

SURINAME

National Health Sector Plan 2011 - 2018



Table of contents

Foreword by the Minister of Health	4
List of Tables and Figures	4
List of Acronyms	7
Map of Suriname	10
1. Introduction	12
2. Situation analysis	14
2.1. Macroeconomic, political and social context	14
2.1.1. Demographic Profile and Population Characteristics	14
2.1.2. Social Context	16
2.1.3. Economic Context	17
2.2. Health Status of the Population	17
2.2.1. The Burden of Chronic and Non-communicable Diseases	17
2.2.2. The Burden of Communicable Diseases	25
2.2.3. Health Over the Life course	32
2.2.4. Commitment to Achieving the Millennium Development Goals	41
2.2.5. International Health Regulations	43
2.3. Determinants of Health	45
2.3.1. Poverty	45
2.3.2. Employment	46
2.3.3. Education	47
2.3.4. Gender	49
2.3.5. Nutrition, Food Safety and Food Security	49
2.3.6. Environmental Health	52
2.3.7. Disaster Preparedness and Response	57
2.3.8. National health policies, strategies and plans	58
2.4. Health Systems and Services, and the Response of Other Sectors	60
2.4.1. Leadership and Governance	60
2.4.2. Organization of the Health System	61
2.4.3. Health Infrastructure	65
2.4.4. Health Workforce	66
2.4.5. Human resources training	68
2.4.6. Health Financing	70
2.4.7. Health Information Systems	72
2.4.8. Medical Products and Technologies	73

3.	Contribution to the Global Agenda	76
4.	Development Cooperation and partnerships	77
4.1.	The Aid Environment in the Country	77
4.2.	UN Agencies.....	77
4.3.	Bilateral collaboration on health.....	77
4.4.	Multilateral Agencies and health	78
4.5.	Regional Integration	79
4.6.	Development Banks and International Financial Institutions	80
4.7.	Civil Society and Non-Governmental Organizations	81
4.8.	Regional PAHO/WHO Institutes and PAHO/WHO Collaborating Centers	83
5.	The Strategic Agenda.....	84
5.1.	Strategic Direction # 1: Health programs	84
	Priority Area 1.1.: Prevention and reduction of the burden of non-communicable diseases	84
	Priority Area 1.2: Prevention and reduction of the burden of communicable diseases	85
	Priority Area 1.3: health over the life course	87
	Priority Area 1.4: Prevention and reduction of the burden of mental diseases	88
5.2.	Strategic Direction # 2: Health systems and service delivery	89
	Priority Area .2.1: Leadership, stewardship and governance.....	89
	Priority Area 2.2: Health Financing.....	91
	Priority Area 2.3: Human resources for health	92
	Priority Area 2.4: Health services	93
	Priority Area 2.5: Improving the Health Information Systems	94
	Priority Area 2.6: Pharmaceuticals and new technologies	95
5.3.	Strategic Direction # 3: Determinants of health.....	96
	Priority Area 3.1: environmental and occupational health.....	96
	Priority Area 3.2: Social and economic determinants of health.....	98
	Priority Area 3.3: Emergencies and disasters	99
5.4.	The Strategic Agenda Implementation Arrangements	100

Foreword by the Minister of Health

This National Health Sector Plan 2011 – 2018 was developed by the Ministry of Health with the input of various stakeholders within the sector and with support from PAHO/WHO Suriname.

The process was participatory involving all departments at the MOH headquarters, the Bureau of Public Health, RGD, Medical Mission and private physicians, hospitals, training institutions and other stakeholders.

This National Health Sector Plan builds on achievements of the Sector Plan Health 2004 – 2008 and the Multi Annual Development Plan 2006 – 2011. These achievements include amongst others the near elimination of malaria, the scaling up of HIV/AIDS services integrated in existing health services thereby preventing stigma, new health facilities and equipment (new Central Laboratory at the Bureau of Public Health, a Radiotherapeutic Centre, a prenatal care and delivery centre at 's Lands Hospital, new primary health care facilities in the interior and coastal area, radiodiagnostic laboratory and dialysis equipment for the hospitals), the establishment of a Bachelor of Science in Health education and a MPH program at the University of Suriname.

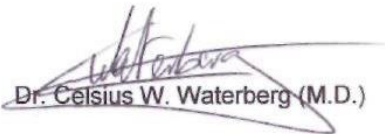
In the coming period we will continue to invest in the physical infrastructure ensuring that health care facilities are further upgraded with the focus on decentralization to the rural and remote areas.

We will continue to invest in training and post basic degree programs for health workers. We will also continue to strive for the implementation of a national health insurance.

New challenges are the scaling up of prevention and control of non communicable diseases, the renewal of primary health care to address contemporary health problems, addressing the environmental health problems and mental health, accidents and violence.

In addition, we have to ensure that Suriname meets the challenges set by the Millennium Development Goals in 2015.

As Ministry of Health we will continue to provide the leadership in this ambitious health agenda, with the ultimate goal to improve the health status of our entire population.



Dr. Celsius W. Waterberg (M.D.)

Minister of Health in Suriname

Paramaribo, 11 of October, 2011

List of Tables and Figures

Table 1: Basic Data on Geography, Population, Economic Sectors and the Government	11
Table 2: Overview of the status of NTD's compared to the elimination targets	30
Table 3: Maternal and Neonatal Health Indicators, 2000 – 2009	35
Table 4: Vaccination coverage by Region	38
Table 5: Total Number of Recipients of Social Benefits, 2005-2009	46
Table 6: Occupational Accidents, 2008-2009	56
Table 7: Number of hospital beds 2009	64
Table 8: Organization of health services.....	64
Table 9: Planned upgrading of specialized health care facilities	65
Table 10: Planned primary care facilities	66
Table 11: Categories of health professionals.....	67
Table 12: Response of Other Sectors to Address the Other Determinants of Health	75
Table 13: Global Fund grants approved for Suriname.....	79
Table 14: Example of NGOs Serving Key Populations of Interest	81
Figure 1: Population Age-Structure in Suriname, Census year 1980-2004.....	14
Figure 2: Population Age Structure in Suriname by Geographical Areas, Census Year 2004.....	15
Figure 3: Survivorship Curves by Sex, Suriname 1980-2004.....	16
Figure 4: Deaths attributed to Non-Communicable Disease and Communicable Disease, 2000-2009.	18
Figure 5: The top 10 causes of Death (%) in Suriname in 2009.....	18
Figure 6: Mortality due to cardiovascular diseases 2002-2007	19
Figure 7: Myocardial infarction and ethnicity.....	20
Figure 8: Suicides by sex 2000-2009.....	24
Figure 9: Number of reported new HIV positive cases, 1983-2008.....	25
Figure 10: Distribution (%) of ethnicity among tested and HIV positive population for 2008.....	26
Figure 11: Distribution of newly reported TB cases by age category and sex for 2009	28
Figure 12: Number of Dengue cases from 1978-2009	29
Figure 13: Contraceptive Rates by Region, 2000-2006.....	32
Figure 14: Child Mortality Rates, 2004-2009	37
Figure 15: Distribution of Teenage Mothers According to Age in 2008	40
Figure 16: Reduce by two-thirds, between 1990 and 2015, the under-five mortality rate	41
Figure 17: Poverty from a Human Development Perspective by Regions 2004	45
Figure 18: Unemployment Rate by Region, 2004.....	47
Figure 19: University Education by Region.....	48
Figure 20: Hospitalization due to malnutrition in children aged <10 years, 1995-2010.....	50

Figure 21: Percentage of population using improved drinking water sources, 2000 - 2006..... 52
Figure 22: Percentage of population with access to improved sanitation facilities, 2000 - 2006 53
Figure 23: Overview of payers and providers in the Health System..... 61
Figure 24: Map of Medical Mission Clinics 62
Figure 25: Percentage of population insured by plan 71

List of Acronyms

ABS	General Bureau of Statistics
ACT	Amazon Conservation Team
ACTO	Amazon Cooperation Treaty Organization
ADEK	Anton de Kom University
AIDS	Acquired immunodeficiency Syndrome
APIs	Active Pharmaceutical Ingredients
ARV	Anti-Retroviral medication
AZP	Academic Hospital Paramaribo
BAD	Bureau of Alcohol and Drugs
BFN	Bureau Forum NGOs
BGVS	Drug Supply Company Suriname
BOG	Bureau of Public Health
BWP	Biennial Work Plans
BWP	Biennial Work Program
CAHFA	Caribbean Agricultural Health and Food Safety Agency
CAREC	Caribbean Epidemiology Center
CARICOM	Caribbean Community
CCA-UNDAF	Common Country Assessment UN Development Assistance Framework
CCH-3	Caribbean Cooperation in Health-3
CCPAP	Common Country Program Action Plan
CCS	Country Cooperation Strategy
CCS	Country Cooperation Strategy
CD	Communicable Diseases
CDERA	Caribbean Disaster Emergency Response Agency
CFNI	Caribbean Food and Nutrition Institute
CLAP	Latin American Centre for Perinatology and Human Development
CNCD	Chronic Non-Communicable Diseases
CO	Country Office
COVAB	Central Training for Nurses and Related Occupations
CSME	CARICOM Single Market and Economy
CT&IS Pan	Pan Amazonian Network of Science technology and Innovation for Health
DMFT	Decayed, Missing and Filled Teeth
DOTS	Directly Observed Treatment Short course
DSD	Dermatology Service Department
EPI	Expanded Program on Immunization
FAO	Food and Agricultural Organization
FCTC	Framework Convention on Tobacco Control
FOB	Funds for Development of the Interior (Fonds Ontwikkeling Binnenland)
GAVI	Global Alliance for Vaccines and Immunization
GBV	Gender Based Violence
GDP	Gross Domestic Product
Gini index	A measure of statistical dispersion developed by the Italian statistician and sociologist Corrado Gini

GLO	Primary School
GNP	Gross National Product
GPs	General Practitioners
GSHS	Suriname Global School-based health Survey
HAA	Health Agenda for the Americas
HPI	Human Poverty Index
HRH	Human Resources for Health
IATA	International Air Transport Association"
IDB	Inter American Development Bank
IGPA	Integrated Gender Plan of Action
IHR	International Health Regulations
IICA	Inter-American Institute for Cooperation in Agriculture
ILO	International Labor Office
IMF	International Monetary Fund
IPPF	International Planned Parenthood Federation
IsDB	Islamic Development Bank
JTV	Youth Dental Foundation
LBGO	Secondary Vocational School
LVV	Ministry of Agriculture
MARPs	Most At Risk Populations
MDG	Millennium Development Goals
MDR	Multi Drug Resistance
MICS	Multiple Indicator Cluster Survey
MOH	Ministry of Health
MOP	Multi Annual Plan
MOSS	Minimum Operating Security Standards
MSA	Ministry of Social Affairs and Housing
MSM	Men that have sex with men
MULO	Secondary General School
MVN	Marron Vrouwen Netwerk
MZ	Medical Mission
NCCR	National Coordination Centrum for Disasters
NCD	Non-communicable diseases
NGO	Non-Government Organization
NHIS	National Health Information System
NSS	Kidney Foundation Suriname
NTD	Neglected Tropical Diseases
OAS	Organization American States
OCPC	Caribbean Program Coordination
OECD	Organization for Economic Co-operation and Development
OOP	Out-Of-Pocket
ORAS CONHU	Andean Health Organization - Hipólito Unanue treaty
PAHO	Pan American Health Organization
PAHO/WHO	Pan American Health Organization-World Health Organization

PANCAP	PAN Caribbean Partnership Against HIV/AIDS
PAS	Pater Albrinck Stichting
PASB	Pan American Sanitary Bureau
PCS	Suriname Psychiatric Center
PHC	Primary Health Care
PHCO	PAHO HIV Caribbean Office
PHP	Public Health Program
PMTCT	Prevention of Mother-to-Child Transmission
RPBP	Regional Program Budget Policy
RGD	Regional Health Services
SAP	Structural Adjustment Program
SRD	Suriname Dollar
SRH	Sexual and reproductive health
STH	Soil-transmitted Helminthes
STI	Sexually Transmitted Infections
SWM	Suriname National Water Supply Company
SZF	State Health Insurance Foundation
TB	Tuberculosis Disease
TCC	Technical Cooperation among Countries
THE	Total Health Expenditures
UN	United Nations
UNASUR	Union of South American Nations
UNDAF	United Nations Development Assistance Framework
UNDP	United Nations Development Program
UNFPA	United Nations Population Fund
UNGASS	United Nations General Assembly Special Session
UNICEF	United Nations Children's Fund
WHO	World Health Organization
WTO	World Trade Organization
YLL	Years Of Life Lost

Table 1: Basic Data on Geography, Population, Economic Sectors and the Government

Location	Northern South America, bordering the North Atlantic Ocean, between French Guiana, Brazil and Guyana
Area and topography	163,820 sq km mostly rolling hills; narrow coastal plain with swamps
Population (total)	524.143 (ABS, mid-year 2009)
Population 0-19	198.028 (ABS, 2009)
Population per sq. km	3.2
Life expectancy	69.9 years (71.9/67.7 f/m)
Climate	Tropical; moderated by trade winds; two rainy seasons; and two dry seasons
Main towns	Paramaribo (capital), Nieuw-Nickerie, Albina,
Main economic sectors	Agriculture: 13% (rice, bananas); industry: 22% (bauxite, alumina production, gold, oil); services: 65% (2001 est.)(2008 EIU)
Major Export Partners	Norway 19.5%, EU 21.3%, US 8.5%, Canada 24.5%, (2008 EIU)
Major Import Partners	US 23.8%, EU 23.4%, Trinidad & Tobago 20.6%, China 7.9%
Ethnic groups	Hindustani – 27.4% Creole – 17.7% Maroon – 14.7% Javanese – 14.6% Mixed – 12.5% Indigenous – 3.7% Chinese – 1.8% White – 0.8% other – 0.5% unknown – 6.6% (ABS, Census 2004)
Religions	Christian – 40.7% Hindu – 19.9% Islam – 13.5% Other – 10.2% Unknown – 15.7% (ABS, Census 2004)
Languages	Dutch (official), Sranan Tongo (Surinamese), Sarnami (a dialect of Hindi), Javanese, Chinese, Portuguese, English and a number of Maroon and indigenous languages
Form of government	Constitutional democracy
Next election	2015

1. Introduction

The Government of Suriname is committed to protecting and improving the health of its people. And as society changes, so do health needs. The Ministry of Health of Suriname has recognized the challenges that require upstream policy responses and so the new National Health Sector Plan for 2011 – 2018 (NHSP), provides the required vision and direction for the development and management of all aspects of the health system over the next eight years.

Suriname is striving to protect, promote, maintain and improve the health of the people. We are striving for in 2018 to have a greater focus and investment in improving health and preventing illness while continuing to treat illness effectively, paying particular attention to reducing the health gap for communities that experience disadvantages. Our focus is on helping our people to access the health care they need through a network of integrated primary health and community care services across the health system with quality and safety.

Our health system strives to make a more effective use of the resources available, services and infrastructure to meet health care needs while maintaining financial sustainability. We are also readily adapting to the changing needs of the community and quick to anticipate and respond to new issues as they emerge.

There has been growing expectation that national health policies, strategies and plans can be informed by a realistic assessment of current capacities and a bold vision of the future. The NHSP indicates which course the development of health care shall take in the upcoming years. It is mainly based on national priorities drawn from a comprehensive analysis of the health situation in the country and the health needs of the Surinamese people. This plan also takes into consideration international and regional priorities and commitments to the Global Health Agenda.

This NHSP is the explicit recognition of the importance of health promotion and disease prevention by proposing actions to scale up and improve the delivery of essential public health operations and services as well as to strengthen public health organization and human resources in Suriname.

Managing and monitoring the implementation of the NHSP is the responsibility of the Ministry of Health. With support from Pan-American Health Organization (PAHO) and other technical partners, the ministry will be exercising its leading role in the supervision and coordination of this plan.

In order to effectively implement this plan the Ministry of health will engage more with other government and non-government agencies, and the broader community, to provide a more integrated approach to planning, funding and delivering health services to communities and regions.

Methodology

The consultation process was facilitated jointly by a team consisting of Ministry of Health and Pan-American Health Organization technical staff. The first consultation workshop took place in January 23rd-24th, 2011 in Paranam, Suriname. It provided input for the development of the Health Sector Plan, with the participation of all the stakeholders of the sector and through structured discussions and exercises.

First, a joint SWOT exercise was executed whereby key stakeholders and actors in the health sector worked together to identify the strengths, weaknesses, opportunities and threats that the health sector currently faces. This open process allowed and encouraged inter-disciplinary dialogue and cooperation, strengthening the scope of the SWOT for the health sector in Suriname.

A second round of SWOT was also conducted on 3 strategic areas of the health sector: Health Programs, Social Determinants and Health Systems and Services.

Additionally, 14 key areas under three headings of Health Programs, Health System and Services and Social Determinants of Health were identified as a means to suss out the root causes. Using group work and discussion forums, 'problem trees' were created to illustrate a cause and effect relationship, and ultimately identify the root causes of each issue. After which, the problem trees were converted to 'objective trees' as a means to coordinate the strategic response to the identified issues. These tools will be further used to inform and support the final drafting of the strategic agenda of the NHSP

Findings

The results of the round 1 SWOT illustrate the perceptions of the health sector as expressed by its own internal actors and stakeholders. According to the SWOT, the health sector of Suriname is complex and multi-faceted mechanism. For instance, the Human Resources for Health is marked as a strength for its qualifications, training, motivation and self-recruitment style. However, there remain challenges such as the procurement of specialized human resources (ex. health economists) and the retention of highly trained staff due to uncompetitive salary levels, and poor HR planning.

From the perspective of the stakeholders, there remain consistent challenges due to the fragmentation of the health sector, and the reliance on vertical programs. Other examples of areas of strength that remains functioning and optimal while navigating challenges and barriers are the quality of care, financing, infrastructure and leadership.

Also worth highlighting, the participants of Paranam identified Environmental threats such as climate change, urbanization and illegal mining among the threats to the health sector. Meanwhile, the opportunities for intersectoral exchange and partnership in the health sector were highlighted among external opportunities for growth and development of the sector.

2. Situation analysis

2.1. Macroeconomic, political and social context

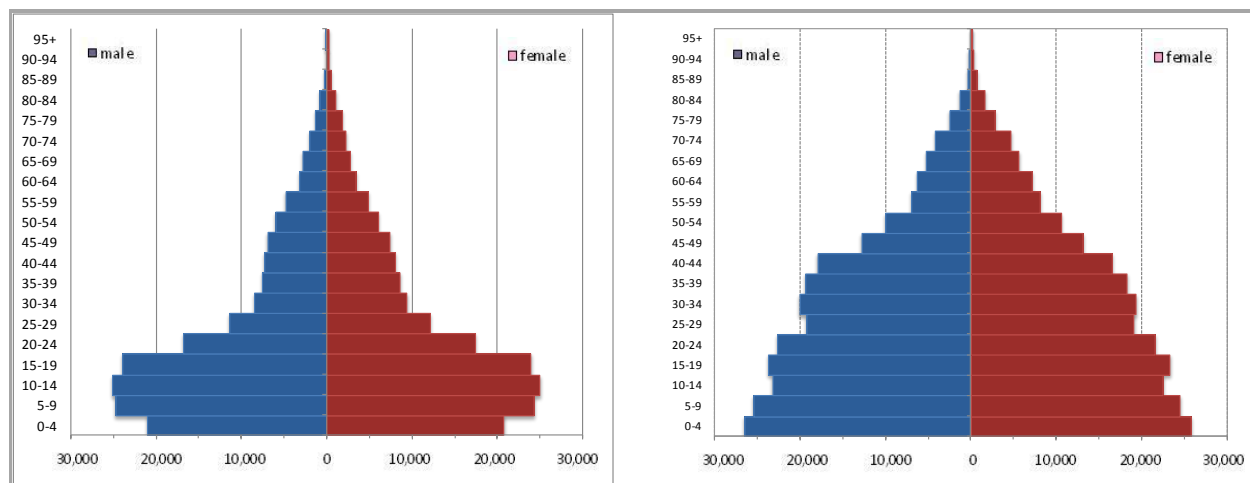
Under Article 36, the constitution of the Republic of Suriname states that everyone has the right to health and that it is the responsibility of the government to promote health by systematically improving living and working conditions and to give information on the protection of health.¹

2.1.1. Demographic Profile and Population Characteristics

Suriname is in full demographic transition², with moderate birth and death rates, decreasing fertility rates, increasing life span, and moderate-to-low natural growth. The mid-year population in 2009 was 524,143³ and the overall 2007 life expectancy at birth was 71.9 years for females and 67.7 years for males.⁴ In 2008, the crude death rate was 8 per 1,000 and the crude birth rate was 19 per 1,000. The 2007 average total fertility rate was 2.4 births per woman.⁴ The population annual growth rate was 1.3% in 2009 (up from 1.2% for 2006-2008).

This demographic transition is best reflected in the remarkable change in population structure which has taken place in the 24 year span between the last two censuses: in its shift from a pre-industrial society to an industrialized economy, the country's age structure has become less triangular and more stationary, revealing a decline in youth dependency and a rise in older age dependency. (Figure 1)

Figure 1: Population Age-Structure in Suriname, Census year 1980-2004



Sources: Demografische gegevens van Suriname integraal; Central Bureau voor Burgerzaken; N° 4 Feb 1997. Zevende Algemene Volks-en Woningtelling in Suriname. Landelijke Resultaten Volume I: Demografische en Sociale Karakteristieken; Algemeen Bureau voor de Statistiek Censuskantoor; Suriname in Cijfers N° 213-2005/02E. Aug 2005.

This structural change in age-dependency may bring a demographic window of opportunity that can potentially generate economic growth through an increase in the ratio of working age to dependent population; the so-called demographic dividend. In this scenario, job generation and employment, therefore, acquire particular relevance in public policy.

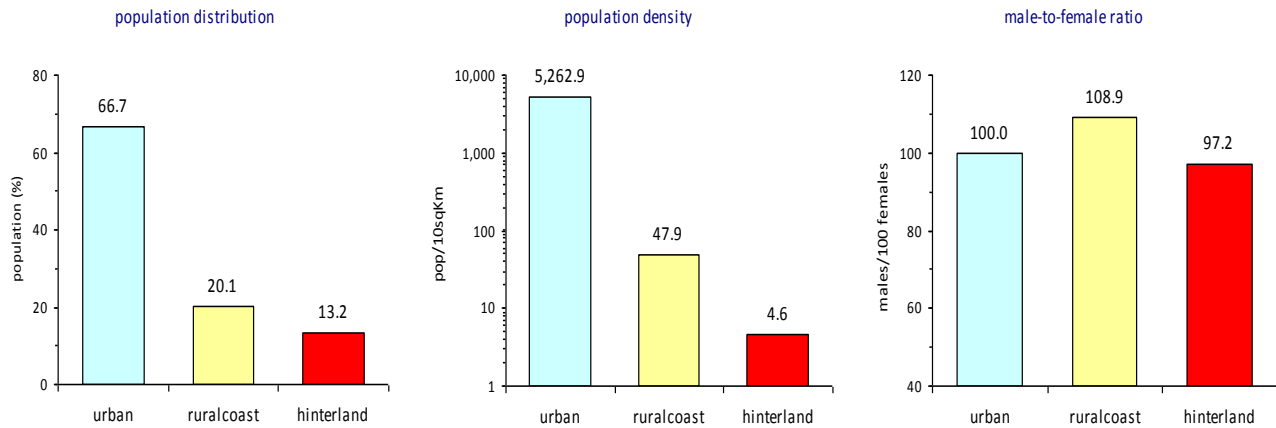
¹ "The Constitution of the Republic of Suriname." Article 36

² CELADE/CEPAL. Temas de Población y Desarrollo N° 1: Transición Demográfica; 2005.

³ ABS. Statistical Yearbook 2009. Algemeen Bureau voor de Statistiek; 2010

⁴ Government of the Republic of Suriname. MDG Progress Report 2009. Paramaribo, Suriname 2010

Figure 2: Population Age Structure in Suriname by Geographical Areas, Census Year 2004



Source: Zevende Algemene Volks-en Woningtelling in Suriname. Geselecteerde Census variabelen per district . Algemeen Bureau voor de Statistiek. Censuskantoor 2004.

The last census, in 2004, showed that the dynamics of this demographic transition is concentrated mostly in the populous urban area of the country and, to a lesser extent, in its rural coastal area, whereas the rural interior still exhibits a pre-industrial demographic profile. A marked contrast among these 3 areas emerges when examining other demographic variables such as population share, population density, and male-to-female ratio, as illustrated in Figure 2.

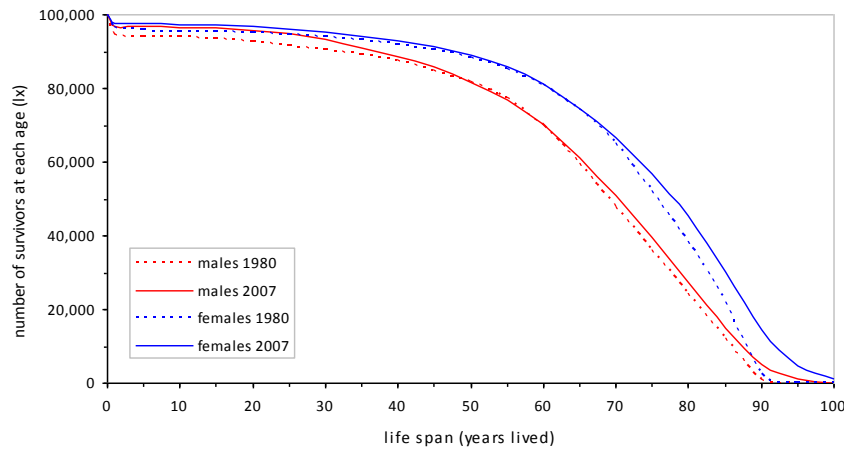
In addition to urbanization and aging, migration is another important trend in shaping the demographic dynamics and the population structure, particularly the segment under 30 years of age. In 2010, the net migration rates was -0.26 per 1000 people, illustrating an excess of Figure 3 Survivorship Curves by Sex, Suriname 1980-2004 people leaving the country.⁵

However, since the vast borders of rainforest do not permit reliable controls, there may be a considerable amount of illegal immigration; for instance from Brazil. Officially, internal migration rates have remained fairly stable, with major migration from the rural to the urban areas, however these figures are based on official address changes and are therefore subject to under-reporting. No official estimates exist on the rates of unofficial internal migration.

A major facet of the demographic transition is improvement in survival and therefore, a steady increase in life expectancy in both sexes. While this improvement in survival has positively affected all ages in the life span, it has particularly affected those at extreme, the youngest and the oldest in the population.

⁵ Central Intelligence Agency (2010). The World Fact Book: Suriname. Updated September 22, 2010, Retrieved October 21, 2010, from <https://www.cia.gov/library/publications/the-world-factbook/geos/ns.html>.

Figure 3: Survivorship Curves by Sex, Suriname 1980-2004



As a consequence, Surinamese population is experiencing what is called a 'retrangularization' of the survivorship curve; that is, a compression of mortality and morbidity towards the older ages in the life span.

This hallmark of demographic transition is closely correlated with the increasing rate of chronic non-communicable diseases in the epidemiological profile, which, in turn, has direct consequences on the provision of and demand for health and social services.

2.1.2. Social Context

Suriname is composed of the following predominant groups: Hindustani (East Indians; 27.4% of the population); Creoles (descendants of slaved from Africa mixed with other ethnic groups in Suriname 17.7%); Maroons (descendants of runaway slaves from Africa; 14.7%); Indonesians (principally Javanese; 14.6%); Amerindians (descendants of the indigenous population 3.7%); Chinese (1.8%); Mixed (12.5%); Others (7.6%).⁶

With 90% of the country covered in Amazon rainforest, settlement patterns have split the society into urban, rural coastal and rural interior with disproportionate access to resources for the latter group due to remoteness. The Government has expressed interest in creating strategies aimed at developing the rural coastal and rural interior areas, enhancing the quantity and quality of basic services as well as the creation of employment opportunities.

⁶ *Zevende Algemene Volks – en Woningtelling in Suriname* Census 2004 Volume I: Demografische en Sociale Karakteristieken; Algemeen Bureau voor de Statistiek August 2005

2.1.3. Economic Context

In 2009, the pillars of the economy were industry, mining and trade, which collectively contributed over 46% of the formal sector GDP.⁷ The annual GDP growth rate over the period 2004 to 2009 averages approximately 4% and the lowest growth rate during this period was 3% when comparing 2009 with 2008.⁸ Suriname also has a large presence of informal activities that contribute to the economic activity, most notably, small-scale gold mining activities in the interior. This informal activity accounts for about 17% of the GDP (basic prices).⁹ In 2010, Suriname was given the classification of upper middle-income economy by the World Bank¹⁰ and of medium human development country by the United Nations Development Program (UNDP).¹¹

In January of 2011, the Suriname Dollar (SRD) was devalued by approximately 20% in an attempt to address the flourishing parallel market. The immediate effects of the weakened currency (SRD) were a sharp increase in the price of fuel and other imported goods and local services. This has the potential to severely impact the economic activity both in country as well as in the international arena.

2.2. Health Status of the Population

The decline in the total fertility rate explained in the previous section and an important decrease in general mortality rate has led to an increase of life expectancy in Surinamese population. This has resulted in changes to the age structure and causes of mortality and morbidity of the population. In line with these changes non-communicable diseases have increased from cardiovascular causes as have their relative proportion of all causes of death. High prevalence of risk factors should lead to a significant increase of chronic diseases in future years.

Regarding morbidity, incidence rate for **neglected tropical diseases** persists together with an increase of sexually transmitted diseases. A decrease in the rates of diseases preventable by immunisation has been noted. It is concluded that, as defined by population mortality statistics, Suriname is in a transition stage with a persistence of some infectious diseases corresponding to a transitional stage of development.

2.2.1. The Burden of Chronic and Non-communicable Diseases

Similar to global trends, Suriname is currently experiencing a shift from communicable diseases (CDs) towards an increasing burden of non-communicable diseases (NCDs). This trend is related to the determinants of health, as described in the previous section, as well as the changing demographic profile of Suriname. Figure 4 illustrates this trend: mortality attributed to NCDs continues to increase, while deaths attributed to CDs show significant decreases.

⁷ Table 21: Suriname GDP by Economic Activity. Central Bank of Suriname (2011) visited: February 2011. <<http://www.cbvs.sr/english/NSDP/Table%2021.pdf>>

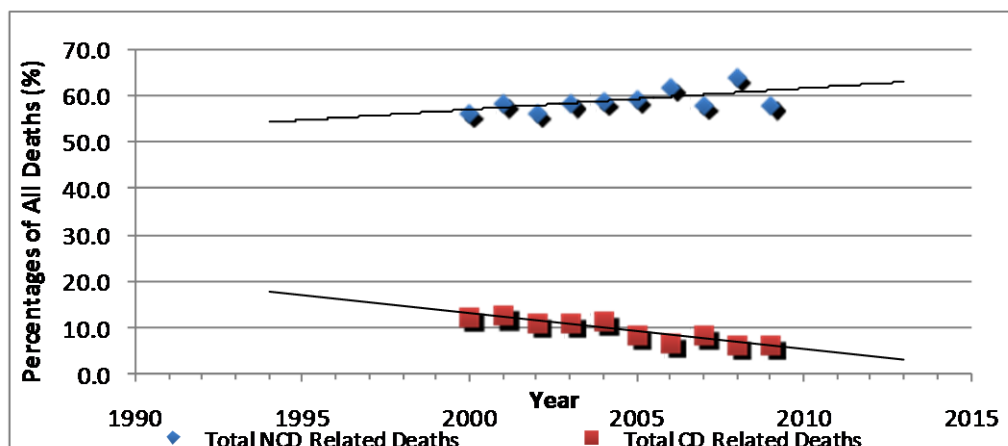
⁸ National Accounts: Selected Macro Economic Aggregates, 2004 -2009; Algemeen Bureau voor de Statistiek

⁹ Table 21: Suriname GDP by Economic Activity. Central Bank of Suriname (2011) visited: February 2011. <<http://www.cbvs.sr/english/NSDP/Table%2021.pdf>>

¹⁰ 2008 GNI per capita \$976-\$3,855. The World Bank. World Development Report 2010. Washington DC, 2010.

¹¹ United Nations Development Program. Human Development Report 2010. New York, 2010.

Figure 4: Deaths attributed to Non-Communicable Disease and Communicable Disease, 2000-2009

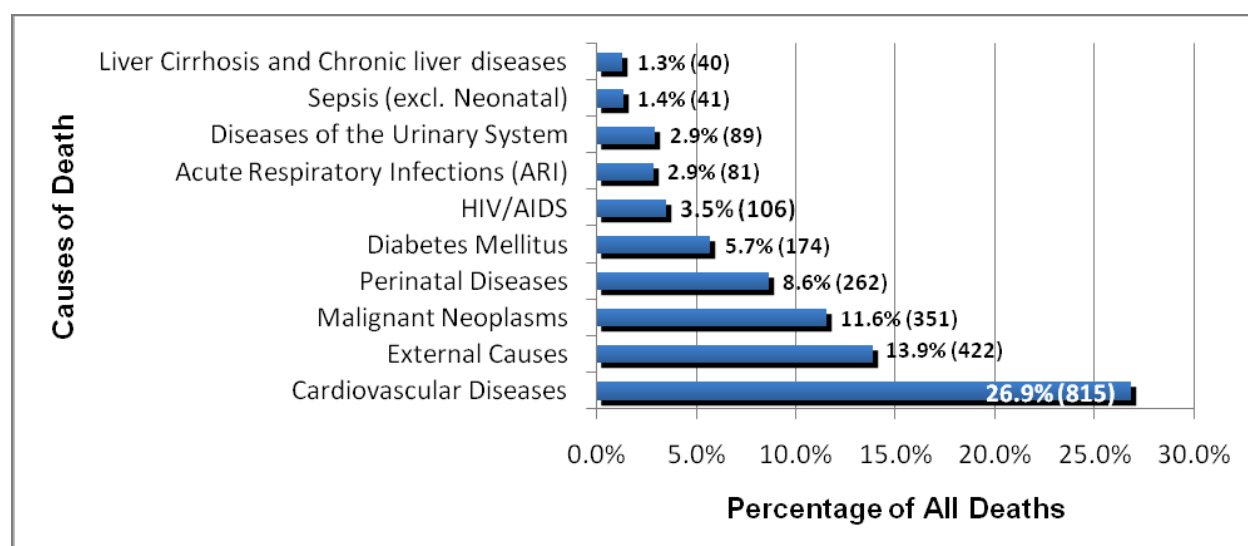


Source: Bureau of Public Health, Ministry of Health, 2000-2009

In 2009, 60.5% of all deaths (n=3035) classified within the 10 leading mortality causes were attributed to NCDs.¹² Cardiovascular diseases, malignancies and diabetes are among the ten leading causes of mortality, as shown in figure 5. In addition, external causes (accidents and violence) and mental disorders are significant health problems.

In 2005, a burden of disease study based on available mortality data provided more insight in the differences between men and women and mortality causes related to NCDs. For men, external causes clearly contribute the most to the number years of life lost (YLL), followed by cardiovascular diseases, malignancies and diabetes; while for women, cardiovascular diseases contribute the most, followed by external causes, malignancies and diabetes. Considering the causes of death ranked by the YLL, NCDs account for a higher share, compared to communicable diseases and perinatal conditions.¹³

Figure 5: The top 10 causes of Death (%) in Suriname in 2009



Source: Ministry of Health; Bureau of Public Health- Epidemiology Department, 2009

¹² Punwasi, W. Doodsoorzaken in Suriname. Ministry of Health; Bureau of Public Health- Epidemiology Department, 2009

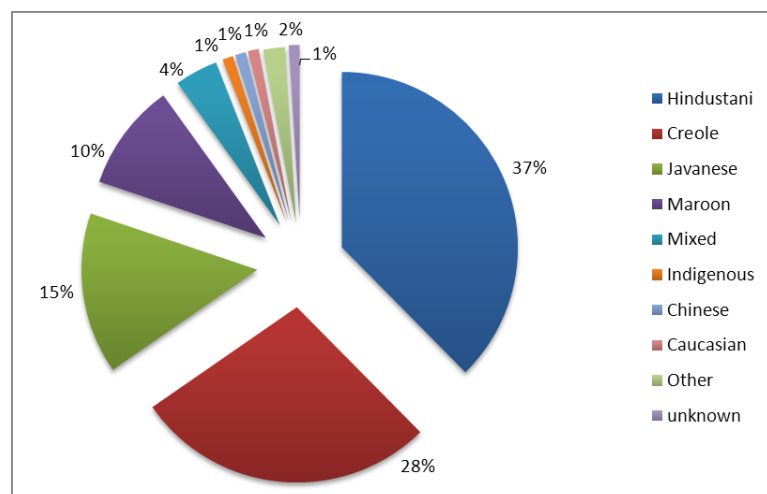
¹³ Paalman, M. Support for implementation of Health Sector Reform. Burden of Disease and NHIS. Part 2. February 2008

Cardiovascular Disease, Hypertension and Diabetes

Cardiovascular diseases have been the leading cause of death for many years. Among them, the most prevalent are cerebro-vascular diseases followed by ischemic heart diseases. There is a downward trend notable in the mortality from cardiovascular diseases, from 29.4% in 2005 to 26.4% in 2009. This can be attributed to medical advances regarding cardiovascular surgeries in Suriname, in the past five years. Mortality rates due to cardiovascular diseases are higher for men than for women.^{14,15} Morbidity data on myocardial infarction, from the Academic hospitals, 2007- 2010, indicate that men are more affected than women (76% vs. 24%).¹⁶

Disaggregating the mortality data by ethnicity shows an overrepresentation of persons of Hindustani descent who represents 27.4% of the total population.¹⁷ In 2009, Hindustanis accounted for 33.7% of cardiovascular deaths, 48.3% of diabetes deaths and 44.8% of myocardial infarction deaths.¹⁸ In addition, Hindustanis have an earlier onset of diabetes; a study on 637 diabetes patients in 12 primary health care centres (PHC) reported an earlier onset of diabetes for Hindustanis (44 years) when compared to Creoles (53 years).¹⁹ Data from 2002-2007 of all mortality due to cardiovascular diseases, show 37% in Hindustanis, followed by 28% in Creoles, 10% in Maroons, 15% in Javanese and 4% in the mixed ethnic group.²⁰ (Figure 6)

Figure 6: Mortality due to cardiovascular diseases 2002-2007



Source: Doodsoorzaken in Suriname. Ministry of Health; Bureau of Public Health- Epidemiology Department, 2002-2007

Morbidity data on myocardial infarction and ethnicity, from the Academic hospitals, 2007- 2010, indicate Hindustani (60%), followed by the Creoles (12%) and the Javanese (12%). (Figure 7)

¹⁴Paalman, M. Support for implementation of Health Sector Reform. Burden of Disease and NHIS. Part 2. February 2008

¹⁵Mohan-Algoe, M. Statistics Seminar 2. Health and Health services, Impairment and Disability, Nutrition, Social Security and Welfare Services. UNDP in cooperation with SBF/SBC and the ABS. August 2010.

¹⁶Hartinfarct patienten naar etniciteit. Academisch ziekenhuis 2007-2010

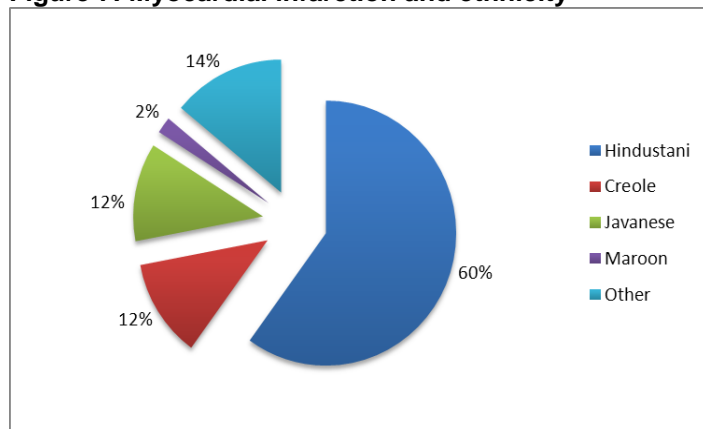
¹⁷*Zevende Algemene Volks – en Woningtelling in Suriname* Census 2004 Volume I: Demografische en Sociale Karakteristieken; Algemeen Bureau voor de Statistiek August 2005

¹⁸Punwasi, W. Doodsoorzaken in Suriname. Ministry of Health; Bureau of Public Health- Epidemiology Department, 2009

¹⁹Eersel, M. Project Registration Diabetes Patients. March- September 2004

²⁰Punwasi, W. Doodsoorzaken in Suriname. Ministry of Health; Bureau of Public Health- Epidemiology Department, 2002-2007

Figure 7: Myocardial infarction and ethnicity



Source: Academic Hospital, 2007-2010

In addition, morbidity data from the same hospital on diabetes, show Hindustanis as the largest group hospitalized followed by Creoles, Javanese and Maroons. Hindustanis aged 41-60 years and over 60 years were the largest group being hospitalized.²¹ The unfavourable cardiovascular risk profile of Hindustanis has its implications for prevention in PHC, emphasizing the need for early detection and treatment of diabetes and hypertension

Diabetes ranks fifth among the ten leading causes of death (2005-2009) and is among the chronic illnesses the most prevalent disease, according to a 2001 study.²² A study reporting the main reasons for visits to a PHC clinic among persons aged 60 years or older (n=269;2006), showed that diabetes accounted for 13.2% of visits, while hypertension accounted for 26.4% of visits. When observing visits due to co-morbidity, diabetes and hypertension accounted for 12.5% and a combination of diabetes, hypertension and cardiovascular diseases accounted for 11%.²³

In addition, registered visits to PHC clinics indicate diabetes and hypertension as the most common reasons and a steady increase in the percentage of patients with diabetes, hypertension or a combination of both.²⁴ Women are twice more likely than men to visit the clinics for diabetes and three times as likely for hypertension or a combination of diabetes and hypertension. Because men are less likely to request care for these conditions, they suffer from more complications due to chronic diseases than women.

Data from the Academic Hospital (AZP) from 2005 - 2008 indicate 15 amputations annually in patients with diabetes, more men being affected than women (60% vs. 40 %). Of the patients with amputations, 35% were in the age group 60 – 70 years followed by 30% in the age group 50 – 60 years and 15% in the age group 40 – 50 years. Data on amputation show that 50% of the patients are Hindustani followed by 30% of Creole and 9% of Javanese descent. 40% of the patients are from Paramaribo, 30% from district Wanica, 10% from district Saramacca and 6% from Commewijne.²⁵

²¹ Eersel, M. De situatie van NCDs in Suriname. Powerpoint presentation. March 14th, 2011

²² Suriname's road to Health Sector Reform. Inter American Development Bank. 2005

²³ Senioren in de distrikten Paramaribo en Wanica. Een onderzoek naar hun woon-en leefomstandigheden. Ministerie van Sociale Zaken en Volkshuisvesting. Dienst Wetenschappelijk Onderzoek en Planning. Paramaribo, Juni 2006

²⁴ Finaal rapport-Analyse en aanbevelingen over de statistische data van de stichting RGD 2000-2004. Hecora, 2008

²⁵ Mohan-Algoe, M. Statistics Seminar 2. Health and Health services, Impairment and Disability, Nutrition, Social Security and Welfare Services. UNDP in cooperation with SBF/SBC and the ABS. August 2010.

Between 1997 and 2007, the number of dialysis patients and the number of dialyses have increased, with a steady trend of approximately 1.4% annually. Of patients undergoing dialysis, 60% are men and 40% are women.²⁶ The majority of dialyzed patients are in the age group 50-60 years, followed by 21 % in the age group 40 - 50 years and 17% in the age group >30 - 40 years. The lowest percentage (11%) was in the age group 60 -70 years. Of the dialyzed patients 32% were Hindustani, followed by Javanese (24%), Creoles (20%) and Maroons and Mixed ethnic group (8%). Almost 60% of the patients are living in Paramaribo and only 14% in district Wanica²⁷.

Cancer

Malignant neoplasms are the third leading cause of death. Percentages of cancer related mortality, among the ten leading causes of death, show an increase from 6.4% in 1996 to 11.6 % in 2009. In 2009, most cancer deaths were caused by cancers of the rectum (13.6%), followed by lung cancer (12.5%). However, female sex-specific cancers (breast, vulva, vagina, cervix, corpus uteri, uterus, ovaries) accounted for 20.3% of all cancer deaths. Male sex-specific cancers (prostate and penis cancers) accounted for 9.4 % of all cancer deaths.¹²

The burden of disease study indicates more women die of breast and cervix cancer than from maternal conditions and women die much younger than men due to sex-specific neoplasms. For women the average age at death due to breast and cervical cancer is approximately 56, the average age at death for men due to prostate cancer is approximately 77, meaning that women lose more years of life to these cancers than men.¹⁴

When considering ethnicity, Creole and Javanese show high mortality rates for neoplasms.^{28,29} Data from the National Pap Smear Project (1998-2000) revealed that the highest prevalence rates of pre-malignant cells are among women between the ages of 30-40 years; specifically among the Maroons and Creole/mixed women.³⁰ Sexual practices-low prevalence rate of contraceptives- and cultural and traditional beliefs, among the Maroon population might increase the vulnerability for STDs and partially explain the high prevalence of pre-malignant cells. An analysis of the sexual practices, cultural and traditional beliefs of the Maroons can be found in the sexual and reproductive chapter of this document.

²⁶ Report of the Director of Health 2005-2007- Republic of Suriname. Ministry of Health; 2009

²⁷ Mohan-Algoe, M. Statistics Seminar 2. Health and Health services, Impairment and Disability, Nutrition, Social Security and Welfare Services. UNDP in cooperation with SBF/SBC and the ABS. August 2010.

²⁸ Punwasi, W. Doodsoorzaken in Suriname. Ministry of Health; Bureau of Public Health- Epidemiology Department, 2009

²⁹ Paalman, M. Support for implementation of Health Sector Reform. Burden of Disease and NHIS. Part 2. February 2008

³⁰ Suriname's road to Health Sector Reform. Inter American Development Bank. 2005

Lifestyle and behavioral risk factors

Lifestyle and behavioral risk factors are major contributors to the NCD epidemic, specifically, unhealthy diets, physical inactivity, as well as, tobacco and alcohol use. Data from 2001, from 1,654 persons from four ethnic groups (Mixed, Creole, Hindustani and Javanese) provided some insight regarding lifestyle and behavioural factors around NCDs: 70% were physically inactive, 30% smoked, 20% were obese (BMI>30) and 15% had high total cholesterol (>6mmol/l).³¹

In addition, the Global School Health Survey 2009 among children aged 13-15 years (n=1,698), showed that the majority (73%) of children have physical activity of less than one hour per day.³²

Food supply data indicated increased energy availability per capita over the past four decades (from 2000 kcal in 1961-1963 to ~2700 kcal in 2003-2005).³³ The increased energy availability appears to be related to corresponding increases in fat and sugar availability and possibly reflects changing food consumption patterns. The Global School Health Survey 2009 indicated a continuous high contribution of sugar, with 81% of children having consumed carbonated soft drinks one or more times per day.

Data from the 2009 Global Youth Tobacco Survey (GYTS) reported that among 927 students aged 13-15 years, 19.2% of students were current users of tobacco products. Additionally, the survey indicates that students are exposed to second hand smoke: 46.6% lived in homes where others smoked, 53.3% were exposed to smoke around others outside of the home and 49% had at least one parent who smoked.³⁴ The National Drug Prevalence Survey (n=3,441) indicated a higher proportion of cigarette use in the age group over 35 years of age³⁵. Smoking prevention in youth, smoking cessation in adults and reduction of exposure to second hand smoke are key issues in tobacco control and should be adequately addressed. These issues are incorporated in the Framework Convention on Tobacco Control (FCTC), which Suriname ratified in 2008. In order to comply with the FCTC Suriname will need to achieve the requirements by 2013. Currently, a tobacco control board exists in Suriname, and the Tobacco legislation to address smoke-free environments, advertising bans, and health warnings is underway.

Harmful use of alcohol is another risk factor of concern. Results from the 2009 Global School-Based Student Health Survey indicated that among the 1,698 students, aged 13-15 years, who responded, 73.8% (1,253) had their first drink before the age of 14 and 32.6% (554) consumed alcohol at least on one or more occasions in the past month. Among adults, a higher proportion of alcohol use was observed in the age group 26-34 (36.8%), followed by the group 35-64 (33.9%).³⁵ At present, Suriname has a drug master plan to decrease tobacco and alcohol consumption, among other substances; however, financial and human resources are required to support further implementation.

³¹ Van Eer, M. Cardiovascular Risk factor Survey, 2001

³² Global School Health Survey. GSHS 2009

³³ FAOSTAT 2009

³⁴ Global Youth Tobacco Survey. GYTS 2009

³⁵ Suriname National Household Drug Prevalence Survey. The Executive Office of the National Anti-Drug Council (UBN) in collaboration with Inter-American Drug Abuse Control Commission (CICAD)/Organization of American States. November 2008

Violence and Injuries

Registered visits at the emergency unit indicate that external causes of morbidity and mortality, specifically transport related injuries have increased since 2002. This increased trend was observable during 2009, when there were 22 traffic deaths per 100,000 inhabitants (112 reported), a rate above the average for developing countries (18: 100,000).³⁶ The highest rate of road traffic fatalities was among riders of motorized 2-3 wheeled vehicles, followed by motorized four-wheeled vehicles. The highest occurrence of traffic accidents occurred in the age group 20-24, followed by 15-19 and 25-29.³⁷ In 2008, a National Road Safety Committee was established and a National directional framework on road safety was developed and approved in 2010. This plan calls for a public health and multi-sectoral approach. Of the other registered injuries caused by external causes, the most common were unintentional falls, struck by/against objects (unintentional), and injuries related to being hit/struck/bitten by person or animal.

Currently there is no formal national registration system for domestic violence in Suriname. However, the MICS 2006 conducted a survey on the attitudes of women 15-49 on Gender Based Violence (GBV) in a domestic setting. 13.2% of the women surveyed believe that a husband or partner is justified in beating his wife or partner for any reason mentioned in the survey.³⁸ When disaggregated by region of residence, the most prominent proportion of women that believed this were from the rural interior (34.9%). Similarly women with no or primary education (32.7% and 20.4% respectively) and those that comprised the poorest quintile of the population at 26.7% believed that men were justified in beating their wives or partners if she went out without telling him, neglected the children, argued with him, refuses sex with him, or if the food is burnt.³⁹

³⁶ Road Safety, Directional Framework for a Road Safety Program 2009 and traffic statistics of the Ministry of Justice and Police

³⁷ Emergency records for External causes and traffic accidents 2003-2008

³⁸ GOS/UNICEF. MICS 2006

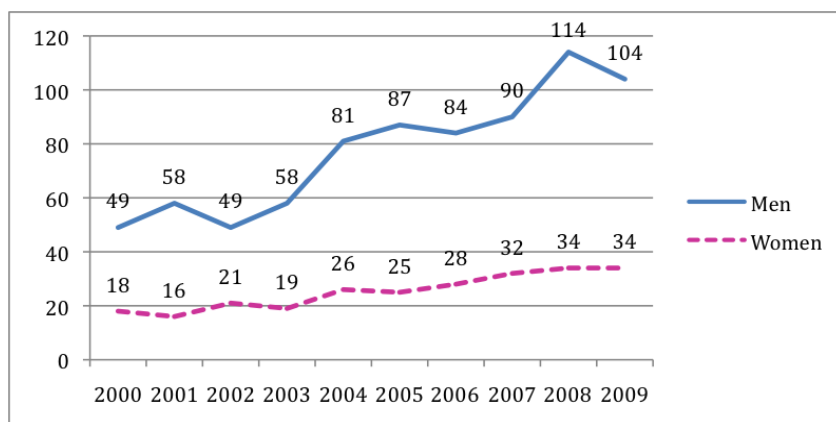
³⁹ GOS/UNICEF. MICS 2006

Mental health

Mental health services are provided by the general practitioners in the primary health care setting and by the psychiatrists at the Suriname Psychiatric Center (PCS). The mental health services currently available are highly centralized, and not widely accessible to the entire population. Neither community residential facilities, nor community-based inpatient units are available in the country for persons with mental health problems. Mental health issues represent a significant public health challenge for the country resulting in increasing need for mental health services.

An indication of the severity of this problem is the increase in the number of suicides since 2000 (67) more than doubled by 2009 (138). By ethnic group, Hindustanis have the highest rates 66.2% of suicide, followed by Creoles 11.5% in 2008 and 7.2% and 10% in 2009, respectively.⁴⁰ Many suicides were intentional self-poisoning with pesticides.⁴¹ Mortality due to suicide is higher in men than in women as shown in figure 8. The most frequent diagnoses of admission in PCS are substance abuse (50%), Mood disorders (20%) Schizophrenia (12%) and personality disorders (11%).⁴²

Figure 8: Suicides by sex 2000-2009



Source: Mortality Reports, BOG, 2010

The country's capacity to effectively address these problems requires renewed efforts to tackle the burden of mental disorders. For this reason consultations with stakeholders took place in 2010, resulting in three main priorities for Mental Health Care: Integration of MH into PHC, Decentralization of MH services and an improved Mental Health information system.

⁴⁰ Punwasi, W. Mortality Reports, BOG, 2010

⁴¹ Punwasi, W. Doodsoorzaken In Suriname 2007 - Bureau Openbare Gezondheidszorg - Ministerie Van Volksgezondheid, 2009

⁴² WHO/AIMS, Suriname, 2007.

2.2.2. The Burden of Communicable Diseases

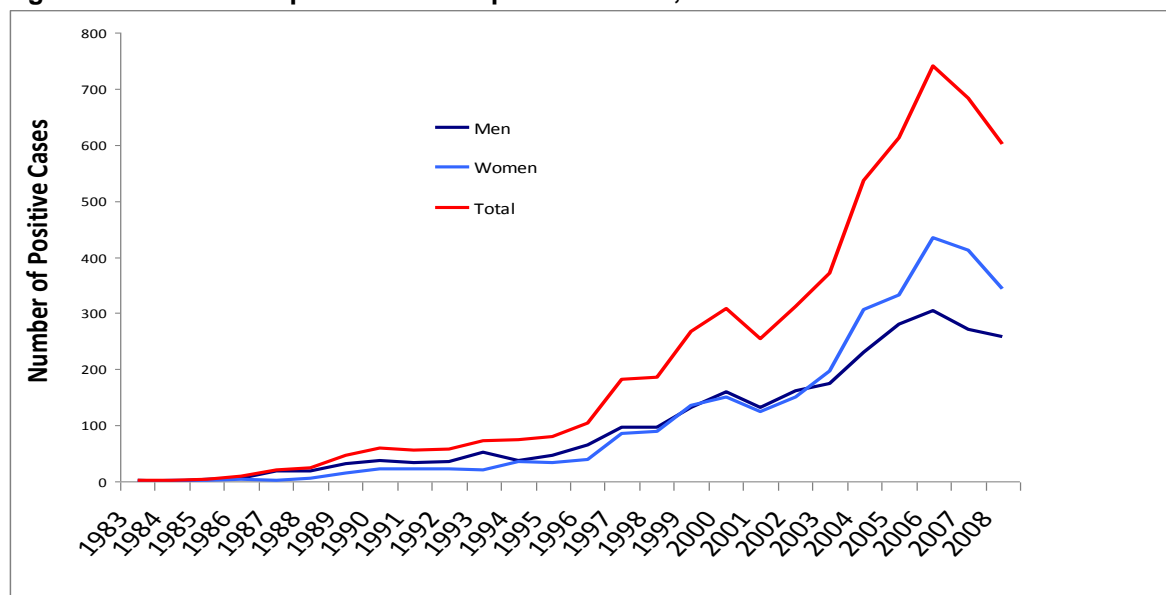
In spite of the ongoing epidemiological shift towards NCDs, some communicable diseases such as HIV/AIDS, TB and dengue are still a concern. Meanwhile, other still present Neglected Tropical Diseases (NTDs) and malaria are targeted for elimination.⁴³ Specifically, the country has had marked successes in the control of malaria, receiving in 2010, the honor of the PAHO's 'Malaria Champion of the Americas'.

Suriname has seen many successes in controlling communicable diseases, and the momentum to build on these successes remains such as continuing the integration of certain vertical programs into PHC, specially the HIV and TB vertical programs as was initially done with the Malaria control program as early as the 1950's.

HIV/AIDS

As of 2009, it is estimated that approximately 1.1% of the adult population (age 15-49) was infected with HIV. Since the first reported case of HIV in 1983, an upward trend in the general population was recorded, peaking in 2006, with 740 newly reported HIV positive cases.⁴⁴ ⁴⁵ The peak in 2006 can partially be explained by the 'Sabi Libi' (know your status) campaign held in that same year. It was followed by a decline in 2007 (638 new cases) that continued in 2008 (601 new cases).⁴⁵ During 2008 it was observed that more women were registered as HIV-positive (57.1%). However, it is important to note that women have higher rates of being tested, because of the prenatal testing. Of the 19,709 persons tested in 2008, 77.8% were women/girls.⁴⁶

Figure 9: Number of reported new HIV positive cases, 1983-2008



Source: Ministry of Health – National AIDS Program

⁴³ PAHO/WHO, 49th Directing Council; CD49.R19

⁴⁴ Ministry of Health, Country Report on the UNGASS on HIV/AIDS, Paramaribo, 2010.

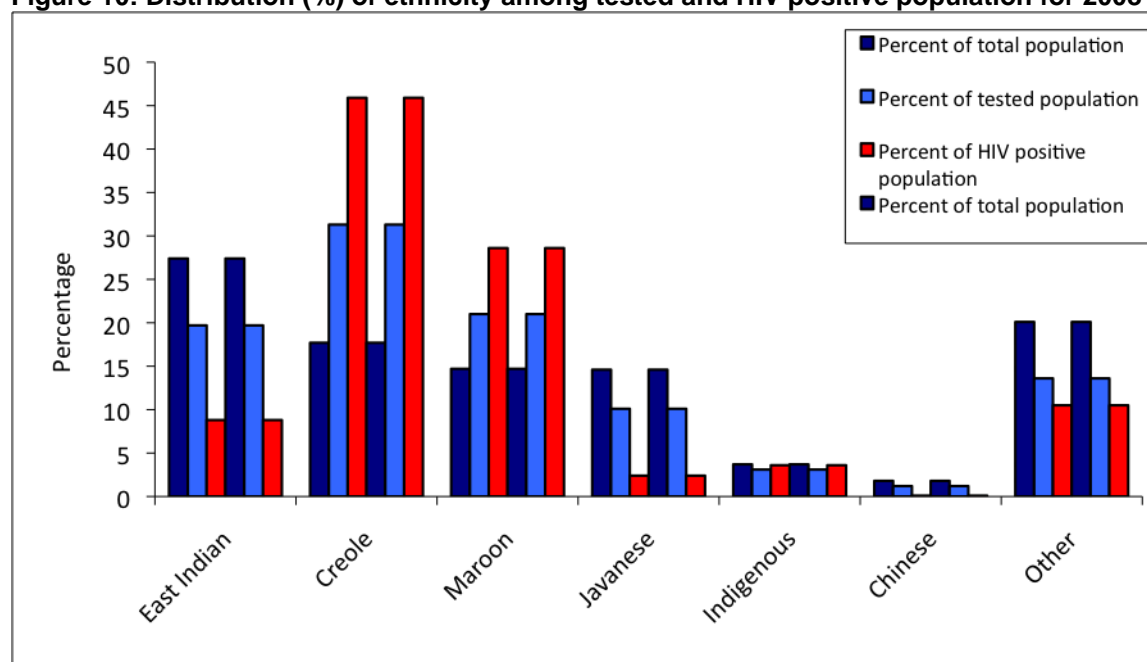
⁴⁵ Ministry of Health, HIV Surveillance Rapport 2004-2008, 2010

⁴⁶ Ministry of Health, requested data; September, 2010

Special surveys among sex workers rendered prevalence rates of 2.1% and 4.9% in the border towns Nieuw Nickerie (west) and Albina (east), respectively in 2008 and 7.2% in Paramaribo in 2010.⁴⁷ Additionally, a prevalence rate of 2.2% among (57.6% of all) prisoners was found in 2008, and 6.7% and 9.2% among men who-have-sex-with men (MSM) in 2005 and 2010 respectively.^{48 49} In previous years, data on specific cultural, socioeconomic, environmental and behavioral factors of population groups considered to be most-at-risk for contracting HIV (MARPs) have also been gathered. Currently the challenge is shifting the focus to using and analyzing the existing data on those populations to develop tailor-made intervention programs.⁴⁴

Since 2004, both Creole and Maroon groups have had higher prevalence of HIV than other ethnic groups. Moreover, in 2008, of the 601 new HIV cases, the Creole and Maroon groups had the highest incidence of HIV: 255 (42%) and 153 (25%) cases respectively. The prevalence of HIV among the indigenous population should also not be disregarded.⁴⁵ In comparison to their rate among the total population and their share within the tested and HIV positive persons, their prevalence appears relatively high.

Figure 10: Distribution (%) of ethnicity among tested and HIV positive population for 2008



Total population (2006): 504,257⁵⁰; Total number tested 2004-2008: 74,449; Total number HIV positive 2004-2008: 2,965
 Source: **Figure HIV data adapted from table 2 in surveillance report**³

When observing the distribution of ethnicity of the total population and within the total number of persons tested, it is apparent that the Creole and Maroon populations have relatively higher rates of being tested, in comparison to other ethnicities. A partial explanation for the disparities could be correlated with certain sexual practices. Unfortunately information on these differences is too incomplete to make a whole comparison. Further research is needed to fully explain these disparities.

⁴⁷ Ministry of Health, NAP, Heemskerk consultancies, Commercial sex work in Paramaribo, Suriname, 2010

⁴⁸ Ministry of health, PAHO, UNFPA, Equity and Equality, Sexual behavior and seroprevalence study in prisons in Suriname; Paramaribo and Nickerie, 2009

⁴⁹ Ministry of Health, PAHO, Heemskerk Consultants in Social Sciences, An HIV Seroprevalence and Behavioral survey among men who-have-sex with men (MSM) in Suriname, 2011

⁵⁰ ABS. Statistical Yearbook 2009. Algemeen Bureau voor de Statistiek; 2010

During the period of 2003-2008, the average HIV prevalence was 1.0% for pregnant women.⁴⁵ In recent years, the country has been successful in steadily increasing the treatment of HIV positive pregnant women with Anti-Retroviral medication (64% for 2006; 83% for 2008; 84% for 2009). However, challenges remain for the Prevention of Mother-To-Child Transmission (PMTCT) program, particularly the integration of the HIV databases and the (loss to) follow-up of pregnant women and their exposed children within the health care system. The loss to follow-up has the attention of the Ministry of Health and recently appointed a focal point to track all HIV pregnant women and exposed infants. In 2009, there were 95 HIV exposed infants born of which 67 were lost to follow-up before the definitive diagnosis. Four infants were diagnosed as HIV positive in 2009. As an attempt to upscale the PMTCT program, the Ministry of Health adopted the PAHO initiative '*The elimination of vertical transmission of HIV and syphilis*' and officially launched this initiative in 2009.^{44 45}

The percentage of adults and children with advanced HIV infection, receiving antiretroviral therapy, has been steadily increasing to 66% in 2008. However, this still leaves a gap of 34%. Research is needed to determine the main reasons for stopping with treatment, and strategies to promote testing and offering of treatment need to be evaluated. The National AIDS Program has indicated its intention to continue to reduce the treatment gap.^{45 44} To guarantee the continuation of free antiretroviral medication; the Ministry of Health has made arrangements in their own budget to purchase ARVs.

The annual death rate due to AIDS has decreased in the last years and it dropped from fifth place in 2005 to sixth place in 2006 on the list of most frequent causes of death and remained steady up to 2007 (latest available data).⁴⁵ The decrease is likely related to the percentage of individuals receiving antiretroviral treatment.

In order to guarantee the sustainability of the HIV program, the Ministry of Health is in process of integrating this program in the Primary Health Care System. According to the National Strategic Plan for 2009-2013 for HIV/AIDS a multi-sectoral structured approach is needed.⁵¹

Tuberculosis

In the past, Suriname has had a successful TB control program, resulting in a very low prevalence of TB. According to the registry of the TB program, the smear-positive TB cases in 2007 were calculated at 20 per 100,000. With the rise of the HIV epidemic, the number of TB cases increased from 82 cases (20 per 100,000) for 1990 up to 156 cases (30 per 100,000) for 2009 with an overall tendency towards an overrepresentation of men in the adult age categories.^{52 53 54} (Figure 11)

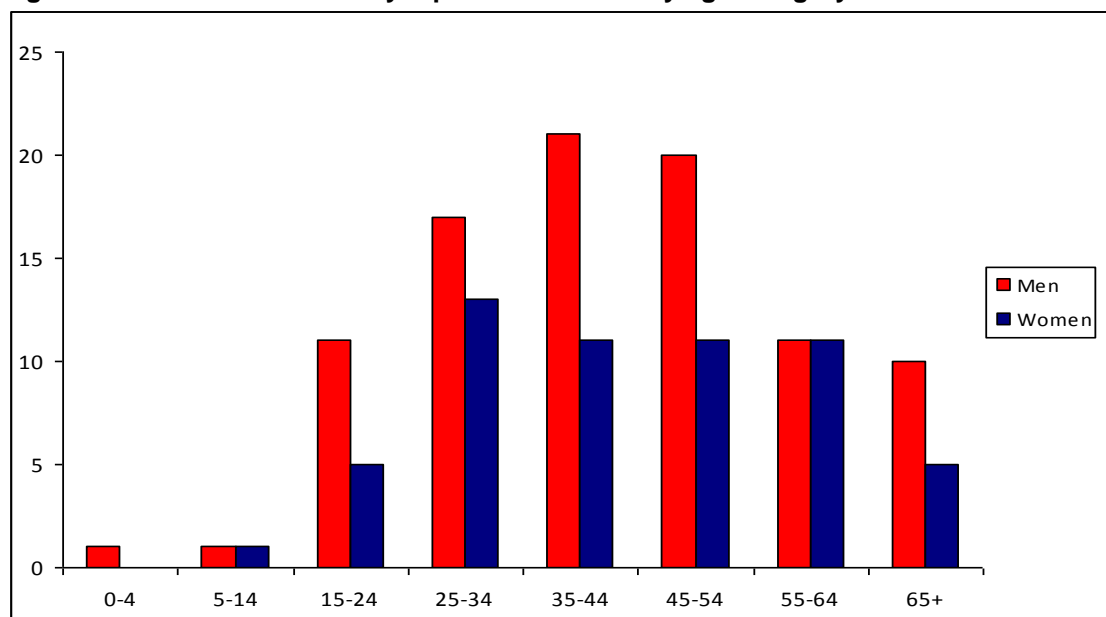
⁵¹ Ministry of health, National AIDS Programme, National Strategic Plan for 2009-2013

⁵² PAHO, Assessment visit to Suriname's National Tuberculosis Program; Paramaribo Suriname, 1-5 November 2010, 2010

⁵³ WHO, TB data collection form for Suriname, 2010

⁵⁴ National Tuberculosis Program Monitoring and Evaluation, 2011

Figure 11: Distribution of newly reported TB cases by age category and sex for 2009



Source: WHO, TB data collection form for Suriname, 2010

The estimated burden of TB disease by WHO in 2009 was 700 cases (135 per 100,000); under this estimate, potentially, only 25% of all cases are detected in Suriname.⁵⁵

In the period of 2000-2003 and 2004-2008 respectively 64% and 77% of all TB cases were tested for HIV. In 2009, 82% of all reported TB cases (156) had a known HIV status. In 2000-2003 23% of the TB patients were HIV positive. This percentage continued to increase to 25% in the period of 2004-2008.⁴⁵ In 2009, 31% (49 of 154) of tested TB patients were HIV positive. Recently the agreement on the TB Global Fund proposal was signed with the Ministry of Health as Principal Recipient to strengthen the TB program with the introduction of a quality-assured DOTS strategy, focusing on strengthening TB/HIV collaborative activities, targeting TB control activities for high risk groups, building capacity for appropriate MDR-TB prevention and management, and developing community DOTS.⁵⁶

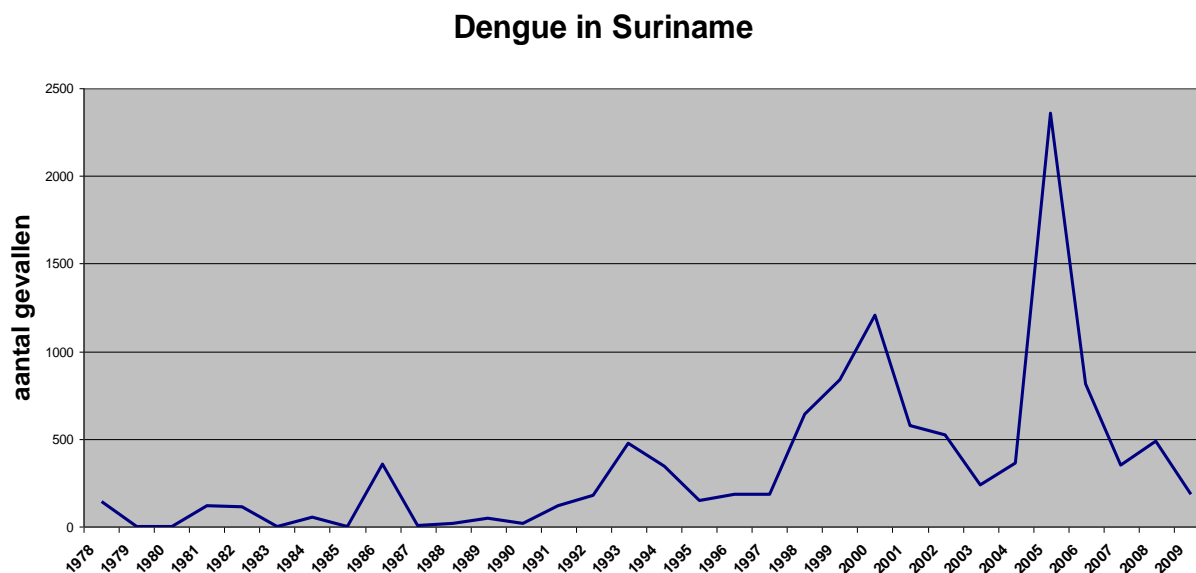
Dengue

Dengue is concentrated mainly in the coastal areas, including both rural and urban districts, with all Serotypes 1, 2, 3 and 4 circulating. Each year a seasonal trend is observed, related to the two rainy seasons; December to March and June to August. However, when observing the number of cases plotted over the past 30 years in figure 12, it is apparent that the numbers of cases also peak every 4 to 7 years with the peaks continuously increasing in size. A particular sharp increase is noted during 2004-2007 with a peak in 2006, approximately double the size of the previous one (2000-2001).

⁵⁵ PAHO, Assessment visit to Suriname's National Tuberculosis Program; Paramaribo Suriname, 1-5 November 2010, 2010

⁵⁶ TB GF grant and HIV surveillance report 2004-2008.

Figure 12: Number of Dengue cases from 1978-2009



Source: Bureau of Public Health; Epidemiology department (MOH)

There is no explanation known as to what causes this trend over the years. A possible explanation may be sought in the area of climate changes causing an increase in areas with favorable conditions for the dengue mosquito, therefore increasing the size of the zone where the dengue mosquito thrives.⁵⁷ Data on dengue is reported through a sentinel surveillance system. The surveillance system needs to be expanded and strengthened to capture the true burden of disease.

Currently a vector control program is being strengthened to include dengue larvae control; this is done with the support of the French Guianese authorities, To further strengthen the program, health education, environmental sanitation and rational use of pesticides need to be promoted.

Malaria

In recent years, the malaria program has been successful in reducing transmission, the number of severe cases and associated deaths. Specifically, the reduction in transmission has been successful through targeted strategies against *P.falciparum* and for *P.vivax* with respective declines of 92% and 62% in between 2000 and 2008. These strategies included the distribution of impregnated bed nets, mobile teams to test and treat gold miners, active case detection, house spraying, media campaigns and the re-impregnation of bed nets. Severe malaria cases decreased from 377 in 2003 to only 50 hospitalized cases in 2008. Official reports of 2005-2007 indicate that due to the marked reduction in malaria cases and no malaria attributed deaths, Suriname has reached the malaria target for MDG 6, before 2015 (target: halted by 2015 and begun to reverse the incidence).⁵⁸ As a result, the PAHO has declared the National Malaria Board of Suriname in 2010 as the 'Malaria Champion in the Americas'. The next step will be to work towards elimination as described in the adopted resolution CD49.R19; Elimination of neglected diseases and other poverty related diseases.

⁵⁷ PAHO Environmental Advisor, Power point presentation: Global Warming and Health.

⁵⁸ Report of the Director of Health 2005-2007- Republic of Suriname. Ministry of Health; 2009

Currently the coastal area is free of malaria; where the majority of the population lives. Three main factors can be attributed to this change: the introduction of Artemisinin based Combination Therapy (ACTs), intensified prevention and early diagnostic activities and environmental factors (torrential rainstorms with exceptional floods in 2006) which led to changes in the density of the vector.⁵⁹

The current transmission of Malaria is strongly related to mining activities in the rural interior, It is estimated that there are at least 15,000 gold miners, with at least 6,000 Brazilians amongst them, along with Guyanese, French Guianese, Dominicans and different Surinamese ethnic groups. The predominance of *P.falciparum* in Suriname and the proven success in reducing the transmission of *P.falciparum* cases, indicate that control of malaria can be reached with adequate and prompt treatment.⁶⁰ A prerequisite for elimination will therefore be the collaboration with neighboring countries; specifically Guyana, French Guiana and Brazil.

Neglected Tropical Diseases (NTDs)

The prevalence of all present neglected tropical diseases (Chagas disease, Leprosy, Leptospirosis, Schistosomiasis, Soil-Transmitted Helminthes (STH)) are low and the Ministry of Health has indicated its commitment to the elimination of NTDs.⁴³

Table 2: Overview of the status of NTD's compared to the elimination targets

NTDs	Elimination goals	Status
NTDs linked to resolution CD49.R19		
Chagas' disease	<ul style="list-style-type: none"> To interrupt domestic vector-borne transmission of <i>T. cruzi</i> (domestic triatomine infestation index of less than 1% and negative seroprevalence in children up to 5 years of age, with the exception of the minimum represented by cases in children of seropositive mothers). To interrupt transfusional transmission of <i>T. cruzi</i> (100% blood screening coverage) To integrate the diagnosis of chagas' disease in the primary health care system To prevent the development cardiomyopathies and intestinal problems related to chagas' disease. 	<ul style="list-style-type: none"> A 1997 study analyzed 800 blood samples from: blood bank routine collection (500), heart patients (100) and interior population (200). Results revealed 1 confirmed positive case among the maroon population (prevalence 0.5%) in Brokopondo and 6 samples indicating past exposure to <i>T.cruzi</i>, of which 3 among the blood bank routine collection and 3 among the interior population. A 2005 study among 363 blood donors of the blood bank revealed no positive cases. Preparations are underway to execute a survey among blood donors to assess the current prevalence of <i>T.cruzi</i>. 100% blood screening coverage of donated blood not practiced
Leprosy	To eliminate leprosy as a public health problem (less than 1 new case per 10,000 persons) from the first sub-national political/administrative levels.	The elimination target of 1 new case per 10.000 persons for Leprosy, set by the adopted resolution at the 1991 World Health Assembly WHA, has been reached. In 2009 38 new cases were detected (0.7 per 10,000). ⁶¹

⁵⁹ PAHO, Report on the situation of malaria in the Americas, 2008

⁶⁰Ministry of Health, Malaria Monitoring and Evaluation System, Suriname, June, 2010.

⁶¹Report from MoH, Dr.Sabajó

NTDs	Elimination goals	Status
Schistosomiasis	To reduce prevalence and parasite load in high transmission areas to less than 10% prevalence as measured by quantitative egg counts.	An overall prevalence of 8.7% (ELISA blood testing; egg count testing during the same research yielded 0% prevalence) for schistosomiasis and 2.1% for STH (egg count), similar in both sexes and lower than the elimination target, were found in a 2009/2010 randomized study among 6 th grade primary school children (median age 12 years) in 7 districts of Suriname. Nickerie (11.7%), Paramaribo (10.8%) and Coronie (10.5%) were districts with the highest prevalence for schistosomiasis; Brokopondo (7.1%) and Saramacca (3.9%) were the ones with the highest prevalence for STH. ⁶² Further research is needed to identify the underlying factors of the remaining low transmission to eliminate schistosomiasis and STH in Suriname. ⁶²
Soil-Transmitted Helminthes	To reduce prevalence among school-age children in high risk areas (prevalence >50%) to less than 20% as measured by quantitative egg counts.	
Lymphatic Filariasis	<ul style="list-style-type: none"> To eliminate the disease as a public health problem (less than 1% prevalence of microfilaria in adults in sentinel sites and spot-check sites in the area). Interrupt its transmission (no children between ages 2 and 4 are antigen positive). To prevent and control disability. 	In the beginning of the 20 th century, LF was mainly concentrated in Paramaribo. From 1949 onwards, a systematic control of LF was started in Suriname, which resulted in a decrease of the microfilaria index from 17.4% in 1949 to 0.06% in 1981. Suriname is presently in the stage for certification of elimination. ⁶³
Other		
Leptospirosis	-	Over the 2004 – 2009 period, the number of suspected cases of Leptospirosis has declined from 136 to 110 respectively. ⁶⁴

The MOH has recently extended the mandate of the Malaria Board to include NTDs. An integrated multi-sectoral approach and an integrated surveillance system for NTDs & malaria will be needed to reach and maintain the elimination goals for the NTDs in Suriname.

ARI/SARI

Weekly sentinel surveillance is reported to CAREC, with notification of reported cases of Acute Flacid Paralysis and cases of rash and fever. Severe Acute Respiratory Infection (SARI) surveillance is also done in the hospitals, while Acute Respiratory Infection ARI surveillance is reported from two coastal health clinics and one private physician.

Routine rotavirus survey is done in the 4 hospitals in Paramaribo.

There is a close collaboration with the Central Laboratory of the Bureau of Public Health, for local testing and sending of specimen to the CAREC Reference Lab.

Suriname is currently involved in the verification process of the elimination of Measles, Rubella and Congenital Rubella Syndrome.

⁶² PAHO, BOG/MOH Report Schistosomiasis and Soil Transmitted Helminthes school survey 2009-2010 Suriname, 2010 and accompanying SPSS data file.

⁶³ MOH, Joint Reporting Form NTD, 2010

⁶⁴ Jubithana, M. Epidemiology / Biostatistics Department, Bureau for Public Health

2.2.3. Health Over the Life course

Sexual and Reproductive Health

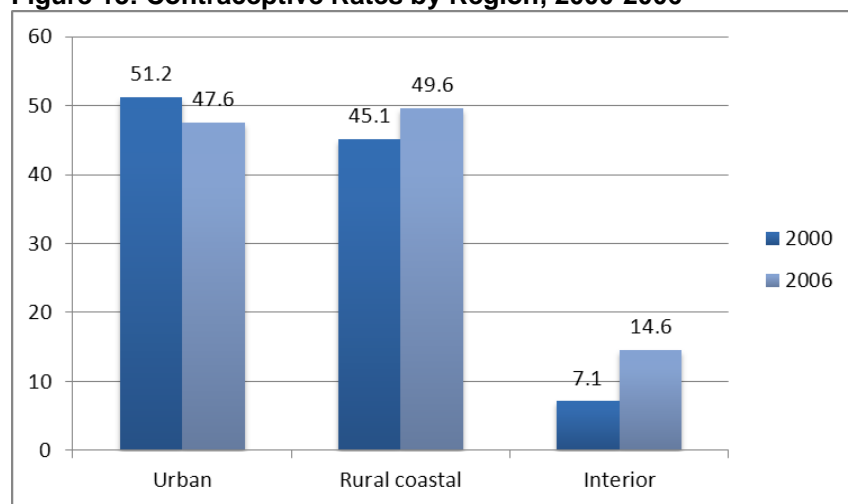
Sexual and reproductive health (SRH) addresses the processes, functions and systems related to sexuality and reproduction at all stages through the life course.

According to the 2004 census, the total population in the reproductive age (15-49 years) is 264,145 (134,147 men and 129,866 women).

Provision of family planning services is mainly with the Lobi foundation, an International Planned Parenthood Federation (IPPF) affiliate, and the Mother & Child clinic at's Lands Hospital. Family planning services at the clinics of the RGD and MM are limited to the provision of oral contraceptives that can also be obtained over the counter at every pharmacy.

The use of oral contraceptives is the most widely practiced family planning method. Currently preparations are made to introduce the WHO Decision Making Tool for Family Planning.

Figure 13: Contraceptive Rates by Region, 2000-2006



Source MICS 2000 and 2006

In 2006, the national contraceptive prevalence rate was only 45.6% (2901 women) (all methods), with considerable disparities between urban (47.6%) (2065 women), rural coastal (49.6%) (628 women) and rural interior (14.6%) (209 women).⁶⁵ Limited access to contraceptive (availability of contraception), and the effect of culture and traditions, such as the high value placed on fertility and motherhood, and the overall lower education levels of the people in the interior results in low contraceptive prevalence rate among women in the interior.⁶⁶

Several studies show that among young people there is a disparity between contraceptive knowledge and ideals on the one hand, and contraceptive use on the other hand.⁶⁷

⁶⁵ GOS/UNICEF. MICS 2006

⁶⁶ Sexual and Reproductive health and Rights in the English-speaking Caribbean, DAWN , July 2006

⁶⁷ MOH, Youth and their Health, June 2007

Women's education level is strongly associated with contraceptive prevalence. The percentage of women using any method of contraception rises from 14.3% among those with no education to 38.4% among women with primary education to 51.0% and 56.0% among women with secondary education or tertiary education respectively⁶⁸.

Furthermore, almost half (48.9%) of women between the ages of 15-24 who engaged in sex with a non-regular partner within the year, reported using a condom. However, when disaggregated by education level, only 17.3 % of women with no education reported using a condom, 31.1% of the women with primary level education reported using a condom, while over half (54 %) of the women with secondary education or more reported using a condom. As noted earlier, disparities most greatly demonstrated in education are seen in the interior.⁶⁹ This indicates one of the main challenges that persist in closing the geographical gap, such as the limited access to information and education in general regarding sexual health and rights in the interior, as well as cultural and traditional beliefs surrounding sexuality and sexual practices, e.g. the high value of early childbearing among maroons.

High-risk sexual behavior is most prevalent in women aged 20-24 in the rural interior by almost double the national average and the same population is almost five times as likely to engage in sexual intercourse before the age of 15.

The satisfied demand for contraception is 71.3%, leaving 18.4% with an unfulfilled need for contraception. Of the total unmet need 33.2 % are women aged 15-49 years in the rural interior, and the unmet need is highest among women with none or primary education.⁷⁰

Abortions

At present, abortion is illegal under the Surinamese Penal code, exceptions are made for medical indication where the life of the woman is in jeopardy. However, an estimate by Stichting Lobi suggests the number of annual abortions is between 8,000 and 10,000, with a strong representation of women under the age of 24.⁷¹ This would imply an almost 1:1 ratio with the annual live births. The use of 'traditional' abortion methods remain unreported. There are diverse traditional methods, practiced by different ethnic groups, varying from massage techniques (Javanese) to the use of herbs (Maroons). Only those cases where the traditional and other risky non-medical methods resulted in complications can be detected as they appear at the emergency ward of the Academic Hospital. For these reasons, reliable figures on the incidence of abortion cannot be obtained. . Post-abortion care is non-existent, which would provide the opportunity to counseling and for research regarding the background and determinants.

⁶⁸ GOS/UNICEF. MICS 2006

⁶⁹ GOS/UNICEF. MICS 2006, page 45 and page 155

⁷⁰ GOS/UNICEF. MICS 2006

⁷¹ Leckie G. et al "Reproductive health and rights of adolescents", Paramaribo, 1997

Maternal and Neonatal health

Virtually all-pregnant women receive some type of prenatal care; 99.4% were reported as visiting a prenatal clinic at least once.⁷² During 2006, skilled health personnel attended 89.8% of deliveries (doctors, midwives and auxiliary midwives). Assistance by traditional birth attendants was 1.2% and community health workers assistance was 3.3%.⁷³ The majority of deliveries (90%) took place in hospitals and 10% in primary health care facilities.⁷⁴ The number of live births slightly increased from 9,062 in 2004 to 10,100 in 2008.

Maternal Mortality

Between 2000 to 2009 the Maternal Mortality Ratio decreased from 153/100,000 live births to 122.5 /100,000 live births^{75 76}. The MDG target for Suriname is set at 75/100,000 live births, as the baseline was set on 226/100,000 live births for 1990.⁷⁷ The absolute number of maternal deaths is small, as the total number of live births does not exceed 10,000/year.

The Maternal Mortality Ratio for Latin America and the Caribbean is 87/100,000 live births.⁷⁸

The leading causes of maternal mortality in Suriname are:

- Pregnancy Induced Hypertension and the associated disorders namely oedema, proteinuria and eclampsia (20 %),
- Complications of labour and delivery namely fluxus postpartum (16%),
- Abortive outcomes of pregnancies (12%),
- Complications related to delivery namely solution placenta (7%)
- Complications related to puerperium namely thrombosis (7%).^{79 80}

The national capacity in emergency obstetric care and the registration system, including maternal mortality case investigations, needs strengthening in order to keep the mortality rate as low as possible.

Although the national fertility rate declined from 7.10 in 1964 to 5.51 in 1972, 3.57 in 1980 and 2.52 in 2004, there are significant differences between socio-economic and ethnic groups.⁸¹

Infant mortality

Children are considerably vulnerable to negative health outcomes especially those under the age of five, infants. A complex combination of factors contributes to child mortality, specifically determinants (including social, economic, and environmental), as well as the development status of the health services in the country. The Infant Mortality Rate IMR remained almost stable from 20.2 in 2000 to 20.3 in 2009. The main causes of death were respiratory diseases (29%), congenital malformations (34%), bacterial sepsis (15%) and short fetal growth (13%). This means that there remains discrepancy between the current IMR and the MDG target for 2015, which is set at 7, as the baseline for 1990 was 21.1.⁸²

⁷² MOH, NHIS, Core Health Data 2010 update

⁷³ Algoe, M. Health Related MDG Update 2009. Ministry of Health Suriname. June 30, 2009

⁷⁴ MOH, NHIS

⁷⁵ R.Ori, Maternale Sterfte 2005 – 2006, page 5 - 8

⁷⁶ Punwasi, W. Doodsoorzaken in Suriname 2008 – 2009 page 6

⁷⁷ GOS. Millennium Development Goals Baseline Report 2005 - SURINAME

⁷⁸ MOH, NHIS, May 2008

⁷⁹ R.Ori, Maternale Sterfte 2005 – 2006, page 5 - 8

⁸⁰ M.Algoe, M.Jubithana, M.B. Mohab-Ali and R.Ori, Social Determinants of Health related to Maternal Mortality in Suriname

⁸¹ Report of the Director of Health 2005-2007- Republic of Suriname. Ministry of Health; 2009

⁸² Government of the Republic of Suriname. Millennium Development Goals Baseline Report 2005 - Suriname

Table 3: Maternal and Neonatal Health Indicators, 2000 – 2009

Indicators	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Estimated mid-interval population	463,837	470,064	476,374	482,769	492,829	499,009	504,257	509,970	517,052	524,143
Total births	10044	9919	10382	9882	9305	8857	9532	10005	10,309	9,987
Live births (CBB)	9804	9717	10188	9634	9062	8657	9311	9769	10,097	9,792
Birth Rate (per 1,000 pop.)	21.9	21.5	22.3	20.5	18.8	17.7	18.9	19.4	19.5	18.6
Deaths (CBB)	3090	3099	3125	3154	3319	3392	3247	3374	3,357	3,293
Mortality Rate (per 1,000 pop.)	6.9	6.9	6.8	6.7	6.9	6.8	6.4	6.6	6.5	6.3
Perinatal deaths	351	291	310	367	366	307	320	349	332	321
Perinatal Mortality Rate	35.8	29.2	31.7	37.1	39.3	34.7	33.6	35.2	32.4	32.1
Still Births (Epi BOG)	240	202	194	248	243	200	221	236	212	195
Still Birth Rate	23.9	20.4	18.7	25.1	26.1	22.6	23.2	23.8	20.6	19.5
Early Neonatal deaths	111	89	116	119	123	107	99	113	120	126
Early Neonatal Mortality Rate	11.3	9.2	11.4	12.4	13.6	12.4	10.6	11.6	11.9	12.9
Late Neonatal deaths	20	16	28	10	10	12	29	24	22	31
Late Neonatal Mortality Rate	2	1.6	2.7	1	1.1	1.4	3.1	2.5	2.2	3.2
Neonatal deaths	131	105	144	129	133	119	128	137	142	157
Neonatal Mortality Rate	13.4	10.8	14.1	13.4	14.7	13.7	13.7	14	14.1	16
Post Neonatal deaths	67	49	71	63	41	54	45	53	42	42
Post Neonatal Mortality Rate	6.8	5	7	6.5	4.5	6.2	4.8	5.4	4.2	4.3
Infant deaths	198	154	215	192	174	173	173	190	184	199
Infant Mortality Rate	20.2	15.9	21.1	19.9	19.2	20.2	19.1	19.8	18.2	20.3
Deaths in Children 1-4 yrs	69	57	45	38	48	41	53	34	44	41
Deaths in Under fives	267	211	260	230	222	214	226	224	228	240
Under 5 Mortality Rate	27	21.7	22.6	23.9	24.5	24.7	24.3	22.9	22.3	23.3

Source: National Health Information System (NHIS) – MOH

The Perinatal Mortality Rate decreased from 35.8/1,000 live births in 2000 to 32.1/1,000 live births in 2009. The hospital perinatal surveillance system and the mortality surveillance system of the Bureau of Public Health showed that the number of stillbirths decreased from 240 in 2000, to 195 in 2009^{83, 84}

Neonatal Mortality Rate has increased from 13.4 (131 deaths) in 2000 to 16.0 (157 deaths) in 2009. Neonatal mortality can be subdivided: early neonatal deaths and late neonatal deaths. The early neonatal mortality rate (deaths occurring during the first seven days of life per 1,000 live births) in 2009 was 12.9 (126 deaths), up from 11.3 (111 deaths) in 2000. Additionally the late neonatal mortality rate (deaths after the seventh day but before the 28 completed days of life per 1,000 live births) in 2000 was 2.0 (20 deaths) and increased to 3.2 (31 deaths) in 2009.⁸⁵ In contrast, there was a decrease in the post-neonatal mortality rate the Postneonatal mortality rate also decreased from 6.8/1,000 live births in 2000 to 4.3/1,000 live births in 2009.

From 2000 to 2009 the main causes of death among children aged 28 days – 1 year were congenital malformations and diseases originating in the perinatal period and Infectious diseases (respiratory infections, sepsis, and gastrointestinal infections). When comparing this indicator with the regional data, the IMR for Suriname is similar to that of other non-Latin Caribbean countries.⁸⁶

Child Health

According to the 2004 census data, Suriname has a total 0-4 population of 51,837 (26,233 males and 25,567 females) and a total of 5-9 population of 49,409 (25,195 males and 24,206 females). From 2000 to 2009 the main causes of death in the age group 1 – 4 years old were external causes (accidental drowning, accidental suffocation, traffic accidents) and infectious diseases (respiratory infections, sepsis, and gastrointestinal infections and HIV).

The number of deaths in the children aged 1 – 4 years decreased from 69 in 2000 to 41 in 2009. The under-five mortality rate decreased from 27 in 2000 to 23.3 in 2009. The baseline for <5 mortality rate was 31 in 1990, and the MDG target for 2015 is set at 10.⁸⁷ The <5 Mortality rate for Suriname is also similar to that of other non-Latin Caribbean countries⁸⁸.

There were annually about 15 deaths among 5-9 years from 2000 to 2009 and the main causes of death were external causes, and to a lesser extent infectious diseases.

As demonstrated by Figure 14, the Perinatal mortality rate (PMR), and the Under-5 mortality rate (U5) are declining and the infant mortality rate is increasing.

⁸³ Punwasi, W. Doodsoorzaken in Suriname 2005-2006, BOG Aug. 2007 and Punwasi, W. Doodsoorzaken 2007, BOG June 2009

⁸⁴ Punwasi, W. Doodsoorzaken in Suriname 2008 – 2009 page 18 tabel 14.1

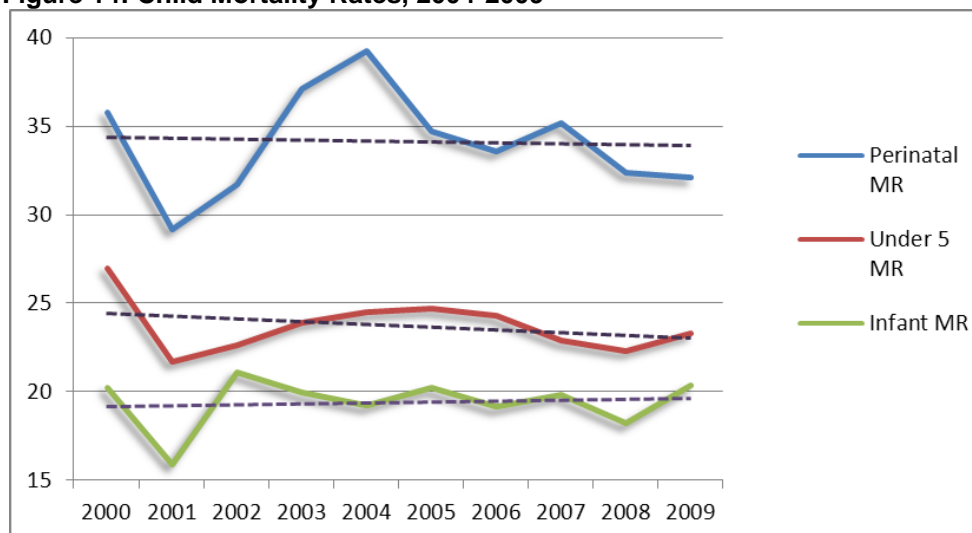
⁸⁵ Source: NHIS – MOH

⁸⁶ PAHO. Basic Indicators for the Americas. Washington, 2007 (data most recent, often 2005) in Burden of Disease and NHIS, Maria Paalman, February 2008

⁸⁷ Government of the Republic of Suriname. Millennium Development Goals Baseline Report 2005 - Suriname

⁸⁸ PAHO. Basic Indicators for the Americas. Washington, 2007 (data most recent, often 2005) in Burden of Disease and NHIS, Maria Paalman, February 2008

Figure 14: Child Mortality Rates, 2004-2009



Source: National Health Information System (NHIS) - MOH

Vaccine Preventable Diseases

The Ministry of Health is committed to the principles of the Expanded Program of Immunization (EPI) to bring a complete package of safe and timely vaccination to its population, specifically to protect the target groups against vaccine preventable diseases. The program is implemented by the Bureau of Public Health, under technical guidance by the EPI Technical Committee, with representatives from the BOG, RGD, MZ, MOH, UNICEF, and PAHO.

Currently, the program covers the basic vaccinations for children 0 - 5 years, school children and pregnant women. Seasonal influenza and Influenza A (H1N1) were added to the program in 2009 and 2010 respectively. As a result, introduction of Seasonal Influenza Vaccine in the regular program and a vaccination campaign with Influenza A(H1N1) vaccine showed low response, of around 50% from the general population, as well as the specified target groups.

Hepatitis B vaccination is provided to all health workers. The hospitals also participate in a hospital bases infection control program and keep a reporting system of sharps/needle accidents. A step-wise approach including proper hand washing practices, injection safety and infection control is being prepared as part of a patient safety program.

The EPI Technical Committee has been commissioned by the Ministry of Health to advise the Ministry on immunization matters and to technically guide the vaccination program. Within this mandate, discussions are focusing on the introduction of new vaccines in the schedule, amongst others: Rotavirus, BCG, Pneumococcus, and Human Papilloma Virus. Discussions also include the expansion of the program with a second dose of MMR vaccine, issues regarding reporting on a timely basis and vaccination coverage in certain communities. The introduction of a national immunization database registry is currently being pilot tested.

The immunization coverage increased gradually over the past years, reaching a national average in 2009 of 91.1% for the 3rd dose of Pentavalent and OPV vaccinations and 89.6% for MMR vaccination. Yellow Fever vaccination, only given in the hinterland area, reached 78.6%.

The last case of measles was reported in 1991 and there have been no reports of yellow fever or polio for decades. Three neonatal tetanus cases were reported in 2001 and 2 cases in 2003.

Despite high public awareness on the benefits of vaccination, pockets of low vaccination coverage still exist, specifically in the hinterland and in some coastal communities, as a result of movement of the peoples between the urban and rural areas.

Moreover, there is a difference seen within and between the coverage in the service area of the Medical Mission and the service area of the RGD. The East Suriname Region shows the lowest coverage which may be the result of cross border movement of the population to and from French Guyana, where the social benefits are better than in Suriname. In order not to lose these benefits, parents choose not to disclose the vaccination status of their children if the child was vaccinated at the other side of the border river. Recently, an agreement was reached with the French authorities to interchange vaccine related coverage between both sides of the border.

The differences between the regions can be attributed to the difficult geographic accessibility of the services in the hinterland and migration of the population between the hinterland areas and the city.

The central reporting of the annual new births and a breakdown in rayons or regions make it difficult to calculate the denominator for vaccination coverage, hence coverage figures need some caution when interpreting these. Another factor of concern is the fact that different geographical borders for districts are being utilized by the statistics bureau and the vaccine implementing institutions.

The lack of a central immunization database results in incomplete data at clinic level, indicating children lost to follow-up in the system however, the IDB currently has a project to address this issue in cooperation with the MOH. The same explanation can be given for the difference in coverage between the RGD clinics in the coastal area and the over 100% coverage in some Rayons.

Table 4: Vaccination coverage by Region

Region/Rayon Coverage in 2009	3d Dose Pentavalent Vaccine and Oral Polio Vaccine	Measles/Mumps/Rubella	Yellow Fever
Upperland Amerindians & West Suriname (144)	81.3	93.7	92.3
Upper Suriname(599)	89.6	87.9	78.0
Brokopondo (361)	104.2	87.4	82.4
Central Suriname (38)	55.3	74.3	57.1
East Suriname (432)	43.3	69.3	72.5
Average Medical Mission (1574)	78.7	83.5	78.6
Rayon I (1061)	83.4	88.4	
Rayon IIA (1093)	96.4	93.1	
Rayon IIB (614)	131.2	101.3	
Rayon III (1434)	96.8	89.7	
Rayon IV (1051)	95.8	102.2	
Rayon V (486)	109.5	83.7	
Rayon VI (175)	68.4	62.3	
Rayon VII (162)	117.4	78.1	
Rayon VIII (479)	86.9	92.0	
Average RGD (6555)	95.8	92.0	
National Average (9834 includes private clinics)	91.1	89.6	

Note : YF (Yellow Fever) vaccine only administered in the hinterlands by MM

Pentavalent vaccine includes: Diphtheria, Pertussis, Tetanus, Hepatitis B, Haemophilus Influenza b.

MMR Includes: Measles, Mumps, Rubella.

Adolescent and Youth Health

According to the 2004 census data, Suriname has a total population of 135,494 (68,766 males and 66,680 females) in the age group 10-24 years (youth), from which a total of 91,651 (46,336 males and 45,281 females) in the age group 10-19 years (adolescents).

In 2007 the total number of death was 72 (53.1 per 100,000); 50 males (72.7 per 100,000) and 22 females (32.9 per 100,000). External causes were the main cause of death among the youth (10 to 24 years of age).. The second cause of death was HIV/AIDS, with 9 deaths; 2 males, 7 females.

This indicates that the focus for mortality and morbidity should be on the (risk) behaviors of adolescents: unsafe sexual practices, resulting in unplanned pregnancies, contraction of STI's (including HIV), Substance Abuse and Violence and Injuries.

The 2009 Suriname GSHS⁸⁹ among 1.698 students of 13-15 years not only shows the main risk behaviors, but also gender differences: boys show a higher percentage in currently (past 30 days) smoking (12.5 vs. 8.6 for girls), drinking (35.6 vs. 30.0 for girls), and drinking excessively (21.0 vs 9.0 for girls), although girls show a higher percentage in ever tried smoking (80.9 vs. 76.3 for boys). The percentage for ever trying alcohol is almost the same at 74.2 for girls and 73.7 for boys.

Boys show a higher percentage of involvement in physical fights (30.4 vs. 12.3 for girls) and unintentional injuries (37.1 vs. 23.6 for girls), while girls show a higher rate of considering suicide (15.7 vs. 11.4 for boys) and actual suicide attempts (11.1 vs 4.2 for boys).

The GSHS among youth 13-15 years of age shows that boys have a higher score in engagement in sexual intercourse (31.9) than girls (18.3) and that 24.4% of the students already had sexual intercourse. Among these, the percentage that used a condom the last time they had intercourse was 71.6%.

Sexual risk behavior is demonstrated by contraction of an STI (incl. HIV) and/or unplanned pregnancy. Both outcomes result from absence or inconsistency in condom use. The adolescent birth rate only showed a slight decrease from 64.6 in 2003, 63.1 in 2004, to 58.4 in 2005 and 58.5 in 2006, and increased to 62.4 in 2007⁹⁰. Teenage pregnancies accounted for 16.1% of all pregnancies for the period 2003-2007.

A study in 's Lands Hospital⁹¹ shows that from a total of 1,645 deliveries, 24% or 401 were girls between 9 and 19 years in 2007 (average age 17,8 y), and from a total of 2315 deliveries in 2008, 18% or 422 were girls between 9 and 19 years , (average age 18y). Although this is not a national representation, it is a valuable indication of the deliveries among adolescents, as the majority of the births are taking place in 's Lands (40.2% in 2004)⁹²

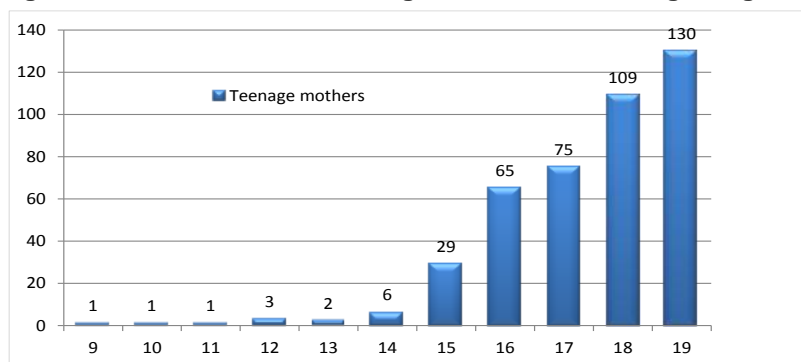
⁸⁹ Global School Health Survey GSHS 2009 Fact Sheet Suriname

⁹⁰ Algoe, M. Health Related MDG Update 2009. Ministry of Health Suriname. June 30, 2009

⁹¹ BOG 2009, Hanne-Marei Floor, medical student from the Netherlands, report internship

⁹² ICPD +10 Report, MOH, UNFPA and ProHealth, April 2006

Figure 15: Distribution of Teenage Mothers According to Age in 2008



Source: 's Lands Hospital

A “Pilot Pathfinders Survey” in August 2004⁹³ under children of 4, 12 and 15 year provided a national average Decayed, Missing and Filled Teeth (DMFT) that is higher in the peri-urban and rural areas, indicating that there is better dental health in urban areas. The report concluded that the dental health situation under 4 years old is a reason of concern. The study recommended a thorough survey on “feeding bottle caries” and preventive/educative programs for parents, as well as a preventive dental program in day care facilities, kindergarten and consultation bureaus.

Health of the Elderly

According to the 2004 census, the urban, coastal rural and rural interior areas have a population of over 60 years old at 8.8%, 8.6% and 7.7% respectively.

A focus group study in 2004^{94,95} indicated the need to further explore the relationship between the provision, or the lack, of “integrated health services” and the health of the elderly population and well-being. Available day care centers, adequate elderly homes and affordable home-care do not meet current demand for these services. There is also a need for better-organized logistics and support services, including supply of medications, transportation to and from the clinic, simplified administrative procedures (e.g. to obtain a social-medical card). The study also suggested that further exploration into the situation, by examining relevant factors that influence the organization, management, and delivery of integrated health services within the PHC system.

Further actions should lead to a better understanding of the supportive role of community based care as a means to improve access and utilization of services, and to identify factors that may either lead to an accelerated functional decline or the compression of disability as individuals age.

The living conditions of the elderly population in the hinterland deserve special attention due to insufficient basic services, including water and food supply, sanitation and special geriatric care.

Within the continuum of care approach to family health, there is need for integration between the programs for the different age categories.

⁹³ Resultaten mondonderzoek in Suriname, Stichting JTV, Augustus 2004

⁹⁴ Country profile on the Ageing Population – PAHO Suriname, May 2004

⁹⁵ Country Report Focus Group Discussions on the Ageing Population, PAHO Suriname, June 2004

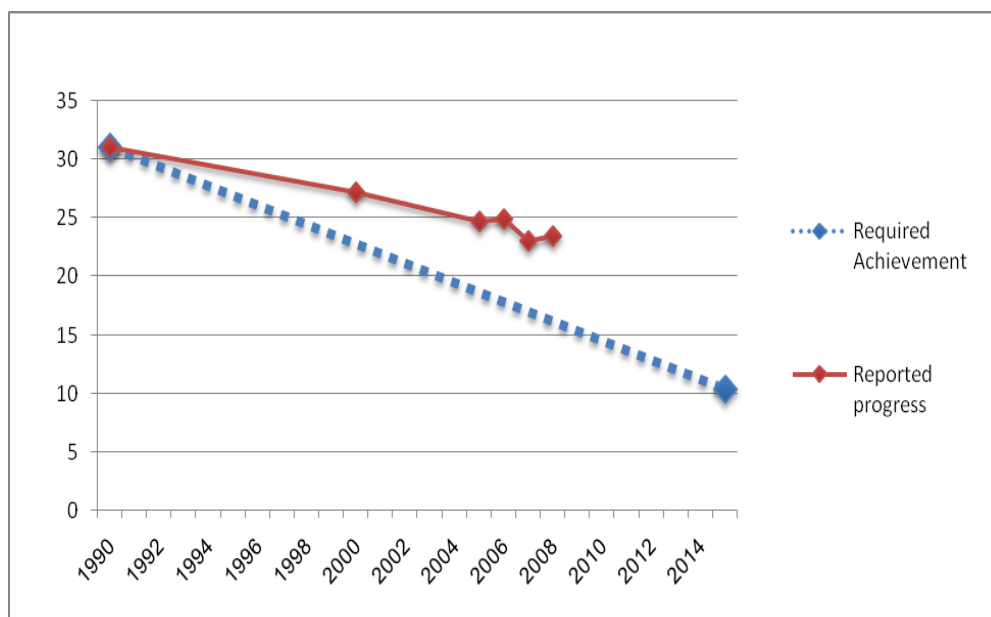
2.2.4. Commitment to Achieving the Millennium Development Goals

In 2010, the government produced the MDG Progress Report 2009, which indicated that almost all MDGs had a 'probable' or 'potential' chance of attainment.⁹⁶ The Ministry of Health also published an update on all health related MDGs (MDG 1, MDG 4, MDG 5, MDG 6, MDG 7 and MDG 8) which indicated the progress and challenges towards their attainment.

Of the targets that are most on track, Target 1c, to halve, between 1990 and 2015 the proportion of people who suffer from hunger, has illustrated a downward trend in prevalence of underweight children under-five between 2000 (15.1%)⁹⁷ and 2006 (9.9%).⁹⁸ Also, Target 5a, the reduction of the Maternal Mortality Rate (MMR) has shown a significant decline in from 226 (per 100 000 live births) in 1990 to 153 in 2000 and 122.5 in 2009.⁹⁹

Most Notably, Target 6c, to have halted by 2015 and begun to reverse the incidence of malaria and other major diseases has been met for Malaria with a dramatic decline of Annual Parasite Incidence (API) associated with Malaria (per 1000 of population in high risk) from 342 in 1995 to a rate of 30 in 2008.¹⁰⁰ The death rates associated with Malaria have demonstrated further excellence in the public health initiatives in the area having dropped from 5.9 (per 100 000 of population) in 1995 to 0 in 2008.¹⁰¹

Figure 16: Reduce by two-thirds, between 1990 and 2015, the under-five mortality rate



Meanwhile, the targets that require more attention to ensure their achievement by 2015 are those associated with MDG 4 and MDG 6. Although the progress towards MDG 4, Reduction of Child Mortality, shows a steady trend with slight decreases, the child mortality rate remains visibly off track towards the desired target of a reduction of two-thirds by 2015 (See figure 16).

⁹⁶ Government of the Republic of Suriname. MDG 2009 Progress Report. Paramaribo, Suriname. 2010

⁹⁷ Algoe, M. Health Related MDG Update 2009. Ministry of Health Suriname. June 30, 2009

⁹⁸ GOS/UNICEF. MICS 2006

⁹⁹ Algoe, M. Health Related MDG Update 2009. Ministry of Health Suriname. June 30, 2009

¹⁰⁰ Algoe, M. Health Related MDG Update 2009. Ministry of Health Suriname. June 30, 2009

¹⁰¹ Algoe, M. Health Related MDG Update 2009. Ministry of Health Suriname. June 30, 2009

The barriers of access to adequate services and suitable support infrastructure, specifically in the remote areas have proven to be a major challenge to the achievement of this goal. This highlights the need to improve integration of preventative primary health care and public health education on basic life skills.¹⁰² Barriers and challenges require adequate assessment and response in the area of child mortality in order for MDG 4 to be met in 2015.

Furthermore, there remain challenges to the attainment of MDG 6: Combat HHIV/AIDs, Malaria and other diseases, with an increasing prevalence in HIV from a reported 0.3% in 1990 to 1% in 2008.¹⁰³ The reported incidence of Tuberculosis also remains off-track with an increase in both incidence (from 20.1 to 22.1) and death rates (0.9 to 2.1) between 2000 and 2008.¹⁰⁴

Systematic and routine collection of data on the indicators requires strengthening. Currently, the progress on the Health Related MDGs is tracked through the routine data collection and surveys by ministry of health, annual statistic yearbooks and the MICS, done every 5 years.

¹⁰² Government of the Republic of Suriname. MDG Progress Report 2009. Paramaribo, Suriname 2010

¹⁰³ Algoe, M. Health Related MDG Update 2009. Ministry of Health Suriname. June 30, 2009

¹⁰⁴ Algoe, M. Health Related MDG Update 2009. Ministry of Health Suriname. June 30, 2009

2.2.5. International Health Regulations

In June 2007, the International Health Regulations (2005) came into force and all WHO Member States, including Suriname, should adhere to these regulations. The Member States have until June 2012 to build, strengthen and maintain the 13 capacities under these regulations.

The Bureau of Public Health has been designated as the National IHR Focal Point to be accessible at all times for communications for the IHR (2005). Much work has been done, but further strengthening is needed in the 8 core capacities (national legislation & policy, coordination, surveillance, response, preparedness, risk communication, laboratory, human resource capacity for surveillance & response).

Strengthening is also needed in the 5 capacities for potential hazards (infectious disease, zoonotic event, food safety event, chemical event, radiological & nuclear event) as well as for the capacity in the points of entries.

Foster global partnerships Awareness activities have been carried out for various sectors (health, tourism, education, agriculture). The custom / immigration -, defense -, environmental, laboratory officers have been trained in aspects of the new IHR. Various intersectoral meeting have been held to mobilize resources for effective implementation.

The Minister of Health of Suriname has also installed 2 committees to develop the necessary policies for the IHR and to monitor and guide implementation. These committees are:

- Multi-sectoral Port Health Committee (installed in 2008); a subcommittee in 1 border district is recently installed in 2010, with main task to develop systems in relation to IHR on airport, seaport and ground crossings
- National Health Sector Disaster Committee (installed in 2008)
- National Health Disaster Commission with main task to develop policies on early detection, quick response & control and medical care in public health emergencies

For strengthen the national disease surveillance, prevention, control and response systems 2 plan has been developed These are:

- IHR action plan for the strengthening of the Bureau of Public Health as National Focal Point IHR
- Multi-sectoral work plan for the strengthening of core capacities at national and district level

Key activities identified in Multi sectoral plan are:

1. revision current infectious disease manual to an IHR manual with a multi hazard approach
2. Training of professionals
3. Execution of legislative assessment
4. Assessment of point of entry
5. Identification of designated point of entry revision current infectious disease manual to an IHR manual with a multi hazard approach
6. Training of professionals
7. Execution of legislative assessment
8. Assessment of point of entry

The Bureau of Public Health has already a national surveillance manual in place which includes a list of reportable diseases. However this manual needs to be updated according the IHR. A surveillance system is in existence on local and district level; including a “telephonade system for early warning symptoms. ARI/SARI surveillance has been in existence since a couple of years and this surveillance has been expanded during the H1N1 epidemic. Cooperation with other health institutions has been expanded, esp. for ARI/SARI (6 policlinics are cooperating, including private clinics) and for Dengue project.

Strengthen public health security in travel and transport and Strengthen WHO global alert and response systems: A hotline is in place at the Bureau of Public Health. A RRT is only available at the national level and needs to be expanded to the district level.

Systematic international and national management of the risks known to threaten international health security, such as influenza, meningitis, yellow fever, SARS, poliomyelitis, food contamination, chemical and radioactive substances. An active surveillance system is in place for early detection of risks. Besides this system, there is a passive surveillance system, including communicable diseases and a hotline at the Bureau of Public Health.

As focal point for IHR the Bureau of Public Health needs to be strengthened in procedures and equipment to act alerted on notification of events from the local level and from to Bureau of Public Health to WHO.

Suriname has an active good working by law and budgeted National Immunization Program (NIP)

The management of waste disposal of chemical and radioactive substances is coordinated by the NCCR (a HASMAT team).

Inspection of food contamination is been done by the public health lab in collaboration with the environmental health inspection

New legal mechanisms as set out in the Regulations are fully developed and upheld; all professionals involved in implementing IHR (2005) have a clear understanding of, and sustain, the new rights, obligations and procedures laid out in the Regulations.

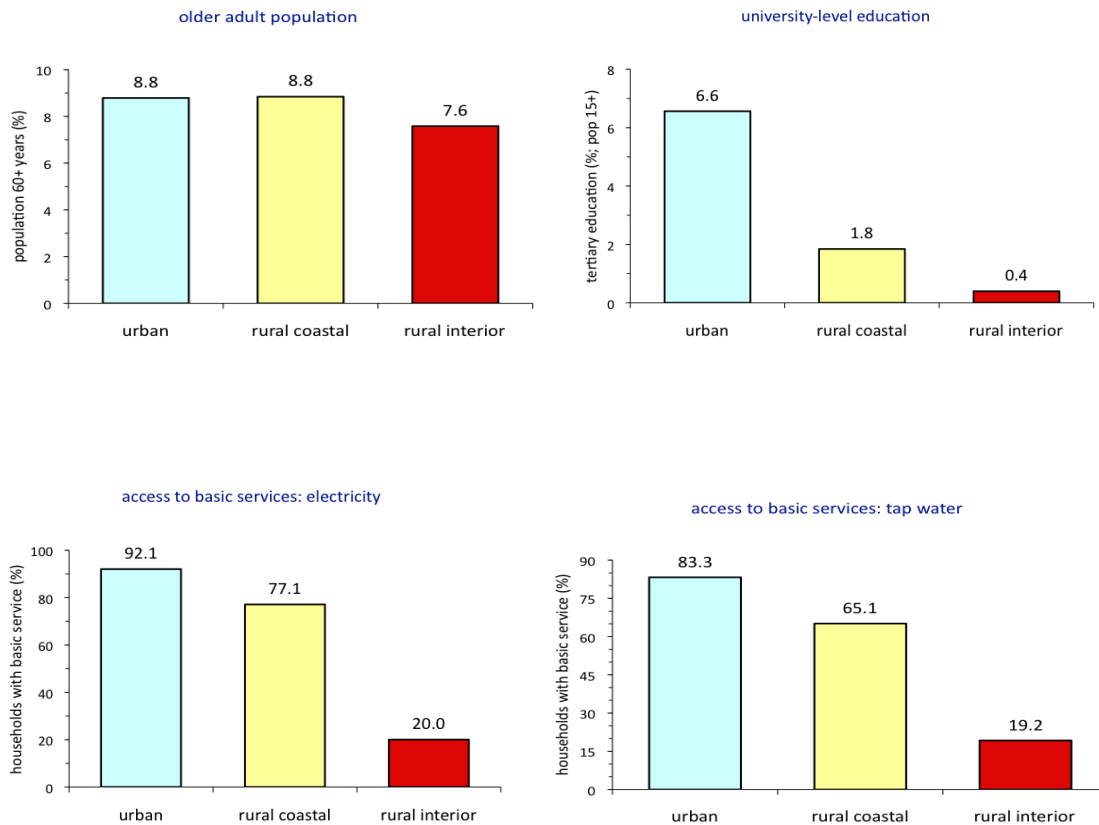
Review of the outdated legislation on communicable diseases has taken place. Some parts have been adapted and draft version of legislation has been presented to parliament for approval. Quite some areas in the Suriname legislation need to be improved to comply with the IHR.

2.3. Determinants of Health

2.3.1. Poverty

The UNDP human poverty index (HPI), a multi-dimensional index that measures life expectancy, literacy rates, and decent standard of living, in 2009 had a value of 10.2 for Suriname. This indicated a slight improvement from 2005 with an HPI of 10.9.^{105,106} When considering poverty from a human development perspective, longevity, education, and decent standards of living are all relatively impaired and unequally geographically distributed. (Figure 17)

Figure 17: Poverty from a Human Development Perspective by Regions 2004



Source: United Nations Development Program. Human Development Report 2009. New York 2009.

Poverty levels in Suriname are estimated through income and consumption using a basic food package (BFP) based on nutrition requirements. A person with insufficient means to provide for their own basic needs, predominantly food, is considered poor. By this definition, poverty in the urban areas of Paramaribo and Wanica, increased from 44.2% of households living below the poverty line in 2000 to 51.3% in 2008, although the average poverty depth decreased from 17.8% to 13.5% in the same period.¹⁰⁷ It is worth noting that some populations remain reliant on subsistence farming rather than monetary income to meet their needs.

¹⁰⁵ United Nations Development Program. Human Development Report 2005. New York, 2005.

¹⁰⁶ United Nations Development Program. Human Development Report 2009. New York, 2009.

¹⁰⁷ Government of the Republic of Suriname). MDG Progress Report 2009. Paramaribo, Suriname 2010

In 2009, the number of recipients of social benefits, as provided by the Ministry of Social Affairs, increased to the highest levels since 2005 (Table 5).¹⁰⁸ The average annual increase in recipients is greater than the 1.3% increase in population as stated in the Demographic Profile and Population Characteristics section of this report indicating an increase in the percentage of population that qualifies as poor and near poor. This increase in the number of people who need social benefits confirms the increase in poverty reported in the MDG Progress Report 2009.

Table 5: Total Number of Recipients of Social Benefits, 2005-2009

Total number of recipients	2005	2006	2007	2008	2009	Average annual increase (%)
Financial Support	6,299	6,742	6,669	7,308	7,696	4.5
Old Age Pension	40,473	41,098	41,926	42,818	43,475	1.7
Child Benefit	20,417	21,415	23,902	24,463	26,141	5.5
Public Health Care Benefits (rightful claimants)	n/a	66,906	69,112	73,369	76,609	4.2
Public Health Care Benefits (rightful claimants and dependents)	n/a	163,780	169,276	173,047	177,833	2.6

Source: Ministry of Social Affairs and Housing, Department of Scientific Research and Planning

Through the use of these multi-dimensional indicators, it is evident that the population in the rural interior of Suriname bears a disproportionate burden of poverty compared to its urban and rural coastal counterparts. While no analysis has been made comparing single- or women-headed households living in poverty, it is interesting to note that in the rural interior, 46.2% of households are headed by women while 31.1% and 20.0% of urban and rural coastal households, respectively, are headed by women. Poverty is still a problem within urban areas despite the overall high values of these indicators. Among resorts (neighborhoods) within Paramaribo and Wanica, access to tap water ranges between 25.2% and 97.7% of households. Among these same resorts, the percentage of the population with a tertiary education ranges from 1.5% to 10.7%. Poverty-stricken urban areas have indicators very similar to the rural interior regions.

2.3.2. Employment

Of the total labor force¹⁰⁹ in 2009 in the districts Paramaribo and Wanica, the most populated districts of Suriname, 42%, or 138,895 people, made up the economically active population¹¹⁰ which has increased annually an average of 1.7% between 2006 and 2009.¹¹¹ The number of employed persons increased an average of 3.2% annually between 2004 and 2008 but decreased by 0.6% between 2008 and 2009. Unemployment decreased from 12% in 2006 to 9% in 2009. Aside from 2008, the beginning of the global financial crisis, Suriname has experienced a steady increase in employment rates overall. When disaggregated by age, data for the entire country from the 2004 census show that youth between 15 – 24 years make up 28.8% of the economically active population and have an unemployment rate of 21.5%,¹¹² a disproportionate segment of the unemployed.

¹⁰⁸ ABS. Statistical Yearbook 2009. Algemeen Bureau voor de Statistiek; 2010

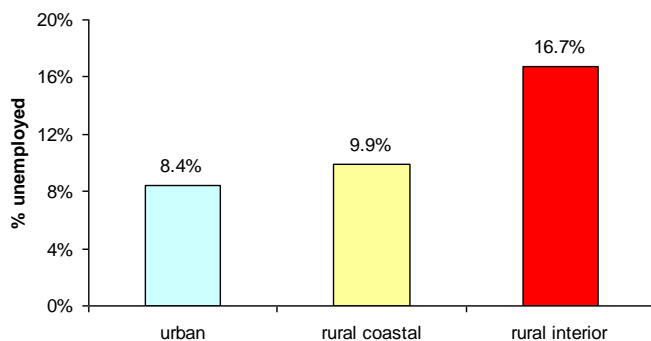
¹⁰⁹ The total labor force is the total population between the ages of 15 and 65.

¹¹⁰ The economically active population consists of all people aged 15-65 who are employed or actively seeking employment.

¹¹¹ ABS. Statistical Yearbook 2009. Algemeen Bureau voor de Statistiek; 2010

¹¹² ABS. Census 2004 Volume I: Demografische en Sociale Karakteristieken; Algemeen Bureau voor de Statistiek August 2005

Figure 18: Unemployment Rate by Region, 2004



Data from the 2004 census also reveal a disproportionate rate of unemployment in the rural interior (Figure 18). Geographic disparities in employment rates could be attributed to the issues of access to opportunity. Aside from resource extraction activities, both formal and informal, the majority of economic sectors are located centrally in the urban or coastal areas.

provider in the country.¹¹³ Approximately 50.2% of government employees are women. People employed by the government include teachers, police officers, and nurses as well as public officials. More than 25% of government employees are teachers.¹¹⁴

The government employed approximately 40,000 people in 2009 and is the biggest job

From a gender equity perspective, 45.2% of all women aged 15-65 are economically active and 13.7% of economically active women are unemployed.¹¹⁵ The 2004 census data showed that the income distribution was slightly more unequal in men than in women (Gini 0.53 and 0.55, respectively).

Typical salary levels are such that people frequently supplement their income with second or third jobs often in the informal sector. At present, there is no minimum wage and the formal work week is 37.5 hours. Many people put in additional hours on second and third jobs in order to sustain themselves and their families. Estimates indicate that 20% of the GDP is due to the informal sector including small-scale gold mining and logging.¹¹⁶

2.3.3. Education

In Suriname education is compulsory for children between 7 and 12 years of age¹¹⁷ however the first year of primary school (GLO) is intended for children 6 years of age. Primary school is intended for students aged 6 to 11 years of age. During 2008, 92% of 6-year-old children attended the first grade of primary school, which is consistent with 2000 rates. Some studies have shown that school attendance of 6-year-olds in the interior may be significantly less. During the 2008-2009 school year, 69,979 pupils were enrolled in 334 primary schools.¹¹⁸ Among children 12 to 17 years of age, 61% are attending secondary school, 21% are still attending primary school, while 18% are no longer attending school.¹¹⁹

¹¹³ ABS. Statistical Yearbook 2009. Algemeen Bureau voor de Statistiek; 2010

¹¹⁴ ABS. Statistical Yearbook 2009. Algemeen Bureau voor de Statistiek; 2010

¹¹⁵ ABS. Census 2004 Volume I: Demografische en Sociale Karakteristieken; Algemeen Bureau voor de Statistiek August 2005

¹¹⁶ Health in the Americas, PAHO 2007

¹¹⁷ Onderwijsstatistieken Indicatoren en Trends 2008-2009, Onderzoek en Planning, Ministerie van Onderwijs en Volksontwikkeling, September 2010

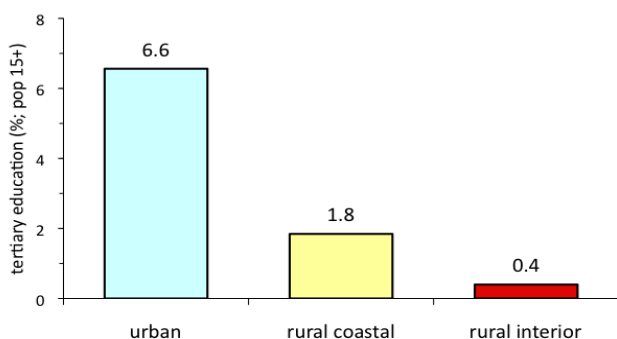
¹¹⁸ Ministry of Education and Community Development, Section of Research and Planning, www.emis-sr.org

¹¹⁹ GOS/UNICEF. MICS 2006

At the secondary level, 44% of children 12 to 17 years of age living in the interior are no longer attending school.¹²⁰ The reasons for disparities in educational enrollment at both the primary and secondary level between urban and interior residents can be attributed to barriers in access to educational facilities and a paucity of qualified educational staff.¹²¹ There are few secondary schools in the interior which forces children who wish to continue their education to travel to urban areas. The cost accompanied with boarding secondary school children may be prohibitive to many families in the interior. Further disparities in enrollment by strata are seen at the tertiary level, specifically in university education where barriers to access are heightened by the cost and location on the University in Paramaribo. (Figure 19)

Two issues prevalent throughout the educational system are high dropout rates and high rates of students who are not able to advance to the next class. During the 2008-2009 school year, 17% of GLO students were not able to advance. Data disaggregated by district and economic status reveal failure rates up to 36%. Failure rates through GLO are generally lower for girls, approximately 14.5%, than boys, approximately 19%. Between 2004 and 2009, failure rates have decreased in the districts of Para and

Figure 19: University Education by Region



Marowijne. MINOV acknowledges that research should reveal what has led to this decrease while rates in other districts have remained fairly static. The rural interior districts of Sipaliwini and Brokopondo had the highest rates of students not advancing to the next level over the 6 levels of primary school from 2007 to 2009.¹²²

Data from the Ministry of Education shows a steady increase in the percentage of girls in classes through the tertiary level of education due to apparent higher dropout and failure rates among boys. During the first year of

primary school, 46.9% of the students are girls and by the 6th year of primary school, 52.1% of the students are girls.¹²³ In secondary education, during the 2008-2009 school year, data provided by ABS indicates that 60.8% of MULO (Secondary General School) students and 52.4% of LBGO students (Secondary Vocational School) are girls. In Pre-University and Teacher Training colleges, 62.6% of the students are women. At Anton de Kom University, 64.6% of students are women.¹²⁴

The 2008 overall literacy rate of 15 -24 year olds is 93%, with little difference between the sexes.¹²⁵ However, 2006 literacy figures for women disaggregated by urban, rural coastal, and rural interior were 96.2%, 94.2%, and 45.0% respectively.¹²⁶ This emphasizes that a disproportionate challenge remains for the attainment of universal education, specifically in the rural interior.

¹²⁰ GOS/UNICEF. MICS 2006

¹²¹ Government of the Republic of Suriname. MDG Progress Report 2009. Paramaribo, Suriname 2010

¹²² Onderwijsstatistieken Indicatoren en Trends 2008-2009, MINOV, September 2010

¹²³ Ministry of Education and Community Development, Section of Research and Planning, www.emis-sr.org, accessed March 2, 2011

¹²⁴ ABS, Selected Gender Statistics Suriname, 2009

¹²⁵ Government of the Republic of Suriname. MDG Progress Report 2009. Paramaribo, Suriname 2010

¹²⁶ Literacy data was collected on women in MICS 2006

2.3.4. Gender

Gender disparities exist, not only in health, but in all sectors and at levels of society. The Government of Suriname recognizes its international commitment to the pursuit of gender equality, and has ratified and regularly reported on the International Convention to End all Discrimination Against Women (CEDAW). National Gender Bureau (NBG), residing under the Ministry of Home Affairs, is responsible for Gender Mainstreaming at the national level. The Integral Gender Action Plan 2006-2010 was the main tool to achieve that goal. The Gender Focal Points at all 17 ministries are also part of the mechanism of the NBG. These Focal Points were trained more than once, but the output is still not satisfactory, due to their limited mandate and the weak positioning of gender issues within the ministries. The Government also shows their commitment through the separate chapter on gender in the Multi-Annual Development Plan 2006-2011.

The indicators to monitor the achievements in MDG 3 "Promote Gender Equality and Empower Women" are in the area of Employment and Women and Decision Making.

Considering Gender Mainstreaming in Health, the Gender Focal Point of the Ministry of Health focuses on the planning unit to work on the implementation of the PAHO Gender Equality Policy, along the four strategic areas in the Plan of Action. Health data collection is disaggregated by sex and other relevant variables. However, the capacity to produce a solid evidence base (analysis and distribution of the information) still needs strengthening. Policies and programs are not yet systematically screened on a gender equality perspective in their development, implementation, monitoring and evaluation, nor are the existing policies gender responsive and institutionalized. There are some strong NGO's with a focus on gender equality. These are often consulted by the NBG. Civil society participation is not yet realized at all levels (national, regional and local).

2.3.5. Nutrition, Food Safety and Food Security

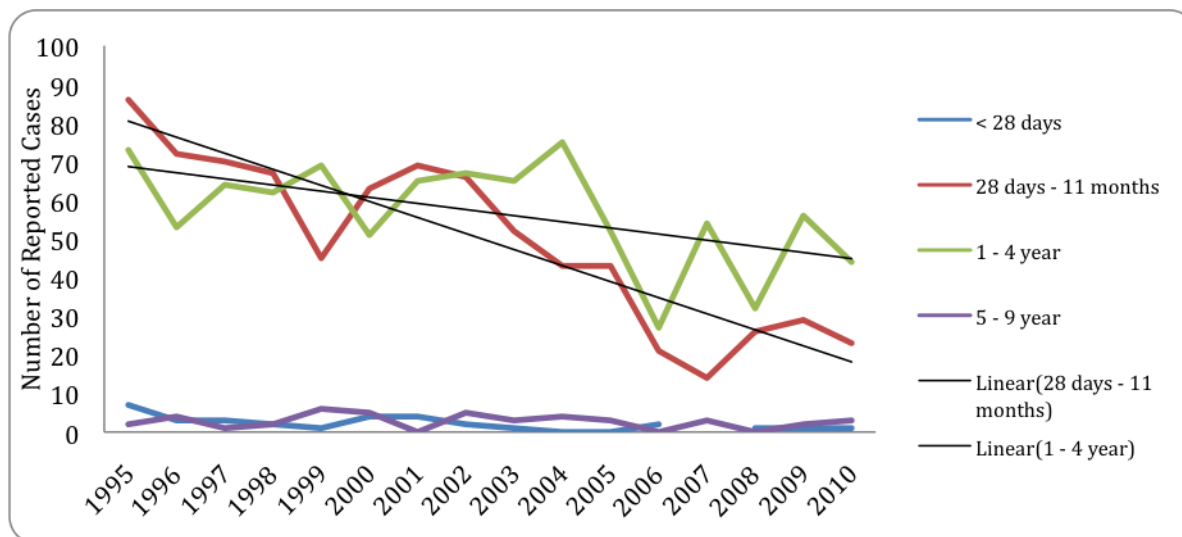
While there is limited data on the nutrition and health status of the Surinamese population, MICS 2006 data for children under age five (n= 2257) indicate 9.9% as moderately underweight, 0.8% as severely underweight, 7.7% as moderately stunted and 4.9% as moderately wasted. The interior areas had a higher percentage of severely stunted children as compared to nationwide (2.8% vs. 1.4%).¹²⁷

Data on malnutrition and hospitalizations for children aged <28 days to 10 years, from 1987- 1995, showed increasing number of cases, peaking in 1994-1995 (185-183 cases). Currently a downward trend has been noted in the number of cases, from 1995 – 2010, in all age groups but mostly in children aged 28 days – 11 months and 1 – 4 years. Overall, admission of children under five decreased in the last 15 years.¹²⁸ (See Figure 20)

¹²⁷ GOS/UNICEF. MICS 2006

¹²⁸ Eersel, M., Fränkel, A. The nutritional status of schoolchildren in Suriname. Pro Health , 1994

Figure 20: Hospitalization due to malnutrition in children aged <10 years, 1995-2010



Source: Epidemiology department, BOG

MICS 2006 data on overweight show that girls under five are slightly more frequently overweight (3.3% compared to 2.4% above +SD) than boys. The highest percentages are presented by children in the districts of Nickerie, Coronie and Saramacca (5.1%), followed by those in Wanica and Para (4.0%). Children whose mothers have tertiary education (7.5%) or belong to the richest wealth index quintiles (4.8%) also show the highest percentage of overweight.¹²⁹ The 2009 Global School Health Survey (GSHS) among children aged 13-15 years (n=1698), shows that approximately 7.5% are underweight and 26% are either overweight or obese.¹³⁰ This indicates a double burden of malnutrition and obesity in children in Suriname.

To address nutrition issues some standards and guidelines have been developed. WHO Child Growth Standards are incorporated in a new child health record. This has been piloted and it is concluded that restructuring of the neonatal and < 5 care is necessary.

A manual to improve the food supply at schools (kindergarten and primary schools) has been developed and piloted. To realize further implementation it is necessary to train involved school staff, to setup a support mechanism for schools, to initiate project activities aimed at promoting awareness among staff and schools and to initiate information campaigns to prepare healthy foods and snacks. In addition, it is recommended that measures are provided to make healthy food affordable at schools and that the conditions for selling safe food are met.¹³¹ For people with diabetes, hypertension and obesity a Surinamese guideline has been developed.¹³² In addition, nutrition guidelines have been drafted for people living with HIV/AIDS.

¹²⁹ GOS/UNICEF. MICS 2006

¹³⁰ Global School-based Student Health Survey. Suriname 2009

¹³¹ Gezond eten op de basisschool. Een handleiding voor het verbeteren van het voedingsaanbod op scholen voor kleuter-en basisonderwijs in Suriname. Bureau of Public Health, Suriname Association of Dietitians and UNICEF. Paramaribo, 2008

¹³² Wesenhagen, CJ. Het dieet bij diabetes. Lions Club Paramaribo South, Bureau of Public Health, Suriname Association of Dietitians, Foundation Diabetes Education Suriname and PAHO/WHO Suriname

Currently, a food consumption proposal is being finalized and will be presented to donor organizations and relevant government sectors to explore funding opportunities. The proposal includes a household and school based component, to determine the food intake, micro nutrient status, weight, height, hemoglobin of children aged 0-5 years and 6-10 years and incl. women aged 20-59 years. Dietary guideline will be developed based on the results of the food consumption survey.¹³³

In 2005, Suriname began designing a more comprehensive agricultural health and food safety system. In 2010, along with establishing the Caribbean Agricultural Health and Food Safety Agency (CAHFSA) in Suriname, a multipurpose, integrated laboratory capable for testing agriculture and other food products was set up. The upgrading of the analytical capabilities in food control will ensure the quality control of domestic and exported products. Proper structuring and functioning of the national Codex Alimentarius Committee and its work groups will advance national food regulations and standards.¹³⁴ To further safeguard national food safety issues, training of food handlers, regular inspection of food establishments and capacity building in safe use of pesticides is done by the Bureau of Public Health and the Ministry of Agriculture, Animal Husbandry and Fisheries.

There is insufficient focus on food security issues. Suriname is prone to flooding, particularly in the coast and some parts of the interior, which can affect food security due to loss of crops and inaccessibility. In 2007, a food security assessment was executed; vulnerable groups were identified in the urban, rural and interior areas. Key factors influencing food security were low education level, a decrease in risk management capacities, frequent flooding of farm land and limited financial capital. Addressing the needs of vulnerable groups is essential to prevent further deterioration of the food security situation.¹³⁵

Due to the devaluation of the local currency by 20%, in January 2011, an increase in general price level has been recorded at 13.7%. Food prices, both local and imported, have increased approximately with 17%. This, as well as the impact of the global food crisis will affect households and cause greater vulnerability to food and nutritional insecurity.¹³⁶ Increasing national prices for fuel- essential for productive activities- also threaten food security for those in the interior and the urban poor, with potential major health impact.

¹³³ Proposal for a national food consumption study for Suriname. Caribbean Food and Nutrition Institute and the Suriname Nutrition Survey Working Group. August 2010

¹³⁴ Report of the Director of Health 2005-2007- Republic of Suriname. Ministry of Health; 2009

¹³⁵ Food security assessment in Surinam. Promoting CARICOM/CARIFORUM Food Security/FAO. Proplan Consultancy/Ministry of Agriculture. Paramaribo, January 2007

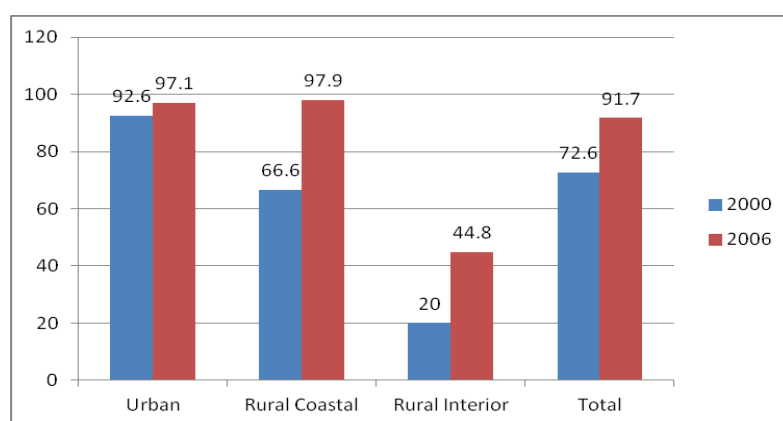
¹³⁶ Consumenten prijsindex cijfers en inflatie over januari 2011. Stichting Algemeen Bureau voor de Statistiek (ABS-23 februari 2011)

2.3.6. Environmental Health

Water

Overall, 91.7% of the population in Suriname has access to improved drinking water sources – 97.1% in urban areas, 81% in rural areas.¹³⁷ An improved drinking water source is defined as such based on the types of technology and levels of service that increase the likelihood of access to safe drinking water.¹³⁸ Rural coastal access is at 97.9% while coverage is only 44.8% in the rural interior areas of Brokopondo and Sipaliwini.¹³⁹ Despite enjoying a high level of access to improved water sources, the urban areas experienced a decline in access between 2000-2006, because the urban population grew at a faster rate than Suriname National Water Supply Company (SWM) and the government was able to provide improved drinking water services to new settlements.

Figure 21: Percentage of population using improved drinking water sources, 2000 - 2006



Source: Suriname MICS 2000 and MICS 2006¹⁴⁰

Of the households using unimproved drinking water sources, by region, the urban areas have a higher proportion using a cut pipe than the other regions (39.1%). Rural coastal households without access to improved sources are reported as relying on unprotected wells, unprotected springs, tanker trucks and surface water at similar proportions (4% each). However, it is important to note that in Suriname, the tanker-trucks are filled with tap or bottled water from Paramaribo- which is an improved water source, and are widely considered to be improved sources. In the rural interior areas of Brokopondo and Sipaliwini the main source of drinking water for the 55.2% of the households without access to improved drinking water is surface water (creeks, rivers and ponds) with 98.2% of households without access to improved sources using this source.¹⁴¹ For the households experiencing barriers in access, the differences, by region, in reliance on various unimproved sources bring with them different health risks. For instance, the use of cut pipes in urban areas creates a risk of contamination through contact with human or animal waste.

¹³⁷ 2010 Basic Indicators, PAHO

¹³⁸ WHOIS. (2008). *Indicator definition and metadata: Access to improved drinking water sources and Improved Sanitations (%)*. WHO: 2011. Accessed at: <<http://www.who.int/whosis/indicators/compendium/2008/2wst/en/>>

¹³⁹ GOS/UNICEF. MICS 2006 and Jaarboek Onderwijs indicatoren 2007 – 2008

¹⁴⁰ The MICS 2000 report did not include rainwater collection as an improved drinking water source but the 2006 report did.

The 2000 data shown in this graph includes rainwater collection as an improved drinking water source. The geographic definitions of urban, rural coastal and rural interior also changed between the two reports <no explanation was given as to why this change was made.

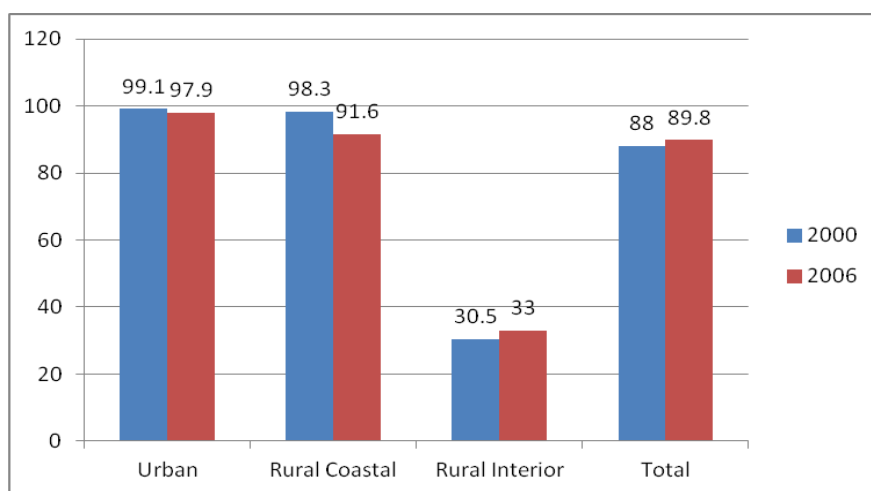
¹⁴¹ GOS/UNICEF. MICS 2006 and Jaarboek Onderwijs indicatoren 2007 – 2008

Nationally, the Ministries of Natural Resources, Regional Development and Public Works play a role in overseeing water service. The organization, Funds for the Development of the Interior FOB, is responsible for construction of facilities in the interior but NGOs also play a significant role. SWM and the BOG are responsible for water quality control, testing, and data management. Improved urban water quality surveillance and rural water treatment and monitoring are needed in Suriname but can only be achieved with financial support and an increase in training and trained staff within the BOG. A Water Master Plan is currently being developed for consideration by the government.

Sanitation

Overall 89.8% of the population of Suriname is living in households with access to improved sanitation facilities, 97.9% in urban areas, 91.6% in rural coastal areas and 33% in the rural interior.¹⁴²

Figure 22: Percentage of population with access to improved sanitation facilities, 2000 - 2006



Source: Suriname MICS 2000 and MICS 2006¹⁴³

Increased infrastructure coverage and complementary hygiene promotion is still needed in the interior of Suriname to improve basic hygiene. Under the leadership of the Ministry of Public Works and the Department for Civil Technical Services, past implementation of sustainable solutions in sanitation has been historically, challenging. Presently the Sanitation Strategic Plan for Suriname, financed by the IDB, is in draft form. The rapid improvements to the physical infrastructure of the drainage system in the urban areas have been underway for the last 5 years. However, challenges remain during rainy season when the risk of flooding increases and slow or blocked drainage of rainwater leads to dispersion of septic tank effluent fecal waste through floodwater into the wider environment. Existing drainage systems are clogged with silt and trash, particularly plastic bottles. Building upon the advancements in infrastructure of the past 5 years would likely help alleviate the city's flooding problem.

The percentage of households using both improved drinking water sources and sanitary means of excreta disposal is nationwide 86.8%: in the urban areas 95.4%, in the rural coastal areas 90% and 24.6% in the rural interior.

¹⁴²2010 Basic Indicators, PAHO

¹⁴³GOS/UNICEF. MICS 2000 and MICS 2006

Waste Management

Inappropriate management of waste creates significant environmental health challenges in Suriname. Inadequate waste management strategies with fragmented responsibilities, inefficient technical facilities in peri-urban and rural areas result in low coverage of waste collection services and insufficient financing, as well as environmental pollution. For medical and other biohazard waste the regulation and processes of collection, management, and incineration are weak and require strengthening in order to meet the demand presented by the waste generated nation-wide. As a way forward, the MOH signed an agreement with a local firm¹⁴⁴ for the proper dispose of medical waste on a nation-wide scale in February 2011,¹⁴⁵ There is no separation of waste products and thus leading to disposal of different kinds of household and industrial chemical waste on the designated public landfills. Collected faecal waste by private companies is disposed of in the river. The flooding of parts of residential areas in the rainy season due to the inadequate drainage poses environmental health treats from septic tanks runoffs. A national policy for the environmentally sound management of persistent toxic substances and waste is lacking and insufficient awareness exists in the different sectors of society on the dangers posed by the unsafe use and disposal of chemicals.

A government owned public landfill with uncontrolled disposal is located in the Wanica district, which serves the Great Paramaribo and Wanica district area, and transformation to a controlled landfill is considered since 2002. In the other districts the district commissioner assigns public landfills. Due to the limited capacities of current waste management services in the regions Paramaribo and Wanica, only 70% of the estimated 70,000 tons of waste generated annually is collected and in the other districts an estimate of 0 to 30% of the waste is collected and disposed of in open dumpsites.¹⁴⁶ The illegal dumping of household waste or the open burning of it although in small amounts remains a recurrent phenomenon in residential and rural areas. And there is a tendency to dispose waste as a fill-up for the preparation of private properties land inward or nearby the Suriname River. Recent studies have shown no increase in per capita waste generation, with Household waste estimated to make up 67% of total waste produced.¹⁴⁷

Environmental quality

Informal and small-scale mining, mercury is being released into the environment. Although many individual studies have been carried out, there is no comprehensive knowledge on the long- or short-term effects of mercury exposure through work, food, or general environment. Concern is increasing around the health impacts of exposure to mercury both through working in the mining industry and exposure to an environment contaminated by mercury released in the atmosphere during mining activities. The interior population that relies on rivers and streams as a source of water and food may be particularly vulnerable to health effects of mercury contamination.

Mercury released during mining activities eventually contaminates water sources, such as rivers. Mercury eventually accumulates in filter-feeding shell fish and plants and enter the food chain via fish, the chief source of protein in the local diet.

The import of pesticides per capita in Suriname remains very high,¹⁴⁸ with very weak control on its use despite regulated import. An assessment of the inherent risk caused by exposure is necessary since no data is available on the health impact of the extensive and unsafe use of pesticides in the country.

¹⁴⁴ It is projected that the local firm Recomsur, Recycling Company Suriname, will invest US\$ 200,000 in a professional waste treatment plant including an incineration oven.

¹⁴⁵ PAHO. (2008). *Health Care Waste Management in Suriname*. Paramaribo: PAHO.

¹⁴⁶ Inter American Development Bank. (2010). *Strategic Solid Waste Management Plan 2010-2020*. Paramaribo: IDB

¹⁴⁷ Inter American Development Bank. (2010). *Strategic Solid Waste Management Plan 2010-2020*. Paramaribo: IDB

¹⁴⁸ Report of the Director of Health 2005-2007- Republic of Suriname. Ministry of Health; 2009

Climate change

Concerns about the impact of climate change on the country rest primarily with the vulnerability of the low-lying coastal region and the changing rainfall patterns, both of which stand to effect the environment and the health of the population. Due to the low and flat topography of the coastal region, any rise in sea level would have major effects on the environment, human health and, because of the dense population in the coastal region, the socio-economic makeup for Suriname.¹⁴⁹ While few studies have been done on the high vulnerability of the coastal area a rise in sea level would effect land used mainly for agriculture purposes of rice and vegetable cultivation as well as wetland areas. Large sections of economic activity through the agricultural land use and industrial structures located mainly in the coastal area stand to be effected, causing a projected negative effect on the GDP.¹⁵⁰ As well, due to the dense population of the coastal area, approximately 80% of the population would stand to be impacted. Similarly, the interior remains vulnerable to flooding.

Additionally, the changing patterns in rainfall are expected to present unique challenges to the environment as well as bearing direct and indirect effects on the health of the population.

For instance, changing rainfall patters will affect fresh water resources, agricultural water resources, hydroelectric power and navigation as well as transportation to certain parts of the interior of the country accessible mainly by boat.¹⁵¹ Moreover, as climate conditions change, direct and indirect health impacts will occur. Direct human health implications include increased cataract, skin cancer, and other diseases linked to the immune system of humans due to the depleting ozone layer and erosion. As well, patterns in vector-borne diseases including Malaria, Dengue, Bilharzia, Lymphatic filariasis will be affected through changes in distribution and seasonal transmission.

Presently, Suriname is an active participant in international climate change initiatives and in 1997, ratified the Vienna Convention, and the Montreal Protocol as well as several other related conventions such as, the United Nations Convention on Climate Change, the Kyoto Protocol, and the UN convention to Combat Desertification.

¹⁴⁹ NIMOS. (2005) First National Communication Under the United Nations Framework Convention on Climate Change. Paramaribo, suriname. <http://www.nimos.org/pdf/documenten/Klimaatrapport.pdf>. <March 28.2011>

¹⁵⁰ NIMOS. (2005) First National Communication Under the United Nations Framework Convention on Climate Change. Paramaribo, suriname. <http://www.nimos.org/pdf/documenten/Klimaatrapport.pdf>. <March 28.2011>

¹⁵¹ NIMOS. (2005) First National Communication Under the United Nations Framework Convention on Climate Change. Paramaribo, suriname. <http://www.nimos.org/pdf/documenten/Klimaatrapport.pdf>. <March 28.2011>

Occupational Health and Safety

The main economic sectors in Suriname are mining, oil exploitation, wood, agriculture, fishery and animal husbandry and construction. Suriname has not ratified any of the ILO occupational safety and health conventions (Convention 155 on Occupational Safety and Health, Convention 161 on Occupational health services and the recent Convention 187, the Promotional Framework for Occupational Safety and Health Convention). In 2006, the country did ratify the Worst Forms of Child Labour Convention (Convention 182). In cooperation with the ILO, unions conduct campaigns to eliminate the worst forms of child labor.

Occupational risk factors present in the different occupational sectors in Suriname include safety hazards (falls, unsafe machinery related issues, road traffic injuries, etc), physical hazards (exposure to noise, etc.), biological factors (in the health care sector exposure to HIV and Hepatitis B), chemical hazards in agriculture, mining and industry, exposure to dust in the wood sector, ergonomic hazards and stress. The surveillance of the occupational risk factors is extremely weak.

During 2009 1,480 occupational accidents were reported¹⁵² Table 6 shows the types and number of reported occupational accidents in 2008 and 2009.

Table 6: Occupational Accidents, 2008-2009

Type of Accident	2008	%	2009	%
Stepping on objects; Being struck by striking objects	459	30.2	466	32.7
Falls	394	25.9	349	24.5
Falling Objects	203	13.3	198	13.9
Caught in or between objects	68	4.5	67	4.7
Overexertion or wrong movements	21	1.4	26	1.8
Exposure to or contact with extreme temperature	8	0.5	13	0.9
Exposure to or contact with electricity	4	0.3	6	0.4
Harmful substances of radiations	3	0.2	4	0.3
Other accidents not classified elsewhere	361	23.7	298	20.9
Total	1,521	100	1,427	100

Source: Statistical Yearbook 2009, ABS

In 2009, 18 deaths were attributed to occupational accidents, showing a fatality rate of 1% of reported injuries¹⁵³. Very few occupational or work related diseases are diagnosed or reported, thus hiding the true nature and magnitude of the problem.

The Ministry of Labour has an occupational safety and health program, and counts with the labour inspectorate. The ministry mainly focused on large and medium-sized enterprises with less attention to address the issues in small enterprises and the informal economy. The Bureau of Public Health has currently has no programs in place regarding workers' health. The coordination mechanism that was set up several years ago to address workers' health is presently not operational. There are very few experts on occupational safety and health in Suriname with the majority of them employed by a few large companies.

¹⁵² ABS. Statistical Yearbook 2009. Algemeen Bureau voor de Statistiek; 2010

¹⁵³ ABS. Statistical Yearbook 2009. Algemeen Bureau voor de Statistiek; 2010

2.3.7. Disaster Preparedness and Response

In May of 2006 and April of 2007 Suriname was confronted with severe flooding in the interior. This was the first time that the government of Suriname was faced with issues surrounding environmental disaster preparedness and disaster response. The national response to these floods emphasized the need for a national disaster plan

Presently, the Nationaal Coördinatie Centrum voor Rampenbeheersing (NCCR) is responsible for overall disaster coordination in Suriname with Health as one of the contributing pillars of the overall disaster model.

Unlike other Caribbean countries, the direct adverse health effects due to hurricanes are less important for Suriname, since the country is not located in the hurricane zone. Nevertheless, as extreme weather conditions are expected to become more common, models need to be developed to predict these weather patterns so precautionary measures can be taken to protect the population.

The Ministry of Health has installed a Health Disaster Commission which is charged with preparing the ministry for potential health disasters and is chaired by a National Health Disaster Coordinator.

While preparedness is essential, mitigation of the risks is necessary to reduce potential casualties and damages. A work plan has been developed by the commission based on the identified problems and needs. One of the identified problems to which attention will be given shall be the response of the health sector by traffic calamities. The commitment of the policlinics of the Regional Health Services must be increased. Training and increasing knowledge of staff in the health sector with relation to the Disaster Management and increasing of the capacity of disaster equipment necessary for the anticipation of calamities is one of the challenges which are tackled. Flooding and man made disasters are also big threats.

The Hospital Safety Index survey has been done for all 5 hospitals in Suriname. The results of the survey will be used by the hospitals in their planning process with the objective to keep the hospitals operating under all circumstances.

By top management of some of the health institutes more awareness needs to be raised about Disaster Management to get more involvement and support for the identified problems.

2.3.8. National health policies, strategies and plans

The trend in health policy is to promote solidarity and equity and to introduce health system changes to respond to the needs of vulnerable groups, and included measures to extend coverage and create and sustain universality in entitlements.

The MOH has collaborated with a variety of agencies on policy initiatives that impacts the country's health situation, such as:

- Regional initiative for the elimination of Mother to child transmission of HIV and Congenital Syphilis
- Global Strategy for Infant and Young Child Feeding (Currently being adapted for Sur)
- Action Plan for Children 2009 – 2013
- The “Integrated Gender Plan of Action 2006-2010” that was elaborated by the National Gender Bureau.
- The “Safety Act”, passed in 2002 to provide women with 12 weeks of maternity leave and unpaid paternity leave following the birth of a baby
- The “Employment Act” of 2002 which eliminates discrimination in the workplace against those living with HIV
- The Law on Combating Domestic Violence came into force in July 2009.

Existing legislation that impacts the health situation are:

- Infectious diseases laws
- Hygiene laws
- Pharmaceutical laws and regulations
- Act on psychiatric care
- Funeral services
- Training medical and paramedical professions
- Preventive care laws and regulations (Vaccinations, Food handlers)
- Quarantine laws
- Right to free medical treatment
- Regulations and Rates at National Hospital
- Social cultural and economic rights and obligations
- Exercise medical and paramedical professions
- Food and Consumer Product, Helps Fight.
- Health Requirements Suriname: BGVS, JTV,

Other legal documents under revision or being developed are

- Individual medical professions law
- Medical Laboratory Act: the Medical Laboratories Legislation, currently being discussed by stakeholders
- Law on blood supply
- Tobacco Law
- Law on public health authority in Suriname (COGS)
- Law on the tariffs in health care
- Law on General Health Care Insurance

Among the plans currently operative in the country it is worth special mention:

- The National Strategic Plan for 2009-2013 for HIV/AIDS;
- The National Strategic Plan for Tuberculosis
- Malaria Reduction Plan
- the National Road Safety Plan, approved in 2010 was developed by the National Road Safety Committee
- The National Health Disaster Plan developed by the MOH with PAHO's assistance was signed by all stakeholders during World Health Day 2009.

Other plans currently being developed are

- the Mental Health Plan by PCS
- the Water Master Plan.
- Diabetes Policy Options and Actions on draft
- Draft NCD policy, both to be finished and approved in 2011.
- National Strategic Plan for prevention and control of Cervical Cancer
- The Sexual and Reproductive Plan
- The Safe Motherhood Action Plan
- Development of implementation Plan for the Introduction of Integrated PHC in the Medical Mission facilities
- Youth Health Care Policy
- Action Plan for the prevention and control of Diabetes
- National policy on Smoke free environment and increase capacity on smoking cessation
- School feeding plan for primary schools ism Education en Social Affairs
- Parent education program
- Implementation plan for the family planning decision making tool into maternal and child health, HIV and other STI services
- International Health Regulations: Revision of National surveillance manual
- Preparation for the development of Senior healthcare policy
- Health promotion plan for the prevention and control of infectious diseases
- Legal documents to be approved by DNA
- Law Emergency Law and child care institutions, to protect children in kindergartens and other childcare facilities, children in boarding schools and in detention, senior retirement homes.
- Preparation for the revision of National policy and strategies and protocols on vaccination.
- Plan for medical waste management BOG

2.4. Health Systems and Services, and the Response of Other Sectors

2.4.1. Leadership and Governance

The leadership and governance of the health sector is the responsibility of the Ministry of Health, which is tasked with health care policy design, legislation and adherence; implementation; supervision and surveillance; accessibility and availability of services throughout the country, including medicines and health products; as well as the general care of the population and the social security system. The MOH faces two main challenges in leadership and governance, firstly the coordination of a variety of providers, institutions and settings (public and private) to ensure a holistic approach to services and secondly, the integration of some targeted disease-specific programs into existing structures and services in order to achieve better and sustainable outcomes. Additionally the MOH must strengthen the professional knowledge, staffing and resources to support, through policies, the effective role of steward of health.

In an effort to achieve effective steering capacity, the MOH requires improved planning capacity and efficient coordination to promote inclusion of health considerations in all policies and to advocate effective implementation across sectors to maximize health gains. The effective exercise of the steering role (according to PAHO definitions)¹⁵⁴ will require the harmonization of service provision and the ability to coordinate various providers and users' groups in order to extend health care coverage equitably and efficiently.¹⁵⁵

The Ministry has the task of ensuring the quality, availability and accessibility of quality health services across the country making the health system more responsive to the population, putting citizens at the centre of health. Furthermore the predominant burden of non-communicable diseases is one reason why this renewed emphasis is absolutely needed. This administration has committed itself to rejuvenating its efforts in the area of public health, with an explicit recognition of the importance of health promotion and disease prevention by proposing actions to scale up and improve the delivery of essential public health operations and services as well as to strengthen public health organizations and human resources in health.

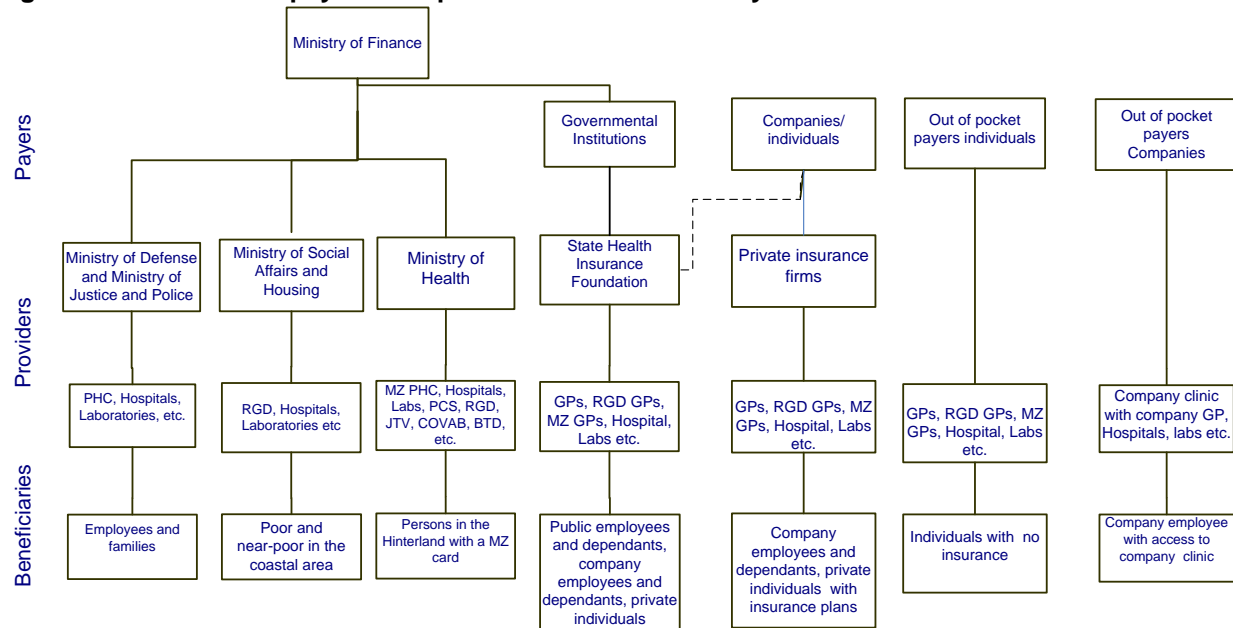
¹⁵⁴1 PAHO/WHO, "Steering Role of the Ministries of Health in the process of Health Sector Reform ," 40th Meeting of the Directing Council of the Pan American Health

¹⁵⁵ PAHO, *The steering role of the national health authority in action: lessons learned*, Washington D.C., October 2007

2.4.2. Organization of the Health System

The health system consists of subsystems (Regional Health Systems, Medical Mission, and private providers), with different modes of financing, membership, and delivery of health care services, with each subsystem specializing in different population segments, depending on geographic location, employment, income level, ability to pay, and social status.

Figure 23: Overview of payers and providers in the Health System



* **Dotted line: companies and individuals have the option to get health insurance from SZF**

Source: discussion with national experts

According to NHA 2006, the resources in the Health Sector came from the Ministry of Finance (37.5%), followed by private firms with (34.1%), and household out of pocket expenditures (20%). According to these figures public expenditure needs to be increased for international standards in order to ensure an adequate supply of health services. The high out-of-pocket payments means that households are affected in their finances that could lead to an increased risk of poverty. Reducing financial burden to individuals and families is one of the main targets of the current administration.

Primary Health Care (PHC)

The health care system is organized based on the principles and values of Primary Health Care, however there is wide spread acknowledgement of the need to address the epidemiological profile, extending the first level of the health system to protect and promote the health of defined communities and to address individual problems and public health at an early stage¹⁵⁶. MOH is working towards a renewal of PHC, with an emphasis on increased outreach and strengthening the referral system through the 'gatekeeper' status of General Practitioners (GPs) and primary care workers that has earmarked the movement towards PHC. Also there is a push towards the empowerment of the front line PHC health workers to diagnose and treat patients in the early stages of disease as a measure of cost effectiveness and to address the burden of disease.

¹⁵⁶ WHO 1978 Alma-Ata declaration

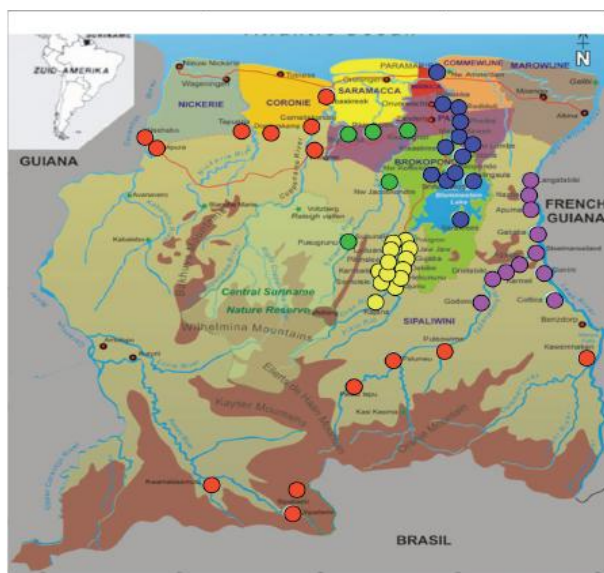
First level of Care

Primary care or first point of consultation in the country¹⁵⁷ is provided by the Medical Mission in the interior, Regional Health Services in the rural coastal areas, and either Regional Health Services or General Practitioners (Huisarts) in the more densely populated urban region (Wanica, Nickerie and Paramaribo).

Medical Mission Primary Health Care (MZ PHC)

The Medical Mission is comprised of a group of religious NGOs, funded by the government, who provide first-level care for residents of the rural interior living in traditional settings along the main rivers, many only reachable by river or small aircraft. Health care is provided via a network of polyclinics coordinated by the Jan van Mazijk Coordination Center in the capital city of Paramaribo. The field of operation is the rural interior of Suriname including the districts Brokopondo, Sipaliwini and part of Para (See Figure 24)..

Figure 24: Map of Medical Mission Clinics¹⁵⁸



The geographical working area of the Medical Mission stretches over a 130,000 square kilometres area populated by approximately 60,000 people in the hinterland¹⁵⁹.

The MZ runs 56 primary health clinics and health posts that provide an average of 60,000 patient-visits annually (4 visits per post per day).¹⁶⁰ Six general practitioners supervise the clinics and health posts (an average of 9 clinics per GP). Three of these clinics function as Health Centers with beds: Marowijne - Stoelmanseiland Hospital (15 beds), Djoemoe Hospital (16 beds), and Health Centre Brownsweg (6 beds)¹⁶¹

The service delivery of the MZ is based on Primary Health Care principles, which implies a comprehensive approach addressing people's basic health needs, in practice the focus is primarily on treatment of acute illnesses presented at the clinics.¹⁶²

¹⁵⁷ Primary care is commonly considered to be a patient's first point of entry into the health system. Primary care providers are focused on early diagnosis and timely, effective treatment but have greater potential for referral to secondary care. Primary health care is a strategy of public health, derived from the social model of health and sustained by the Declaration of Alma Ata.

¹⁵⁸ Source: Medical Mission

¹⁵⁹ Medical Mission: Towards delivery of quality integrated Primary Health Care services in the Interior of Suriname

¹⁶⁰ National Health Information System (NHIS)

¹⁶¹ Source: National Health Information System

¹⁶² Medical Mission. Joint Project with PAHO and UNICEF: *Towards delivery of integrated quality Primary Health Care services in the Hinterland of Suriname A community outreach and community Participation program of the Medical Mission, Paramaribo, 2009-2010*

The mission of MZ is to “promote and sustain the physical, mental, social and emotional well being of the population in the hinterland of Suriname”, and it provides deliveries of new-borns and preventive health services such as antenatal consultations; dental care and prevention. Telephone consultation of medical specialist and emergency transportation are also provided.

The health posts also provide education on breast-feeding, malaria, sexually transmitted diseases (including HIV I AIDS), safe drinking water and sanitation.

The system used for the provision of health services at MZ is based on health assistants, mid-level health workers recruited from local communities who are trained by the MZ over four years. Once employed in the field, they are supervised by physicians and nurses (clinic heads, regional managers, auxiliary departments in the Coordination Center) by means of regular radio communication and supervisory visits.¹⁶³

Regional Health Services

Regional Health Services (RGD) is a state foundation which offers health care via public primary care facilities that are staffed by general physicians and health practitioners who provide primary care services to residents of Suriname’s coastal areas. Persons who are classified as “the poor and near-poor” by the Ministry of Social Affairs (MSA) utilize the RGD services the most. State Health Insurance Foundation (SZF) enrollees also may choose an RGD doctor as their general practitioner.¹⁶⁴ RGD manages 43 Health Care Facilities with about 64 general practitioners working for them. Three of these health posts¹⁶⁵ have beds: Coronie Hospital (8 beds), Commewijne – Health Centre Ellen (7 beds), and Health Centre Albina (9 beds)¹⁶⁶

Private Clinics

Private clinics operate mainly in the urban areas and are supported through private insurance schemes or out-of-pocket money (OOP). Most GPs in the country are in private practice. The GPs provide services to people who are covered by the SZF, Ministry of Social Affairs, Private Insurances, Private Companies or self-paying patients.

Other modality of health care providers is private firm clinics, that many large corporations, public and private, have set for their employees. The funding and services provided by these clinics differs considerably among firms. In the NHA of 2000 it was calculated that they covered almost one third of all employees working in the private sector. Government owned enterprises do not fall under civil service regulations and have working arrangements similar to employees in private firms.

Youth Dental Foundation

The Youth Dental Foundation (JTV) provides dental prevention, coaching and treatment of the youth 0-18 years and general dental services to the population at large. JTV cooperates with RGD and has 40 dental units in 26 clinics of the RGD. Annually, about 40,000 children and 5,000 adults are treated through 30 locations in the country and 15 units at the head office in Paramaribo.

163 Towards delivery of integrated quality Primary Health Care services in the Hinterland of Suriname A community outreach and community Participation program of the Medical Mission

¹⁶⁴Ministry of Public Health, Division of Inspection of Nursing and Caring Occupations

¹⁶⁵ National Health Information System (NHIS)

¹⁶⁶Ministry of Public Health, Division of Inspection of Nursing and Caring Occupations

Hospital Care (Secondary and Tertiary Health Care)

Five hospitals operate in the country, four in Paramaribo and one in Nickerie. One psychiatric hospital (PCS) operates in Paramaribo. The Lands Bedrijf Academisch Ziekenhuis (AZP), the academic hospital, is the only hospital in Paramaribo with an emergency department (SEH) and another in Nickerie. The other hospitals offer basic specialist care, somewhat broader in dimension. Academisch Ziekenhuis (AZP) and the 'sLands Hospitaal (LH) are government hospitals and Diakonessen Ziekenhuis and Sint Vincentius Ziekenhuis (SVZ) are private hospitals.

Table 7: Number of hospital beds 2009

Hospital	Number of beds in 2009
Academisch Ziekenhuis Paramaribo (counts with ER)	482
's Lands Hospitaal	346
St. Vincentius Ziekenhuis	210
Diakonessen Ziekenhuis	204
Streekziekenhuis Nickerie (counts with ER)	101
Total	1,343
Psychiatric Centre Suriname and Children's pavilion	289

Source: ABS Statistical Yearbook 2009

Table 8: Organization of health services

Level of Service	For population in the coastal area	For population in the interior
Health education/ Preventive care	<ul style="list-style-type: none"> • BOG provides health care education and preventive care. • RGD clinics provide family planning services and vaccinations • RGD also provides health education on nutrition, breast-feeding and basic sanitation together with the under 5 clinic activities and the PNC 	MZ provides vaccinations and health education on nutrition, breast feeding and basic sanitation
First level of care	<ul style="list-style-type: none"> • RGD clinics and private practitioners provide ambulatory services to patients subsidized by MSA and affiliated to SZF; or patients with private insurance; and patients paying out of pocket. • Independent practitioners and company owned health services provide private ambulatory services. • Hospital practitioners provide primary health care at outpatient departments. • Primary mental health care is provide at PCS 	MZ provides publicly subsidized services, including medical care for illnesses, prenatal care, delivery care, health care for children under five and emergency care.
Secondary care	<ul style="list-style-type: none"> • Three general public and two general private hospitals and 1 psychiatric hospital provide inpatient and ambulatory procedures by specialists. 	MZ patients are flown primarily to Diakonessen Hospital in Paramaribo. In some cases patients may go to AZP or LH.
Tertiary care	Kidney dialysis is provided by public and private sector. For other services patients need to travel abroad.	
Other	NGOs such as the LOBI Foundation provide a range of services including sexual and reproductive health care, health education, preventive care and primary health care for targeted audiences.	

2.4.3. Health Infrastructure

The Ministry of Health is committed to optimize the planning and management of health facilities and infrastructure for the safe and effective delivery of quality health care and services in order to tackle modern health challenges, such as the non-communicable diseases epidemic.

This plan calls for the strengthening of the national capacity for the regulation, planning, acquisition, deployment, management and maintenance of health technologies, facilities, infrastructure and supplies.

As analyzed in previous pages the current installed capacity in the country can be summarized as:

- 56 MZ primary health clinics and health posts
- 43 RGD Health Care Facilities
- 146 private clinics
- 5 hospitals 2 private and 3 public and 1 Psychiatric Hospital
- 40 dental units located in 26 of the RGD clinics
- 3 private medical laboratories and one medical laboratory in every hospital
- 10 retirement homes and two small nursing homes

Future investments will consider long-term need and innovative approaches for ensuring equitable access to care through rural hospitals, increased number of rural primary polyclinics and the building of nursing homes. Nevertheless our health infrastructure requires meeting the increasing demand of health care and the government has already committed to improvements for many health care facilities as can be seen in tables 9 and 10.

Table 9: Planned upgrading of specialized health care facilities

Phase	Term	Activity	Facilities
1 st phase	Short term	New building	Rural hospitals Wanika hospital Albina hospital Brokopondo hospital Paramaribo (nursing home for people with dementia)
		Expansion	Hospitals Nickerie
		Renovation	PCS, New Nickerie, Military Hospital
2 nd phase	Medium term	Equipment	For several hospitals
		New building	rural hospitals Hospital Atjoni Hospital Zanderij Hospital Moengo
		Renovations and expansions	Different hospitals
		Equipment including ambulances	For several hospitals

During 2010 there were very important upgrades to the country's health Infrastructure through the building and equipment of the New Central Lab-SNB (September 2010), the AZP-Radiotherapy Centre (July 2011). These two modern facilities are not only an asset to Suriname, but also for the region. Additionally in October 2010 a modern care Nursing Home (Zorghotel) will be completed. Additionally the new RGD Head Quarters building has also started construction in 2011.

Further expansion of infrastructure will take place in the near future, particularly concerning integrated health centers is planned to be carried with French Aid Agency as explained in table 9 and 10.

Table 10: Planned primary care facilities

Geographic location	# of polyclinics	Geographic location	# of polyclinics
Paramaribo	4*	Brokopondo	1
Para	1	Boven Suriname	6
Commewijne	2	West Suriname	1
Boven Marowijne	1	Tapanahony	1
Saramacca	3	Sipaliwini	4
New Nickerie	1*	TOTAL	25

*: with 1 integrated health centre

2.4.4. Health Workforce

Expansion of physical infrastructure also means the health workforce needs to be increased. Like other countries in the sub-region, Suriname has a shortage of health care professionals. The health workforce in the country is driven by supply, rather than demand or service needs and until now there has been connection between the number and mix, of human resources and the job market.

With the new health challenges it is difficult to ensure and sustain the supply of all key groups of health workers including managerial positions at all levels of the system. The current HRH gap will be filled by training more doctors and nurses but also health assistants, nurses and other care categories, including nursing assistants and caregivers for the elderly.

The MOH has calculated that in the short term there is a pressing need for radio-diagnosis and therapy assistants, nurses trained in for dialysis, diabetes, HIV, intensive care, training of midwives Special attention needs to be taken to the training of 100 new assistant environmental inspectors.

40 new pharmacy assistants and 40 new midwives will have to be trained the next 4 years and 60 medical specialists need to be trained over the next 10 years as well as 60 health professionals specialized in Public Health. The new training opportunities are already in motion.

The need for a sufficient skilled workforce of nurses and allied health professions is heightened with an increased focus on primary care, health promotion and prevention. Suriname faces shortages in many categories of health care providers, including nurses and allied health professionals in particular.

Table 11: Categories of health professionals

Category	Number	Rate per 10,000 population
GP in private practice	191	3.8
GP in public services	64	1.3
Registered Nurses	895	17.9
Nursing assistants	542	10.8
Health assistants	234	4.7
Midwives	53	1.1
Practical nurses	112	2.2
Anesthesiologists	11	0.2
Bacteriologists	1	0.0
Cardiologists	7	0.1
Clinic Chemists	1	0.0
Dental Surgeons	1	0.0
Dentists	24	0.5
Dermatologist	4	0.1
Ear, Nose and Throat Specialist	2	0.0
Gynecologists	11	0.2
Internists	17	0.3
Medical biologists	1	0.0
Medical Microbiologists	1	0.0
Neurologist Surgeons	2	0.0
Neurologists	4	0.1
Ophthalmologists	7	0.1
Orthopedists	5	0.1
Pathologists	2	0.0
Pediatricians	11	0.2
Pharmacists	31	0.6
Plastic surgeons	2	0.0
Psychiatrists	7	0.1
Pulmonologists	1	0.0
Radiologists	3	0.1
Rehabilitation Specialists	1	0.0
Surgeons	9	0.2
Urologists	4	0.1

Source: ABS Statistical Yearbook 2009 and CNO's office information . The mid-year population in 2009 was 524,143¹⁶⁷

¹⁶⁷ ABS. Statistical Yearbook 2009. Algemeen Bureau voor de Statistiek; 2010

While Suriname fares relatively well in terms of physicians in comparison to regional benchmarks, there continues to be a shortage of almost all specialties such as radiologists, anesthesiologists, trauma specialists and public health professionals.

The mix of specialists in the country shows some challenges as well. From the table below it can be appreciated that, although the number of specialists per 100,000 population differs from country to country and there are no clear standards, there are certain clear imbalances such as the ratio of anesthesiologist (11) to surgeons (58) and a gap in certain disciplines, such as trauma, infectious diseases or geriatrics, required to take care of health needs present in the country.

The majority of health workers are mainly concentrated in the coastal urban areas, particularly in Paramaribo. The mix and distribution of human resources in the country is as follows:

- In primary care 64 general practitioners work for RGD in 43 clinics in the coastal area; 6 general practitioners work for MZ supervising 56 primary health clinics in the interior; and 191 private general practitioners work in 146 private clinics, most of them located in Paramaribo and Wanica. 140 medical specialists work in the hospitals. The distribution of human resources between urban and rural areas is disproportionate with 5 GPs per 10,000 population in the coastal areas and 1 GP per 10,000 in the interior.¹⁶⁸
- Most of the registered nurses (approximately 83%) work in secondary care facilities located in the two main urban centers and the rest (28%) in primary care, teaching, nursing homes, and public health. Only 1.4% of the nurses are employed by the Medical Mission in association with its primary care program in the interior.

2.4.5. Human resources training

Even though higher education is heavily subsidized by the government, at present there is little or no strategic health manpower planning for the public sector or dialogue between the supply (ADEK) and demand (MOH) side. Most general physicians receive training at Anton de Kom University University (ADEK) Faculty of Medical Sciences, which has a limited admission of 30 students per year and graduates, on the average, about twenty physicians per year, most of whom elect careers in clinical medicine.

The Institute of Graduate Studies and Research (IGSR) of the Anton de Kom University was founded in March 2006 as a forerunner of the Faculty of Graduate Studies (FGS). Suriname is actively working to develop a cadre of trained public health professionals through the signed memorandum of understanding between the Anton de Kom Universiteit and the Tulane School of Public Health and Tropical Medicine. In 2007 the self-care training in Masters in Public Health started with 20 students. By the end of 2011 these students will graduate. The memorandum also commits the institutions to cooperation in areas including exchanges of faculty members for research, lectures and discussions; exchanges of research scientists and graduate students for study and research; training scientists and public health professionals in basic and applied research; carrying out joint research activities; and exchanging information such as library materials and research publications

¹⁶⁸Ministry of Health, section of Planning

Registered nurses and nursing assistants are trained at the Central Training Institute for Nurses and Allied Professions (Foundation COVAB). Two hospitals (AZP and St. Vincentius) have internal training courses for nurses. Midwives are trained at the midwifery school of the Ministry of Health.

Currently there is only one generation of Bachelor of Science in Nursing with specialization in hospital management, pediatrics and Public Health that was formed through an agreement with the Karel de Groot Hogeschool in Antwerp in 2007.

In 2007 the Government started the Bachelor of Science training in Health Education. This four year course is meant to provide experts in design, coordination and monitoring of health promotion and disease prevention programs. It is accommodated by the Teachers Training College (IOL) as a collaboration between the Ministry of Health and the Ministry of Education.

Registration and certification

Physicians, nurses, midwives, and pharmacists are registered and certified by the Ministry of Health. Physicians are licensed through the Ministry and require permission from the Director of Health for clinical practice. Regional licensing and accreditation are currently under review. Paramedical professionals currently have no regulations or statutes for official registration or certification.

The loss of skilled labor due to out-migration has been significant, with the Netherlands remaining the preferred destination. The external migration of skilled professionals is affecting several sectors of the society, particularly health and education, resulting in acute shortages of human resources and the deterioration of some public services.

2.4.6. Health Financing

The main source of funds in the Health Sector comes from the Ministry of Finance (37.5%), followed by the private firms with 34.1%, and the Household Out of Pocket expenditures (HH-OOP) with 20%.¹⁶⁹

The Ministry of Finance (MOF) collects taxes, allocates budgets to the MOH and manages contributions to the State Health Foundation (SZF).

The MOH provides subsidies to a number of institutions such as RGD, MZ, and PCS, and pays directly for public health programs including Youth Dental Services (JTV). The MOH also provides public health services through the Bureau of Public Health (BOG), the Bureau of Alcohol and Drugs (BAD) within the PCS, and the Dermatology Service Department (DSD). Other bodies subsidized by the Ministry of Health include the Central Training for Nurses and Related Occupations (COVAB), the Kidney Foundation Suriname (NSS) with the kidney dialyses center, and the blood bank.

Health Insurance

There are several insurance schemes. The main three are the State Health Foundation, the programs from the Ministry of Social Affairs, and private insurance.

The State Health Foundation (SZF) covers all government employees (40,891 civil servants and their dependents in 2010). SZF insurance is also available to the general public. The SZF is responsible for paying claims to providers for all insured services received by the SZF-covered population.

The Ministry of Social Affairs and Housing (MSA), the largest government funder of health care (SRD\$107 million)¹⁷⁰, provides for the poor and near poor, ensuring that the economically disadvantaged population has access to State subsidized healthcare. The poor and near poor population can request a health card for free access at the government hospitals and clinics. For the most part MSA funds secondary care, while primary health care is funded by MOH and provided by RGD.

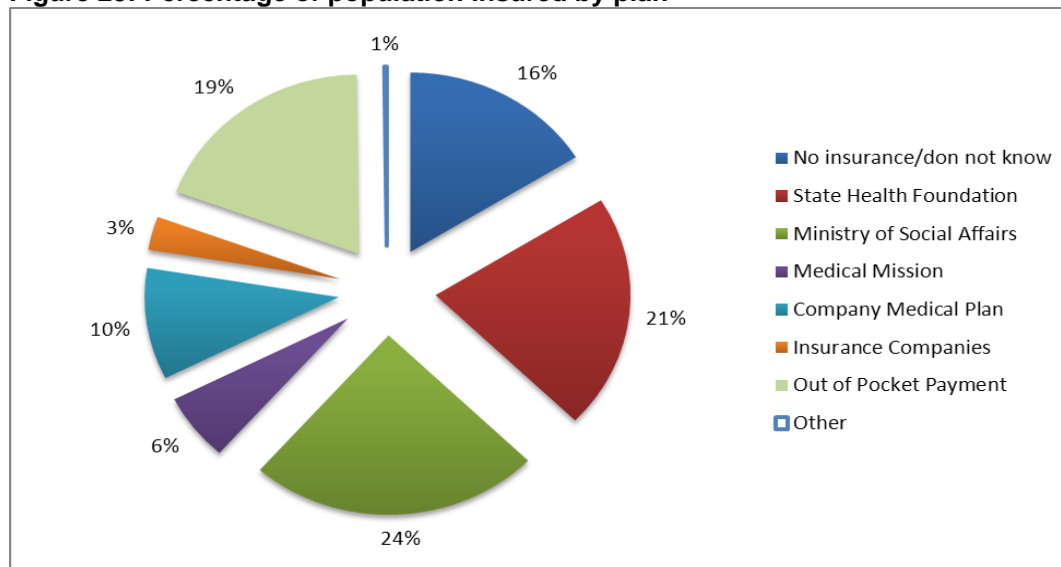
Individuals and families with no access to MSA or SZF insurance, access private health services via a private insurer, a company health clinic or paying out-of-pocket (OOP).

As mentioned previously, the population in the interior does not have health insurance because residency alone qualifies them for MZ care and access health services provided by MZ, which is subsidized through the Ministry of Health.

¹⁶⁹ Ministry of health. Final Report on the National Health Accounts of Suriname 2006

¹⁷⁰ Source Ministry of Social Affairs (Sozavo)

Figure 25: Percentage of population insured by plan ¹⁷¹



Total Health Expenditure

The distribution of public and private expenditures of the THE in 2006 were 42.6% by the public sector, 53.8% by the private sector, and 3.6% by non-governmental organizations (NGOs).¹⁷² This represented 163,508,436 USD or 8.5% of the GDP. It is to be noted that according to the NHA health expenditure per capita increased dramatically from 180.33 USD in 2000 to 324.26 USD in 2006.¹⁷³

According to the National Health Accounts 2006, health expenditure was focused on curative care while the first level of care received the lowest allocation of monies: hospitals 35.0%, followed by private general practitioners with 12.6%, pharmaceuticals 11.5%, medical specialists 9.2%, laboratory services 4.8%, dentists 3.9% and the RGD 3.3%.¹⁷⁴

The contribution of the private sector to health care is significant and out-of-pocket expenditures of households have become an area of concern. In view of the financial and access inequalities in health, the government has stressed the importance of finding new ways to sustain the health system and design policies for redistribution of resources to meet health needs, reduce financial barriers and protect against the financial risk of using health care.¹⁷⁵

The government has recognized the need for detailed measures to be taken into account such as the design of the model of provision, priority setting, cost calculations, human resources component and the reorganization of providers, with emphasis on efficiency measures in the hospitals.

Insufficient information on the quantity of financial resources used for health, their sources and the way they are used make it challenging for the MOH to make informed decisions, develop policies, and make financial projections of the health system requirements.

¹⁷¹ Source: National Health Information System (NHIS)

¹⁷² Ministry of health. Final Report on the National Health Accounts of Suriname 2006

¹⁷³ Ministry of health. Final Report on the National Health Accounts of Suriname 2006

¹⁷⁴ Report of the Director of Health 2005-2007- Republic of Suriname. Ministry of Health; 2009

¹⁷⁵ MvTontwerpvet AZV. April 8 2009

2.4.7. Health Information Systems

Complex health systems require informed decisions. Effective clinical management and policy decision-making require quality, comprehensive and meaningful information and the skills and knowledge to interpret and use this information. The National Health Information System (NHIS) Unit of the Ministry of Health is responsible for official national health data.

While there have been considerable strides over the last several years and and considerable resource investment, there is still need to improve the way information is extracted, analyzed, packaged, made available and used to better informed decisions across the health system.

Most of the health information reaches the NHIS Unit through:

- Surveillance reports from the BOG, RGD, MZ, professional health associations and the medical registry of the hospitals
- Monitoring and Evaluation reports from the different programs such as Malaria, HIV AIDS and Tuberculosis..
- Surveys such as MICS, tobacco surveys,

The Sentinel Surveillance data is used for trend analysis and for reporting to CAREC and others. The mortality surveillance is used for in depth analysis for policy development, decision-making and evaluation of progress made in the health sector. An operational national health information system is needed that extends from the primary to central level in order to improve surveillance, monitor performance and supply the substrate for evidence-based decision-making. There are gaps in both financial and human resources. There is need for capacity building for information analysis and updated infrastructure of hardware and software.

Clinicians, administrators, managers and policy makers need quality, comprehensive and meaningful information to make effective decisions. Nevertheless, There seems to be insufficient strategic use of the data.

The challenges for the NHIS are related to the use of health information for the purposes of warehousing and triangulation. Analysis of data also needs to be strengthened with the purpose of decision making and policy making.

The main challenges with regards to health information are:

- Need to establish a framework for data collection regarding ;
 - Routinely collection of morbidity data , harmonized at all levels;
 - Routinely collection of Outpatient information rat the hospital level;
 - Routinely collection of data on tertiary care;
 - Routinely data collection of risk factors, such as dietary behavior and physical activity;
- Integrate demographic and socioeconomic indicators in the information system.¹⁷⁶

¹⁷⁶ Source: National Health Information System

2.4.8. Medical Products and Technologies

In a rapidly globalizing world, generation of knowledge technologies and infrastructure requires long range planning and policy to make ethical and effective use of innovations in medical technology and pharmaceuticals.

Laboratories

All hospitals have laboratories and 3 private operating laboratories, Medlab, My Lab, and Health Control, also carry out clinical analyses. National Authorities are developing the first national regulations for Medical Laboratories on the basis of the Final Report on the Preparation of Model Legislation for Medical Laboratories in the Commonwealth Caribbean, prepared by CAREC in December 2006.

There is one Public Health Laboratory at BOG, which opened its new facility in 2010 with upgraded technological capacity. Central Lab is the referral lab in country for malaria, TB, and HIV/AIDS and does quality control and confirmation of tests done by other labs. It carries out the following public analyses: Entomology, Chemistry, Parasitology and Bacteriology. The central lab is also the only lab that has IATA certified shippers to send and transport (pack and ship) test material (specimens) to referral labs abroad.

The Public Laboratory meets the quality and biorisk international standards level II+ and high technology levels in terms of equipment. One area where Central Lab requires upgrading is laboratory information systems. The MOH envisions an international role for the Central Lab as a referral public health lab in the Caribbean region.

Pharmaceuticals

The Ministry of Health central office, the Pharmaceutical Inspectorate, and the Bureau of Public Health are responsible for pharmaceutical policies, standard setting, inspection and monitoring, and program development. 90% percent of all drugs are imported and 10% are manufactured internally. All drugs must be approved by the Governmental Committee on Drug Registration, while the Pharmaceutical Inspectorate oversees inspection of pharmaceutical manufacturing and pharmacies. There are three licensed pharmaceutical manufacturers in Suriname and 26 licensed pharmaceutical importers, the largest being the government-owned Drug Supply Company Suriname (BGVS). For BGVS, the value of imported medicines was approximately USD 5 Million in 2007.

The country has limited capacity for Research and Development for discovering new active substances and the production of active pharmaceutical ingredients (APIs), but there is capacity for the production of formulations from pharmaceutical starting material and for the repackaging of finished dosage forms. The BGVS is responsible for importing, stocking, and distributing essential pharmaceuticals that are sanctioned by the Board for Essential Pharmaceuticals. The BGVS also does elementary testing of drugs and pharmaceuticals.¹⁷⁷

The medicines from the Essential Medicines List are provided to the patients on a fixed co-payment basis. If prescriptions are dispensed based on an SZF prescription, patients pay a fixed fee of SRD 2.00 per prescription item, senior citizens pay SRD 0.50 cents per prescription item, and certain categories of civil servants are exempt from payment. The number of pharmacists is 31, out of which 8 are currently not operating in the dispensing practice. They are assisted by over 160 trained pharmacy assistants (vocational training with a 3 year program).

¹⁷⁷ Source: Customs Office

Blood Bank

Suriname has 100% voluntary blood donations which accounts for the good quality and low risk of the blood received at the Blood Bank which is operated by the Red Cross and subsidized by the MOH. The Blood Bank collects approximately 10,000 blood units per year and functions as the only blood and derivatives supplier in the country. Screening is performed for HIV-1/2, Hepatitis B virus, Hepatitis C virus, HTLV-1/2, *Treponema Palladium* and Malaria as part of international quality assurance. Chagas screening will be added soon.

2.5. Response of other sectors to address the determinants of health

The other determinants of health significantly influence the health status in Suriname. While there is *Insufficient* official reporting structures, unofficially, there is reasonable cooperation with other sectors and it is known that there are several activities currently ongoing, which positively influence health.

Table 12: Response of Other Sectors to Address the Other Determinants of Health

Sectors	Activity
Ministry of Finance	<ul style="list-style-type: none"> • Financing of the health sector
Ministry of Education	<ul style="list-style-type: none"> • Promoting healthy schools and providing health programs • Basic Life Skills program (incl. HIV prevention) • School health care services • University, Medical faculty and MPH program
Ministry of Sport and Youth Affairs	<ul style="list-style-type: none"> • Psychical activity for the total population esp. the youth
Ministry of Agriculture, Fishery and Husbandry	<ul style="list-style-type: none"> • Food safety and Food security
Ministry of Natural Resources	<ul style="list-style-type: none"> • Safe drinking water • Energy supply
Ministry of Trade and Industry	<ul style="list-style-type: none"> • Laws , regulation and guidelines regarding transfats, salt and sugar for healthy food and for pharmaceuticals
Ministry of Justice and Police	<ul style="list-style-type: none"> • Disaster preparedness policy and a specialized disaster unit, linked to health • Domestic violence prevention, suicide prevention, road safety and drugs prevention • Financing of health care for their personnel and their families
Ministry of Public Works	<ul style="list-style-type: none"> • Domestic waste collection • Increase of basic sanitation • Maintenance of roads, canals, environment, etc...
Ministry of Transport, Communications, and Tourism	<ul style="list-style-type: none"> • Significantly improved telecommunications for Interior area
Ministry of Social Affairs (SoZaVo)	<ul style="list-style-type: none"> • Financing health care of the poor and near poor
Ministry of Defence	<ul style="list-style-type: none"> • Disaster management; Military Hospital • Financing of health care for their personnel and their families
Ministry of ROGB	<ul style="list-style-type: none"> • Securing and planning for sport and recreation in neighborhoods
Ministry of labour, technology and environment	<ul style="list-style-type: none"> • Basic sanitation • Environmental health
Ministry of Home Affairs (BIZA)	<ul style="list-style-type: none"> • Vital statistics
Ministry of Foreign Affairs (BUZA)	<ul style="list-style-type: none"> • Visa for foreign health care workers

Source: Health Sector Planning Workshop, January 23-24, 2011
 Source: Begroting 2011 RvM – Dr C.W. Waterberg

Moving forward, there are many opportunities in this area. The other determinants of health are high on the political agenda and to be successful, the capacities, roles, and responsibilities of other sectors will need to be clearly and accurately defined.

3. Contribution to the Global Agenda

Suriname's recognition of the importance of health to the achievement development is evidenced by the actions for improving health in the country. Experiences that can be shared with the Caribbean sub-region and the Amazonian countries and beyond include:

- The near elimination of communicable diseases, with emphasis leprosy elimination target of less than 1 case per 10.000 persons in 2009 and approaching the state of elimination for Schistosomiasis and Soil Transmitted Helminthiasis
- The establishment of the National Malaria Board led many successful initiatives that resulted in a near 90% decrease in malaria. The country was awarded by PAHO as a Malaria Champion in 2008.
- The country established the interdepartmental multi-disciplinary multisectoral HIV Board, integrated HIV / AIDS health care and support services in the existing health care system in the primary and secondary health care level and Centre of Excellence and through the National AIDS Program reached the majority of HIV positives and HIV positive women with the PMTCT programme in 2008, reaching elimination targets for MTCT.
- The decentralization of responsibilities and tasks implemented in the Medical Mission model of care has proven successful in reaching the communities in the hinterland. The model is one of community-based primary care centres implemented by health assistants with supervision by physicians and nurses by means of regular radio communication and supervisory visits.
- The new Public Health Laboratory at BOG has upgraded technological capacity and meets the quality and biorisk international standards level II+ and high technology levels in terms of equipment that can be considered a referral public health lab in the Caribbean region.
- A Radiotherapy Centre at Academic Hospital has been equipped to provide treatment for cancer patients and is expected to start functioning in mid 2011.

4. Development Cooperation and partnerships

4.1. The Aid Environment in the Country

Historically, the Netherlands was the principal development partner in Suriname. At independence on 25 November 1975, the Dutch Government donated 2.5 billion Dutch Guilders (~ 1.5 billion USD) to ease the political transition. The funds were expected to finish in 1985; however, due to political instability during the 1980s and 1990s, the aid flow was interrupted. After negotiations during 2001, the funds were re-established and the aid finished during 2010.

Over the last few years, there has been an increased presence of other development partners in Suriname, including bilateral agreements. For example, China is providing funding supporting a road rehabilitation project, as well as the development of low-cost housing in Paramaribo. Similarly, India has become an important development partner in Suriname focusing on the steel mill, rice breeding and construction of solar powered traffic signals system.

The increased presence of new partners is also evident in the health sector. Development partner agencies focusing on health include CARICOM, Global Fund, and International Development Bank (IDB), as well as countries such as France and Brazil.

4.2. UN Agencies

Four UN Agencies have representations in Suriname, PAHO/WHO, UNICEF, UNFPA, and UNDP. PAHO/WHO is the only agency with full representation and has been present the longest in the Country. The other resident organizations have increased their size and presence over the last few years. Since all resident agencies have been focusing in varying degrees on health, PAHO/WHO has taken the lead through a health mapping exercise to clarify roles and responsibilities.

The UNICEF approach to health in Suriname stresses improving maternal and child health, with a strong emphasis on the interior. Additional program areas focus on strengthening information and data systems to facilitate reporting of health achievements (MICS). UNFPA in Suriname focuses on gender (gender-based violence, population dynamics and sexual and reproductive health), youth/adolescent health (teenage pregnancies and HIV transmission) and knowledge generation. The UNDP's work in Suriname related to health focuses on democratic governance, poverty reduction, HIV/AIDS, crisis prevention and recovery and energy and environment.

4.3. Bilateral collaboration on health

The following countries have diplomatic mission in Suriname: Brazil, China, Cuba, France, Guyana, India, Indonesia, Netherlands, Venezuela and the United States of America and the EU.

Economic opportunities, particularly related to mining, have increased the movement of people between Brazil and Suriname, heightening concerns regarding migration health, environmental and occupational health related to mining. Consequently, the Brazilian Consulate's approach towards health is focused on providing materials for reducing the burden of HIV/AIDS, linking malaria experts to develop health projects, reducing mother to child transmission of syphilis, and mitigating the spread of chagas. Additional activities include supporting the provision of lunches in schools and supporting food safety measures, such as improving the packaging and conservation of food products.

The opening of the Surinamese Embassy in Cuba at the beginning of 2010 highlighted the positive relations between the Countries. Currently, Cuba sends health care professionals to work and train in various parts of Suriname. Surinamese health care workers are also trained in Cuba especially medical doctors. Furthermore Surinamese patients are referred to Cuba for tertiary care.

Since French Guyana is an overseas territory of France that borders Suriname to the east of the Marowijne River, France has shown significant interest in health in Suriname, mainly because of the trans-border movement of people seeking health care services. The French Government Agency, Agence Française de Développement (AFD) has signed a cooperation agreement 2009–2014 to facilitate strengthening health care services in Suriname and reduce the strain on the health care system in French Guyana. The majority of this donor aid is for purchasing medical equipment, rehabilitating health centres/aid posts in the interior and constructing a hospital in Albina and other health care facilities in the Interior. Currently the two Governments have begun discussions regarding health insurance systems for better use of respective health care systems.

A joint commission signed in 2004 between the Indonesian and Surinamese Governments highlights the close relationship of the Countries and focuses on enhancing cooperation. The specific health areas of focus for the Indonesian Government in Suriname includes prevention and management of chronic diseases, provision of medical laboratory equipment, improving access to vaccines, providing health education and strengthening health care workforce capacity.

Agencies linked to the Dutch Ministry of Foreign Affairs have been very active in Suriname and have been providing technical cooperation through twinning programs. These programs provide funding for projects that match experts from both Suriname and Netherlands. Twinning partially funds the Cardiovascular Risk Management Study, a study implementing multiple interventions for chronic disease prevention and management. Since 2010 there have not been any twinning projects initiated.

Three United States agencies represented in Suriname that are involved in the health sector are the Department of Defense, Peace Corps, and the Department of State. These activities are mostly short term and include campaigns on water and sanitation, HIV/AIDS, mental health, and outreach to youth, specifically encouraging active responsibility among young males. US clinical missions provide health care, including eye care and dental health in Paramaribo and several districts.

Patients are also referred for tertiary care to Colombia, especially for oncology treatment.

Although in the past, the European Union (EU) was involved in many areas in Suriname (disasters, sexual and reproductive health, and health effects of drug abuse), currently, they are not directly involved in the health sector, apart from supporting monitoring progress towards meeting the MDGs and improving data analysis in this area. Current areas of focus include supporting the rice and banana industries to reach and maintain WTO requirements. Additionally, the EU is assisting the transportation sector (road Paramaribo to Albina).

4.4. Multilateral Agencies and health

Apart from PAHO, from the Inter-American System, the Organization of American States (OAS), the Inter-American Institute for Cooperation on Agriculture (IICA) and the Inter-American Bank (IDB) are present in Suriname. IICA is operating in Suriname and the Country Strategy is being developed. As a specialized agency of the Inter-American System, IICA has significant expertise to provide technical cooperation for sustainable agricultural development, food security, and rural prosperity.

IICA's current focus is supporting the implementation and monitoring of modern sanitary and phytosanitary measures to ensure compliance to international regulations and agreements. IICA provides science and research information, as well as implementation support regarding food safety and emerging issues (i.e. H1N1 and H1N5).

As one of the largest and long-established sources of development funding in Latin America and Caribbean countries, the strategic position of IDB enables their focus on sustainable, climate-friendly development to reduce poverty and inequality. The IDB has been present in Suriname since 1953, as the Country was one of the founding members. The IDB has been very active in the health sector; during 2004, the IDB and the Government of Suriname signed a loan agreement for US\$ 5 million to implement health sector reform. The focus of the loan was on strengthening infrastructure and human resources for health. These funds ended in 2010. Negotiations for a new loan are ongoing, though it is uncertain if a new loan from IDB for primary health care is forthcoming.

The Global Fund to fight AIDS, TB and Malaria is an important partner for Suriname. Table 13 shows the five approved grants for Suriname.

Table 13: Global Fund grants approved for Suriname

Grant type	Round	Grant title	Principal Recipient	Signed grant agreement (US\$)	Grant phase	Grant duration
HIV/AIDS	3	Extending and improving the quality of live of Persons Living With HIV/AIDS	MOH	5,271,393	Phase II – In progress	01 Feb 2005 – 31 Jan 2012
Malaria	4	Decreasing the incidence of malaria in the populations of the interior of Suriname	Medical Mission	4,857,904	Phase II – In Closure	01 Feb 2005 – 31 Oct 2010
HIV/AIDS	5	Reducing the spread and impact of HIV/AIDS in Suriname through expansion of prevention and support programs	MOH	3,838,706	Phase II- In progress	01 Feb 2007 – 31 Jan 2012
Malaria	7	Looking for gold, finding malaria	MOH	2,375,500	Phase I – In progress	01 April 2009 – 31 March 2011
Tuberculosis	9	Doing what it takes to stop tuberculosis in Suriname – DOTS Suriname Project	MOH	2,055,216	Phase 1 – In progress	01 Nov 2010 – 31 Oct 2012

Source: (Global Fund, 2011)

4.5. Regional Integration

In 1995, Suriname became the 14th member of CARICOM. This membership has increased the opportunities for development aid for Suriname and has broadened possibilities for exchanging expertise. Suriname participates in the CARICOM health meetings and frequently uses the Caribbean Cooperation in Health (CCH III) as a guiding framework.

The CARICOM Caribbean Agricultural Health and Food Safety Agency (CAHFSA), was established in 2010 to support the Caribbean countries to strengthen agricultural health and food safety, and to ensure the highest standards for trade in agricultural products. CAHFSA efforts focus on upgrading analytical capabilities in food, strengthening the Food Controls system in the areas of inspection (plant, meat, and fish) and testing to comply with the World Trade Organization (WTO) agreements.

Unfortunately, in a fire later in 2010 the new LVV laboratory that was also going to be used for CAHFSA was destroyed. The equipment was partially saved and plans for the construction of a new laboratory are being finalized. Also in 2010, the Secretary General of CARICOM and the Minister of Health of Trinidad with their staff visited the newly inaugurated laboratory of the Bureau of Public Health, in the light of the development of CARPHA and the possibilities of Suriname's public health laboratory playing a regional role.

Suriname is also a member of the Union of South American Nations (UNASUR). The Union of South American Nations is an intergovernmental union integrating two existing customs unions: MERCOSUR and the Andean Community of Nations, as part of a continuing process of South American integration. The corresponding Health Council is UNASUR Health, which proposes to "consolidate South America as an opportunity for integration in health that contributes to the health for all and to development, incorporating and integrating the efforts and sub-regional achievements of MERCOSUR, ORAS-CONHU, and ACTO. UNASUR Health has a strong leadership and governance position related to their ability to mobilize member countries. On 21 April 2009, member countries proposed an agenda that prioritizes five focal areas: surveillance and response; universal health systems; universal access to drugs, health promotion and action on the determinants of health; and human resources management.

Furthermore, Suriname is a member of the Amazon Cooperation Treaty ACTO, and it is a legal instrument that recognizes the transboundary nature of the Amazon. ACTO reaffirms the Amazon countries' sovereignty and encourages, institutionalizes and guides regional cooperation between them for the purposes of increased scientific and technological research, information exchange, natural resources use, preservation of cultural heritage, healthcare and other border related issues.

In the area of health, since 2008 Suriname has been an active member of the Pan-Amazonian Network of Science, Technology & Innovation in Health (CT&IS), a joint project with FIOCRUZ, ACTO and PAHO, among other organizations. The fifth Meeting of the ST&IH Pan Amazonian Network took place in Paramaribo in 2010 and currently the ST&IH Pan Amazonian Network presidency is held by Suriname. The Network's purpose is to facilitate an interface to exchange practical experiences in health, promote permanent capacity building and the development of research and materials that will benefit the Amazonian community.

4.6. Development Banks and International Financial Institutions

Apart for the already described relation with IDB is Suriname also a member of the Islamic Development Bank (IsDB) which has provided loans for many initiatives. Regarding health, the Bank has supported reinforcing health care facilities, specially upgrading and building primary health care centres in the Interior region and constructing a radiotherapeutic centre for the Academic Hospital of Paramaribo. Additionally, the IsDB has provided support for technical cooperation for a feasibility study on a water supply system in Wanica.

Both International Monetary Fund (IMF) and World Bank have had long-term relations with Suriname. The Country joined the IMF during 1980 and there have not been any transactions since January 1, 1984. The IMF continues to provide technical cooperation and expertise through economic missions. Similarly, the first World Bank economic mission during 1951 began the long relationship between the World Bank and Suriname. Currently the World Bank conducts economic consultations. Both international institutions offered support during the political instability of the 1990s, but the Government refused assistance.

4.7. Civil Society and Non-Governmental Organizations

The role of civil society is significant to the health sector. The main function of civil society is to implement and provide services, working with key populations of interest in various geographic locations all over the country. Table 14 provides examples of NGOs currently operating in Suriname.

Table 14: Example of NGOs Serving Key Populations of Interest

NGO Name	Field of Activity	Objective	Target Groups
Marronvrouwen Netwerk (MVN)	Maroon Women	Advancement of Maroon Women	Maroon Women
Pater Ahlbrinck Stichting (PAS)	Maroon and Indigenous Communities	Sustainable development	Maroon and Indigenous Communities
Stichting Moiwana	Human Rights	Human Rights Watch dog and Advocacy	Suriname Society
Bureau Forum NGOs (BFN)	Basic Provisions/Economic Empowerment/Environment and Health	Sustainable development	Maroon and indigenous Communities, urban/regional organizations
Stichting LOBI	Leading Foundation for Sexual and Reproductive Care	Family planning, healthy sexuality, healthy relationships and a healthy sexual life.	Communities in the interior
ProHealth	Promote health development in communities and contribute to a better understanding about social, gender and other factors related to health.	Social, gender and other factors related to health	People living in poverty have specific health problems related to poverty
Double positive	HIV AIDS	Empower and support women/girls who are infected and affected with HIV through advocacy, research, partnership, capacity building and fundraising	women/girls who are infected and affected with HIV
He and HIV	MSM	To reduce the transmission of HIV among gay men and other men having sex with men, by promoting a healthy lifestyle	Gay men and other men having sex with men (MSM)
WomensWay	Human Rights	To create a platform for women who (also) love women in Suriname and the rest of the Caricom	women who (also) love women
Rachab (Maxi Linder)	HIV / AIDS.	HIV / AIDS prevention.	

NGO Name	Field of Activity	Objective	Target Groups
Liefdevolle handen (Loving Hands)	Women Empowerment	Empowers women to take their place in family and in society in a positive	Commercial sex workers (who want the profession) and addicted women.
Stibula	Development	learning and development opportunities for children and young people	Children and young people in the Latour region.
Projecta	Gender equality	Organization for Women and Development	Women
Claudia A	VIH AIDS	shelter	orphans, women with AIDS or HIV infection
Parelhuis	HIV-infected children	Shelter	rejected or abandoned children with HVI
Crisishuis		Shelter	Children?
HIV Vereniging i.o.	HIV AIDS		
Victory Outreach	Rehabilitation	Rehabilitation	Drug addicts
Stichting Diabetes Educatie Suriname (SDES)	Diabetes	Raise awareness about diabetes and lifestyle Education programs, patient information, educational support and outreach projects for the young (summer camp), promoting physical activity, organizing World Diabetes Day activities in Suriname	Diabetes patients and their family / health care workers
Diabetes Association Suriname (DVS)	Patients association	Support diabetes patients through organized information sessions on diabetes, and related complications	Diabetes patients and their family

Source: (Muskiel, 2010)

Workers unions are quite strong in Suriname because most positions are unionized. Apart from the traditional involvement in ILO in occupational safety and health the unions do not have a strong involvement in health related issues.

4.8. Regional PAHO/WHO Institutes and PAHO/WHO Collaborating Centers

Suriname is a member of CAREC, the PAHO Caribbean Epidemiology Centre, which provides strong support for activities related to disease surveillance and laboratory support. Also during the recent H1N1 pandemic important support was received from CAREC. Within this context a Real-Time PCR has been donated from CAREC to the new BOG Laboratory. The centre also gave support for developing the STEPS risk factor survey and other NCD related activities.

Although Suriname is not a member of the Caribbean Food and Nutrition Institute (CFNI), technical cooperation is provided upon request. In 2004 a protocol for the nutritional management of obesity, diabetes and hypertension in the Caribbean was developed and in Suriname this protocol has been used to train diabetes and HIV/AIDS nurses. In 2010 CFNI assisted in developing a proposal for a national food consumption study, for which resources are being sought.

Suriname is considering the membership to the Caribbean Environmental Health Institute (CEHI). Currently, technical support is provided upon request. In 2008 CEHI assisted Suriname with the Health-Care Waste Management Study for Suriname. This study provided a clear present situation and proposed intervention for management and control of medical waste in Suriname.

Future collaborations are foreseen with the Latin American Centre for Perinatology and Human Development (CLAP) regarding safe motherhood.

Suriname has few relations with PAHO/WHO Collaborating Centres. Sporadic collaboration takes place with for example CDC or FIOCRUZ.

5. The Strategic Agenda

The strategic agenda is divided in three strategic directions of work for the health sector:

- 1) Health Programs;
- 2) Health systems and
- 3) Determinants of health.

These directions are further disaggregated in 14 key priority areas that have been identified as keys to achieving the national health priorities.

5.1. Strategic Direction # 1: Health programs

Looking towards future needs of the population, there is a need to shift towards a diagonal approach to health programs aiming for disease-specific results through improved health systems. Focus on preventing or treating individual's diseases or working with specific populations can lead to substantial successes with specific conditions. Nevertheless the more can be achieved through comprehensive, coordinated care to address multiple health issues and the risk factors, grounded on practices based on inclusion and evidence based.

This diagonal approach helps to continue the specialization required for some conditions, while strengthening the integration that is beneficial for others. With this approach, the desired health outcomes and specific burdens of disease are the basis for identifying services, emphasizing integration into a strengthened primary health care system.

Priority Area 1.1.: Prevention and reduction of the burden of non-communicable diseases

The burden of non-communicable diseases continues to increase rapidly in Suriname, specifically, cardiovascular diseases, diabetes, chronic respiratory diseases and cancers. A concurrent surge in modifiable risk factors (tobacco use, alcohol abuse, physical inactivity and unhealthy diets) increases the severity of NCDs on the Suriname population.

Recognizing the complex nature imposed by this growing public health problem and that the progression of NCDs can largely be prevented by modifying risk factors, the strategies proposed in the National Health Sector Plan intend to strengthen health system for NCD prevention, promotion, and control to deliver equitable health outcomes from the basis of a comprehensive approach.

This plan calls for a renewed approach to non-communicable diseases. The focus will be on the reduction of the burden of disease, disabilities, and premature deaths from the major NCDs and modifiable risk factors for all Suriname peoples by establishing NCD prevention and control as a national priority, with appropriate attention to a comprehensive approach; multi-sectoral actions (including civil society and private sector); surveillance and monitoring; appropriate, effective evidence-based population-wide prevention and control measures. The National NCD Action Plan is an operational level document that provides further national directions for NCD prevention, treatment and control in Suriname.

Objective	Indicators	Target 2014	Target 2018
<i>To develop a National Strategy that focuses on risks reduction and disease prevention</i>	<i>National strategy on NCDs including guidelines and protocols developed</i>	<i>NCDs services mainstreamed within PHC</i>	<i>NCDs services fully mainstreamed within PHC</i>
<i>Raise the priority of NCDs and risk factors on the national level</i>	<i># risk factors and NCDs addressed by national laws and policies</i>	3 - 4	7 - 8
<i>Enhanced multi-sectoral partnerships, including the private sector and civil society</i>	<i># of partnerships to actively address national-level prevention and control measures for NDCs</i>	2 partnerships	7 partnerships

Priority Area 1.2: Prevention and reduction of the burden of communicable diseases

There have been many successes in controlling communicable diseases in Suriname, which have contributed significantly to the epidemiological shift, decreasing the burden of communicable diseases on the population. Consequently, sustaining these successes remains central to the vision and strategy of the Health Sector.

This plan prioritizes National action to maintain successes, attain further achievements and being equipped to face new challenges in the areas of vaccine preventable diseases, emerging and re-emerging diseases, neglected tropical diseases (NTDs), zoonotic diseases, and other key communicable diseases. The emphasis will be on prevention, early detection, diagnosis, treatment, control and elimination measures for communicable diseases through compliance with the International Health Regulations (IHR), coordinated action new medical products/techniques, capacity building and attaining MDG targets. The actualization of these actions will prevent, protect against, control and provide a public health response to communicable diseases in ways that are effective to protect all people in Suriname.

Suriname has achieved a high vaccination coverage, resulting in a lower number of deaths related to vaccine preventable diseases. Further successes can be attained with effective measures to improve coverage and quality of immunization services with the aims to: 1) eliminate diseases (rubella, congenital rubella syndrome, neonatal tetanus); 2) emphasize family immunization, and 3) administer seasonal influenza and yellow-fever vaccinations. Facing new challenges in this area will require strengthening capacity, (particularly in epidemiological surveillance and evidence-based decision-making); introducing new vaccines; and promoting the sustainability of the National Immunization Program.

The establishment of the National Malaria Board led many successful initiatives that resulted in a near 90% decrease in malaria. The country was awarded by PAHO as a Malaria Champion in 2008.

Similarly to all countries in the world, Suriname is working to avert the effects of the increasing global security threat due to the spread of emerging and re-emerging diseases.

In the last years the country has attained the near elimination of several communicable diseases, with emphasis leprosy elimination target of less than 1 case per 10.000 persons in 2009 and approaching the state of elimination for Schistosomiasis and Soil Transmitted Helminthiasis

Key communicable diseases continue to persist in Suriname, including HIV/AIDS and TB. The country established the interdepartmental multi-disciplinary multi-sectoral HIV Board, integrated HIV / AIDS health care and support services in the existing health care system in the primary and secondary health care level and Centre of Excellence and through the National AIDS Program reached the majority of HIV positives and HIV positive women with the PMTCT programme in 2008, reaching elimination targets for MTCT.

Objective	Indicators	Target 2014	Target 2018
<i>To control, and where possible, eliminate, the burden of communicable disease</i>	<i># of communicable diseases addressed in strategic plans towards the control and elimination of disease</i>	<i># of communicable diseases addressed</i>	<i># of communicable diseases addressed</i>
	<i># of vaccine preventable diseases for which Suriname has reached certificate of elimination</i>	<i># of certificates of elimination</i>	<i># of certificates of elimination</i>
<i>To develop a MTCT Strategy</i>	<i>National strategy on MTCT including guidelines and protocols developed</i>	<i>MTCT strategy developed</i>	<i>MTCT strategy fully developed and implemented</i>
<i>To sustain and strengthen the core capacities of international health regulations (IHR)</i>	<i># of core capacities that Suriname is in compliance with</i>	<i># of core capacities</i>	<i># of core capacities</i>
<i>To reach and sustain MDG 6 and the ensuing targets for HIV/AIDS, Malaria, TB and other neglected diseases</i>	<i>MDG target for HIV on track</i>	<i>MDG on track</i>	<i>2015 target sustained</i>
	<i>MDG target for malaria on track</i>		
	<i>MDG target for TB on track</i>		

Priority Area 1.3: health over the life course

The Ministry of Health is committed to reduce morbidity and mortality in our population. This priority area focuses on the reduction of mortality and morbidity to improve health during key stages of life, working with effective interventions for newborn, child, young people (adolescents 10-19 and youth 15-24), reproductive age, and older adults, using a life-course approach and addressing equity gaps.

Strengthening policies, health systems and primary health care is fundamental to achieving our health priorities and contributes to the achievement of Millennium Development Goals 4 (reducing infant mortality), and 5 (improving maternal health).

This plan calls for action to reduce disparities and improve health outcomes for mothers and infants.

The three leading causes of maternal mortality in Suriname are: Pregnancy Induced Hypertension and the associated disorders namely oedema, proteinuria and eclampsia (20 %), complications of labour and delivery namely fluxus postpartum (16%), and abortive outcomes of pregnancies (12%),

The three leading causes of IMR are respiratory diseases (29%), congenital malformations (34%) and bacterial sepsis (15%).

Strengthening interventions targeting our youth also presents significant challenges. Adolescents face their own set of unique health risks such as adolescent pregnancy, STI/HIV, drug abuse, and violence.

People over the age of 60 tend to have more complex health needs compared to the rest of the population, and make greater use of the health system. Consequently, it is critical to help individuals stay healthy as they age reducing the burden on the health system. Suriname also must plan for increased capacity to provide care and specialized services for the aging.

Objective	Indicators	Target 2014	Target 2018
<i>To enhance the body of policy and plans addressing health at key stages in life: maternity, childhood, adolescence, sexual and reproductive health and the elderly.</i>	<i># of target groups addressed under policies and plans</i>	<i># of groups addressed</i>	<i># of groups addressed</i>
<i>To improve the health status of women and children by reaching and sustaining MDG 4 and MDG 5.</i>	<i>MDG 4 on track</i>	<i>On track</i>	<i>2015 target sustained</i>
	<i>MDG 5 on track</i>	<i>On track</i>	<i>2015 target sustained</i>

Priority Area 1.4: Prevention and reduction of the burden of mental diseases

In order to address the full health and wellbeing of the peoples of Suriname, mental health must be addressed. The most frequent diagnoses of admission in PCS are substance abuse (50%), Mood disorders (20%) Schizophrenia (12%) and personality disorders (11%). Reduction in the treatment gap in persons suffering from mental disorders is a priority area in this plan.

This plan places a priority on increased awareness, education and early intervention of mental disorders to achieve the best mental health status for all Surinamese by providing services to prevent and reduce the incidence of mental illness. As awareness increases, so will the need for services: prevention, management and treatment services.

It has been clear that there is a need to design a national mental health plan to direct more efforts towards strengthening the integration of mental health into primary health care and the decentralization of psychiatric care.

Objective	Indicators	Target 2014	Target 2018
<i>To develop a National Mental Health Strategy that outlines the decentralization of mental health services and mainstreams MH in PHC</i>	<i>National strategy on mental health including guidelines and protocols developed</i>	<i>MH services mainstreamed within PHC</i>	<i>MH services fully mainstreamed within PHC</i>
<i>To enhance accessibility to psychiatric services through the decentralization of psychiatric care</i>	<i>National strategy in place to mainstream psychiatric care in the country</i>	<i>#/3 of decentralized psychiatric care units in Nickerie Marowijne (Albina) and Atjoni</i>	<i>At least one 1 decentralized psychiatric care unit per district</i>

5.2. Strategic Direction # 2: Health systems and service delivery

There is a need to reorient the health system to ensure maximum responsiveness and efficiency to prepare and mitigate future threats. At present, the health system is facing many crucial challenges, and is presented with numerous opportunities.

Crucial challenges, including, rising expectations, increased demands, and inequalities in access, coverage and expenditure can be mitigated. The mutual demand for change from all stakeholders provides the opportunity for the health sector to reaffirm the commitment to the values of equity, solidarity, social justice and solidarity.

Changes to reorient the health sector require a horizontal and systematic approach to primary care: dealing with health inequalities by moving towards universal coverage; putting people at the centre of service delivery; integrating health into public policies across sectors; and providing inclusive leadership for health governance.

The reorientation of the sector will also focus on aligning the building blocks of health systems: the health workforce; the health information system; the systems to provide access to medical products, vaccines, and technologies; the financing system; and leadership and governance.

Priority Area .2.1: Leadership, stewardship and governance

The Ministry of Health is responsible for assuring conditions that allow the people of Suriname to be as healthy as they can be through the adoption and implementation of health policies strategic policy frameworks combined with effective oversight, coalition building, accountability, regulations, incentives and attention to system design.

Our health care system is complex and unique and thus the Ministry of Health is committed as leader in health to maximize the use of resources to provide patients with positive outcomes and enhance motivation and performance of the health workforce to drive positive change and impact patient outcomes.

Addressing the governance and leadership in the NHSP is a crucial step in strengthening health systems to achieve national, regional, and global health objectives.

Objective	Indicators	Target 2014	Target 2018
<i>To enhance existing MOH capacity for governance and leadership of the Health Sector</i>	<i>Monitoring of the NHSP</i>	<i>Midterm evaluation report</i>	<i>Final evaluation report</i>
<i>Increased leadership capacity in all areas and levels of the health sector in order to adequately meet the needs of the epidemiological transition towards NCDs</i>	<i>All health related organizations adopt NHSP as a guiding document</i>	<i>TBD</i>	<i>100%</i>
<i>Comprehensive approach to encourage the establishment of intersectoral partnerships with relevant stakeholders in order to achieve national health objectives</i>	<i># of public and private partners engaged to achieve national health goals and objectives</i>	<i># of intersectoral initiatives</i>	<i># of intersectoral initiatives</i>
	<i># of policies that incorporate a health perspective</i>	<i>TBD</i>	<i>Health in all policies</i>

Priority Area 2.2: Health Financing

Health financing policy requires decisions on how to raise funds, how to pool them, and how to use them equitably and efficiently.

The strategies proposed in the National Health Strategic Plan must ensure that the people of Suriname have access to equitable and quality health services. Hence the need for the assessment of a range of mechanisms to reduce costs and to increase revenues.

This plan calls for an assessment of risk pooling mechanisms that ensure access to a basic package of essential health services, while protecting individuals from financial hardship due to catastrophic medical costs that lead to an increased risk of poverty.

This plan calls for the implementation of a health finance strategy. This will require decisions about service priorities including service realignments and moving resources to where they will do the most good.

Informed decision-making requires reliable information on the quantity of financial resources used for health, their sources and the way they are used. National Health Accounts (NHA) provides evidence to monitor trends in health spending for all sectors- public and private, different health care activities, providers, diseases, population groups and regions in a country. It helps in developing national strategies for effective health financing and in raising additional funds for health. Information can be used to make financial projections of a country's health system requirements and compare their own experiences with the past or with those of other countries.

Objective	Indicators	Target 2014	Target 2018
<i>To implement a Universal Health Insurance</i>	<i>Universal Health Insurance law passed and implemented</i>	<i>Universal Health Insurance law approved by National Assembly</i>	<i>Universal Health Insurance implemented and evaluated</i>
	<i>Basic health package designed</i>	<i>Basic health package designed and launched</i>	<i>Basic health package evaluated and upgraded</i>
<i>Enhanced information on government expenditures on health for decision making</i>	<i>Periodic National Health Accounts (NHA) study conducted</i>	<i>NHA produced</i>	<i>NHA produced</i>

Priority Area 2.3: Human resources for health

Our health workforce is the backbone of our health system. Nevertheless, like most countries in the world Suriname is subject to the global crisis in the health workforce.

This global crisis requires strategic planning and action to face human resource governance, planning and management that ensures the right number of individuals in the right roles, with the right skills, in the right locations to achieve our health priorities and the Millennium Development Goals and to deliver quality care services.

This plan will also require improved the capacity for planning and management of human resources across the entire health system. This capacity will allow us to understand what kind of skills we need not just today but in the future.

Our health system requires strengthening the existing health workforce for emerging needs at all levels of the health system such as managing the NCD world epidemic, strengthened management competencies and acquiring new tools for enhanced decision making.

Objective	Indicators	Target 2014	Target 2018
<i>To ensure an equitable and balanced skill mix and a geographical distribution of the health workforce through the development of effective deployment and retention measures, specific incentives and creative management strategies</i>	<i>Existence of a Human Resources for Health Strategy</i>	<i>Human Resources Plan Developed</i>	<i>HRH Plan fully implemented and evaluated</i>
	<i># Of health workers in different categories trained</i>	<i># of health workers in different categories trained according to HRH plan</i>	<i># of health workers in different categories trained according to HRH plan</i>

Priority Area 2.4: Health services

Our health system faces many challenges now and in the coming years: social, demographic, cultural, environmental and technological. As demand for health services continues to grow, responding to these challenges will require many changes, both within the health system and in the wider community.

The Ministry of Health is committed to strengthening health services to provide equitable and quality health care for all Surinamese. People-centered care ensures continuity of care across health care organizations, facilities and services, contributing to improved outcomes and reduced duplication of costly services.

To overcome organizational, cultural and communication barriers the new “models of care” must build on the best practices and successes already found in the system, and introduce new ideas and best practices from around the world.

This plan calls for enhanced quality of health care services (i.e. they are effective, safe, centered on the patient’s needs and given in a timely fashion), in order to tackle modern health challenges, such as the non-communicable diseases epidemic.

Quality strategies developed and implemented need to address the different strategies homecare, hospitals and PHC, among others.

Strengthening primary care must be a key strategy toward preventing and reducing the burden of disease in our country. Experience from other countries shows that increased use of high quality primary care services that provide preventative care, co-ordination of care for the ill, and continuity of care, improves overall health outcomes and reduce costs to the health system.

Building new health facilities and upgrading existing health facilities aligned with new models of care to increase access to services, meet increased demand, and improve the quality of services and the patient experience. Key projects include new hospitals in Albina and Brokopondo, primary care polis for the interior and in Paramaribo.

Objective	Indicators	Target 2014	Target 2018
<i>To enhanced primary health care model that meet health needs at every stage of life</i>	<i># vertical programs targeted for integration, integrated in PHC</i>	<i># protocols integrated</i>	<i># protocols integrated</i>
	<i># integrated PHC centers that function according to the principles of the renewed PHC model</i>	<i>6 clinics operating with the renewed primary health care model</i>	<i># clinics operating with the renewed primary health care model</i>
<i>To enhance delivery of care to provide high quality health care</i>	<i>Quality strategies developed and implemented</i>	<i># of strategies implemented</i>	<i># of strategies implemented</i>
<i>To upgrade physical infrastructure</i>	<i>Health care facilities built</i>	<i># and type of facilities built</i>	<i># and type of facilities built</i>
	<i>Health care facilities renovated</i>	<i># and type of facilities renovated</i>	<i># and type of facilities renovated</i>

Priority Area 2.5: Improving the Health Information Systems

A complex health system requires informed decisions. Clinicians, administrators, managers and policy makers need quality, comprehensive and meaningful information to make effective decisions.

Effective clinical, management and policy decision-making require quality, comprehensive and meaningful information, and the skills and knowledge to interpret and use this information.

While there have been considerable strides over the last several years in implementing various health information systems, there is a need to improve the way information is extracted, analyzed, packaged, made available and used to better inform decisions across the health system.

Information technology must also play a key role in improving access and continuity to care.

Objective	Indicators	Target 2014	Target 2018
<p><i>To strengthen the national health information system to generate, analyze, and utilize reliable information from public and private sources *</i></p>	<p><i>Integrated information system in place</i></p>	<p><i>Timely collection and analysis of data improved</i></p>	<p><i>Timely collection and analysis of data improved</i></p>
		<p><i>Improved access to timely strategic information to managers across the public health system</i></p>	<p><i>Full access to timely strategic information to managers across the public health system</i></p>
<p><i>To promote and stimulate research and scientific publications to address the knowledge gap</i></p>	<p><i>National research agenda developed with the cooperation of the university</i></p>	<p><i>Research agenda developed</i></p>	<p><i>Research agenda evaluated and revised</i></p>

**e.g. administrative data sources, disease registries, surveillance, screening data, clinical and laboratory, vital records, census, surveys, etc*

Priority Area 2.6: Pharmaceuticals and new technologies

A significant portion of the national expenditure on health is directed toward the acquisition and maintenance of health technologies such as medications, medical devices, diagnostic equipment and supplies. Worldwide there is a growing trend towards the utilization of more sophisticated technologies in health.

This plan calls for the strengthening of the national capacity for planning, acquisition, deployment, management and maintenance of health technologies and medical equipment (including medical products, vaccines and other technologies of assured quality, safety, efficacy and cost effectiveness, and their scientifically sound and cost-effective use) and skilled people to plan, manage and maintain these resources in order to ensure the effectiveness of these essential components of the health system.

Objective	Indicators	Target 2014	Target 2018
To Enhance regulation of pharmaceutical products through the implementation of the HERA report within the PAHO resolution of 2010	# of HERA report recommendations implemented	Improved rational use pharmaceutical products	HERA report recommendations fully implemented
		Improved access to pharmaceutical products	
Strengthened capacity for new health technologies assessment	Health technology assessment conducted	# of health technology assessments conducted	# of health technology assessment conducted

5.3. Strategic Direction # 3: Determinants of health

The important interface between health, well-being and economic development and social determinants is becoming more prominent in Suriname because inequalities have a significant impact on development. Reducing inequalities increases the capacity for learning, strengthen families and communities, supports sustainable habitats and environments, and contributes to security, poverty reduction, and social inclusion; and therefore enhances quality and improves workforce productivity facilitating broader developments.

The implications of social determinants extend well beyond the health. However, the health sector is a well-positioned leader and catalyst to provide a sense of direction required for sustained commitment from other sectors to address these concerns, establishing meaningful multi-sectorial partnerships. These partnerships must focus on engaging all stakeholders to commit and implement practical, cross-sector initiatives to address the social determinants.

Priority Area 3.1: environmental and occupational health

Toxic chemical exposure is a serious public health problem. The use of chemicals in different phases of industrial and agricultural production processes puts not only the workers, but the entire population at risk, especially vulnerable groups such as children, pregnant women, older adults, and the population with limited education and access to information about the toxicity of certain products.

The volume of these substances has increased, and per capita exposure to some of them, such as pesticides. Although surveillance quality is improving, the reporting of morbidity and mortality from acute and chronic poisoning does not reflect the magnitude of the problem.

Efforts should be centered on: toxic surveillance; strengthening of legislation, rigor in the registration of chemicals, prevention of illegal trafficking in toxic and hazardous substances; civil society participation in chemical surveillance and control mechanisms; the adoption of chemical safety as part of sustainable development policies; and expanding alternatives to pesticides, such as integrated pest management and organic agriculture.

Workers' health, safety and well-being are vital concerns the issue extends even further beyond individuals and their families. It is of paramount importance to the productivity, competitiveness and sustainability of enterprises.

The workplace is increasingly being used as a setting for health promotion and preventive health activities – not only to prevent occupational injury, but to assess and improve people's overall health.

Objective	Indicators	Target 2014	Target 2018
<i>To develop a comprehensive environmental health strategy</i>	<i>Increased intersectoral partnerships and collaboration in environmental health</i>	<i># of strategies implemented</i>	<i># of strategies implemented</i>
	<i>Strategy for Environmental Health developed</i>	<i>Environmental Health plan developed</i>	<i>Environmental Health plan fully implemented and evaluated</i>
		<i>Surveillance system developed for data registration of environmental health issues</i>	<i>Surveillance system</i>
		<i>Guidelines and tools for handling environmental health issues</i>	<i>Guidelines and tools for handling environmental health issues fully implemented</i>
<i>Enhancement of occupational health activities within the framework of WHO global plan of action on workers' health</i>	<i>Occupational health strategy developed in line with WHO global plan of action</i>	<i>Environmental Health plan implemented</i>	<i>Environmental Health plan fully implemented and evaluated</i>

Priority Area 3.2: Social and economic determinants of health

There is a lack of vital and health statistics disaggregated by ethnicity, gender and age groups, which impedes the development of appropriate evidence-based decision-making and adequate evaluation of the health situation.

The social determinants of health are the conditions in which people are born, grow, live, work and age, including the health system. These circumstances are shaped by the distribution of money, power and resources at global, national and local levels, which are themselves influenced by policy choices. The social determinants of health are mostly responsible for health inequities - the unfair and avoidable differences in health status seen within and between countries.

Responding to increasing concern about these persisting and widening inequities WHO established the Commission on Social Determinants of Health in 2005 to provide advice on how to reduce them. The Commission's final report was launched in August 2008, and contained three overarching recommendations:

1. Improve daily living conditions
2. Tackle the inequitable distribution of power, money, and resources
3. Measure and understand the problem and assess the impact of action

The MOH will exercise leadership to address the broader determinants of health, moving towards a multisectoral approach, prioritizing those sectors with the greatest impact on health.

Objective	Indicators	Target 2014	Target 2018
<i>Improved capacity to disaggregate data and information on social and economic factors that influence the health of citizens</i>	<i>Social and economic data relevant to health collated and analyzed on a disaggregated basis (by sex, age, ethnicity, income, and health conditions).</i>	<i># of reports incorporating disaggregated health data and that evaluate health equity</i>	<i># of reports incorporating disaggregated health data and that evaluate health equity</i>
<i>Increased sensitization on social determinants of health</i>	<i># of initiatives that address determinants of health</i>	<i># of initiatives</i>	<i># of initiatives</i>
<i>To mainstream the determinants of health dimensions * into all policies, programmes and evaluations</i>	<i>% of programs with socio-economic components mainstreamed</i>	<i>Socio economic dimensions mainstreamed in 20% of all programs</i>	<i>Socio economic dimensions mainstreamed in 80% of all programs</i>

* Gender, ethnicity, social status, income etc

Priority Area 3.3: Emergencies and disasters

During emergency situations it is vital that our hospitals and health facilities continue to function. All structural, nonstructural and functional factors, including the environment and the health services network to which it belongs need to be secured.

A safe hospital is an establishment whose services remain accessible and functional at maximum capacity and within the same infrastructure immediately following a natural disaster.

The vulnerability of a health facility and the health services network in general can be reduced by carrying out a functional diagnosis, identifying priorities components, including aspects of vulnerability and risk reduction in national processes of accreditation, certification and licensing in the health facilities and ensuring the availability of essential resources for the hospital's response in disasters.

Objective	Indicators	Target 2014	Target 2018
<i>To implement the Hospital Safety index recommendations</i>	<i># of recommendation implemented</i>	<i>30% of recommendations implemented</i>	<i>75% of recommendations implemented</i>
<i>Increased capacity to comply with international health regulations in emergencies and disasters situations</i>	<i># of people trained for increased capacity in emergencies and disasters situations in accordance to IHR</i>	<i># of people trained</i>	<i># of people trained</i>

5.4. The Strategic Agenda Implementation Arrangements

The role and responsibility of the MOH have been clearly defined in this strategic plan including those of the Bureau of Public Health and all other stakeholders of the health sector namely the primary health care institutions and the hospitals.

In order to achieve the objectives of the National Health Sector Plan 2011 – 2018 it is important that the MOH works as well in partnership with other government agencies, the private sector, PAHO/WHO Suriname, the UN agencies and all the development partners in Suriname.

The National Health Sector Plan is a national strategy that guides implementation of priority interventions in the health sector that will lead to the achievement of the targets as set in the National Development Plan 2011 – 2015 (OP) and the MDGs

The plan does not provide detailed activities. These will be formulated in annual work plans and targets

Monitoring and evaluation of this plan will be done using the existing systems namely NHIS at MOH, Epidemiology / Biostatistics department at Bureau of Public Health, the medical registries in the hospitals and at the primary health care institutions. To support the data collection a Monitoring & Evaluation Plan will be developed for this NHSP.

A financial and technical progress report will be produced annually.