementing the recommended interventions would, over the next 10 years will avert preventable deaths, restore healthy-life years to individuals and avoid trillions in economic losses. Several countries have benefitted from national NSF for NCDs, NINAP and investment cases developed by national governments and ministries of health, WHO and UN and development partners and stakeholders, using NCD Global Action Plan, digital health technology, Artificial Intelligence and mobile applications under the umbrella of Universal Health Coverage (UHC) to achieve the Sustainable Development Goals (SDGs).

Key recommendations and areas for improvement

- Government at all levels prioritize prevention and control of NCDs through an ethical and holistic whole of the government and whole of the society, multi-sectorial reactivation approach ensuring Health in All Policies (HiAP), acknowledging that investment in NCDs is a priority for social and economic development. HiAP framework encompasses beyond Ministry of Health to other line ministries, private sector, civil society, academia, media, development partners, etc. National NCD Steering Committee need to be more proactive to implement all actions cited in the NINAP.
- Prepare an investment case for NCDs, review the Priority Benefit Package after a most recent Health Technology Assessment (HTA) and incorporate NCD services as per DCP3 classification, based on a cost effectiveness analysis through One Health Tool (OHT).
- Strengthen PHC as the cornerstone of a sustainable health system for UHC. In order to avoid setbacks in health outcomes for NCDs and efforts to achieve UHC with the impacts being disproportionately borne by millions of people living with or at risk of Long COVID and NCDs, in particular those in the most productive years of their life, older people, and those with disabilities.
- To accelerate the speed of NCD outcomes, Mauritius needs to strengthen the gatekeeping role of PHC Centre for NCD prevention and treatment and improve quality of the healthcare and its service delivery through people-centred approach and shifting/balancing from an acute care model to chronic care model with appropriate treatment guidelines and standards.

- Conduct Nutrition and Salt Intake surveys (to reduce salt intake), enhance physical activity through prescriptions, increase number of Family Physicians, NCD clinics and specialized NCD nurses, Disease registers, and improve National Cancer Control Programme.
- Assign highest level of priority to improve NCDs related Public Health legislation and enforcement.
- By using NGOs and Civil Society support, address community empowerment for the implementation of strong integrated Health Management Information Systems.
- Develop a strategy for 'Living with COVID-19' and future threats to the country, such as climate change as both will have drastic effects on NCDs prevalence in an aging population.
- Find the right balance between progressively covering additional people with nationally determined sets of integrated quality health services at all levels of care for prevention, diagnosis, treatment and care in a timely manner, with a view to covering all people by 2030, and trade-offs between siloed approaches to health systems strengthening, health security and vertical disease programme planning.
- Build Resilient Health Systems - At least half of the world's population do not have full coverage of essential health services for the prevention and control of NCDs. The COVID-19 pandemic has affirmed the importance of basic public health, and strong health systems and emergency preparedness, as well as the resilience of populations to emergence of a new virus or pandemic.
- Use the Preventable Risk Integrated ModEl (PRIME) which is an openly available NCD scenario model which helps to estimate the impact of changes in NCD risk factors on NCD mortality. This model will be helpful for Mauritius to undertake the challenge of achieving SDG 3.4, in designing interventions with equity, setting subsequent national targets, and estimating the impact of policy interventions.
- Develop and implement Social Marketing and media campaigns to promote positive social norms for NCDs prevention and control and healthy lifestyle behaviour change.

In summary, these considerations lend ever greater urgency to the quest for including the prevention and control of NCDs in UHC. There is now a timely opportunity to see NCDs from a new lens when seeking to build back better from Covid-19 pandemic recovery, impact of climate

change, health inequalities and cost of living crisis, and particularly about integration and alignment with PHC as the cornerstone for a sustainable and resilient health system that provides ‘Health for All Mauritians’.

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ANNEX A - Detailed Implementation Plan

Strategic Objective 1: To raise the priority accorded to the prevention and control of NCDs at all levels through advocacy

EXPECTED OUTPUTS	ACTIVITIES	INDICATORS	PARTNERS	TIME-FRAME
1.1 NCDs prioritized in national development agenda and UHC-NCDs Priority Benefit Package.	1.1.1- Develop and disseminate advocacy tools on the linkage between NCDs and sustainable economic development 1.1.2 - Conduct advocacy forums for raising public and political awareness on the burden of NCDs and the economic benefit of preventing them 1.1.3 – Prepare an investment case for NCDs	- # of advocacy documents on the burden and socio-economic impact of NCDs, and the costs of inaction - # of advocacy sessions for public and political leaders - Disseminate the report of NCDs Investment case	Health Economic Unit - MOHW	2023/25
1.2 Increased awareness of other sectors and stakeholders on the magnitude of NCDs and their expected role in the multi sectorial response for NCD prevention and control	1.2.1 - Conduct advocacy and sensitization forums for other sectors and stakeholders on prevention and control of NCDs	- # of advocacy forums with other sectors and stakeholders for prioritization of the prevention and control of NCDs	NCD, Health Promotion and Research Unit - MOHW	2023/24
	1.2.2 - Encourage and motivate other sectors and stakeholders to create enabling legal, policy and regulatory environment which is conducive for the prevention and control of NCDs.		Attorney General	
	1.2.3 - Dissemination of NCD stats to all stakeholders to indicate magnitude of the NCD issues.		NCD, Health Promotion and Research Unit – MOHW	

Strategic Objective 2: To strengthen national capacity, leadership, governance, multi-sectorial collaboration, and partnerships to accelerate country response for the prevention and control of NCD

EXPECTED OUTPUTS	ACTIVITIES	INDICATORS	PARTNERS	TIME-FRAME
2.1 National, Regional and local NCDs Multi-sectorial Coordination Committees in place and functional	2.1.1- Establish high level NCDs *Multi-sectorial Coordination Mechanisms* at National, Regional and local levels for engagement, policy coherence and mutual accountability 2.1.2 – Suggest for establishment of NCD Secretariat at the Highest Office (President/Prime Minister). Develop TORs for high-level multi-sectorial NCD Committee, with meetings calendar, agenda and manual of proceedings.	- # of reports of National, Regional and local NCDs multi-sectorial Coordination - Committees established and functional	MOHW	2023/24
2.2 National NCDs Technical Committee and disease spec. TWGs in place/functional	2.2.1 -Establish national NCDs Technical Committee and disease specific TWGs	- Annual Reports of the different NCDs technical working groups/ committees	MOHW	2023/24
2.3 NCDs operational plans developed and resourced at all levels	2.3.1 Develop annual NCDs operational plans at all levels and allocate needed resources in line with Covid-19 Socio-economic recovery plans (SERPs).	- NCDs action plans in place and budgeted for implementation	MOHW	2023/27
2.4 Registry of policies and regulations related to NCDs in place and gaps identified for alignment with latest evidence	2.4.1-Conduct desk review of existing multi-sectorial policies and regulations related to NCDs 2.4.2-Create database of NCD policies and regulations	- Appraisal and Monitoring and Evaluation reports of NCDs related legal provisions, policies, and regulations. - Research studies at the universities completed.	MOHW Mauritius Institute of Health	2023/25

EXPECTED OUTPUTS	ACTIVITIES	INDICATORS	PARTNERS	TIME-FRAME
	2.4.3–Establish Technical Working Groups with Academia / universities.			
2.5 Policies related to all NCDs reviewed and updated	2.5.1-Review and update Policies related to all NCD 2.5.2-Create data base of policies and regulations related to NCDs	- # of Policies related to all NCDs reviewed and updated	MOHW	2023/24
2.6 Functional NCD Local Health Committees (LHCs)	2.6.1 Reorganization of NCD programme in the localities 2.6.2 Appointment of posts in every locality	# of local health committees functioning and reporting	NCD, Health Promotion and Research Unit - MOHW	2023/24
2.7 Communities and individuals empowered to adopt healthy lifestyles	2.7.1-Devlop IEC materials on healthy lifestyles and the prevention of NCDs 2.7.2- Conduct mass media campaigns and social mobilization activities promoting healthy lifestyles	# of NCDs related health promotion materials developed, translated, printed and disseminated - # of NCDs social mobilization activities	HIEC Unit - MOHW, Nutrition Unit – MOHW NCD, Health Promotion and Research Unit - MOHW	2023/25 2023/26
	2.7.3 Strengthen counselling services during clinical contacts		Nutrition Unit – MOHW	
2.8 Strengthened PPP forums on NCDs prevention and control with increased frequency of viable deliberations for NCDs	2.8.1 Strengthen PPP to support and collaborate on NCDs prevention and control activities	- # of PPP forums held on NCDs -# of private partners engaged in NCDs prevention and controls activities	MOHW	2023/27

Strategic Objective 3: To reduce modifiable risk factors for NCDs and its co-morbidities and underlying SDH through primordial and primary prevention measures

EXPECTED OUTPUTS	ACTIVITIES	INDICATORS	PARTNERS	TIME-FRAME
3.1 Promote Healthy Diet high in fruits and vegetables and low in saturated fat/trans-fat, free sugar and salt	**<u>3.1.1 Increased intake of healthy foods including adequate levels of fruits and vegetables</u>**	- Availability/# of policies, standards and plans on food security and healthy diet reviewed and implemented	Nutrition Unit – MOHW	2023/27
	3.1.1.1- Promote availability and affordability (food security) of healthy foods to all segments of the population	- # of periodic implementation reports on food security programs	Ministry of Commerce and Consumer Protection	
	3.1.1.2- Increase availability of fruits and vegetables through home gardening promotion program	- # of home gardening promotion program	Ministry of Agro Industry and Food Security	
	3.1 1.3- Update and disseminate national Food Based Dietary Guidelines (FBDGs) and nutrient profiling of common foods 3.1.1.4- Capacitate Health Workers on FBDGs and counselling skills	- Availability of updated national Food Based Dietary Guidelines (FBDGs) - # of health workers trained on FBDG and nutrition counselling skills	Nutrition Unit – MOHW	
	3.1.1.5- Implement mass media campaign on healthy diets, social marketing of foods and promote the intake of fruits and vegetables	- # of healthy diet programs implemented at all levels	Health Information, Education and Communication (HIEC) Unit - MOHW	

EXPECTED OUTPUTS	ACTIVITIES	INDICATORS	PARTNERS	TIME-FRAME
	3.1.1.6 - Support availability and affordability of health fresh food to all segment of the population by identifying key bottlenecks in the transport of fresh food products	- amount of time taken to transport fresh food	Ministry of Land Transport and Light Rail	
	3.1.2 Reduced intake of salt in the diet 3.1.2.1- Set target levels for the amount of salt in foods and meals and enforce reformulation of food products and meals to contain less salt/sodium 3.1.2.2- Enforce front-of-pack labelling	- Availability of national salt reduction targets and action plan - # of front packing labels enforced	Nutrition Unit – MOHW	2023/27
	3.1.2.3- Establish policies for food procurement that encourage the purchase of products with lower salt/ sodium content	- # of engagement sessions held with stakeholders on salt reduction measures	Ministry of Commerce and Consumer Protection	
	3.1.2.4- Conduct behaviour change communication and mass media campaigns on salt reduction	- # of mass media campaigns and meetings on salt reduction	Health Information, Education and Communication (HIEC) Unit - MOHW	
	3.1.2.5- Engage food producers, processors, retailers, restaurants, and catering services to progressively reduce salt in their products		Nutrition Unit – MOHW	

EXPECTED OUTPUTS	ACTIVITIES	INDICATORS	PARTNERS	TIME-FRAME
	3.1.3 Reduced consumption of saturated fats/trans fats and sugars 3.1.3.1- Develop legislation and regulations on saturated and trans fatty acids, salt and refined sugar content of processed foods and the packaging, labelling and marketing of food products and beverages	- Acts and regulations on saturated and trans fatty acids, salt and refined sugar content of processed foods available	Attorney General Nutrition Unit – MOHW	2023/24
	3.1.3.2- Replace trans-fats and saturated fats with unsaturated fats through reformulation, labelling and appropriate fiscal policies 3.1.3.3 - Implement the WHO recommendations on the marketing of foods and non-alcoholic beverages to children	- Policy on taxation of sugar-sweetened beverages and foods - Reports of monitoring of implementation of diet related policies and regulations	Nutrition Unit – MOHW	
3.2 Promote Physical Activity	3.2.1- Review policies and guidelines on physical activity and sports	- # of physical activity policy and guideline developed	Ministry of Youth Empowerment, Sports and Recreation MOHW	2023/25
	3.2.2-Create public awareness on the health benefits of physical activity through mass media campaign and community-based education	- # of awareness campaigns held	Ministry of Youth Empowerment, Sports and Recreation HIEC Unit – MOHW	

EXPECTED OUTPUTS	ACTIVITIES	INDICATORS	PARTNERS	TIME-FRAME
	3.2.3- Develop and Implement programs that promote physical activity in the community, public and private institutions, and workplaces	- # of IEC materials on physical activity developed	Ministry of Youth Empowerment, Sports and Recreation NCD, Health Promotion and Research Unit - MOHW	
	3.2.4- Advocate for policy and regulations for improved urban design conducive for physical activity and safe pedestrian infrastructure	- # of workplace wellness programs and sport clubs	Ministry of National Infrastructure and Community Development	
	3.2.5- Promote organized sport groups and clubs, programs, and events	- # of advocacy sessions held for urban planners and politicians on improving urban design conducive for physical activity - # of Health Promotion Clubs in public and Private sector	Ministry of Youth Empowerment, Sports and Recreation NCD, Health Promotion and Research Unit – MOHW	

EXPECTED OUTPUTS	ACTIVITIES	INDICATORS	PARTNERS	TIME-FRAME
	3.2.6- Strengthen physical activity programs in schools	- # of updated policies, guidelines and curricula for strengthening physical activity and sports in schools	Ministry of Youth Empowerment, Sports and Recreation NCD, Health Promotion and Research Unit – MOHW Ministry of Education, Tertiary Education, Science and Technology	
	3.2.7- Monitor trends of physical activity in the population	- # of research on physical activity patterns conducted and shared	NCD, Health Promotion and Research Unit – MOHW	
	3.2.8 - Strategies to discourage car use and use of fossil fuels should be established.	- # of bottleneck on the road	Ministry of National Infrastructure and Community Development	
	3.2.9 - Strategies should be developed to encourage active transport, particularly public transport, cycling and walking, rather than focusing on cars in view of increasing physical activity.	- # of cycling tracks created	Ministry of National Infrastructure and Community Development	
	3.2.10 - Prescription of physical activity for NCD patients should be established	- # of referral made for physical activity	MOHW	

EXPECTED OUTPUTS	ACTIVITIES	INDICATORS	PARTNERS	TIME-FRAME
3.3 Reduce use of Tobacco products	**<u>3.3.1 Provisions of existing legislations and regulations on tobacco products appraised</u>** 3.3.1.1- Sensitize Legislative and Regulatory bodies on the Public Health restrictions on tobacco products and regulations 2008 and the gaps that need strengthening	- # of sensitization sessions conducted	Tobacco Control Unit Attorney General	2023/24
	3.3.1.2- Support revision of the Tobacco control legislation and regulations to make it more comprehensive in line with the WHO FCTC	- # of authorities and stakeholders sensitized on tobacco legislations and regulations	Attorney General	
	<u>3.3.2 Effective public awareness (mass media) campaigns to discourage tobacco products use conducted</u> 3.3.2.1- Develop IEC materials on prevention of tobacco products use and translate into local languages		Health Information, Education and Communication (HIEC) Unit - MOHW	2023/26
	3.3.2.2- Conduct awareness programs or trainings for media personnel and Health Workers	- # of awareness campaigns conducted	Tobacco Control Unit - MOHW	
	3.3.2.3- Conduct public awareness/mass media campaigns on the harms of smoking/tobacco products use and second-hand tobacco smoke exposure	- Evaluation report on impact of awareness campaigns available	Tobacco Control Unit – MOHW, NCD, Health Promotion and Research Unit - MOHW	

EXPECTED OUTPUTS	ACTIVITIES	INDICATORS	PARTNERS	TIME-FRAME
	3.3.3 Tobacco products prevention and control incorporated in the curricula of schools and higher learning institutions 3.3.3.1 - School curriculum reviewed and revised to incorporate tobacco products prevention and control	- Proportion of schools and higher learning institutions with tobacco products prevention and control in their curriculum	Ministry of Education, Tertiary Education, Science and Technology	2023/24
	3.3.3.2- Sensitize students and staff in schools and higher learning institutions about the harms of smoking/tobacco products use and second-hand exposure to tobacco smoke	- Proportion of schools and higher learning institutions sensitized on tobacco prevention and control	NCD, Health Promotion and Research Unit - MOHW	
	3.3.4 Tobacco products cessation services established 3.3.4.1-Develop guideline for tobacco cessation services 3.3.4.2 -Conduct training for providers on tobacco cessation interventions 3.3.4.3- Avail commodities for treatment of tobacco dependence	- # of facility and community-based tobacco cessation services available - # of training sessions conducted - # of tenders for commodities procurement	Tobacco Control Unit - MOHW	2023/25
3.4 Reducing Harmful use of Alcohol and substances	**3.4.1 Provisions of existing legislations and regulations on alcohol appraised** 3.4.1.1- Appraise existing national legislations and regulations on alcohol including their implementation status	- Appraisal report on provisions of existing national legislations and regulations on alcohol products with implementation status	Harm Reduction Unit - MOHW	2023/24

EXPECTED OUTPUTS	ACTIVITIES	INDICATORS	PARTNERS	TIME-FRAME
	3.4.2 National Alcohol Policy and related regulations reviewed and updated 3.4.2.1- Sensitize policy makers and stakeholders on the national alcohol Acts and regulations and the gaps that need strengthening	- # of stakeholders sensitized on prevention of harmful use of alcohol	Harm Reduction Unit - MOHW	2023/24
	3.4.2.2- Revise/update the national Liquor Act and related regulations	- # of alcohol legislations and regulations reviewed and updated	Attorney General MOHW	
	3.4.3 Increased public awareness about the effects of the harmful use of alcohol 3.4.3.1- Develop IEC materials on harmful use of alcohol	- # of IEC materials on harmful use of alcohol developed, translated and disseminated	HIEC Unit - MOHW	2023/25
	3.4.3.2-Conduct public awareness/mass media campaigns about the dangers of alcohol consumption and its related links	- # of awareness campaigns conducted to discourage harmful use of alcohol	NCD, Health Promotion and Research Unit – MOHW, Harm Reduction Unit - MOHW	
	3.4.4 Curriculum on harmful use of alcohol and substance abuse in schools reviewed and strengthened 3.4.4.1 - Integrate the prevention of alcohol and substance abuse into the school health curriculum	- # of schools with curriculum on harmful use of alcohol and substance abuse.	Ministry of Education, Tertiary Education, Science and Technology	2023/25
	3.4.4.2 - Sensitize teachers and students on alcohol and substance abuse through School Health Clubs	- # of sensitization sessions	Ministry of Education, Tertiary	

EXPECTED OUTPUTS	ACTIVITIES	INDICATORS	PARTNERS	TIME-FRAME
			Education, Science and Technology, NCD, Health Promotion and Research Unit – MOHW	
	3.4.5 Alcohol and substance abuse prevention, treatment and rehabilitation services availed at all levels: health care system, community, and workplaces 3.4.5.1 -Develop guidelines for rehabilitation of alcohol and substance abuse	- # of facilities offering rehabilitation services	Harm Reduction Unit - MOHW	2023/25
	3.4.5.2 -Build the capacity of health care and social services providers	- # of Community units offering alcohol and substance abuse rehabilitation services	Harm Reduction Unit – MOHW, NCD, Health Promotion and Research Unit – MOHW	
	3.4.5.3 -Integrate alcohol and substance abuse care and rehabilitation services at all levels	- # of workplaces with rehabilitation services	Harm Reduction Unit - MOHW	
3.5 Environmental Risk reduction	**3.5.1 Magnitude of the burden of environmental and occupational hazards documented to guide planning** 3.5.1.1-Assess magnitude of environmental and occupational hazards 3.5.1.2-Disseminate the findings and advocate for policy and regulatory actions	- Situation analysis report on the magnitude of environmental and occupational hazards - # of advocacy sessions conducted - # of policy and regulatory actions passed by the competent authorities	The Occupational Health and Safety Unit - MOHW	2023/24

EXPECTED OUTPUTS	ACTIVITIES	INDICATORS	PARTNERS	TIME-FRAME
	3.5.2 Existing policies, legal frameworks, standards and guidelines on environmental, biological and occupational hazards appraised and Reviewed 3.5.2.1-Advocacy sessions conducted for policy makers and key stakeholders 3.5.2.2- Appraise/update legal frameworks, policies, and guidelines to reduce exposure to environmental, biological and occupational hazards 3.5.2.3-Representation of NGOs in all sub-committees	- # of advocacy sessions conducted - # of legislations, policies and guidelines reviewed - # of sub-committees - # Number of NGOs and relevant partners in sub-committees	The Occupational Health and Safety Unit - MOHW	2023/24
	3.5.3 Increased public awareness on the hazards and prevention of environmental, biological and occupational risk factors 3.5.3.1-Develop and disseminate IEC materials/mass media messages (text, social media, communication campaigns, pamphlets)	- # of IEC materials developed and disseminated	Health Information, Education and Communication (HIEC) Unit - MOHW	2023/26
	3.5.3.2-Conduct public awareness campaigns including mass media communications and establishment of health promotion clubs in civil services and social groups.	- # of awareness campaigns carried out	NCD, Health Promotion and Research Unit – MOHW	

Strategic Objective 4: To reduce morbidity and mortality associated with NCDs through secondary and tertiary prevention measures

EXPECTED OUTPUTS	ACTIVITIES	INDICATORS	PARTNERS	TIME-FRAME
4.1. Development and Implementation of treatment cascades for NCDs proportions of people diagnosed with NCDs, in care, on treatment and on complications	4.1.1 Develop treatment cascades for major NCDs *(namely diabetes, Hypertension, chronic respiratory diseases, cancer, mental health, etc.) 4.1.2. Treatment cascade being implemented, and target was reviewed annually	– # of treatment cascades for NCDs developed and implemented – # of NCD interventions included in the health benefit Packages	MOHW	2023/24
	4.1.3-Introduce appropriate health technology, patients' e-record system, updating guidelines, training, involving private sector, and avoiding duplication with partners.	- # of Health Technology Assessments including e-record system and guidelines with auditing	Ministry of Information Technology, Communication and Innovation	
4.2 Secondary preventive measures being implemented	4.2.1 Assess magnitude of Screening for all NCDs at PHC clinics 4.2.2 Assess magnitude of Treatment initiated for all NCDs	- # of people screened for all NCDs (categorized) - # of people-initiated treatment for all NCDs (categorized)	Health Statistics Unit- MOHW	2023/25
	4.2.3 Assess magnitude of Adherence to treatment protocols	- # of people adhered to treatment for NCDs	MOHW	
4.3 Tertiary prevention measure being implemented	4.3.1 Assess magnitude of Screening and treatment for complications of all NCDs	- # of people screened for complications associated with NCDs (categorized) - # of people developed complications associated with NCDs (categorized)	Health Statistics Unit- MOHW	2023/25

EXPECTED OUTPUTS	ACTIVITIES	INDICATORS	PARTNERS	TIME-FRAME
4.4 Optimal utilization of health services	4.4.1 Assess magnitude of utilization of health care facilities by the people with NCDs	- # of people with NCDs (categorized) visited by CHWs (annualized) - # of people with NCDs (categorized) attended PHC facilities (annualized) - # of people with NCDs (categorized) attended Hospital OPDs (annualized) - # of people with NCDs (categorized) admitted Hospital (annualized)	Health Statistics Unit- MOHW	2023/25
4.5 Optimal referral of patients with NCDs	4.5.1 Assess magnitude of Up and down referral systems	- of people with NCDs (categorized) up and referred from PHC facilities to hospitals - # of people with NCDs (categorized) down and referred from hospital to PHC facilities	MOHW	2023/27
4.6 Magnitude of the burden of multi-morbidities documented to guide planning	4.6.1 Assess magnitude of multi-morbidities	- # of people with multi-morbidities (categorized) attended PHC facilities (annualized) - # of people with multi-morbidities (categorized) attended Hospitals (annualized)	Health Statistics Unit- MOHW	2023/25
4.7. Reduced risk of overweight, obesity and cardio-metabolic syndrome	4.7.1 Screening and early treatment program initiated for all NCDs at PHC clinics	- # of people screened and initiated treatment for various categories of NCDs	MOHW	2023/27

EXPECTED OUTPUTS	ACTIVITIES	INDICATORS	PARTNERS	TIME-FRAME
4.8 Palliative care and end-of life care integrated to primary health care	4.8.1- Develop guidelines on Palliative care and end-of-life care 4.8.2- Train providers on palliative care 4.8.3- Integrate rehabilitation, palliative and end-of-life care into PHC 4.8.4 - Integrate rehabilitation, palliative and end-of-life care into preservice training curricula 4.8.5 Assess magnitude of availability of palliative care for cancer patients	- Guidelines on end-of-life and rehabilitation care developed - Health workers trained on end-of-life care and rehabilitation - # of PHC facilities implementing palliative and end-of-life care - # of training curricula implemented	MOHW	2023/25
4.9. Availability, as appropriate, if cost-effective and affordable, of vaccines against human papillomavirus	4.9.1 Assess magnitude of availability of vaccine for Human Papilloma virus	- # of people accessing palliative care for morphine-equivalent consumption of strong opioid analgesics (excluding methadone) for cancer and other terminally ill patients - # of people received human papillomavirus vaccine	NCD, Health Promotion and Research Unit – MOHW Vaccination Unit - MOHW	2023/24
4.10 Vaccination coverage against hepatitis B virus monitored by # of third doses of Hep-B vaccine (HepB3) administered to Infants	4.10.1 - Assess magnitude of availability and affordability of Hep-B vaccine	# of people received third doses of Hep-B vaccine (HepB3)	Vaccination Unit - MOHW	2023/24

EXPECTED OUTPUTS	ACTIVITIES	INDICATORS	PARTNERS	TIME-FRAME
4.11. Proportion of women between the ages of 25–65 screened for cervical cancer at least once, or more often, and for lower or higher age groups according to national programmes or policies	4.11.1 Assess magnitude of availability of cervical cancer screening 4.11.2 Assess magnitude of availability of colposcopy services	# of women screened for cervical cancer at least once for the age group (a) less than 30 years (b) 30–49 years and (c) 50 years and above # of women who had colposcopy Examination	NCD, Health Promotion and Research Unit - MOHW	2023/24

Strategic Objective 5: To strengthen and orient health systems to address the prevention and control of NCDs and the underlying SDH through people centered PHC and UHC

EXPECTED OUTPUTS	ACTIVITIES	INDICATORS	PARTNERS	TIME-FRAME
5.1 Cost effective NCDs interventions integrated into the Primary Health Care (PHC) package with referral systems to all levels of care	5.1.1- Adapt the WHO Package of Essential Non Communicable (PEN) Diseases Guidelines and job aids for PHC 5.1.2- Train and mentor health workers on NCDs care 5.1.3- Build health workforce in quantity and skills mix for NCDs 5.1.4- Task shift basic NCDs care by optimizing the scope of practice of nurses and clinical associates and mid-level workers	- The WHO-PEN for PHC adapted - # of Health Workers trained on PEN Guideline - # of facilities implementing the PEN Guideline - # of task shifting and changed scope of practice sessions developed and implemented	MOHW	2023/25
	5.1.5- Recruit NCD nurses	- # NCD nurses recruited/10,000 population	MOHW	

EXPECTED OUTPUTS	ACTIVITIES	INDICATORS	PARTNERS	TIME-FRAME
5.2 Integrated clinical guidelines and treatment protocols for management of NCDs for all levels of care in place	5.2.1-Develop and disseminate integrated clinical guidelines and protocols for all levels of care especially referral facilities 5.2.2-Train providers/HCWs on NCDs treatment guidelines 5.2.3-Emphasize on dissemination of Palliative Care guidelines and workshops to HCWs.	- # of guidelines and protocols developed and disseminated - Proportion of health facilities utilizing guidelines/ protocols - # of palliative care guidelines and workshops, (developed, disseminated and implemented)	MOHW	2023/25
5.3 Palliative care and end-of life care integrated to primary health care	5.3.1- Develop guidelines on Palliative care and end-of-life care 5.3.2- Train providers on palliative care	- Guidelines on end-of-life and rehabilitation care developed - Health workers and social workers trained on end-of-life care and rehabilitation	MOHW	2023/25
	5.3.3- Integrate rehabilitation, palliative and end-of-life care into PHC, including Psychiatric care nurses for OPDs	- # of PHC facilities implementing palliative and end-of-life care	MOHW	
	5.3.4- Integrate rehabilitation, palliative and end-of-life care into pre-service training curricula and refresher courses	- # of curricula/refreshers developed and implemented.	MOHW Mauritius Institute of Health (MIH)	
	5.3.5-Recuit Community Based Rehabilitation (CBR) workers and train social security doctors	- # of CBR/social security workers recruited and trained	MOHW Ministry of Social Integration, Social Security and National	

EXPECTED OUTPUTS	ACTIVITIES	INDICATORS	PARTNERS	TIME-FRAME
			Solidarity	
5.4 NCDs fully covered in the medical aid schemes	5.4.1-Ensure full coverage of NCD prevention/control services to be included in national health scheme including MH drugs	- Proportion of medical aid schemes fully covering NCDs	MOHW	2023/27
5.5 Capacity of health providers and program managers on prevention and control of NCDs strengthened at local	5.5.1-Train health workers, program managers on the prevention and control of NCDs at local level 5.5.2-Train general nurses into specialized NCD nurses	- # of health workers, program managers trained in prevention and control of NCDs at local - # Specialized nurses recruited; audit plans completed for recruitment	NCD, Health Promotion and Research Unit - MOHW	2023/25
	5.5.4-Make Audit Plans for workforce and recruitment schemes		MOHW	
5.6. Availability and affordability of quality, safe and efficacious essential NCD medicines, including generics, and basic technologies in both public and private facilities	5.6.1 Assess magnitude of availability and affordability of quality, safe and efficacious essential NCD medicines, including generics 5.6.2-Involve stakeholders to upgrade the list of new drugs.	- # of stock outs of essential NCD medicines, including generics, and basic technologies in both public and private facilities - # of out-of-service essential health technologies in health facilities	Pharmaceutical Services - MOHW	2023/24 2023/25
	5.6.3 Assess magnitude of availability and affordability of essential health technologies in health facilities	- # of technology audits completed	MOHW	
5.7 CHWs capacitated in promotion of healthy lifestyles and in care and support for people	5.7.1-Develop guidelines for the training of CHWs on NCDs prevention and care 5.7.2-Train CHWs on NCDs prevention and	- # of CHWs trained on NCDs prevention and care - # of trained on prevention and	NCD, Health Promotion and Research Unit - MOHW	2023/25

EXPECTED OUTPUTS	ACTIVITIES	INDICATORS	PARTNERS	TIME-FRAME
suffering from NCDs in the community	palliative care	palliative care		
5.8 Recruit and train HCW/NCD Nurse	5.8.1-Develop guidelines for the training of HCWs on NCDs prevention and care 5.8.2-Train HCWs on NCDs prevention and scheme	- # of HCWs trained on prevention and palliative care schemes	NCD, Health Promotion and Research Unit - MOHW	2023/25

Strategic Objective 6: To promote and support national capacity for Research and Development for prevention and control of NCDs

EXPECTED OUTPUTS	ACTIVITIES	INDICATORS	PARTNERS	TIME-FRAME
6.1 Identify NCD Operational Research topics for actionable intelligence and evidence.	6.1.1-Identify operational research areas on NCDs and their risk factors	- # of operational research (OR) areas identified - List of OR publications available - # of research projects published	NCD, Health Promotion and Research Unit - MOHW	2023/24
6.2 NCDs research capacity strengthened.	6.2.1-Advocate for resources for research on priority NCDs	- Proportion of NCDs budget allocated to NCDs Research and infrastructure	MOHW, Ministry of Labour, Human resource Development and Training	2023/24

EXPECTED OUTPUTS	ACTIVITIES	INDICATORS	PARTNERS	TIME-FRAME
	6.2.2-Develop proposals and mobilize resources 6.2.3- Strengthen capacity for NCDs research (human resource, infrastructure, equipment and supplies)	- # of healthcare workers trained on NCDs research - # of capacity strengthening research programmes completed	NCD, Health Promotion and Research Unit - MOHW	
6.3 Evidence generated and used for national policy formulation and health program planning and monitoring	6.3.1- Create National repository of local research on NCDs 6.3.2-Develop synthesis of local research and survey findings for policy action 6.3.3- Disseminate research findings for policy makers and programmers 6.3.4-Conduct research projects to address knowledge gaps	- National repository of local research on NCDs created - # of dissemination forums for sharing research findings for policy makers and programmers - # of research projects completed that address knowledge gaps through implementation research	NCD, Health Promotion and Research Unit - MOHW	2023/24

Strategic Objective 7: To monitor the trends and determinants of NCDs and to evaluate progress in their prevention and control

EXPECTED OUTPUTS	ACTIVITIES	INDICATORS	PARTNERS	TIME-FRAME
7.1 NCDs surveillance and monitoring capacity strengthened	7.1.1-Conduct training workshops for NCDs surveillance (personnel, infrastructure, equipment, and supplies)	- # of health workers trained on NCDs surveillance	Health Statistics Unit - MOHW	2023/25
	7.1.2- Allocate resources for routine and periodic NCDs surveillance	- Proportion of NCDs budget dedicated to NCDs surveillance and infrastructure	MOHW	
	7.1.3-Update NCD indicators and reporting formats in the HIS	- Key NCDs indicators incorporated and reported through the HIS	Health Statistics Unit - MOHW	

EXPECTED OUTPUTS	ACTIVITIES	INDICATORS	PARTNERS	TIME-FRAME
7.2 Baseline and periodic NCDs and risk factors data available for monitoring and program planning	7.2.1-Conduct National NCDs Surveys every 5 years	- Reports of National NCD Survey	NCD, Health Promotion and Research Unit - MOHW	2023/27
7.3 National Registry established for major NCDs	7.3.1-Establish National Registry on some major NCDs (Population-based or patient-based instead of diseases)	- # of functional disease specific registries	Health Statistics Unit - MOHW	2023/24
7.4 NCDs surveillance results periodically disseminated to guide decision making by national authorities	7.4.1 Develop annual/periodical NCD surveillance reports 7.4.2- Disseminate the NCDs surveillance reports regularly	- # of dissemination forums and publications	Health Statistics Unit - MOHW	2023/27
	7.4.3 Establish a national NCD MONITORING AND EVALUATION Committee		MOHW	

ANNEX B – National Action Plan – Monitoring and Evaluation Framework

Strategic action areas	Strategic Objective	Framework element	Target	Indicators
Governance	1. To raise the priority accorded to prevention and control of NCDs at all levels through advocacy		1.1 Prevention and control of NCDs at all levels prioritized through advocacy documentation and sessions for public and political leaders	# of advocacy documents on the burden and socio-economic impact of NCDs, and the costs of inaction # of advocacy sessions for public and political leaders
	2. To strengthen national capacity, leadership, governance, multi-sectorial collaboration, and partnerships to accelerate country response for the prevention and control of NCDs		2.1 Functional NCDs Multi-Sectorial Coordination Committees in place at all levels	# of Multi-sectorial Coordination Committees (its technical Working Groups) put in place at National, Regional and local levels
			2.2 Development of NCDs operational plans	# Regions and localities developed and implemented integrated and resourced NCD plan
			2.3 Registry of updated policies and regulations and clinical guidelines related to NCDs in place	Creation of updated National Registry of policies and regulations related to NCDs in alignment with latest global evidence
Reduction of risk factors	3. To reduce modifiable risk factors for NCDs and its co-morbidities and underlying SDH through primordial and primary prevention measures	Harmful use of alcohol	3.1 At least 10% relative reduction in the harmful use of alcohol, as appropriate, within the national context (2)	Total (recorded and unrecorded) alcohol per capita (aged 15+ years old) consumption within a calendar year in litres of pure alcohol, as appropriate, within the national context
				Age-standardized prevalence of heavy episodic drinking among adolescents and adults, as appropriate,

Strategic action areas	Strategic Objective	Framework element	Target	Indicators
				within the national context
				Alcohol-related morbidity and mortality among adolescents and adults, as appropriate, within the national context
		Physical Inactivity	3.2 A 10% relative reduction in prevalence of insufficient physical activity (3)	Prevalence of insufficiently physically active adolescents, defined as less than 60 minutes of moderate to vigorous intensity activity daily
				Age-standardized prevalence of insufficiently physically active persons aged 18+ years (defined as less than 150 minutes of moderate-intensity activity per week, or equivalent)
		Salt/sodium intake	3.3 A 10% relative reduction in mean population intake of salt/sodium (4)	Age-standardized mean population intake of salt (sodium chloride) per day in grams in persons aged 18+ years
		Tobacco Use	3.4 A 30% relative reduction in prevalence of current tobacco use in persons aged 15+ years (5)	Prevalence of current tobacco use among adolescents
				Age-standardized prevalence of current tobacco use among persons aged 18+ years
		Additional Indicators	3.5. A 10% relative reduction in Age-standardized total energy intake from saturated fatty	Age-standardized mean proportion of total energy intake from saturated fatty acids in persons aged 18+

Strategic action areas	Strategic Objective	Framework element	Target	Indicators
			acids in persons aged 18+ years	years
			3.6. A 10% relative reduction in Age-standardized prevalence of persons (aged 18+ years) consuming less than five total servings (400 grams) of fruit and vegetables per day	Age-standardized prevalence of persons (aged 18+ years) consuming less than five total servings (400 grams) of fruit and vegetables per day
			3.7 Policies in place for reduction of the impact on children of marketing of foods and non-alcoholic beverages high in saturated fats, trans fatty acids, free sugars, or salt	Policies to reduce the impact on children of marketing of foods and non-alcoholic beverages high in saturated fats, trans fatty acids, free sugars, or salt
Early detection and effective NCD management	4. To reduce morbidity, disability and mortality associated with NCDs	Premature mortality from NCD	4.1 A 25% relative reduction in the overall mortality from cardiovascular diseases, cancer, diabetes, or chronic respiratory diseases	Unconditional probability of dying between ages of 30 and 70 from cardiovascular diseases, cancer, diabetes or chronic respiratory diseases
		Additional Indicators	4.2. A 5% relative reduction in cancer incidence by type	Cancer incidences, by type of cancer, per 100 000 population
		Raised blood pressure	4.3. A 25% relative reduction in the prevalence of raised blood pressure or contain the prevalence of raised blood pressure,	Age-standardized prevalence of raised blood pressure among persons aged 18+ years (defined as systolic blood pressure ≥140 mmHg and/or

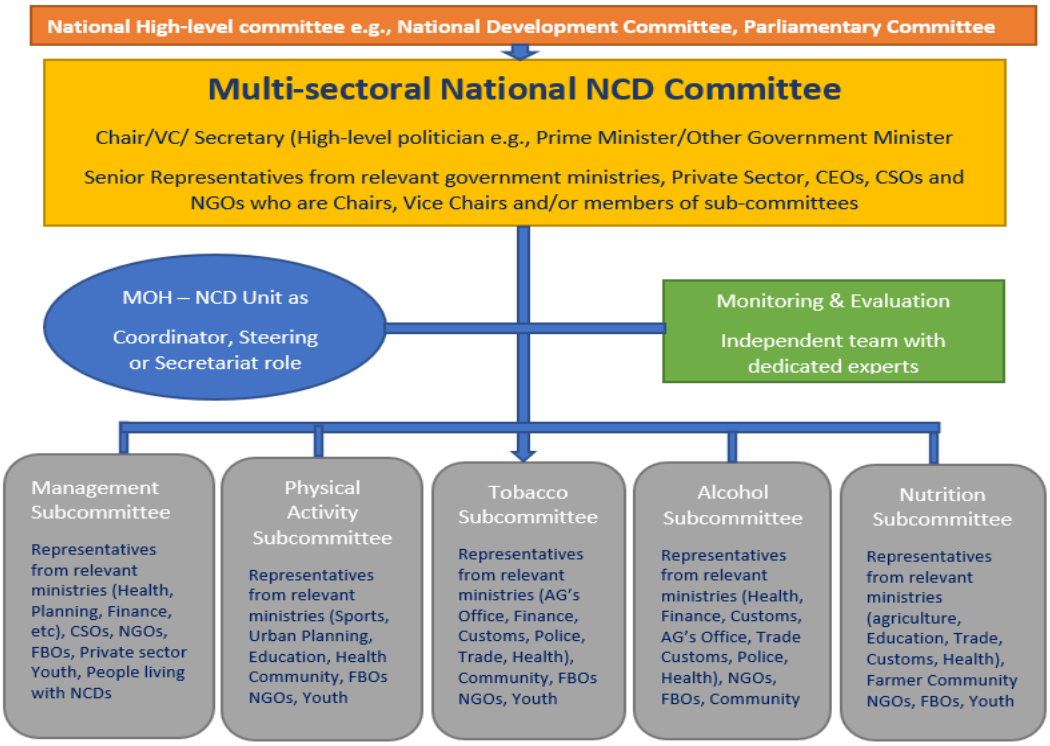
Strategic action areas	Strategic Objective	Framework element	Target	Indicators
			according to national circumstances (6)	diastolic blood pressure ≥90 mmHg) and mean systolic blood pressure
		Diabetes and obesity	Halt the rise in diabetes and obesity (7) 4.4 A 25% relative reduction in Age-standardized prevalence of raised blood glucose/ diabetes among persons aged 18+ years	Age-standardized prevalence of raised blood glucose/ diabetes among persons aged 18+ years (defined as fasting plasma glucose concentration ≥ 7.0 mmol/l (126 mg/dl) or on medication for raised blood glucose)
			4.5 A 25% relative reduction in overweight and obesity in school-aged children and adolescents	Prevalence of overweight and obesity in adolescents (defined according to the WHO growth reference for school-aged children and adolescents, overweight – one standard deviation body mass index for age and sex, and obese – two standard deviations body mass index for age and sex)
			4.6 A 25% relative reduction in Age-standardized prevalence of overweight and obesity in persons aged 18+ years	Age-standardized prevalence of overweight and obesity in persons aged 18+ years (defined as body mass index ≥ 25 kg/ m² for overweight and body mass index ≥ 30 kg/m² for obesity)
		Additional Indicators	4.7 A 25% relative reduction in the prevalence of raised blood cholesterol	Age-standardized prevalence of raised total cholesterol among persons aged 18+ years (defined as total cholesterol ≥5.0 mmol/l or 190 mg/dl);

Strategic action areas	Strategic Objective	Framework element	Target	Indicators
				and mean total cholesterol concentration
		Drug therapy o prevent heart attacks nd strokes	4.8. At least 50% of eligible people receive drug therapy and counselling (including glycaemic control) to prevent heart attacks and strokes (8)	Proportion of eligible persons (defined as aged 40 years and older with a 10- year cardiovascular risk ≥30%, including those with existing cardiovascular disease) receiving drug therapy and counselling (including glycaemic control) to prevent heart attacks and strokes
		Additional Indicators	4.9 At least 10% increased access to palliative care assessed by morphine-equivalent consumption of strong opioid analgesics (excluding methadone)	Access to palliative care assessed by morphine-equivalent consumption of strong opioid analgesics (excluding methadone) per death from cancer
			4.10 At least 10% increased availability of vaccines against human papillomavirus	Availability, as appropriate, if cost-effective and affordable, of vaccines against human papillomavirus, according to national programmes and policies
			4.11 At least 10% increase in Vaccination coverage against hepatitis B virus monitored by # of third doses of Hep-B vaccine (HepB3) administered to infants	Vaccination coverage against hepatitis B virus monitored by # of third doses of Hep-B vaccine (HepB3) administered to infants

Strategic action areas	Strategic Objective	Framework element	Target	Indicators
			4.12. At least 10% increase in proportion of women between the ages of 30–49 screened for cervical cancer at least once, or more often, and for lower or higher age groups according to national programmes or policies	25. Proportion of women between the ages of 30–49 screened for cervical cancer at least once, or more often, and for lower or higher age groups according to national programmes or policies
	5. To strengthen and orient health systems to address the prevention and control of NCDs and the underlying SDH through people-centred PHC and UHC	Essential NCD medicines and basic technologies to treat major NCD	5.1. An 80% availability of the affordable basic technologies and essential medicines, including generics, required to treat major NCD in both public and private facilities (9)	19. Availability and affordability of quality, safe and efficacious essential NCD medicines, including generics, and basic technologies in both public and private facilities
			5.2 Functional integration of NCD interventions and palliative care into all PHC facilities	Cost effective NCDs interventions (including palliative care) integrated into the PHC package with referral systems to all levels of care
			5.3 Registry of updated policies and regulations and clinical guidelines related to NCDs in place	Integrated clinical guidelines and treatment protocols for management of NCDs for all levels of care in place
			5.4 all medical schemes cover NCDs	NCDs fully covered in the medical aid schemes
			5.5 at least 80% all workers (including CHWs) capacitated on prevention and control of NCDs at local level	Capacity of health providers (including CHWs) and program managers on prevention and control of NCDs strengthened at local level

Strategic action areas	Strategic Objective	Framework element	Target	Indicators
Promoting NCD Research	6. Build research capacity to monitor trends and determinants of NCDs	No. of new research projects established	6.1 Research Capacity strengthened 6.2 National NCD Registry Established 6.3 Conduct research projects to address knowledge gaps	National NCD Research repository created for Evidence based national policy, planning and decision making. Strengthening surveillance and monitoring capacity for baseline and periodic monitoring and program planning

Annex C – NCD National Committee Model to implement DCP3



OBJECTIVES:

- Raise awareness about the magnitude of NCDs and their impact on national development.
- Advocate on the establishment of a National NCD Committee and sub-committees.
- Discuss the structure for a national NCD Committee and sub-committees
- Identify the role and responsibilities of a National Multi-sectorial NCD Committee and its sub-committees, and develop Terms of reference (TORs).

AGENDA ITEMS:

- The importance of establishing a National, Multi-sectorial NCD Committee and subcommittees
- Criteria of a functioning National, Multi-sectorial NCD Committee and subcommittees
- Stakeholders to be involved in the National, Multi-sectorial NCD Committee and subcommittees
- Structure of a National, Multi-sectorial NCD Committee and its sub-committees
- Role and responsibilities of Committee, sub-committees, and Terms of reference

CRITERIA FOR A FUNCTIONAL NATIONAL MULTISECTORIAL NCD COMMITTEE:

- Committee meets at least twice a year, led by Prime Minister/Minister and produces Annual report

- Includes senior representatives from the government ministries, private sector civil society and NGOs

- Demonstrates decision making, monitors implementation, audits and publicly document its actions.

Annex-D - Roles and responsibilities of NCD committee

Example role and responsibilities of a national multi-sectorial NCD committee

Overall role:

The committee is a decision-making governance body to support national NCD plan implementation. Committee members oversee strategies and provide direction for the national NCD team. Committee members contribute their expertise and insight in addressing NCDs.

Specific responsibilities:

- Advise government on issues pertaining to the prevention and control of NCDs.
- Inform and make recommendations on policy pertaining to health promotion and prevention strategies, including legislation and regulations.
- Advocate and lead in the incorporation of NCD strategies into national sustainable development plans.
- Oversee and steer the implementation of activities related to the prevention and control of NCDs in accordance with the national strategy.
- Ensure that all working groups deliver effective and complementary outputs and outcomes to support implementation of the NCD commitments.
- Oversee budgetary decisions on the distribution of funds for NCD plan implementation.
- Monitor and review progress against annual plans on a quarterly or monthly basis and update plans and programmes as required. Submission of annual reports to assigned authority.
- Delegate the responsibility for coordinating policy development and implementation processes, including decision-making, to the assigned authority who will administer and support the national NCD committee.
- Raise funds, where appropriate, in discussion with relevant government sectors and donor agencies.
- Strengthen harmonisation of donor funds by ensuring NCD health promotion funding is coordinated against delivery of the national NCD strategies.
- Coordinate in measuring impact and cost-effectiveness of national NCD strategies.
- Address any issues that have major implications for the programme.

Annex E – Roles and responsibilities of stakeholders to implement multi-sectorial interventions for NCDs

(N.B – This is a sample checklist for reference purpose and continuity. Several listed actions may have been undertaken, are underway or future re-engineering is planned in Republic of Mauritius).

Stakeholder	Proposed actions
Government Ministries	
Prime Minister's Office	- Establish and actively chair regular meetings of a multi-sectorial taskforce to supervise progress in addressing NCDs - Hold Government departments and other stakeholders accountable for progress through active monitoring and evaluation.
Attorney General	- Involve in multi-sectorial taskforce to ensure that taxation and other measures are legally sound. - Participate and provide advice on health and information and security (legal matters).
Ministry of Agro Industry and Food Security	- Promote the production and marketing of fresh fruit, vegetables and fish. - Ensure public health and sanitary regulations are enforced.
Ministry of Information Technology, Communication and Innovation	- Ban or severely restrict advertising of unhealthy products especially when children are involved. - HIAC: ensure that activities are reinforcing with general population and NGOs. - Promote informed views and images about healthy lifestyles, including through social media.
Mauritius Revenue Authority	Strengthen the collection of excise duties on tobacco, alcohol and unhealthy food products (e.g., strengthen compliance of existing laws to reduce the sale of single stick cigarettes at markets and shops. Collect and publish statistics on excise revenue collection of unhealthy products in collaboration with National Statistics Office, Ministry of Health and Ministry of Finance (compulsory as budget items).
Ministry of Education, Tertiary Education, Science and Technology	- Review physical education in school curriculum, provide physical activity guidelines, consider built environment for enhancing children and young peoples' physical activities and regularly review school canteen policy. - Screen school canteen menus to replace unhealthy food and drinks with healthy alternatives, subsidize them if too costly (through available grants). - Work with town councils to minimize fast food outlets and street vendors near schools. - Provide education about NCD risks and responses through more frequent and targeted awareness campaigns in tandem with mass media campaigns. - Monitor and evaluate, given international research that school-based programs are not particularly cost-effective compared to other alternatives.
Ministry of Finance, Economic Planning and Development	- Support establishment of overarching principles for allocating scarce health resources and achieving value for money in the Ministry of Health (and if necessary other ministries). Would include clearer and more explicit requirements for determining value for money purchases and minimum thresholds for undertaking cost-effectiveness analysis in larger procurements - Increase excise duty on tobacco to reach 70% of the retail price of domestic and imported tobacco, as required in specific country settings. - Return on investment on health projects should be closely monitored. - Apply the excise duty on all tobacco products and not just imported products, to increase revenue, reduce consumption, and be compatible with World Trade Organization rules and obligations. - Employ additional inspectors to ensure excise duties are being paid and cigarettes not sold individually at markets or to children. - Consider with other ministries such as Health, and Industry and Commerce, plain packaging of cigarettes. - Avoid preferential rates for e-cigarettes until their safety and effectiveness as a tobacco cessation tool has been assessed locally. - Increase taxes on other products linked to NCD risk factors including alcohol.

Ministry of Health and Wellness	- Scale-up PEN (Package of essential non-communicable disease interventions) to national coverage and monitor costs and equity of access. - Set up Health Promotion Clubs in Private Sector - Review Priority benefit package to include NCD services as per DCP3 MOH should work together with all stakeholders and NGOs, as health is the concern of everybody, thus publish all health-related data publicly. - Review and reallocate scarce financial and personnel resources to effective primary and secondary prevention strategies. - Analyze reasons for different prices charged for imported essential NCD drugs - Avoid high-cost/low-impact interventions as per One Health Tool calculations - Invest in maternal/pre-maternal health including nutrition of adolescent girls - Collect and monitor accurate up to date records of hospital and clinic admissions directly due to alcohol. Charge cost recovery for those admissions caused by the user abuse alcohol (if data collection possible from written records). - Invest heavily in monitoring and evaluation as the foundation for making best use of scare resources. - Monitor and evaluate all health related action plans and policies.
Ministry of Labour, Human resource Development and Training	- Work constructively but firmly, with food and drink manufacturers, retailers, and ministries of health, to reduce the production and sale of unhealthy products. - Work in an even-handed way to promote the production and marketing of alternative healthy local foods, e.g., regulations on food safety, quality, and labelling of locally produced and marketed vegetables, meat, fish and fruit. Where price controls are already in place, use these to encourage consumption of healthy products/discourage consumption of unhealthy products. - Actively make workplaces, 'heart healthy', e.g., by organizing health checks amongst all workers for NCD risk factors, improvement of canteen food choices and banning of smoking inside and surroundings.
Ministry of Youth Empowerment, Sports and Recreation	- Allocate funding to a wide range of community groups, not just elite sports or sports stadiums, to encourage physical activity (not just spectators). - Ban advertising/sponsorship by tobacco, alcohol, and sugar-sweetened drink manufacturers of sporting teams and venues.
Ministry of Commerce and Consumer Protection	- Strengthen trade and taxation issues related to NCD prevention and control. - Remove unhealthy products (tobacco, sugar-sweetened drinks, turkey tails, mutton flaps, etc.) from the basket of goods used for tracking inflation.
Mauritius Police Force	- Introduce random alcohol breath testing of drivers to add increased surveillance concerning smoking and drug abuse and comply to all health legislations. - Collect, monitor and publish statistics on alcohol-related incidents.
Ministry of National Infrastructure and Community Development	- Map the relative ease of access to 'heart-healthy' facilities – parks, bicycle paths, sidewalks and fresh food markets, - compared to unhealthy facilities including fast food outlets, and plan future developments in better ways. - Consider including in planning codes that new developments have recreational areas, sidewalks, dog controls, and parks etc., are maintained.
Statistics Mauritius	- Collect relevant data in household expenditure, e.g., expenditure on tobacco, alcohol sugar-sweetened drinks, and/or out of pocket expenditure on health. - Where possible, make the questions consistent between countries so that comparisons can be made.
Ministry of Land Transport and Light Rail	- Identify key bottlenecks that prevent fresh farm produce and fresh fish reaching consumers and include that information when prioritizing future investments. - Discourage car use and fossil fuels as much as possible.
Ministry of Social Integration, Social Security and National Solidarity	- To include Palliative care and end-of life care training programs for social security doctors.

Non-governmental stakeholders	
UNDP WHO Global Fund African Development Bank	- Provide financial and technical support to ministries of health and other departments' efforts to reduce NCDs and provide sufficient funds to NGOs. - Ensure design and implementation of aid projects in sectors outside the health sector (e.g., roads, education, etc.). Help to reduce NCDs. - Adopt a more coherent 'Whole of the Government' approach to NCDs and other health issues when engaging with the partners (e.g., trade policy aligns with aid and other policies).
Business Mauritius Mauritius Chamber of Commerce and Industry	- Work with government to establish a formal, transparent, regular high-level task force for communication about NCD policies, including taxation and regulation of harmful products/promotion of healthy products - Work with Ministry of health and employees to conduct workplace health surveys in the private and public sectors. - Work with Ministry of health, Trade and Industry, National Statistics Office and academic institutions to accurately measure the level and trends of lost productivity in individual firms and industries as a result of NCDs.
Diabetes Foundation of Mauritius Mauritius Heart Foundation Cancer Association of Mauritius VISA	- Alliances formed between the government and faith organizations, media and universities to leverage response to NCDs. - Faith organizations to work with Ministry of Health to conduct health surveys and assessment of risk factors. - Work of NGOs should be recognized and utilized for NCD research and other activities.

Annex F – Research agenda and key priorities identified by stakeholders

1. Prevalence of various grades of retinopathy and an in-depth subgroup from one retinopathy screening unit to look at correlation with DM control as well as other factors implicated.

2. 10yrs Follow-up of patients with diabetes with respect to findings on retinopathy grading and lessons learnt

3. A study to determine the rate of DNA (did not attend) for retinopathy screening, factors implicated and possible solutions

4. GDM prevalence, correlation with good blood sugar control and outcome for mother and baby

5. A study to determine the rate of DNA (did not attend) for GDM postpartum follow-up, factors implicated and possible solutions

6. A follow up study of children diagnosed with diabetes via school health promotion programme

7. A follow up of children diagnosed with obesity via school health promotion programme - outcome post diagnosis and proposed solutions to challenges

8. Study to determine factors associated with amputation; factors associated with re-amputation

9. Study looking at newly diagnosed diabetes patients with respect to possible contributing factors and health literacy

10. Health educational tools and impact on patients with NCDs

11. Chronic Diabetic foot ulcers - A study to determine the factors for non-healing

Annex G – Selected Sectorial and Economic Indicators

Selected Social and Economic Indicators, Republic of Mauritius, 2016 - 2021								
Population and Social Indicators	**Period**	**Unit**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
Total Population	Mid-year	No.	1,263,473	1,264,613	1,265,303	1,265,711	1,265,740	1,266,060
Life expectancy at birth								
-Male	Year	No. of years	71.3	71.3	71.1	70.9	70.3	70.4
- Female	Year	No. of years	77.9	77.7	77.6	77.7	77.2	77.3
Age Composition of Population								
Under 15 years	Mid-year	%	19.0	18.5	17.9	17.5	17.0	16.6
15 – 59 years	Mid-year	%	65.6	65.4	65.3	65.1	64.9	64.7
60 - 64 years	Mid-year	%	5.4	5.6	5.7	5.9	6.1	6.1
65 years and over	Mid-year	%	10.0	10.5	11.1	11.5	12.0	12.6
Dependency Ratio	Mid-year	Per 1000 Popn	408.6	408.1	408.3	408.5	409.0	413.0
Sex Ratio	Mid-year	Men per 100 women	98.0	97.9	97.9	97.9	97.9	97.8
Infant Mortality Rate	Year	Per 1000 live births	11.8	12.2	14.0	14.5	14.9	13.8
Total Fertility Rate	Year	Births per women	1.4	1.4	1.4	1.4	1.4	1.4
National Accounts	**Period**	**Unit**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
Gross Domestic Product at current market prices *****	Year	Rs. bn	434.8	457.2	481.3	498.3	429.9	465.1
GDP Growth Rate (over Previous year)	Year	%	+3.8	+3.8	+3.8	+3.0	-14.9	+4.0
GDP Deflator (over previous year) *****	Year	%	+2.1	+1.3	+1.4	+0.5	+1.4	+4.0
GDP Per Capita at current market prices ****	Year	Rs.000	344.0	361.5	380.3	393.6	339.6	367.3
GNI Per Capita at current market prices **	Year	Rs.000	372.1	397.3	425.8	442.4	370.1	421.7
Gross Domestic Savings as % of GDP at current market prices *****	Year	%	11.0	10.0	9.0	8.8	8.3	9.8
Investment rate (ratio of GFCF to GDP at current market prices) *****	Year	%	17.2	17.4	18.8	19.6	17.9	20.1

Annex-H: Sustainable Development Goal 3-progress trends in Mauritius

Targets	Inputs	Remarks	Unit	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
3.1 By 2030, reduce the global maternal mortality ratio to less than 70 per 100,000 live births	3.1.1 Maternal mortality ratio	Number of maternal deaths (ascribed to complications of pregnancy, childbirth and the puerperium) per 100,000 live births during the year	Per 100,000 live births	33	34	62	66	52	47	46	74	39	62	59
3.2 By 2030, end preventable deaths of newborns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1,000 live births and under-5 mortality to at least as low as 25 per 1,000 live births	3.2.1 Under-five mortality rate	Number of deaths of children aged under 5 years per 1,000 live-births during the year	Per 1,000 live births	14.7	15.9	15.7	14.5	16.0	15.5	13.3	14.3	16.5	16.0	15.7
	3.2.2 Neonatal mortality rate	Number of deaths of infants aged less than 28 days per 1,000 live-births during the year	Per 1,000 live births	8.6	9.7	9.8	9.1	9.5	9.5	8.0	8.9	10.4	10.3	10.2
3.3 By 2030, reduce the number of new cases of tuberculosis	3.3.2 Tuberculosis incidence per 100,000 population	Number of new cases of tuberculosis per 100,000 population	Per 100,000 mid- year population	10	9	10	10	10	10	10	10	11	10	8
3.4 By 2030, reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being	3.4.1 Mortality rate per 100,000 mid-year population (4 main NCDs together)	Mortality rate for selected causes of death refer to population aged 30 to 70 years	Per 100,000 mid-year population	505.5	504.9	518.9	507.5	529.1	544.1	554.5	542.6	565.0	587.7	554.2
	3.4.1.a Cardiovascular disease			203.5	197.4	186.4	187.9	196.7	211.7	222.9	206.0	239.8	228.6	238.3
	3.4.1.b Cancer			100.7	96.3	110.7	119.9	112.2	122.3	118.2	130.9	119.7	129.2	129.6
	3.4.1.c Diabetes			187.0	201.3	211.8	188.5	207.5	200.5	204.3	196.8	194.2	219.0	176.6
	3.4.1.d Chronic respiratory disease			14.3	9.9	10.0	11.2	12.7	9.6	9.1	8.9	11.3	10.9	9.7
	3.4.2 Suicide mortality rate		Per 100,000 mid- year population	8.2	9.7	9.2	7.9	10.0	8.4	8.4	8.7	8.5	9.6	10.7
3.6 By 2030, halve the number of global deaths and injuries from road traffic accidents	3.6.1 Death rate due to road traffic injuries per 100,000 mid-year population		Per 100,000 mid-year population	12.9	14.7	13.6	11.4	12.8	13.3	13.1	13.5	13.3	13.4	11.6
3.7 By 2030, decrease the mortality rate attributed to unintentional poisoning	3.7.1 Mortality rate attributed to unintentional poisoning per 100,000 mid-year population		Per 100,000 mid- year population	0.2	0.9	0.4	0.3	0.6	1.0	1.3	1.1	1.4	0.9	0.7
3.8 Substantially increase health financing and the recruitment, development, training and retention of the health workforce in developing countries, especially in least developed countries and small island developing States	3.8.1 Health worker density and distribution		Doctor per 10,000 mid-year population	12.0	12.4	13.7	16.2	19.3	20.2	21.9	23.1	25.4	26.0	27.3
			Nurse per 10,000 mid-year population	28.8	29.3	29.7	31.5	32.7	32.7	32.7	32.7	33.3	34.1	34.8

Annex-I: Action domains with health system building blocks for Universal Health and NCD Coverage

HEALTH SYSTEM BUILDING BLOCKS				
1. QUALITY	**2. EFFICIENCY**	**3. EQUITY**	**4. ACCOUNTABILITY**	**5. SUSTAINABILITY AND RESILIENCE**
HEALTH SERVICES				
1.1 Regulations and regulatory environment 1.2 Effective, responsive individual and population-based services	2.1 Health system architecture to meet population needs	3.1 Financial protection 3.2 Service coverage and access 3.3 Non-discrimination		5.1 Public health preparedness 5.3 Health system adaptability and sustainability
HEALTH WORKFORCE				
1.1 Regulations and regulatory environment 1.2 Effective, responsive individual and population-based services	2.2 Incentives for appropriate 2.3 Managerial efficiency and effectiveness	3.2 Service coverage and access provision and use of services 3.3 Non-discrimination	4.1 Government leadership and rule of law for health	5.1 Public health preparedness 5.3 Health system adaptability and sustainability
HEALTH INFORMATION				
1.2 Effective, responsive individual and population-based services 1.3 Individual, family and community engagement	2.3 Managerial efficiency and effectiveness	3.2 Service coverage and access	4.3 Transparent monitoring and evaluation	5.1 Public health preparedness 5.3 Health system adaptability and sustainability
MEDICINES AND HEALTH TECHNOLOGIES				
1.1 Regulations and regulatory environment	2.2 Incentives for appropriate provision and use of services		4.3 Transparent monitoring and evaluation	5.1 Public health preparedness
HEALTH FINANCING				
1.1 Regulations and regulatory environment 1.2 Effective, responsive individual and population-based services	2.1 Health system architecture to meet population needs 2.2 Incentives for appropriate provision and use of services 2.3 Managerial efficiency and effectiveness	3.1 Financial protection 3.2 Service coverage and access	4.1 Government leadership and rule of law for health	5.1 Public health preparedness 5.3 Health system adaptability and sustainability
LEADERSHIP and GOVERNANCE				
1.1 Regulations and regulatory environment 1.3 Individual, family and community engagement	2.1 Health system architecture 2.3 Managerial efficiency and effectiveness	3.3 Non-discrimination to meet population needs	4.1 Government leadership and rule of law for health 4.2 Partnerships for public policy 4.3 Transparent monitoring and evaluation	5.1 Public health preparedness 5.2 Community capacity 5.3 Health system adaptability and sustainability