REPUBLIQUE DU CAMEROUN

Paix – Travail – Patrie

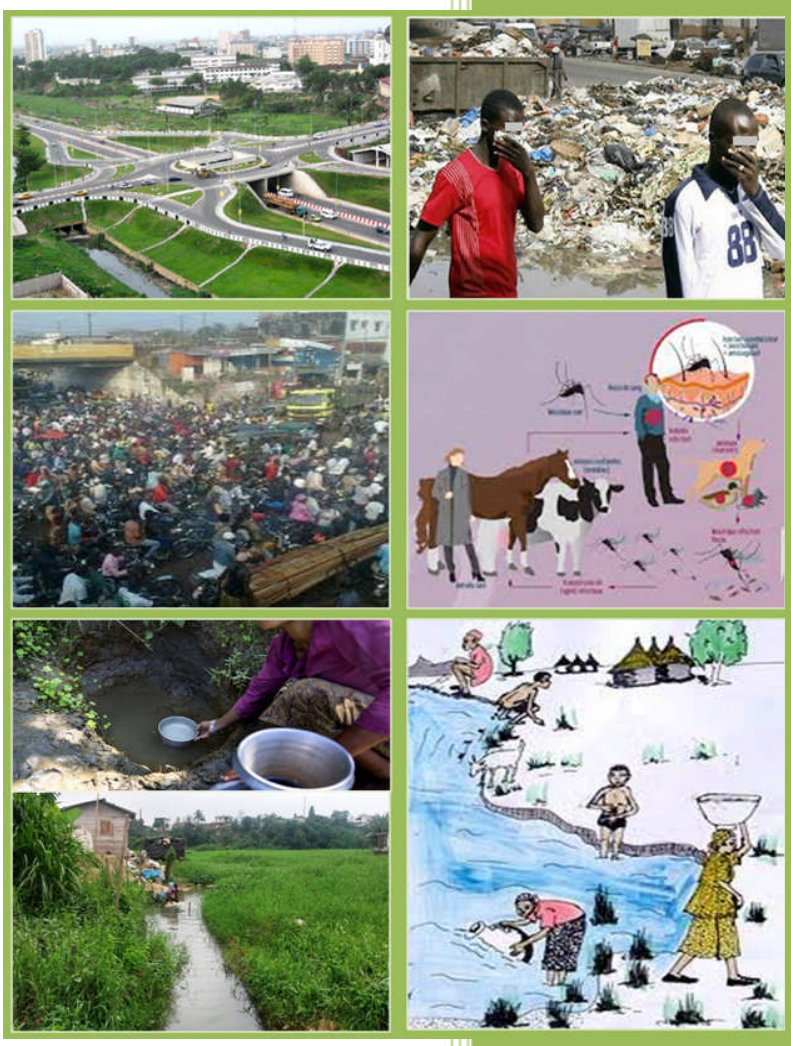
REPUBLIC OF CAMEROON

Peace – Work – Fatherland

VOLUME 1 :

COMPENDIUM OF ENVIRONMENT STATISTICS

COMPONENT 5: HUMAN SETTLEMENTS AND ENVIRONMENTAL HEALTH



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December 2022

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ACRONYMS AND ABBREVIATIONS

ACDEV	:	Action for development
ANSM	:	France National Agency for the Safety of Medicinal Products and Health Products
ARI	:	Acute Respiratory Infections
ARSEL	:	Cameroon Electricity Sector Regulatory Agency
BUCREP	:	Bureau Central du Recensement et des Etudes de Population
C3T	:	Cameroon Coalition Against Tobacco
CDE	:	Camerounaise des Eaux
CDHS	:	Cameroon Demographic and Health Survey
CPN	:	Prenatal Consultation
DCSECC		Division of Mapping, Environment and Climate Change Statistics at the NIS
DCP	:	Directorate of Civil Protection
DHS	:	Demographic and Health Survey
DHS-MICS	:	Demographic and Health Survey and Multiple Indicators Cluster Survey
E&D	:	Environment and Development consulting
ECAM	:	Cameroon Household Surveys
EC-ECAM	:	Complementary Survey for the Cameroon Household Surveys
EESI	:	Survey on Employment and Informal Sector
EEZ	:	Exclusive Economic Zone
ENEO	:	Energy of Cameroon
FAO	:	United Nations Agriculture and Food Organization
FDES	:	Framework for the Development of Environment Statistics
GDP	:	Gross Domestic Product
GESP	:	Growth and Employment Strategy Paper
GHED	:	Global Health Expenditure Database
GPHC	:	General Population and Housing Census
HPSF	:	Hydrocarbon Price Stabilization Fund
HTT/MINT	:	High Tech Telesoft /Ministry of Transports
HYDRACS	:	Hydrocarbon analysis control
MDG	:	Millennium Development Goals
MICS	:	Multiples Indicators Cluster Survey
MINADT	:	Ministry of Territorial Administration and Decentralization
MINEPDED	:	Ministry of Environment, Nature Protection and Sustainable Development
MINSANTE	:	Ministry of Public Health
MINT	:	Ministry of Transport
NIC	:	National Institute of Cartography
NIS	:	National Institute of Statistics
NMCP	:	National Malaria Control Programme
NTCP	:	National Tuberculosis Control Programme
PM	:	Particulate Matter
RDT	:	Rapid Diagnosis Test
SDG	:	Sustainable Development Goals
SNEC	:	Société Nationale des Eaux du Cameroun
WHO	:	World Health Organization

FOREWORD

This 2022 edition of the Compendium of Environment Statistics follows the 2016 Atlas. The statistics found therein are required for the implementation of Sustainable Development Goals (SDGs) 3, 6, 7, 11, 12, 13, 14, and 15, the African Union's Agenda 2063 first aspiration, as well as national strategies and programmes. They contribute to the evaluation of the implementation of policy instruments requiring strengthening and support for environmental protection; hence the need to develop a mechanism for the production of these statistics. In order to support national statistical systems in this task, the United Nations Statistics Division (UNSD) has developed a conceptual framework called «Framework for the Development of Environment Statistics (FDES), approved in 2013 by the United Nations Statistical Commission (UNSC) at its 44th Ordinary Session.

This Framework is recognized as a useful tool to adequately respond to the growing demand for environmental information for the follow-up of the Rio Conference on Sustainable Development (Rio+20) resolutions and the post-development agenda2015, also known as the sustainable development agenda. The implementation of the FDES necessarily requires the implementation of a national action plan. It is in this context that Cameroon validated its National Action Plan for the Development of Environmental Statistics (NAPDES) during a high-level meeting held in December 2019, under the patronage of the Prime Minister, Head of Government

The NAPDES covering the period 2020-2024, presents the strategic and policy framework for the environment, reviews and diagnoses the system for producing environmental statistics in Cameroon for all the thematic areas contained in the six components of the FDES. This plan also proposes a clear vision, strategic axes and operational objectives, an implementation mechanism, a monitoring and evaluation mechanism, the budgeting and financing of the multiannual action plan. It also includes the preparation of a compendium of environment statistics every 3 years

This Compendium includes six thematic components of environment statistics which are:

- component 1 "**Environmental conditions and quality**";
- component 2 "**Environmental resources and their use**";
- component 3 "**Residuals**";
- component 4 "**Extreme events and disasters**";
- component 5 "**Human Settlements and Environmental Health**";
- component 6 "**Environmental protection, management and engagement**".

The plan to publish the compendium includes a first edition published in 2022 on components 2, 4 and 5. The second edition, to be published by 2025, will update the components already produced in addition to components 1, 3 and 6.

Indicators and information contained in the various components of the first edition of the Compendium come from the databases available at the NIS and from the collection of secondary data from other public and private administrations and institutions.

These components are designed to inform the choice of public policies in the various fields concerned, to help in development planning and the prioritization of projects and programmes. In short, they are developed to be reference documents for monitoring and evaluating the SDGs related to the environment and climate change.

The statistics and indicators used in this component concern **human settlements and environmental health**.

The NIS thanks all public and private administrations and institutions that participated in the production of this first edition by providing information, preparing statistics and analysing them for publication.

All suggestions for improvement in future editions will be greatly appreciated.

Director General

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INTRODUCTION

Component 5 of the Framework for the Development of Environment Statistics (FDES) addresses human settlements and environmental health.

Human settlements include all urban and rural agglomerations, the infrastructure and facilities they must have to ensure that their inhabitants enjoy a pleasant environment and a healthy, harmonious and balanced existence.

It contains statistics on the environment in which man lives and works. These statistics are important for the management and improvement of conditions related to human settlements, housing, drinking water, public hygiene and health, increasing pollution, environmental degradation, disasters, extreme events and climate change. This component is based on two pillars: human settlements and environmental health.

The first pillar concerns the living conditions of the population (housing, infrastructure, basic services (water, sanitation systems, waste disposal, energy, transport), and human exposure to potentially harmful environmental conditions. The second pillar focuses on how environmental factors and processes affect human health.

Component 5 is subdivided into 02 sub-components:

-Human settlements (urban and rural population, access to basic services, exposure to pollution, urbanization);

-Environmental health (Airborne diseases and conditions, Water-related diseases and conditions, Vector-borne diseases: Health problems associated with excessive UV radiation exposure, Toxic substance- and nuclear radiation-related diseases and conditions.)and environmental concerns specific to urban areas.

Component 5: Overview

Component 5 Human Settlements and Environmental Health	**Sub-Component 5.1** **Human Settlements**	**Topic 5.1.1:** Urban and rural population **Topic 5.1.2:** Access to selected basic services **Topic 5.1.3:** Housing conditions **Topic 5.1.4:** Exposure to ambient pollution **Topic 5.1.5:** Environmental concerns specific to urban settlements
	Sub-Component 5.2 **Environmental Health**	**Topic 5.2.1:** Airborne diseases and conditions **Topic 5.2.2:** Water-related diseases and conditions **Topic 5.2.3:** Vector-borne diseases **Topic 5.2.4:** Health problems associated with excessive UV radiation exposure **Topic 5.2.5:** Toxic substance- and nuclear radiation- related diseases and conditions

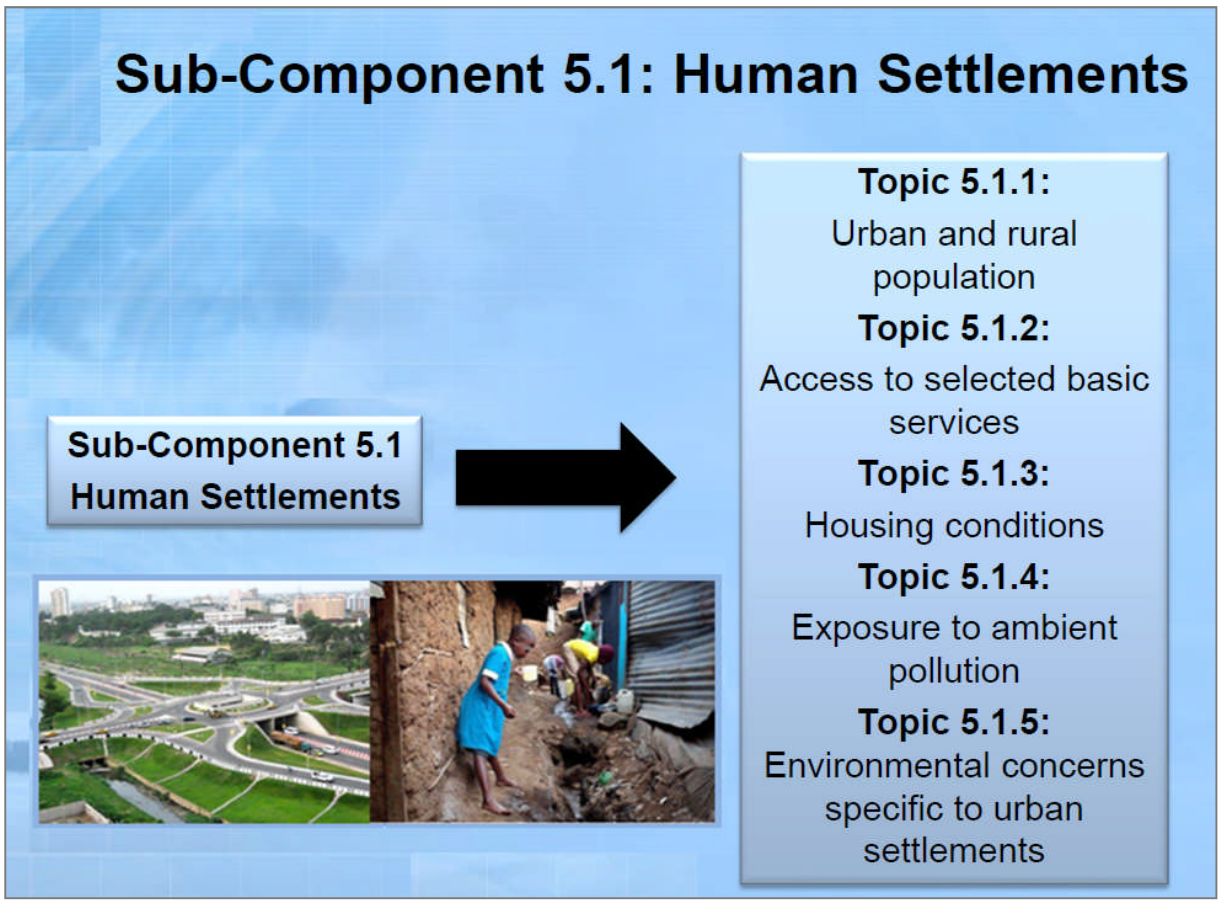
Sub-component 5.1: Human settlements

A human settlement, human installation, locality, or a populated area is a territorial entity of undetermined size or not, including at least one permanent or temporary dwelling site of a community. In order to present a global overview on aspects related to human settlements in Cameroon, this sub-component addresses the following topics:

i) Urban and rural population;
ii) Access to selected basic services;
iii) Housing conditions;
iv) Exposure to ambient pollution; and
v) Environmental concerns specific to urban areas.

In Cameroon, the general population census and household surveys provide statistics by region and residence on the population size and evolution, on access to basic services (water, electricity and sanitation) and on housing conditions. The general population census is carried out by the BUCREP and the household surveys by the NIS.

Data for this sub-component come from the 1976, 1987 and 2005 General Population and Housing Censuses, the population projections from the 3rdGPHC (2005), the 2001, 2007, 2014 Cameroon Household Surveys and 2016 Complementary Cameroon Household Surveys (EC-ECAM), the 2004, 2011 and 2018 Demographic and Health Surveys (DHS), the 2006 and 2014 Multiple Indicator Cluster Surveys (MICS), and the 2005 and 2010 Surveys on Employment and Informal Sector (EESI). Other sources such as statistical yearbooks and reports of studies produced by sectoral ministries were also used.



Some illustrative images of "Human Settlements»

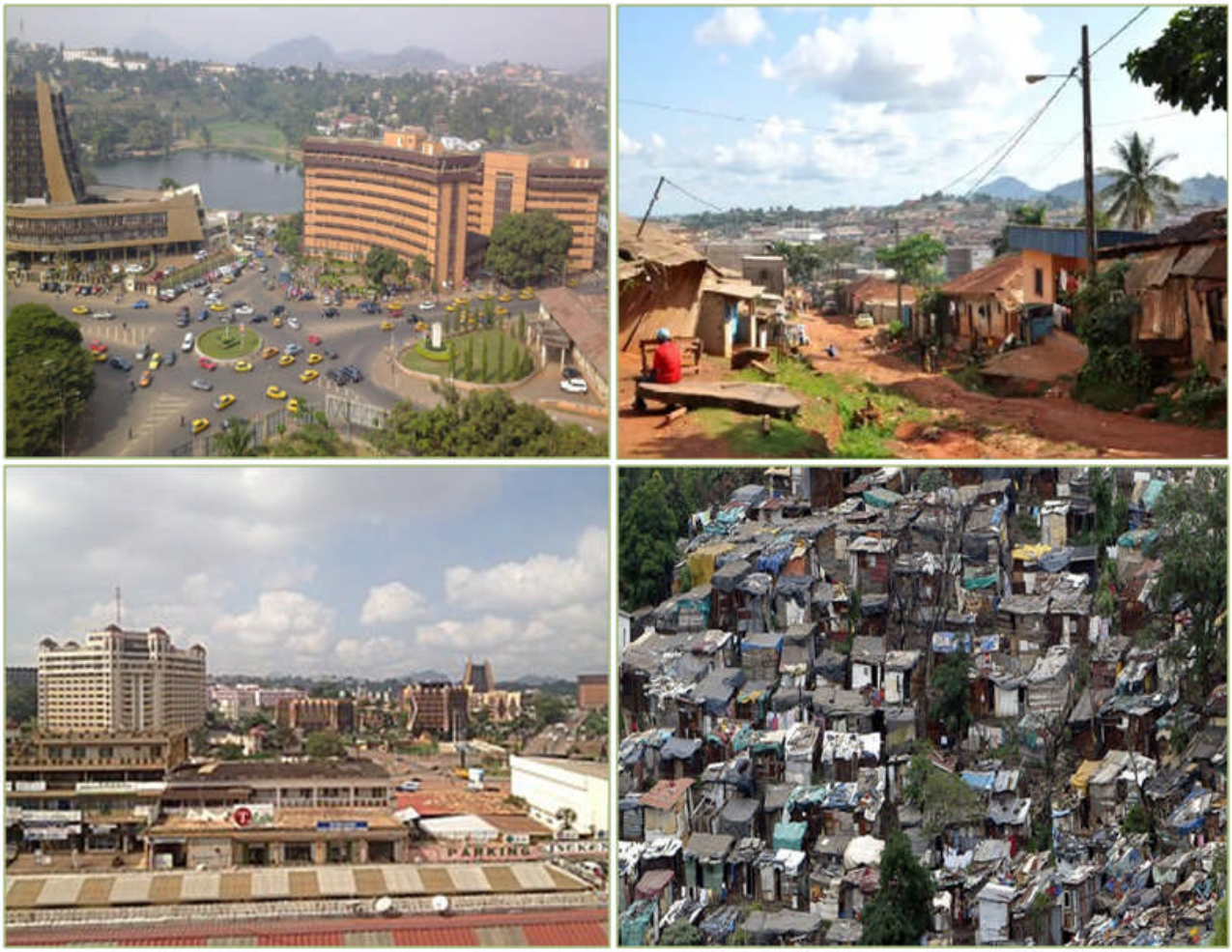


Illustration of the various views of the Yaounde urban landscape: on one side, well-landscaped areas, including the central town, 1-here the"Education", roundabout (‘top left). 2- The administrative quarter with several ministries (bottom left). On the other side, are spread populous quarters, 3-a street of a sub-quarter in Tsinga (top right), 4-the slums of the Obobogo rail quarter(bottom right) centre of various pollutions, smells and multiple sonorities related to the proliferation of informal activities.

Sources: 1- Actu-Cameroun ; 2- Jean François CHANNON, février 2012, online article at: https://cameroonvoice.com/news/2012/02/22/insecurite-urbaine-yaounde-entre-brigandage-et-autodefense/; 3- wilkipedia ; 4-Eric ADJOUDA, déc. 2017 : https://237actu.com/cameroun-pres-de-700-hectares-de-terrains-occupes-par-l-habitat-precaire-dans-la-ville-de-yaounde

Topic 5.1.1: Urban and rural population

The New Programme for Cities of the United Nations Human Settlements Programme (UN-Habitat) inaugurates the recognition of a correlation between good urbanization and development. It stresses the interaction between harmonious urbanisation and job creation, between quality of life and livelihood opportunities, principles which should be integrated into any urban renewal policy and strategy.

Moreover, the Quito Declaration on "Cities and Sustainable Human Settlements for All" estimates that by 2050, the urban population is expected to nearly double, making urbanization one of the main drivers of 21st century transformation. Populations, economic activity, social and cultural interactions, and environmental and humanitarian impacts are increasingly concentrated in cities, a situation that poses huge sustainability problems, including housing, infrastructure, basic services, food security, health, education, decent jobs, security and natural resources.

The promotion of sustainable development is linked to that of human settlements. Poverty remains a major obstacle to efforts to rehabilitate slum areas, the plight of poor people is a threat to the social stability of States. Promoting sustainable development by improving the living conditions of people in slum areas, health, education and the pace of urbanization remains a major challenge for developing countries, particularly in Cameroon.

Interactions between poverty and the environment take different forms depending on whether you are in a rural or urban setting. In rural areas, the basic problems concern access to natural resources such as land, forests or fisheries and their sustainable use. In urban areas, they relate to the discharge of household and industrial waste into water or air, and the impact this has on the poor. For the sake of clarity, the main links between poverty and sustainable development will be presented here by distinguishing the rural context from the urban context, in order to highlight the particularities of each.

Poor households are often heavily reliant on "common property resources": fallow land, forests, fishing grounds, pastures and swamps for their subsistence. They derive all kinds of goods that are important sources of subsistence or income for many landless poor. For many rural poor persons, they are the main source of food, fuel, building materials and income. For others, they are an essential source of supplementary income or food in times of crisis (drought, shortage of jobs and depletion of food stocks before the next harvest).

Humans can exert pressure on environmental resources, contributing thus to their destruction. Population growth and high urbanization require additional resources to meet expressed needs. This leads to increased exploitation of coastal and forest areas and mangroves. This exploitation substantially reduces marine resources (fish, etc.) and threatened/protected species (fauna and flora).

The majority of the population of the Sahel, for its energy needs, uses the very scarce wood resources in this area. Population growth in northern regions would increase vulnerability to drought and climate change.

In addition, the volume of residues (waste, pollution, etc.) is rising with increasing economic activity due to population growth and urbanization.

Anarchic demography or urbanization has an impact on the environment through:

- Increased pressures on marginal land, overexploitation of land and forests, overgrazing;
- Soil erosion, silting, flooding;
- Migration to crowded slums, water and sanitation problems, industrial waste risks, air pollution in homes, landslides;
- Air (emissions, pollution), etc.

Topic 5.1.1 on urban and rural population will be addressed through the presentation of

indicators on the geographical distribution and trends in population numbers and densities (average population size per square kilometre) living in urban and rural areas and in the country's ten regions, poverty and population numbers living in coastal areas. Increasing population density in coastal areas and increasing poverty are factors influencing the exploitation of natural resources.

The facade of the coastal zone of Cameroon extends over a linear of nearly 402 km.

The coastal zone which extends from high tide level up to 60 km inland includes beaches, dunes, mangroves, coastal plain, river deltas, estuaries, lagoons, swamps and the Exclusive Economic Zone (EEZ) (15,400 km2). The continental limit is materialized by a continuous line connecting the following cities from North to South: Mundemba, Muyuka, Dibombari, Edéa, and Nyambessan. This zone concerns specifically the South West, Littoral and South regions.

The subject only presents data on the general population, the coastal population and the poverty rate by division and subdivision. Other demographic aspects of human settlements are not addressed.

The data used to write this topic came from:

- Cameroon Household surveys varied out by the NIS (ECAM 1, 2,3 & 4, EC-ECAM 4, EESI 1 & 2, EDS 3, 4 & 5, MICS 2 & 3) et le BUCREP (RGPH 1, 2 &3).
- Exploitation of MINEPDED reports (National Action Plan for the Management of Marine and Coastal Areas and the current situation of Coastal Areas).
- exploitation of data bases of National Institute of Cartography
- exploitation of the FAO internet site
- exploitation of the MINATD statistical yearbook
- Exploitation of the diagnostic report on the Elaboration of the national planning and sustainable development plan for the territory of Cameroon, (SNADDT) by MINEPAT.

Some images of the "Urban and rural population"

1-Endless traffic jam in Emana-Yaounde (top left); 2-hundreds of motorcycles at the Ndokoti junction in Douala (top right); 3-Rural population near the refugee camp of Minawao in Mayo-Tsanaga Far North; 4-rural house in the southern part of Cameroon (bottom right)

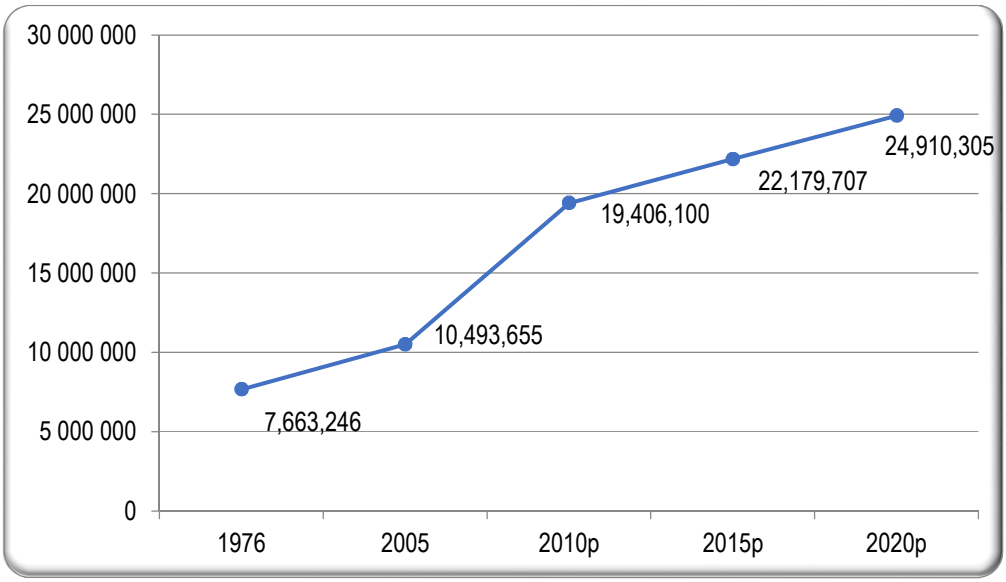
Sources: 1) Actu Cameroun , Nov. 2016 2) Minette Lontsie, 2017 : https://commons.wikimedia.org; 3) UNHCR 2018 ;4) Improving rural life in Cameroon, 2017

Table 5.1-1: *Global socio-economic and demographic indicators of Cameroon*

Indicators	Values	Sources
Political capital	Yaounde	
Economic capital	Douala	
Coastal cities	Douala, Limbe, Kribi, Edea, Tiko, Ekondo Titi, Campo	MINEPDED
Length of coastal zone (km)	402	MINEPDED
Continental surface area (km²)	10,600	MINEPDED
Surface area of the Exclusive Economic Zone (km²)	15, 400	MINEPDED
Surface area of the National Territory (km²)	475,650	NIC
Continental area of the National Territory (km²)	466,050	NIC
Maritime area of the National Territory (km²)	9,600	NIC
Total area covered by mangroves (ha) 2005	250	FAO
Total population (projection) 2020	26,133,035	NIS
Female population (projection) 2020	13,229,659	NIS
Male population (projection) 2020	12,903,376	NIS
Average annual population growth rate (2005)	2.8%	BUCREP
Urbanisation rate(2005)	48.8%	BUCREP
Life expectancy at birth, Men (2005)	53.4 years	BUCREP
Life expectancy at birth, Women(2005)	57.1 years	BUCREP
Coastal population (2005)	2,820,470	BUCREP
Population density (2005) hab/Km²	37.5 hab./Km²	BUCREP
Population density of coastal areas (2005) hab/km²	138 hab./Km²	BUCREP
Monetary poverty rate (2014)	37.5%	NIS
Total fertility rate (2018) Children per woman	4.8	NIS
Child mortality rate(2018)	48 deaths for 1000 live births	NIS
Maternal mortality ratio(2018)	406 deathsfor100 000 live births	NIS

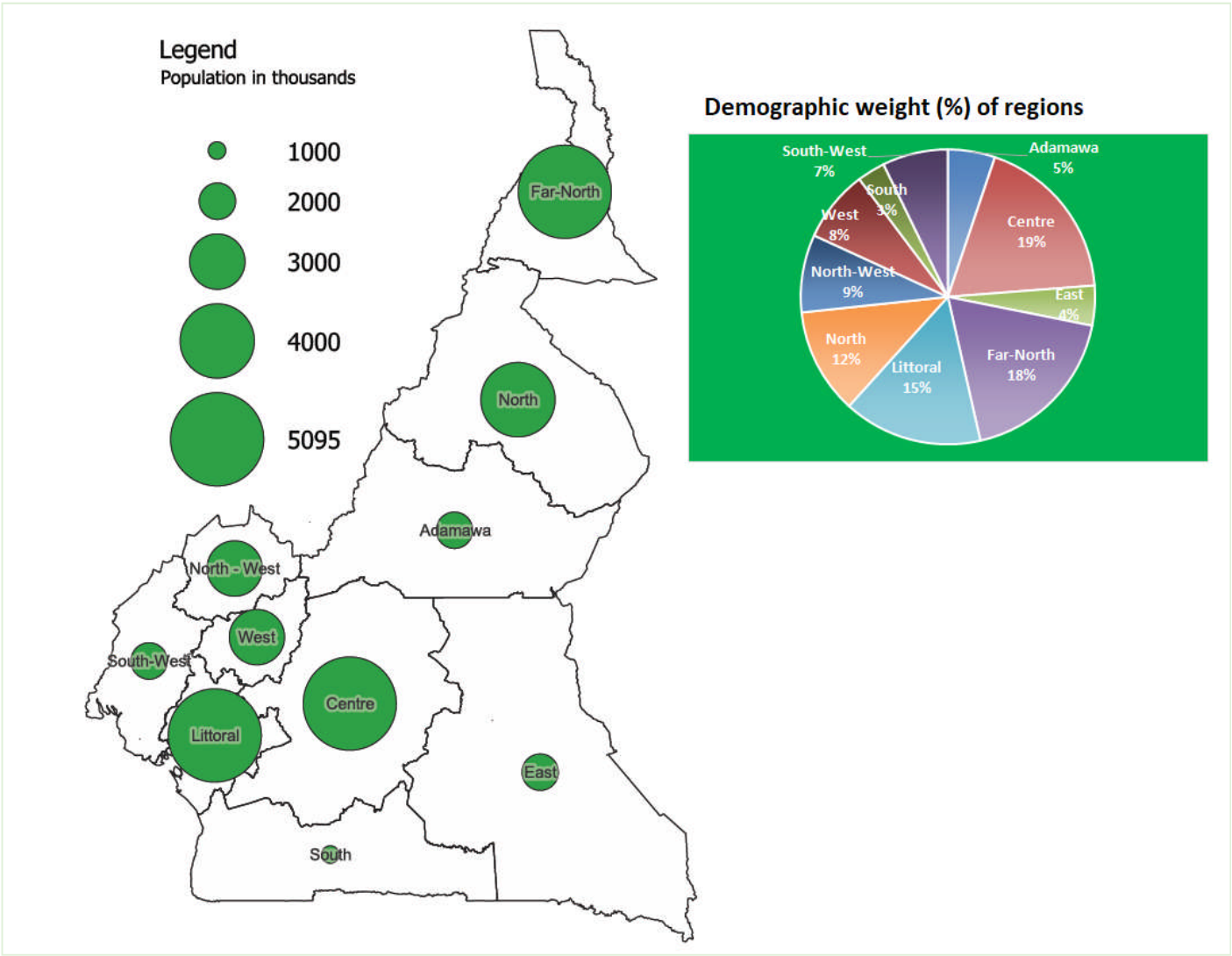
Source: NIS, BUCREP, NIC, FAO and MINEPDED

Figure 5.1-1 : *Trends in the total Cameroon population*



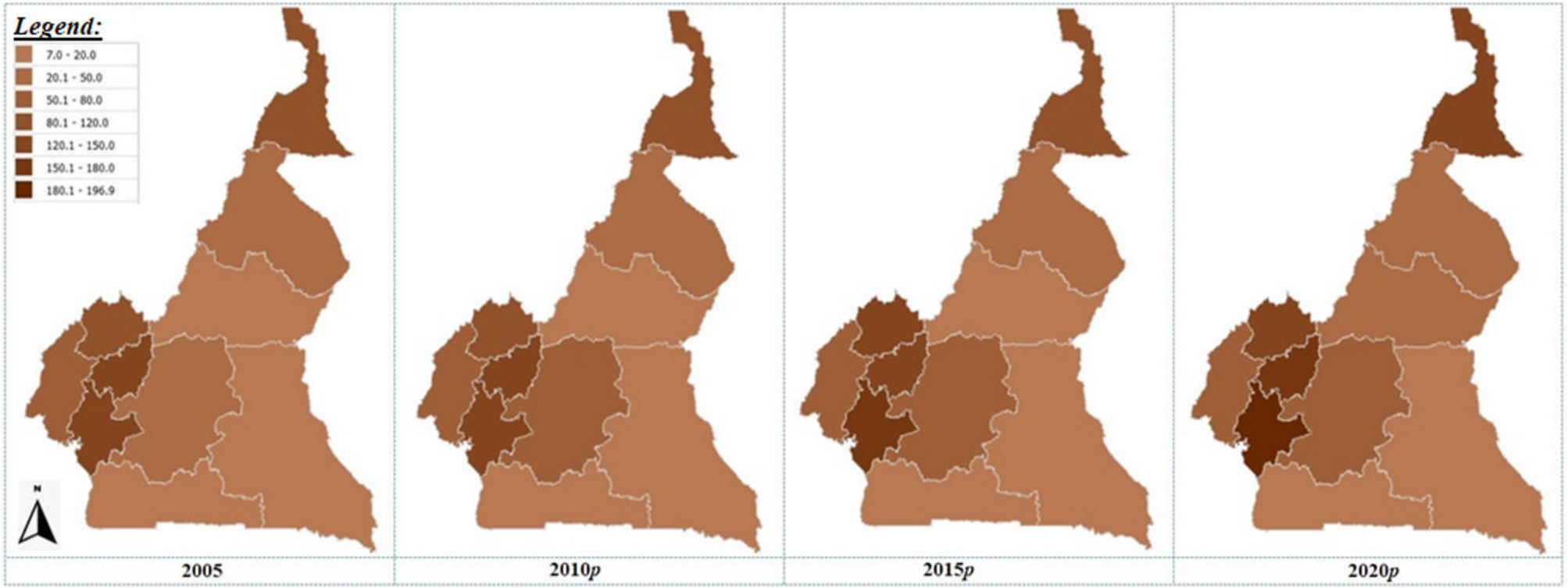
Source: *BUCREP, 1976, 1987, 2005 GPHC and projections (p)*

Map 5.1-1 : *Geographical distribution of Cameroon population in 2022.*



Source**:** *NIS, 2016, Population projections and estimates of priority targets for various health programmes and interventions*

Map 5.1-2 : *Trends in the population density of Cameroon between 2005 and 2020 by region*



Source: *BUCREP, 2005 GPHC, projections (p)*

Table 5.1-2 : *Population trends in Cameroon by region from 2005 to 2020*

Region	Year			
	2005	2010	2015	2020
Adamawa	884,289	1,018,282	1,173,025	1,345,934
Centre	3,098,044	3,644,936	4,242,821	4,846,002
East	771,755	897,693	1,020,883	1,146,981
Far North	3,111,792	3,558,089	4,091,352	4,734,875
Littoral	2,510,263	2,995,866	3,500,121	3,987,222
North	1,687,959	2,042,787	2,463,856	2,964,768
North-West	1,728,953	1,921,549	2,112,025	2,278,503
West	1,720,047	1,852,191	1,988,692	2,113,367
South	634,655	696,191	758,614	818,190
South-West	1,316,079	1,499,774	1,698,894	1,897,193
Cameroon	**17,463,836**	**20,127,358**	**23,050,283**	**26,133,035**

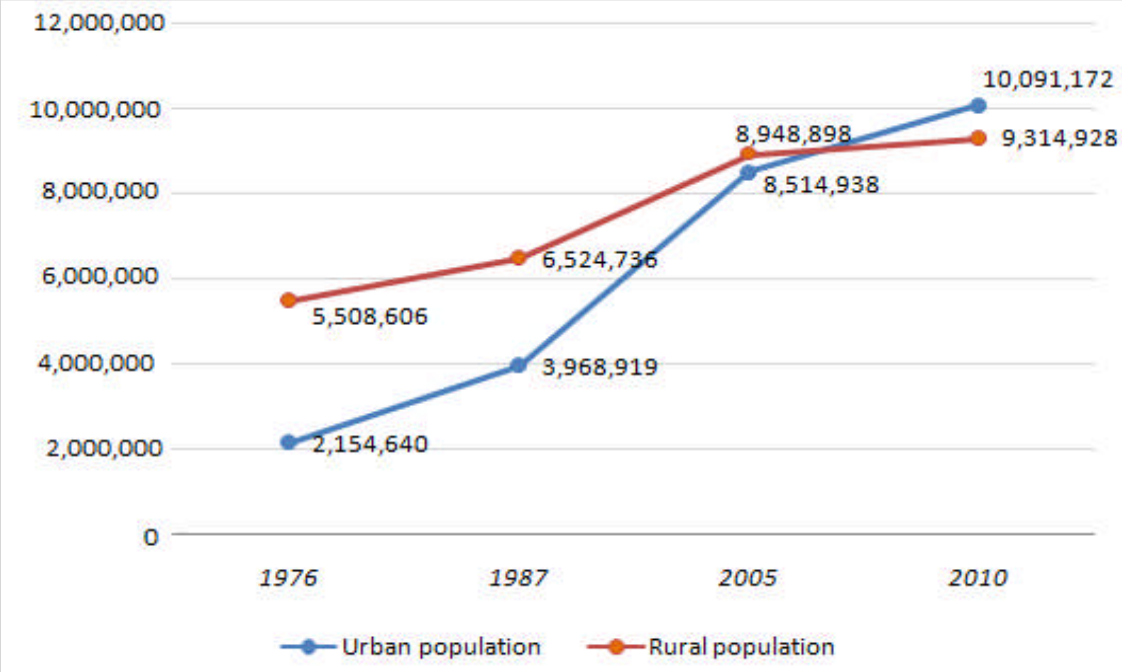
Source: NIS, Population projections and estimates of priority targets for various health programmes and interventions,2016

Table 5.1-3 : *Trends in population density per km² of Cameroon by region from 2005 to 2020*

Region	Continental area (Km²)	Year			
		2005	2010	2015	2020
Adamawa	63,701	13.9	16.0	18.4	21.1
Centre	68,953	44.9	52.9	61.5	70.3
East	109,002	7.1	8.2	9.4	10.5
Far North	34,263	90.8	103.8	119.4	138.2
Littoral	20,248	124.0	148.0	172.9	196.9
North	66,090	25.5	30.9	37.3	44.9
North-West	17,300	99.9	111.1	122.1	131.7
West	13, 892	123.8	133.3	143.2	152.1
South	47,191	13.4	14.8	16.1	17.3
South-West	25, 410	51.8	59.0	66.9	74.7
Cameroon	**466,050**	**36.7**	**42.3**	**48.5**	**54.9**

Source: BUCREP, 2005 GPHC; NIS, Population projections and estimates of priority targets for various health programmes and interventions,2016

Figure 5.1-2 : *Trends in the urban and rural population*



Source: BUCREP, 1976, 1987, 2005 GPHC and projections

Table 5.1-4 : *Trends in the urbanisation rate (in %) from 1976 to 2010*

Region	1976		1987		2005		2010p	
	Urban Pop	Urbanisation rate	Urban Pop	Urbanisation rate	Urban Pop	Urbanisation rate	Urban Pop	Urbanisation rate
Adamawa	90,122	25.1	178,644	36.1	343,490	38.8	407,057	40.1
Centre	442,721	37.6	877,481	53.1	2,226,537	71.9	2,638,648	74.8
East	75,487	20.6	152,787	29.5	281,557	36.5	333,646	41.6
Far North	138,222	9.9	366,698	19.8	708,060	22.8	839,031	24.1
Littoral	702,578	75.1	1,093,323	80.8	2,324,652	92.6	2,755,011	96.1
North	100,580	21.0	234,572	28.2	470,913	27.9	558,008	27.2
North-West	146,342	14.9	271,114	21.9	641,558	37.1	760,459	42.1
West	232,316	22.4	431,337	32.2	732,561	42.6	868,362	48.6
South	55,551	17.6	104,023	27.8	226,928	35.8	268,863	38.8
South-West	200,323	32.3	258,940	30.9	558,682	42.5	662,087	47.8
Cameroon	**2,184,242**	**28.5**	**3,968,919**	**37.8**	**8,514,938**	**48.8**	**10,091,172**	**52.0**

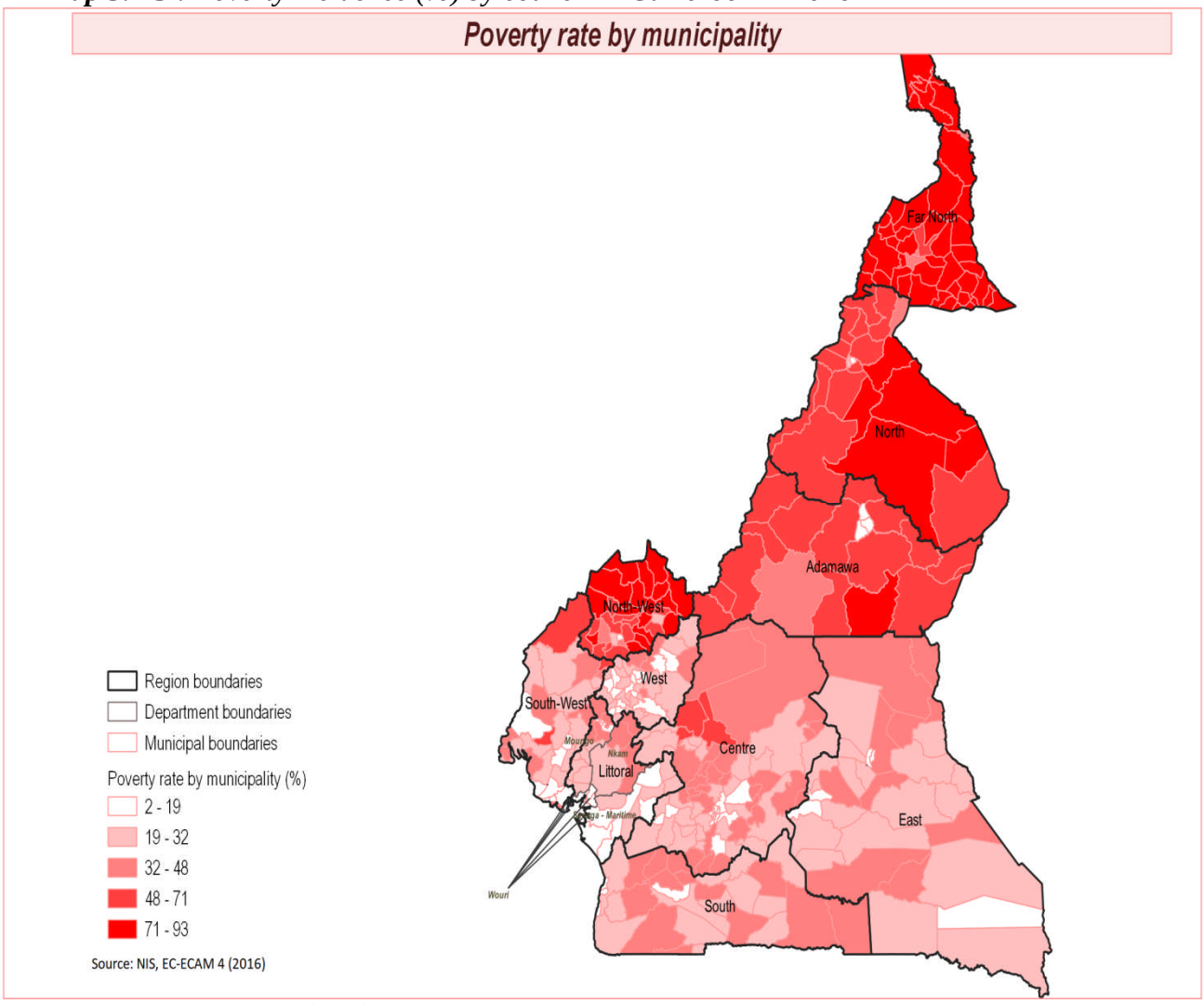
Source: BUCREP,1976,1987,2005 GPHC and projections (p)

Table 5.1-5 : *Proportion (%) of the population living below the poverty line by region from 2001 to 2014*

Region	Year		
	2001	2007	2014
Littoral	19.1	12.1	6.9
Douala	10.9	5.5	4.2
Littoral (excluding Douala)	35.5	30.8	19.5
Centre	29.8	21.6	13.9
Yaounde	13.3	5.9	5.4
Centre (excluding Yaounde)	48.2	41.2	30.3
Adamawa	48.4	52.9	47.1
East	44.0	50.4	30.0
Far North	56.3	65.9	74.3
North	50.1	63.7	67.9
North-West	52.5	51.0	55.3
West	40.3	28.9	21.7
South	31.5	29.3	34.1
South-West	33.8	27.5	18.2
Cameroon	**40.2**	**39.9**	**37.5**

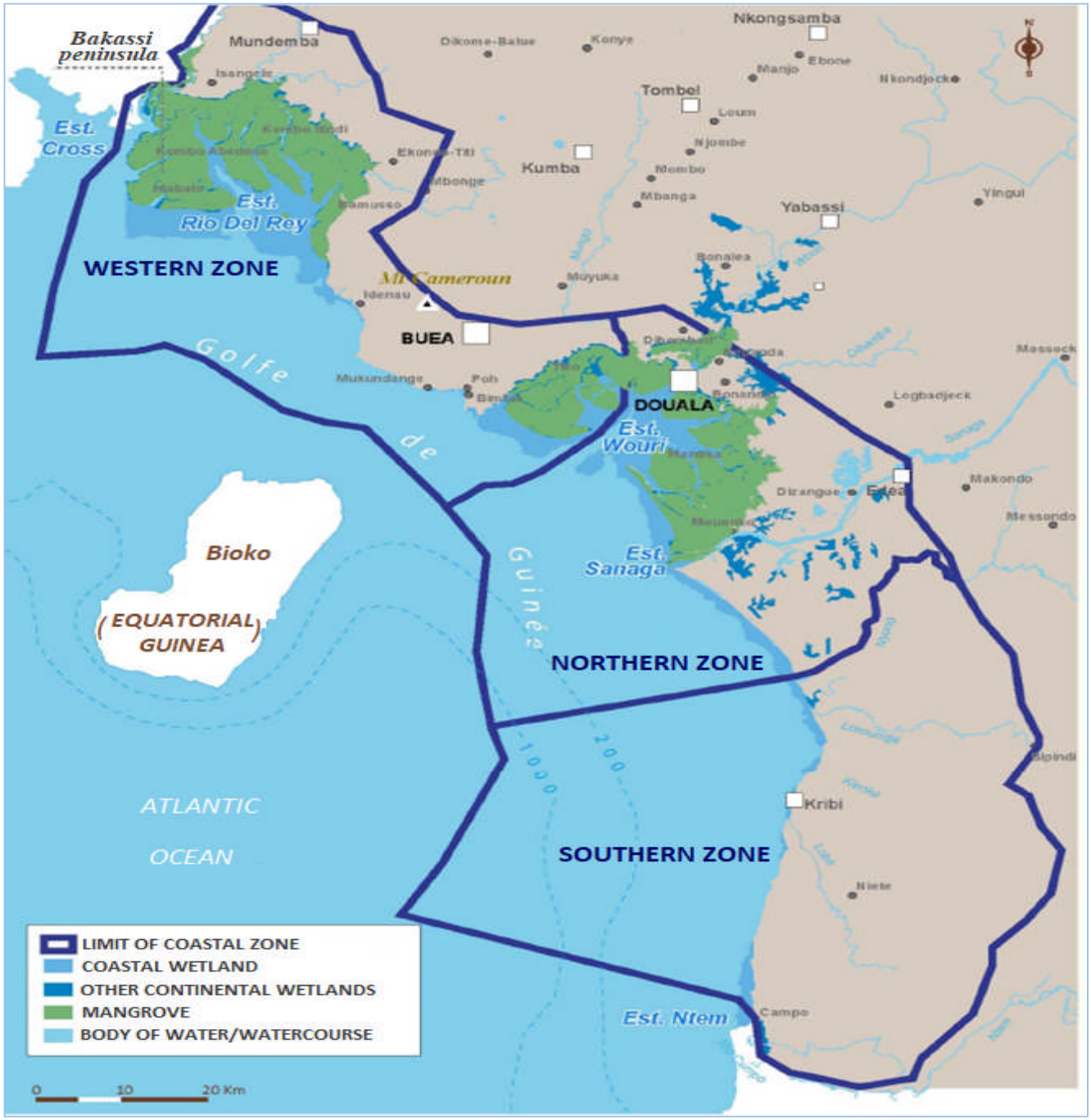
Source: NIS, ECAM 2, 3 and4.

Map 5.1-3 : *Poverty incidence (%) by council in Cameroon in 2016*



Source: NIS, EC-ECAM4 (2016)

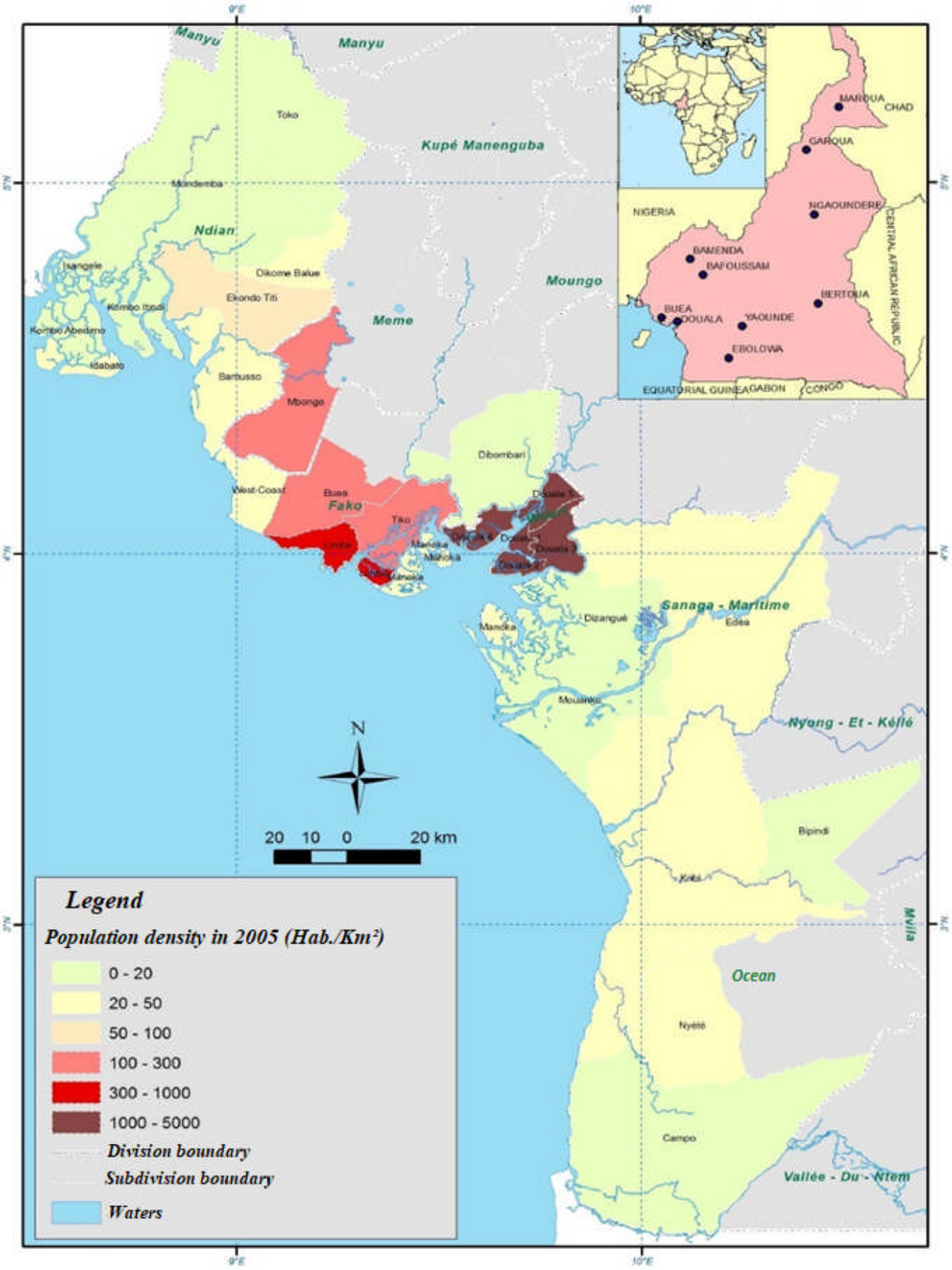
Map 5.1-4 : *Cameroon coastal zone boundaries*



Source: *MINEPDED, 2010, National Marine and Coastal Management Action Plan*

Note: *Geographically, the Cameroon coastal environment is subdivided into three zones: The West Coast from the Rio Del Rey estuary to the Mungo River. The central part or north coast that goes from the mouth of the Mungo to that of the Nyong and contains the estuaries of Wouri and Sanaga. The southern section or south coast that extends from the mouth of the Nyong to the Ntem River*

Map 5.1-5 : *Population density in coastal zones in 2005*



Source: *MINEPDED, 2010 National Marine and Coastal Management Action Plan*

Table 5.1-6 : *Population, area and population density in coastal areas*

Administrative unit	2005 population	Surface area (Km²)	2005 population density (hab/Km²)
Southern coastal zone	***138,208***	***5,357***	***26***
Niete	23,921	1,023	23
Bipindi	14,118	1,398	10
Campo	6,923	2,599	3
Kribi	93,246	337	277
Littoral coastal zone	***2,063,847***	***5,516***	***374***
Dibombari	17,141	274	63
Dizangue	17,086	815	21
Edea	88,481	2275	39
Mouako	9,162	1,186	8
Douala 1	223,214	35	6,378
Douala 2	261,407	27	9,682
Douala 3	646,347	139	4,650
Douala 4	250,626	409	613
Douala 5	544,919	144	3,784
Manoka	5464	212	26
South West coastal zone	***618,415***	***9,624***	***64***
Buea	131,325	544	241
West Coast (Ideneau)	12,725	389	33
Limbe	118,210	135	876
Tiko	117,884	538	219
Mbonge	115,692	1,745	66
Bamusso	19,230	641	30
Ekondo Titi	56,503	872	65
Dikombe Balue	13,364	410	33
Idabato	3,482	177	20
Isangele	3,476	389	9
Kombo Abedimo	2,146	289	7
Kombo Itindi	2,958	421	7
Mundemba	14,385	1,971	7
Toko	7,035	1,103	6
Total *coastal zone*	**2,820,470**	**20,497**	**138**

Source: NIS ; BUCREP 2005

Table 5.1-7 : *Number of refugees between 2014 and 2015 in some regions*

Region	Locality	Number	Origin and reason
Adamawa	BORGOP CAMP	14,000	Central African refugees
	NGAM CAMP		
East	GADO BADZERE	20,000	Central African refugees
	TIMANGOLO	7,000	
	MBELE	10,000	
	LOLO	11,000	
	NGARI-SINGO	1,000	
Far North	MAYO-SAVA	5,000	Internal populations displaced by the Boko Haram nebula
	LOGONE ANDCHARI	3,000	
	MAYO- TSANAGA	2,000	
	MINAWAOUO CAMP	30,000	Nigerian refugees
Total		**229,000**	/

Source: MINATD/DPC, 2016

Topic 5.1.2: Access to selected basic services

Access to selected basic services refers for each country, to the social needs of priority populations in the country.

The topic highlights the link between SDG Goal 11 "Make cities and human settlements inclusive, safe, resilient and sustainable", SDG 6 "Ensuring access for all to sustainably managed water and sanitation services" and SDG 7 "Ensuring access for all to reliable, sustainable, modern, affordable energy services".

According to the UN, in the world, while substantial progress has been made to increase water and sanitation services, billions of people, mainly in rural areas, still do not have access to these basic services. One person out of three in the world does not have safe drinking water, two out of five do not have a basic hand washing facility with soap and water and more than 673 million people still defecate in the open.

Energy is at the centre of almost all the major challenges, but also the promising prospects, which present themselves to the world today. Whether it is jobs, security, climate change, food production or increased incomes, access to energy for all is essential.

At the Quito Summit in October 2016 on Sustainable Cities and Human Settlements for All (Habitat III), all parties adopted a common vision that: Cities and human settlements envisaged by all should fulfil their social function, in particular as regards land and the environment, in view of ensuring progressively:

- the full realization of the right to adequate housing, as part of the right to an adequate living standard, without discrimination; universal and affordable access to safe drinking water and sanitation;
- access for all, on equal terms, to public goods and quality services in areas such as food security, nutrition, health, education, infrastructure, mobility, transport, energy, air quality and means of subsistence.

Cameroon's national contribution report for the third United Nations Conference on Urban Housing and Sustainable Development (Habitat III) shows that population's continued access to safe drinking water remains a major concern for the country. One of the factors limiting households' access to drinking water is the problem of inadequate networks and the age of existing facilities.

Continued access to basic sanitation and drainage systems also remains a major concern. The sanitation sub-sector is characterized by the existence of semi-collective systems in addition to rainwater sanitation. Very few households are equipped with a toilet with flush and the situation is even more worrying among the poor. In secondary cities, the percentage of equipped latrines is close to half of all households.

The other dwellings have only a rough sewerage system consisting of non-watertight latrines which, in the lower areas of cities like Douala, contaminate underground water resources. In general, latrines and septic tanks, where available, are rarely emptied, and there is no specific equipment for proper treatment of liquid waste.

In this area, the basic services used are those that ensure the sanitation of the environment in which people live; which will have a significant impact on their health.

In this section, indicators of access to the following basic services will be discussed: drinking water supply, sanitation, waste management, energy. These are services that are fundamental to human development. Drinking water is defined here as tap water (SNEC/CAMWATER/CDE) or mineral water. Another proxy for access to drinking water, access to an improved source of water (tap water, pump or drill wells, protected dug wells, protected source water and rainwater, etc.) is also analysed in this section. For sanitation, it is measured by the availability of improved sanitary facilities (flush toilet, improved latrines) in the dwellings. Access to energy is measured by access to electricity and average electricity expenditure.

Access to electricity is understood as the use of an electrical source produced by the public electricity distribution company or a generator.

Some images on "access to basic services "

1-Sinking well for the supply of drinking water in the locality of Dogba in Maroua (top left,); 2- installation of sanitary facilities in a house of a modern quarter of Douala ((top right) ; 3-Cleaning works in Yaoundé by the company workers HYSACAM (bottom left) ; 4-children using hurricane lamp for lighting during lesson review

Sources: 1) NIS February 2022 ; 2) camerbiz.com, 2017 ; 3) HYSACAM, 2018 ; 4) Website lumierepourtous.com, 2021

Table 5.1-8 :*Proportion (%) of households having access to a drinking water source (SNEC/CAMWATER/CDE tap, mineral water) by residence and survey region*

	2006	2011	2014	2018
Residence				
Yaounde/Douala	83.9	76.5	71.3	71.2
Other urban	61.4	63.1	59.5	52.8
Total urban	70.9	68.6	64.1	61.0
Rural	13.5	14.9	13.1	9.8
Survey region				
Douala	75.2	65.5	62.5	72.0
Yaounde	94.9	87.7	82.2	70.2
Adamawa	25.5	25.8	26.7	15.4
Centre (excluding Yaounde)	17.4	26.0	21.4	16.8
East	10.6	13.7	8.6	11.5
Far North	8.5	16.5	11.6	14.8
Littoral (excluding Douala)	62.4	58.9	54.0	55.2
North	14.8	22.6	23.6	15.0
North-West	50.1	60.7	68.8	62.8
West	41.5	33.0	33.6	34.3
South	22.5	25.3	27.7	23.0
South-West	69.0	60.7	55.8	94.7
Cameroon	**42.3**	**42.2**	**39.4**	**38.5**

Source: NIS, MICS3 (2006), EDS-MICS (2011), MICS5 (2014), CDHS-V (2018)

Table 5.1-9 : *Proportion (in %) of the population having access to a drinking water source (SNEC/CAMWATER/CDE tap, mineral water) by residence and survey region*

	2006	2011	2014	2018
Residence				
Yaounde/ Douala	84.6	75.1	69.5	69.9
Other urban	59.8	60.3	57.0	47.8
Total urban	69.7	65.9	61.6	56.8
Rural	12.3	14.2	11.2	8.0
Survey region				
Douala	75.5	64.0	61.9	71.3
Yaounde	95.1	85.7	79.0	68.3
Adamawa	21.9	24.6	26.4	14.3
Centre (excluding Yaounde)	17.9	20.6	17.4	13.2
East	10.5	13.3	7.3	10.7
Far North	8.7	17.3	12.0	12.9
Littoral (excluding Douala)	63.1	56.0	51.0	56.3
North	13.1	22.0	21.0	12.4
North-West	50.4	58.5	66.5	59.8
West	45.4	30.7	33.3	30.7
South	20.5	23.3	26.4	18.0
South-West	71.8	61.6	53.8	92.6
Cameroon	**40.7**	**38.7**	**35.4**	**32.7**

Source: NIS, MICS3 (2006), EDS-MICS (2011), MICS5 (2014), CDHS-V (2018)

Table 5.1-10 : *Proportion (%) of households having access to an improved source of drinking water according by residence and survey region*

	2006	2011	2014	2018
Residence				
Yaounde/ Douala	99.3	98.6	97.9	99.2
Other urban	83.6	85.9	91.7	92.8
Total urban	90.2	91.1	94.2	95.6
Rural	50.0	49.6	54.8	57.3
Survey region				
Douala	99.2	99.0	98.8	99.9
Yaounde	99.5	98.3	96.8	98.2
Adamawa	56.7	69.8	74.5	63.5
Centre (excluding Yaounde)	76.2	74.1	81.3	68.6
East	51.3	54.4	66.2	70.6
Far North	53.4	54.9	63.9	76.7
Littoral (excluding Douala)	80.4	74.0	78.9	87.6
North	42.3	53.1	59.2	45.9
North-West	58.3	65.8	72.9	81.8
West	68.6	67.4	68.8	76.6
South	61.8	72.1	76.4	83.5
South-West	77.3	67.2	69.1	98.9
Cameroon	**70.2**	**70.8**	**75.1**	**78.8**

Source: NIS, MICS3 (2006), EDS-MICS (2011), MICS5 (2014), CDHS-V (2018)

Table 5.1-11 : *Proportion (%) of the population having access to an improved source of drinking water by residence and survey region*

	2006	2011	2014	2018
Residence				
Yaounde/ Douala	99.4	98.5	97.6	99.3
Other urban	83.5	84.3	90.6	91.6
Total urban	89.8	89.7	93.2	94.8
Rural	49.2	49.6	54.2	54.7
Survey region				
Douala	99.5	99.0	99.1	100.0
Yaounde	99.3	98.0	95.7	98.6
Adamawa	52.4	68.9	72.7	60.6
Centre (excluding Yaounde)	76.3	72.1	77.4	64.0
East	50.9	55.9	67.9	68.1
Far North	54.3	54.7	63.7	75.7
Littoral (excluding Douala)	80.9	71.3	77.8	86.6
North	41.1	52.9	56.5	43.3
North-West	59.1	64.3	71.9	79.6
West	71.2	66.7	69.1	75.8
South	60.7	71.1	75.2	80.0
South-West	78.7	67.3	66.6	97.9
Cameroon	**69.3**	**68.6**	**72.9**	**74.9**

Source: NIS, MICS3 (2006), EDS-MICS (2011), MICS5 (2014), CDHS-V (2018)

Table 5.1-12 : *Proportion (in %) of households having access to electricity (SONEL, AES-SONEL, ENEO, Generator) by residence and survey region*

	2006	2011	2014	2018
Residence				
Yaounde/ Douala	98.9	98.4	98.6	98.7
Other urban	70.3	80.0	83.1	83.1
Total urban	82.3	87.5	89.2	90.0
Rural	16.2	18.5	22.2	26.7
Survey region				
Douala	98.9	97.6	99.0	98.6
Yaounde	98.9	99.1	98.1	98.9
Adamawa	37.6	41.0	46.3	46.3
Centre (excluding Yaounde)	46.2	61.6	62.8	60.8
East	28.1	43.4	45.5	44.2
Far North	14.2	12.8	13.8	19.6
Littoral (excluding Douala)	66.3	73.1	78.6	83.0
North	12.2	23.3	26.0	27.3
North-West	32.2	45.0	49.6	58.8
West	46.0	58.9	71.9	79.2
South	53.8	61.2	69.1	71.5
South-West	57.6	53.2	57.7	98.0
Cameroon	**49.5**	**53.7**	**56.8**	**62.2**

Source: NIS, MICS3 (2006), EDS-MICS (2011), MICS5 (2014), CDHS-V (2018)

Table 5.1-13 : *Proportion of households that disinfected the dwelling in the past 12 months by residence and survey region*

	2007	2014
Residence	16.4	10.5
Yaounde/ Douala	3.8	8.0
Other urban	11.2	9.6
Total urban	2.3	12.0
Rural	16.4	10.5
Survey region		
Douala	19.8	9.8
Yaounde	12.6	11.3
Adamawa	2.4	3.4
Centre (excluding Yaounde)	2.1	6.4
East	0.8	5.8
Far North	4.3	23.9
Littoral (excluding Douala)	6.6	7.4
North	1.2	26.3
North-West	2.1	1.9
West	2.0	4.2
South	4.7	7.4
South-West	1.1	4.5
Cameroon	**5.6**	**10.9**

Source: NIS, ECAM 3 (2007), ECAM4 (2014)

Table 5.1-14: *Proportion (%) of households with access to basic sanitary facilities (improved and non-shared) by residence and survey region*

	2006	2011	2014	2018
Residence				
Yaounde/ Douala	37.1	47.8	47.0	54.9
Other urban	27.2	47.0	52.8	52.6
Total urban	31.4	47.3	49.2	53.6
Rural	9.1	24.0	26.7	24.4
Survey region				
Douala	40.2	52.1	50.0	59.9
Yaounde	33.3	43.3	43.8	48.9
Adamawa	15.9	64.2	50.9	36.2
Centre (excluding Yaounde)	16.3	32.5	32.7	35.7
East	8.9	21.9	20.2	24.4
Far North	8.2	34.6	16.9	24.8
Littoral (excluding Douala)	34.8	43.3	47.0	49.7
North	19.7	30.5	33.6	35.1
North-West	18.0	23.7	45.3	32.0
West	14.2	36.5	38.8	53.5
South	13.9	23.0	26.7	36.9
South-West	20.8	23.1	29.3	56.6
Cameroon	**20.3**	**35.9**	**36.7**	**40.8**

Source: NIS, MICS3 (2006), EDS-MICS (2011), ECAM4 (2014), CDHS-V (2018)

Table 5.1-15 : *Proportion (%) of the population living in dwellings with basic sanitation facilities (improved and non-shared) by residence and survey region*

	2006	2011	2014	2018
Residence				
Yaounde/ Douala	45.3	56.4	55,5	60.4
Other urban	32.6	54.8	60,4	57.6
Total urban	37.7	55.4	57,4	58.8
Rural	10.5	26.0	28,7	26.6
Survey region				
Douala	48.3	61.2	59,6	67.7
Yaounde	41.8	51.8	51,4	52.3
Adamawa	16.8	70.3	52,9	36.1
Centre (excluding Yaounde)	20.3	34.6	35,6	36.8
East	11.2	25.7	24,3	26.8
Far North	10.3	36.2	20,9	29.8
Littoral (excluding Douala)	38.0	49.6	52,9	52.5
North	22.3	34.7	34,9	38.8
North-West	21.8	26.3	48,7	32.0
West	17.5	39.4	42,1	55.4
South	17.0	27.4	31,2	37.2
South-West	27.3	29.5	34,0	61.3
Cameroon	**23.9**	**40.0**	**40,3**	**42.8**

Source: NIS, MICS3 (2006), EDS-MICS (2011), ECAM4 (2014), CDHS-V (2018)

Table 5.1-16 : *Distribution (in %) of households by type of toilet usually used by residence and survey region*

	2011				2014				2018			
	Improved non-shared toilet	Shared Toilet[1]	Unimproved toilet	Total	Improved non-shared toilet	Shared Toilet[1]	Unimproved toilet	Total	Improved non-shared toilet	Shared Toilet[1]	Unimproved toilet	Total
Residence												
Yaounde/Douala	47.8	46.0	6.1	100.0	47.0	44.0	8.9	100.0	54.9	37.3	7.8	100.0
Other urban	47.0	30.9	22.1	100.0	52.8	35.3	11.8	100.0	52.6	26.1	21.3	100.0
Total urban	47.4	37.1	15.6	100.0	49.2	40.8	10.0	100.0	53.6	31.1	15.3	100.0
Rural	24.0	8.9	67.1	100.0	26.7	16.2	57.1	100.0	24.4	6.9	68.7	100.0
Survey region												
Douala	52.2	44.2	3.6	100.0	50.0	39.4	10.6	100.0	59.9	33.4	6.7	100.0
Yaounde	43.4	47.9	8.7	100.0	43.8	49.2	7.1	100.0	48.9	41.9	9.2	100.0
Adamawa	64.2	14.1	21.6	100.0	50.9	14.3	34.8	100.0	36.2	7.0	56.8	100.0
Centre (excluding Yaounde)	32.5	24.2	43.3	100.0	32.7	23.3	44.1	100.0	35.7	21.5	42.8	100.0
East	21.9	15.1	63.0	100.0	20.2	18.1	61.6	100.0	24.4	17.7	57.9	100.0
Far North	34.7	6.9	58.5	100.0	16.9	6.4	76.7	100.0	24.8	6.0	69.2	100.0
Littoral (excluding Douala)	43.3	26.0	30.7	100.0	47.0	25.3	27.7	100.0	49.7	20.7	29.6	100.0
North	30.5	5.1	64.4	100.0	33.6	6.6	59.8	100.0	35.1	5.5	59.4	100.0
North -West	23.7	20.5	55.8	100.0	45.3	32.8	21.9	100.0	32.0	16.1	51.9	100.0
West	36.5	23.5	40.0	100.0	38.8	24.8	36.4	100.0	53.5	22.8	23.7	100.0
South	23.0	19.7	57.3	100.0	26.7	27.5	45.8	100.0	36.9	23.7	39.3	100.0
South-West	23.1	31.2	45.6	100.0	29.3	39.3	31.4	100.0	56.6	39.8	3.7	100.0
Cameroon	**35.9**	**23.3**	**40.8**	**100.0**	**36.7**	**27.2**	**36.2**	**100.0**	**40.8**	**20.5**	**38.7**	**100.0**

Source:NIS, DHS-MICS (2011), ECAM4 (2014) and CDHS-V (2018)

Note :[1] Shared toilets that would be considered "improved" if not shared

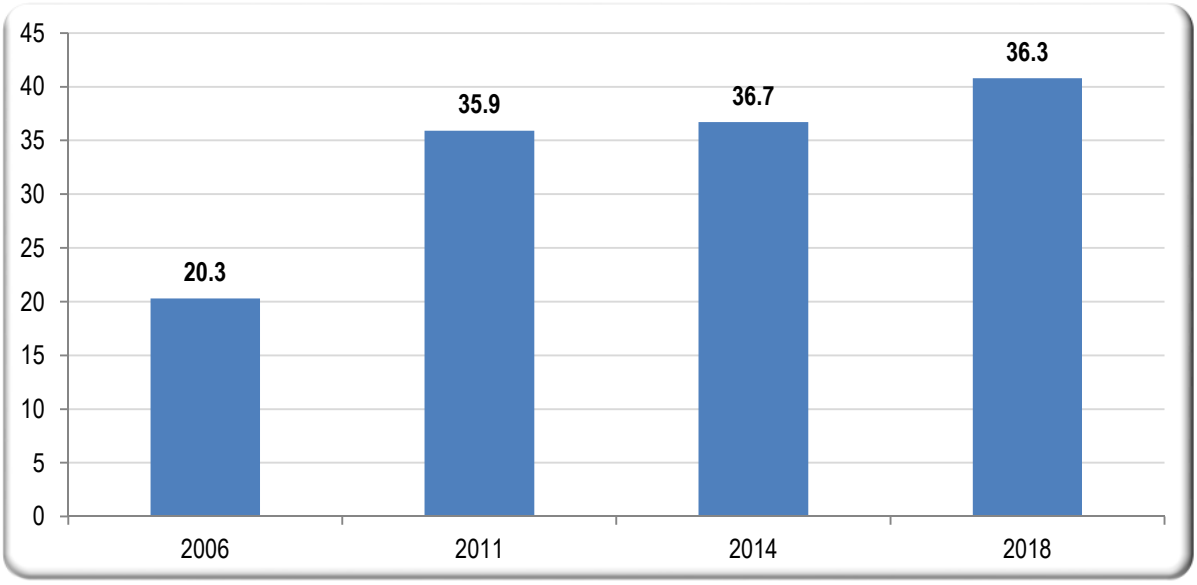
Table 5.1-17 : *Distribution (in %) of the population by type of toilet usually used by residence and survey region*

	2011				2014				2018			
	Improved non-shared toilet	Shared Toilet[1]	Unimproved toilet	Total	Improved non-shared toilet	Shared Toilet[1]	Unimproved toilet	Total	Improved non-shared toilet	Shared Toilet[1]	Unimproved toilet	Total
Residence												
Yaounde/Douala	56.5	37.2	6.3	100.0	55.5	35.9	8.6	100.0	60.4	31	8.5	100.0
Other urban	54.9	22.2	22.9	100.0	60.4	28.0	11.6	100.0	57.6	20.1	22.2	100.0
Total urban	55.5	27.8	16.6	100.0	57.4	32.9	9.7	100.0	58.8	24.6	16.6	100.0
Rural	26	7.4	66.5	100.0	28.7	12.0	59.4	100.0	26.6	5.4	68.1	100.0
Survey region												
Douala	61.3	34.8	3.9	100.0	59.6	30.3	10.1	100.0	67.7	25.5	6.8	100.0
Yaounde	51.9	39.5	8.5	100.0	51.4	41.6	7.1	100.0	52.3	37.3	10.5	100.0
Adamawa	70.3	9.6	20.1	100.0	52.9	7.7	39.4	100.0	36.1	4.2	59.7	100.0
Centre (excluding Yaounde)	34.6	18.3	47.1	100.0	35.6	18.5	46.0	100.0	36.8	17.6	45.6	100.0
East	25.7	11.2	63.1	100.0	24.3	13.6	62.1	100.0	26.8	13.2	60	100.0
Far North	36.2	5.6	58.3	100.0	20.9	4.5	74.6	100.0	29.8	3.9	66.3	100.0
Littoral (excluding Douala)	49.6	20.1	30.3	100.0	52.9	21.9	25.2	100.0	52.5	16.5	31	100.0
North	34.8	2.9	62.3	100.0	34.9	4.1	61.0	100.0	38.8	3	58.2	100.0
North -West	26.3	16.9	56.8	100.0	48.7	28.2	23.1	100.0	32	12.4	55.6	100.0
West	39.4	19.2	41.4	100.0	42.1	21.0	36.8	100.0	55.4	19.6	25	100.0
South	27.4	15.7	56.9	100.0	31.2	22.4	46.4	100.0	37.2	16.4	46.4	100.0
South-West	29.5	24.6	45.9	100.0	34.0	36.2	29.8	100.0	61.3	34.6	4	100.0
Cameroon	**40.0**	**17.1**	**42.9**	**100.0**	**40.3**	**20.4**	**39.3**	**100.0**	**42.8**	**15.1**	**42.1**	**100.0**

Source:NIS, DHS-MICS (2011), ECAM4 (2014) and CDHS-V (2018)

Note :[1] Shared toilets that would be considered "improved" if not shared

***Figure 5.1-3** : Proportion of households using improved non-shared toilets from 2006 to 2018*



Source: NIS, MICS3 (2006), DHS-MICS (2011), ECAM4 (2014), CDHS-V (2018)

***Table 5.1-18 :** Proportion of households by type of installation for the toilet facility usually used by survey in 2018*

	Connected to sewer system	Connected to septic tank	Connected to latrines	Connected to something else	Connected to unknown place	Ventilated improved pit latrine(VIP)	Pit latrines with slab	Pit latrines without slab/open hole	Composting toilets	Suspended toilets/latrines	No toilet/bush/field	Total
Residence												
Yaounde/Douala	5.7	30.2	4.4	0.5	0.3	5.0	46.0	6.3	0.5	0.8	0.2	100.0
Other urban	1.7	15.5	1.2	0.1	0.0	1.7	58.4	19.4	0.1	0.8	0.9	100.0
Total urban	3.5	22.0	2.6	0.3	0.2	3.2	52.9	13.6	0.3	0.8	0.6	100.0
Rural	0.1	1.6	0.2	0.0	0.0	0.5	28.5	55.0	0.3	2.1	11.6	100.0
Survey region												
Douala	7.2	32.5	5.1	0.7	0.3	6.0	41.4	4.4	0.7	1.3	0.2	100.0
Yaounde	4.0	27.3	3.5	0.2	0.3	3.9	51.6	8.6	0.3	0.3	0.0	100.0
Adamawa	1.2	3.8	1.3	0.0	0.0	0.3	36.3	49.8	0.3	4.0	3.1	100.0
Centre (excluding Yaounde)	0.4	8.9	1.2	0.1	0.0	0.7	44.6	35.7	1.3	6.1	1.0	100.0
East	0.1	8.4	0.4	0.0	0.0	0.3	32.9	46.3	0.0	5.2	6.4	100.0
Far North	0.1	1.2	0.2	0.0	0.0	0.4	29.0	54.7	0.0	0.0	14.4	100.0
Littoral (excluding Douala)	1.4	8.2	1.6	0.4	0.0	3.0	55.1	26.8	1.2	1.2	1.1	100.0
North	0.4	1.8	0.1	0.0	0.0	0.0	38.3	40.0	0.0	0.1	19.3	100.0
North-West	0.8	10.5	0.2	0.0	0.0	4.0	32.6	49.6	0.0	0.0	2.2	100.0
West	0.9	9.9	0.8	0.1	0.0	0.5	64.2	22.4	0.0	0.6	0.5	100.0
South	0.5	13.6	1.0	0.0	0.1	0.6	44.6	38.6	0.4	0.2	0.6	100.0
South-West	6.9	39.4	1.9	0.5	0.0	4.2	43.9	3.2	0.0	0.0	0.0	100.0
Cameroon	**2.0**	**13.1**	**1.6**	**0.2**	**0.1**	**2.0**	**42.2**	**31.7**	**0.3**	**1.4**	**5.4**	**100.0**

Source: NIS, CDHS-V (2018)

Table 5.1-19 : *Distribution of households and population by main type of cooking fuel in 2018 following the residence region*

	Households					Population				
	Yaounde/ Douala	Other urban	Total urban	Rural	Cameroon	Yaounde/ Douala	Other urban	Total urban	Rural	Cameroon
Electricity	1.8	0.8	1.2	0.2	0.8	1.4	0.6	0.9	0.1	0.5
Liquefied petroleum gas(LPG)/ Natural gas / Biogas	63.2	27.4	43.3	3.4	25.8	59.7	19.7	36.0	2.0	19.2
Kerosene	6.3	3.9	5.0	0.7	3.1	5.2	1.9	3.2	0.3	1.8
Coal/lignite	1.0	0.2	0.6	0.0	0.3	1.0	0.2	0.5	0	0.3
Charcoal	9.5	3.8	6.3	0.6	3.8	11.5	3.5	6.7	0.4	3.6
Firewood	11.3	59.5	38.0	92.5	61.9	15.7	71.6	48.8	96.3	72.3
Straw/Branches/Grass	0.0	0.1	0.1	0.2	0.1	0.0	0.1	0.1	0.1	0.1
Agricultural Residues	0.1	0.0	0.0	0.2	0.1	0.1	0.0	0.0	0.2	0.1
dung	0.1	0.0	0.0	0.0	0.0	0.2	0.0	0.1	0.0	0.0
Sawdust/wood chips	2.8	1.2	1.9	0.1	1.1	3.8	1.7	2.6	0.1	1.3
No meals cooked in the household	4.1	3.2	3.6	2.2	3.0	1.3	0.8	1.0	0.4	0.7
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Percentage of population using solid fuels (wood, charcoal, sawdust/woodchips) for cooking [1]	24.5	64.8	47.0	93.6	67.4	32.3	77.0	58.8	97.1	77.8
Percentage using non-polluting fuel for cooking [2]	64.9	28.1	93.6	3.6	26.5	61.1	20.3	37.0	2.2	19.7

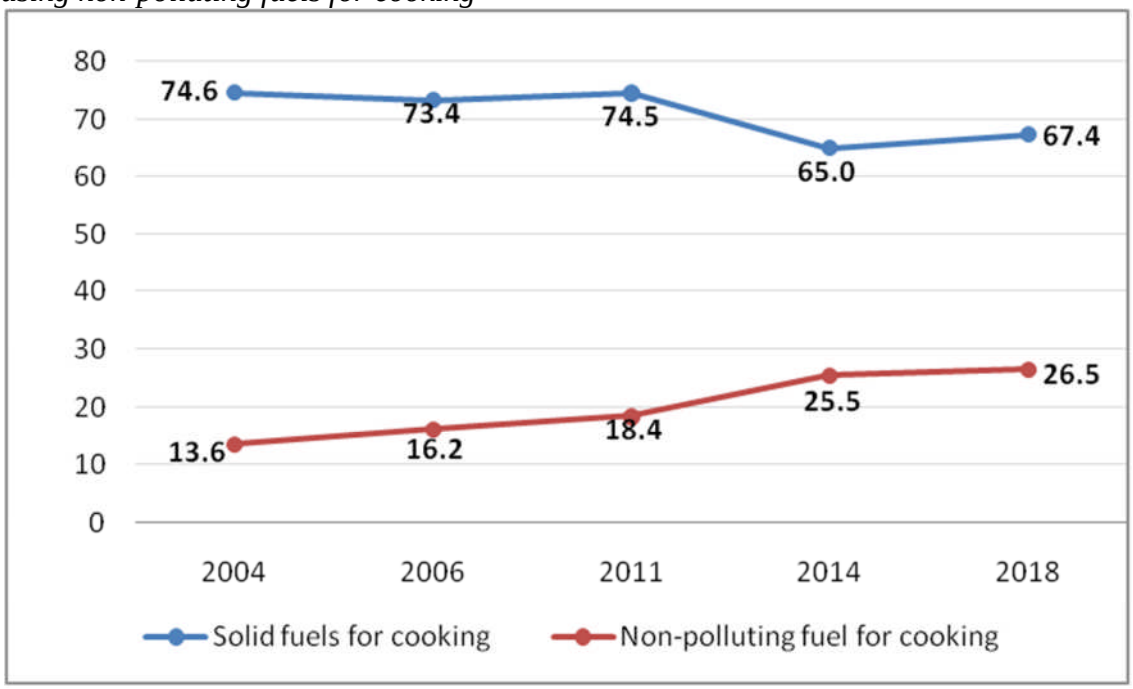
Source: NIS, CDHS-V (2018)

Note : LPG = Liquefied propane gas

[1] Including coal/lignite, charcoal, wood, straw/branches/grass, agricultural residues, dung and sawdust/wood chips.

[2] Including electricity and liquefied petroleum gas/natural gas/biogas

***Figure5.1-4** : Comparative trend in the proportion of households using solid fuels and those using non-polluting fuels for cooking*



Source: INS, CDHS3 (2004), MICS3 (2006), DHS-MICS (2011), ECAM4 (2014), CDHS-V (2018)

***Table 5.1-20 :** Water prices in CFA francs, according to the various uses*

Title	Prices		
Rural area	The price is not controlled, and it varies from 5 to 10 CFA francs per 10 litres bucket		
	m³ (Single price)	**Up to 10 m³**	**More than 10 m³**
Urban area*	-	293	264
	m³ (Single price)	**Lower bound**	**Upper bound**
Public tap not free of charge (Household)	293	-	-
Public tap not free of charge (Administrative and municipal clients)	382	-	-
Industrial clients (five instalments)		322	382

** VAT is applicable on any consumption of more than 10 m^3*

Source: MINEE

Table 5.1-21 : *Electricity prices according to the various uses*

		Tariffs	
	Monthly consumption ranges	**April 2008 to May 2012**	**As from May 2012**
	A. DOMESTIC OR RESIDENTIAL USES		
1.	Consumption less than or equal to 110 kWh	50 CFA francs/KWh	50 CFA francs/KWh
2.	Consumption between 111 kWh and 400 kWh	70 CFA francs/ KWh	79 CFA francs/ KWh
3.	Consumption between 401 kWh and800 kWh	80 CFA francs/ KWh	94 CFA francs/KWh
4.	Consumption above 800kWh	85 CFA francs/ KWh	99 CFA francs/KWh
	B. NON-RESIDENTIAL OR OTHER USES		
1.	Consumption less than or equal to 110 kWh	75 CFA francs/ KWh	84 CFA francs/KWh
2.	Consumption between 111 kWh and 400 kWh	80 CFA francs/ KWh	92 CFA francs/
3.	Consumption between 401 kWh and1000 kWh	85 CFA francs/ KWh	99 CFA francs/KWh*
4.	Consumption above 1000 kWh	92 CFA francs/ KWh	-
	C. STREET LIGHTING		
1.	Consumption		66 CFA francs/KWh

* Note: The price as from 2012 concerns the consumption range between 401 and 800 kWh

Source: ARSEL

Table 5.1-22 : *Average monthly household electricity consumption and expenditure by some characteristics*

	Average monthly amount paid (in CFA francs)			Average monthly amount paid (in CFA francs)		Average monthly consumption in KW		
Characteristics	**Urban**	**Rural**	**Total**	**Does not redistribute**	**Redistributes**	**Urban**	**Rural**	**Total**
Type of electricity use								
Home use	11,846	5,989	10,104	10,365	8,546	161	92	141
Home and professional use	13,032	8,729	11,837	12,628	9,076	177	127	163
Survey region								
Douala	13,391		13,391	13,576	11,643	182		182
Yaounde	13,421		13,421	13,744	11,500	179		179
Adamawa	8,430	8,941	8,645	9,414	4,881	120	135	126
Centre (excluding Yaounde)	8,059	7,191	7,290	7,227	7,839	116	109	110
East	8,890	6,141	7,959	7,687	9,113	125	95	115
Far North	9,715	5,827	7,521	7,739	6,606	135	96	113
Littoral (excluding Douala)	8,031	5,739	6,702	6,862	5,387	116	90	101
North	8,593	7,157	8,190	8,907	3,784	120	109	117
North-West	8,246	4,646	6,423	6,530	6,030	115	71	93
West	6,567	4,773	5,439	5,448	5,377	99	77	85
South	11,003	5,662	6,843	6,929	6,336	150	86	100
South-West	9,189	7,697	8,313	8,348	8,189	127	113	119
Cameroon	**11,880**	**6,060**	**10,152**	**10,422**	**8,568**	**162**	**93**	**141**

Source: NIS, EC-ECAM (2016)

Table 5.1-23 : *Trends in energy and water prices from 2008 to 2015*

Label	Unit	2008	2009	2010	2011	2012	2013	2014	2015
Super	CFA francs/Litre	569	569	569	569	569	569	610	650
Gasoil	CFA francs/Litre	520	520	520	520	520	520	560	600
Average price of electricity	CFA francs/kWh	69	70	70	70	85	85	85	85
Average price of water		nd	nd	nd	nd	nd	nd	nd	nd

Source: CSPH, MINEE

Topic 5.1.3: Housing conditions

UN-Habitat at the 2004 General Assembly recognized that poverty remains a major barrier to improving housing in many countries. Human settlements are an important element of sustainable development and the issue of safe housing remains a priority for developing countries. Countries should therefore adopt an integrated approach in this area.

The data on housing conditions presented in this section include statistics of all dimensions associated with the occupancy of a dwelling, whether they are related to the household (adequacy between household income and housing costs, between the size of the dwelling and that of the household, etc.), the quality of the dwelling (type of materials, etc.) and its external environment (physical environment, housing site, location of the kitchen, etc.).

The household income is apprehended in this part by a proxy which is the total household expenditure.

Housing conditions are assessed here by information on the characteristics of the dwelling such as the flooring materials, the wall materials, the roof materials, the number of rooms used for sleeping, the location of the kitchen. Another composite indicator that regroups the flooring material, the wall materials, the roof materials and known as dwelling with final materials is also presented here.

Dwellings are considered to be of final material if the following three conditions are met: (i) the flooring material is neither earth nor sand; (ii) the wall materials are of block, cement, earth brick, tiles or adobe covered; (iii) the roof material of the dwelling is sheet metal, tile or cement.

Some pictures of "housing conditions"

1-Mud brick house (upper left); 2-flooded area in the Elig-Edzoa quarter (upper left) ; 3-potto-potto house (lower right) ; 4-plank house "carabotte" (lower left).

Source: 1), 2) 3) and 4) Martin Luther DJATCHEU, « Fabriquer la ville avec les moyens du bord : L'habitat précaire à Yaoundé (Cameroun) », Géoconfluences, septembre 2018. URL : http://geoconfluences.ens-lyon.fr/informations-scientifiques/dossiers-thematiques/de-villes-en-metropoles/articles-scientifiques/habitat-precaire-yaounde

Table 5.1-24 : *Total expenditures and housing expenditure (billion CFA francs) by residence and survey region*

	2001		2007		2014	
	Expenditure on housing, water, electricity, gas and other fuels	Total expenditure	Expenditure on housing, water, electricity, gas and other fuels	Total expenditure	Expenditure on housing, water, electricity, gas and other fuels	Total expenditure
Residence						
Douala	174	610	183	1,027	389	2,389
Yaounde	124	512	183	1,003	357	2,125
Other urban	145	584	171	1,165	294	1,926
Total urban	443	1,706	537	3,195	1,040	6,441
Rural	302	1,008	350	2,660	564	3,894
Survey region						
Douala	174	610	183	1,027	389	2,389
Yaounde	124	512	183	1,003	357	2,125
Adamawa	21	82	29	234	64	472
Centre (excluding Yaounde)	44	164	59	365	105	638
East	25	88	30	207	48	351
Far North	74	206	81	671	130	884
Littoral (excluding Douala)	39	129	31	199	36	276
North	35	132	47	389	80	607
North-West	61	237	68	496	105	610
West	69	252	79	573	116	857
South	21	75	30	199	53	319
South-West	57	227	67	490	120	806
Cameroon	**745**	**2,714**	**887**	**5,854**	**1,604**	**10,335**

Source: NIS, ECAM2 (2001), ECAM3 (2007), ECAM4 (2014)

Table 5.1-25 : *Household characteristics: average household size, average number of rooms used for sleeping by residence and survey region*

	2011		2018	
	Average household size (de jure population)	Average number of rooms used for sleeping	Average household size (de jure population)	Average number of rooms used for sleeping
Residence				
Yaounde/ Douala	4.3	2.2	4.1	2.1
Other urban	4.9	2.5	4.8	2.4
Total urban	4.6	2.4	4.5	2.2
Rural	5.4	2.7	5.6	2.7
Survey region				
Douala	4.2	2.1	4.0	2.1
Yaounde	4.4	2.2	4.3	2.1
Adamawa	5.1	2.5	4.9	2.3
Centre (excluding Yaounde)	4.7	2.8	5.7	3.0
East	4.8	2.5	5.2	2.5
Far North	5.8	2.6	5.4	2.3
Littoral (excluding Douala)	4.5	2.6	4.4	2.6
North	6.2	2.8	6.2	2.6
North-West	5.1	2.7	4.3	2.3
West	5.1	2.7	5.2	2.9
South	4.7	2.8	5.7	2.9
South-West	4.2	2.1	3.4	1.9
Cameroon	**5.0**	**2.5**	**5.0**	**2.4**

Source: NIS, DHS-MICS (2011), CDHS-V (2018)

Table 5.1-26 : *Distribution (%) of households by kitchen location by residence and survey region*

	2011					2018				
	In the house	In a separate building	Outside	Other	Total	In the house	In a separate building	Outside	Other	Total
Residence										
Yaounde/Douala	63.6	14.8	21.7	0.0	100.0	69.0	11.1	19.9	0.0	100.0
Other urban	27.7	45.1	27.0	0.3	100.0	30.4	46.6	22.9	0.1	100.0
Total urban	42.2	32.8	24.8	0.2	100.0	47.5	30.9	21.6	0.1	100.0
Rural	19.3	57.4	23.2	0.1	100.0	13.1	67.4	19.4	0.1	100.0
Survey region										
Douala	55.1	21.5	23.4	0.0	100.0	65.7	13.0	21.3	0.1	100.0
Yaounde	71.8	8.0	20.1	0.1	100.0	72.8	8.8	18.4	0.0	100.0
Adamawa	15.4	57.5	26.7	0.3	100.0	18.2	57.9	23.9	0.0	100.0
Centre (excluding Yaounde)	36.7	34.3	29.0	0.0	100.0	27.3	41.9	30.7	0.1	100.0
East	25.2	41.2	33.6	0.0	100.0	24.9	47.7	27.4	0.0	100.0
Far North	9.7	63.1	27.1	0.2	100.0	4.7	76.6	18.6	0.1	100.0
Littoral (excluding Douala)	22.3	55.8	21.7	0.2	100.0	22.3	32.7	44.9	0.1	100.0
North	4.5	54.9	39.9	0.8	100.0	3.3	70.7	25.8	0.2	100.0
North-West	27.6	67.8	4.5	0.1	100.0	26.0	68.9	5.1	0.0	100.0
West	39.8	34.3	26.0	0.0	100.0	36.0	51.5	12.5	0.0	100.0
South	35.8	46.8	17.3	0.1	100.0	32.0	50.0	17.9	0.1	100.0
South-West	23.8	59.9	16.3	0.0	100.0	54.0	40.3	5.7	0.0	100.0
Cameroon	**30.9**	**45.0**	**24.0**	**0.2**	**100.0**	**32.3**	**47.1**	**20.6**	**0.1**	**100.0**

Source: NIS, DHS-MICS (2011), CDHS-V (2018)

Table 5.1-27 : *Proportion (%) of households with final material of the dwelling by residence and survey region*

	2006	2011	2014	2018
Residence				
Yaounde/Douala	71,3	77,4	77,6	75,9
Other urban	56,6	58,3	60,3	58,5
Total urban	62,8	66,1	67,1	66,2
Rural	14,9	16,0	17,6	19,2
Survey region				
Douala	71,9	78,3	77,7	76,6
Yaounde	70,6	76,5	77,4	75,1
Adamawa	41,6	49,8	49,7	38,4
Centre (excluding Yaounde)	33,8	43,3	53,7	51,0
East	25,0	36,7	39,0	39,8
Far North	10,4	5,7	9,0	8,1
Littoral (excluding Douala)	59,7	62,3	53,0	52,2
North	16,9	18,0	26,2	21,0
North-West	28,1	39,2	39,7	40,0
West	40,3	49,2	45,5	53,4
South	41,2	46,5	46,1	54,1
South-West	38,3	27,2	32,2	63,2
Cameroon	**39,0**	**41,6**	**43,1**	**45,6**

Source: NIS, MICS3 (2006), DHS-MICS (2011), MICS5 (2014), CDHS-V (2018)

Table 5.1-28 : *Proportion (%) of population living in dwellings with final material by residence and survey region*

	2006	2011	2014	2018
Residence				
Yaounde/Douala	67.2	64.1	68.9	69.9
Other urban	55.5	41.2	48.1	53.0
Total urban	60.2	49.8	55.9	59.9
Rural	14.1	9.5	12.4	16.7
Survey region				
Douala	66.1	61.6	64.0	70.8
Yaounde	68.6	66.6	75.0	69.0
Adamawa	41.4	23.0	33.4	29.1
Centre (excluding Yaounde)	35.6	23.9	46.3	43.4
East	26.1	27.2	30.0	37.2
Far North	12.3	5.0	6.5	7.7
Littoral (excluding Douala)	38.4	37.3	36.0	39.8
North	17.7	9.8	20.7	19.0
North-West	28.0	33.8	35.7	35.6
West	45.9	28.9	27.9	49.5
South	37.6	38.9	36.5	45.3
South-West	33.6	29.0	32.3	62.7
Cameroon	**36.9**	**28.6**	**33.2**	**38.5**

Source: NIS, MICS3 (2006), DHS-MICS (2011), MICS5 (2014), CDHS-V (2018)

Table 5.1-29 : *Percentage of urban population living in precarious dwelling by residence and survey region*

	2006	2011
Residence (urban)		
Yaounde/Douala	60.2	65.8
Other urban	80.1	75.0
Total urban	**72.2**	**71.5**
Survey region (urban area only)		
Douala	56.3	71.2
Yaounde	64.8	80.3
Adamawa	87.2	59.7
Centre (excluding Yaounde)	80.4	77.1
East	89.6	87.0
Far North	89.1	67.4
Littoral (excluding Douala)	70.6	75.5
North	86.6	75.4
North-West	75.9	68.4
West	82.5	80.3
South	75.4	70.1
South-West	60.1	71.5
Total urban	**72.2**	**71.5**

Source: NIS, MICS3 (2006), DHS-MICS (2011)

Topic 5.1.4: Exposure to environmental pollution

Environmental pollution is a major environmental health risk. In cities, it includes both air pollution and noise pollution. Noise pollution includes noise generated by transport (air, road and rail traffic). Neighbourhood noise and construction site noise, sports or cultural activity noise. The indicators of exposure to environmental pollution presented in this section are related to pollution hot spots, the percentage of households experiencing noise pollution, the percentage of the population of urban households exposed to noise pollution in major cities, the percentage of urban households whose members have been disturbed by other types of nuisance, etc..

Some pictures on "Exposure to environmental pollution"

1-Car exhaust pollution in Douala (top left); 2-Garbage burning in a Bamenda area (top right); 3-Gutters chocked with solid waste in Yaounde (bottom left); 4-Non harnessed low flow water source in Apollo quarter, Messa-Quarry, it is used simultaneously as a drinking water source, place of laundry for households and playground for children (bottom right)

Sources: 1), 2) 3) Martin Luther DJATCHEU, « Fabriquer la ville avec les moyens du bord : L'habitat précaire à Yaoundé (Cameroun) », 4) EPESS Yaoundé Project, BGR, NIS, MINEPAT IRAD

Table 5.1-30 : *Level of pollution severity by pollution hotspots*

Pollution hotspots	Parameters								
	DCO	Phosphate	MES	Copper	Chrome hexavalent	Zinc	Plomb	Nickel	Coliforms
Londji	++		++	+++	+++		++	++	++
Ebome	+++			+	+		+++	++	++
Ntem estuary	+++	+	+++	+++		+		++	+++
Nyong estuary	+		++	+	++				+++
Bamousso	+++	+	+++		++	++	++		+++
Limbe Port	+++		+++		+			+	+++
Tiko Port	++	++	+++		+		++		+++
Mungo mouth	++	++	+++		+		++		+++
Douala port					+++				+++
Wouri estuary		+	+						+++
Bonaberi		+	+++						++
Sanaga estuary									++
BM boundaries	250	2	50	0,5	0,1	2	0,1	0,5	10 000

+++ Value extremely above the limit value;
++ Value High compared to the limit value;
+ Slightly above limit value.

Source: E&D ET HYDRACS, 2010

***Table 5.1-31**: Kitchen location, distribution (%) of households by kitchen location according to some background characteristics*

Background characteristics	2011					2018				
	In the house	In a separate building	Outside	Other	Total	In the house	In a separate building	Outside	Other	Total
Residence										
Yaounde/ Douala	63.6	14.8	21.7	0.0	100.0	69.0	11.1	19.9	0.0	100.0
Other urban	27.7	45.1	27.0	0.3	100.0	30.4	46.6	22.9	0.1	100.0
Total urban	42.2	32.8	24.8	0.2	100.0	47.5	30.9	21.6	0.1	100.0
Rural	19.3	57.4	23.2	0.1	100.0	13.1	67.4	19.4	0.1	100.0
Survey region										
Douala	55.1	21.5	23.4	0.0	100.0	65.7	13.0	21.3	0.1	100.0
Yaounde	71.8	8.0	20.1	0.1	100.0	72.8	8.8	18.4	0.0	100.0
Adamawa	15.4	57.5	26.7	0.3	100.0	18.2	57.9	23.9	0.0	100.0
Centre (excluding Yaounde)	36.7	34.3	29.0	0.0	100.0	27.3	41.9	30.7	0.1	100.0
East	25.2	41.2	33.6	0.0	100.0	24.9	47.7	27.4	0.0	100.0
Far-North	9.7	63.1	27.1	0.2	100.0	4.7	76.6	18.6	0.1	100.0
Littoral (excluding Douala)	22.3	55.8	21.7	0.2	100.0	22.3	32.7	44.9	0.1	100.0
North	4.5	54.9	39.9	0.8	100.0	3.3	70.7	25.8	0.2	100.0
North-West	27.6	67.8	4.5	0.1	100.0	26.0	68.9	5.1	0.0	100.0
West	39.8	34.3	26.0	0.0	100.0	36.0	51.5	12.5	0.0	100.0
South	35.8	46.8	17.3	0.1	100.0	32.0	50.0	17.9	0.1	100.0
South-West	23.8	59.9	16.3	0.0	100.0	54.0	40.3	5.7	0.0	100.0
Wealth status										
Very poor	15.7	56.1	27.8	0.3	100.0	6.1	71.9	21.8	0.2	100.0
Poor	25.2	55.4	19.4	0.0	100.0	15.3	63.5	21.2	0.0	100.0
Middle	11.2	57.7	30.8	0.3	100.0	13.5	56.6	29.9	0.0	100.0
Rich	25.5	41.9	32.6	0.1	100.0	39.9	34.3	25.7	0.1	100.0
Very rich	69.5	18.8	11.6	0.0	100.0	72.8	19.9	7.3	0.0	100.0
Cameroon	**30.9**	**45.0**	**24.0**	**0.2**	**100.0**	**32.3**	**47.1**	**20.6**	**0.1**	**100.0**

Source: NIS, DHS-MICS (2011), CDHS-V (2018)

Table 5.1-32 : *Proportion (%) of households using solid fuels (coal/lignite, charcoal, wood, straw/branches/grass, agricultural residues and dung) for cooking by residence and survey region*

	2006	2011	2014	2018
Residence				
Yaounde/ Douala	30.1	30.6	24.4	24.7
Other urban	74.3	70.7	63.6	64.8
Total urban	55.7	54.4	48.2	47.0
Rural	94.8	95.4	93.3	93.6
Survey region				
Douala	34.5	38.6	28.0	28.6
Yaounde	24.6	22.6	19.8	19.9
Adamawa	80.7	83.7	75.8	77.4
Centre (excluding Yaounde)	88.3	72.3	69.4	75.2
East	88.4	85.0	81.5	80.1
Far-North	92.8	95.3	93.4	93.0
Littoral (excluding Douala)	81.3	79.7	73.1	76.5
North	92.8	94.0	90.2	91.6
North-West	89.9	90.8	83.1	82.9
West	88.5	85.8	83.0	79.7
South	84.0	77.5	72.1	66.5
South-West	73.0	75.0	68.7	36.6
Cameroun	**75.1**	**74.5**	**70.0**	**67.4**

Source: NIS, MICS3 (2006), DHS-MICS (2011), MICS5 (2014), CDHS-V (2018)

Table 5.1-33 : *Proportion (%) of population using solid fuels (coal/lignite, charcoal, wood, straw/branches/grass, agricultural residues and dung) for cooking by residence and survey region*

	2006	2011	2014	2018
Residence				
Yaounde/ Douala	39.1	39.1	33.1	32.3
Other urban	84.8	82.8	78.8	77.0
Total urban	66.6	66.3	61.7	58.8
Rural	98.1	98.0	97.5	97.1
Survey region				
Douala	43.7	47.7	37.2	36.1
Yaounde	33.7	30.8	28.0	28.1
Adamawa	89.0	91.1	87.2	89.2
Centre (excluding Yaounde)	93.7	86.8	85.5	84.6
East	95.1	91.3	89.8	87.1
Far-North	96.8	98.0	97.6	97.5
Littoral (excluding Douala)	87.5	84.8	81.8	81.9
North	97.6	97.9	96.6	96.8
North-West	95.1	95.8	91.0	89.0
West	92.3	91.2	89.8	87.6
South	89.8	84.0	81.7	78.0
South-West	84.2	82.5	79.9	50.1
Cameroun	**82.5**	**83.0**	**80.4**	**77.8**

Source: NIS, MICS3 (2006), DHS-MICS (2011), MICS5 (2014), CDHS-V (2018)

Table 5.1-34 : *Percentage of urban households exposed to noise pollution in the last 6 months before the survey by source of noise, 2014*

	Noise from neighbouring households	Noise from passers-by or from neighbouring transport networks (roads, airports, etc..)	Noise from drinking places	Noise from churches/places of worship	Noise from industrial, commercial, leisure or entertainment activities	Other types of annoying noises
Residence						
Douala	49.0	38.5	28.8	23.8	20.4	13.6
Yaounde	44.0	33.8	22.9	21.1	12.1	11.7
Other urban	45.0	39.6	26.0	21.1	15	17.5
Total urban households	**46.0**	**37.5**	**26.0**	**22.0**	**15.9**	**14.5**

Source: NIS, ECAM4 (2014)

Table 5.1-35 : *Percentage of the population of urban households exposed to noise pollution in the last 6 months before the survey by source of noise, 2014*

	Noise from neighbouring households	Noise from passers-by or from neighbouring transport networks (roads, airports, etc.)	Noise from drinking places	Noise from churches/places of worship	Noise from industrial, commercial, leisure or entertainment activities	Other types of annoying noises
Residence						
Douala	50.1	39.3	28.2	24.9	21.2	15.2
Yaounde	43.2	36.2	22.8	22.9	11.9	11.7
Other urban	43.7	39.7	23.8	19.7	13.7	17.1
Total population from urban households	**45.5**	**38.5**	**24.8**	**22.3**	**15.5**	**14.9**

Source: NIS, ECAM4 (2014)

Table 5.1-36 : *Percentage of urban households whose members were disturbed by other types of nuisance during the 30 days preceding the survey following by the type of nuisance*

	Type of nuisance			
	Waste water from neighbours		Bad odors	
	2007	***2014***	***2007***	***2014***
Residence				
Douala	28.6	35.0	57.3	58.3
Yaounde	26.6	27.4	56.2	45.5
Other urban	20.0	21.2	44.9	44.0
Total urban	**24.5**	**27.6**	**51.9**	**49.2**

Source: *NIS, ECAM3 (2007), ECAM4 (2014)*

Topic 5.1.5: Environmental concerns specific to urban areas

The environmental situation in African cities can be difficult for part of the urban population, even if, on average, indicators of well-being are more favourable in urban areas. Urban environmental problems concern, for example, the congestion or availability of green spaces.

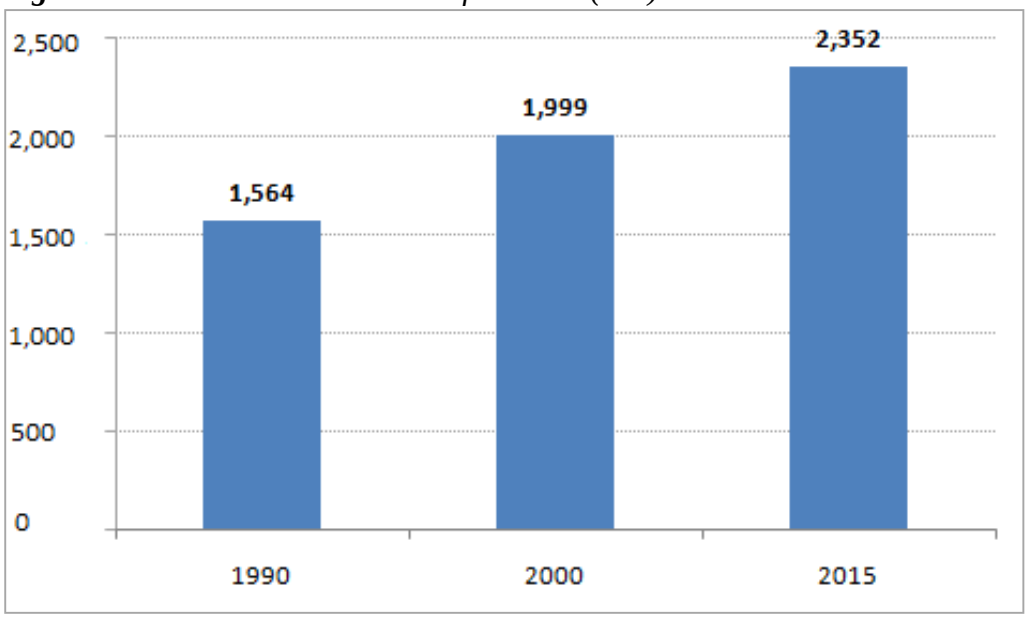
The urban surface area in square kilometre is based on a combination of population counts (persons), settlement points, and the presence of Night-time Lights. Areas are defined as urban where contiguous lighted cells from the Night-time Lights or approximated urban extents based on buffered settlement points for which the total population is greater than 5,000 persons.

Some images on "Environmental concerns specific to urban areas"

1-Urban traffic and traffic jams in Douala (top left); 2-Nkolfoulou dumping: embedment *of waste by a bulldozer/ Hysacam (top right); 3-on the PK 14 stretch, traders prefer to occupy road sides rather than selling in the market (bottom left); 4- gutters and drains plugged by plastic waste in Douala (bottom right).*

Sources: 1- 237actu.com/Cameroon, 2018 ; 2-https://plateforme-re-sources.org/yaounde-cameroun-atelier-re-sources-visite-de-la-decharge-de-nkolfoulou-dans-la-banlieue-de-yaounde/; 3- CUD/Koafouba Raissa ; 4- Actu Cameroun : Douala dans la spirale des déchets plastiques, publié le 2sep 2020

***Figure 5.1-5** : Cameroon urban surface area (km²)*



Source: World Bank (1990, 2000, 2015 estimate)

***Table 5.1-37 :** Interurban distances (in km) between regional capitals*

Locality	Bafoussam	Bamenda	Bertoua	Buea	Douala	Ebolowa	Garoua	Maroua	Ngaoundere	Yaounde
Bafoussam/ West /Mifi	0	79	547	265	253	429	884	85	610	295
Bamenda/ North-West /Mezam	79	0	627	313	302	508	960	161	686	374
Bertoua/ East/Lom et Djérem	547	627	0	642	578	454	773	974	496	337
Buea/ South-West/Fako	265	313	642	0	64	365	148	349	874	307
Douala/ Littoral /Wouri	253	302	578	64	0	301	137	338	863	243
Ebolowa/ South/Mvila	429	508	454	365	301	0	108	308	834	152
Garoua/ North/Benoue	884	960	773	148	137	108	0	201	276	956
Maroua/ Far-North/Diamaré	85	161	974	349	338	308	201	0	477	156
Ngaoundere/ Adamawa/Vina	610	686	496	874	863	834	276	477	0	682
Yaounde/ Centre /Mfoundi	295	374	337	307	243	152	956	156	682	0

Source: MINTP/2016, Update of the table of interurban distances in Cameroon

Table 5.1-38 : *Total number of vehicles owned by urban households*

	2005	2007	2010	2014	2016
Residence					
Douala	41,131	31,171	65,887	68,244	127,224
Yaounde	45,866	39,273	126,325	87,892	159,509
Other urban	31,433	44,432	73,746	51,036	67,862
Total urban	118,430	114,877	265,958	207,173	354,595

Source: NIS, EESI (2005), ECAM3 (2007), EESI (2010), ECAM4(2014), EC-ECAM4 (2016)

Table 5.1-39 : *Number of motorcycles/engine tricycles owned by urban households by residence*

	2005	2007	2010	2014	2016
Residence					
Douala	24,320	46,401	82,960	106,728	141,095
Yaounde	8,005	12,706	31,117	47,173	60,421
Other urban	49,080	71,352	138,716	144,000	138,712
Total urban	81,405	130,460	252,792	297,901	340,228

Source: NIS, EESI (2005), ECAM3 (2007), EESI (2010), ECAM 4(2014), EC-ECAM4 (2016)

Table 5.1-40 : *Number of newly registered vehicles per year and by age*

Age	2010	2011	2012	2013	Total*
Less than a year	4,823	2,023	4,991	5,356	20,787
1 to 4 years	727	343	770	720	2,864
5 to 9 years	2,598	1,049	2,926	3,427	11,377
10 to14 years	10,156	4,264	12,185	13,985	45,721
15 to 19 years	12,035	4,272	12,586	15,997	51,965
20 years or more	6,878	2,812	9,266	11,131	35,531
Total	**37,217**	**14,763**	**42,724**	**50,616**	**168,245**

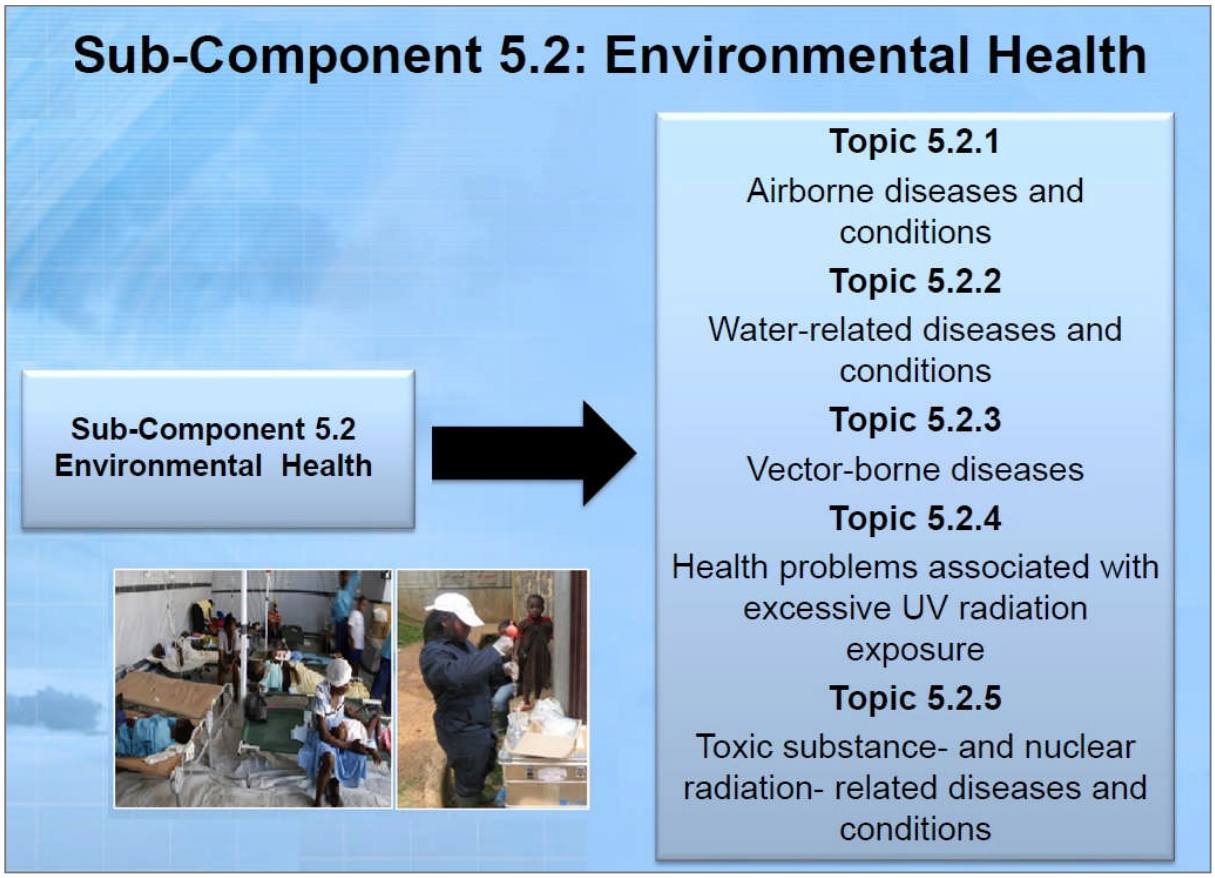
Source: HTT/MINT ;
**Motorcycles are excluded.*

Sub-component 5.2: Environmental Health

Environment is one of the key factors that significantly influences human health in addition to biological, inheritance, predisposition, age or even health status variables.

The statistics on environmental health come mainly from the Ministry of Public Health (MINSANTE), but also from some statistical operations carried out by the NIS from households. The indicators presented in this section cover the incidence, prevalence and mortality of environmental diseases and conditions.

The indicators for this sub-component focus on : airborne diseases and pathologies, water-related diseases and conditions, health problems related to excessive exposure to UV radiation, diseases and conditions related to toxic substances and nuclear radiation. The indicators for this sub-component focus on airborne diseases and pathologies, water-related diseases and conditions, health problems related to excessive UV exposure, diseases and conditions related to toxic substances and nuclear radiation. Moreover, there is a glaring lack of data on diseases caused by pollution, and on those related to toxic substances.



Some pictures on "environmental health"

1- Non harnessed drinking water source causing several diseases (top left); 2-Dumping of palm oil extraction waste at Mundemba in the Southwest (top right) (top right); 3- Illustration of the exposure of water-borne contamination populations (bottom left); 4- mosquitoes, ticks and other insects that transmit diseases, they reproduce in clean or dirty standing waters, and cause vector-borne diseases such as malaria, yellow fever, onchocerciasis or river blindness, on the other hand, pathogens (viruses, bacteria, parasites) are at the origin of water-related diseases (bottom right).

Sources: 1- Association Solidarités International ; 2- Atlas des statistique de l'environnement du Cameroun, INS, 2016 ; 3- online at : http://acdevcm.free.fr/hygiene/maladie.html; 4-

Topic 5.2.1: Airborne diseases and conditions

Airborne diseases are those caused by airborne transmission. Many airborne diseases are of great medical importance. Transmitted pathogens can be any type of microbe, and they can spread in aerosols, dusts or liquids. Aerosols can come from infection sources such as body secretions from an infected animal or person, or from biological wastes such as those that accumulate in garbage, sewers, and even caves in tropical environments (bats, histoplasmosis). These infected aerosols can remain suspended in the air long enough to travel considerable distances. Sneezing can project infectious droplets along the entire length of a bus.

Air pollution plays an important role in airborne diseases that can also cause asthma. Pollutants are currently considered to influence lung function by increasing inflammation of the respiratory tract.

Many pathogens can be airborne: measles morbillivirus, chickenpox virus, the bacterium responsible for tuberculosis, influenza virus, enterovirus, norovirus, coronavirus, adenovirus and possibly respiratory syncytial virus.

Airborne diseases can also affect animal health. For example, Newcastle disease is an avian disease that affects many types of domestic poultry worldwide and is transmitted by airborne contamination; Aujeszky's disease is another viral disease, affecting pigs in particular, and airborne over long distances. Factors influencing the transmission of airborne diseases can be classified as follows:

(i) Environmental factors influence the effectiveness of airborne disease transmission; the most important environmental conditions for survival of aerosol-attached microorganisms are air temperature and relative humidity. These depend on the natural weather conditions and the air conditioning of the premises. Dispersion and sedimentation of droplets containing infectious particles also depend on air velocity and volume (open or enclosed spaces);

(ii) precipitation, the number of rainy days being greater than the total precipitation; the average number of hours of sunshine per day; the latitude and altitude are relevant in assessing the potential for spread of any air-borne infection. Some infrequent or exceptional events also influence the spread of airborne diseases, notably tropical storms, hurricanes, typhoons or monsoons.

(iii) Climate determines temperature, relative air humidity, and winds, which are the main factors affecting the spread, duration, and infectivity of droplets containing infectious agents. For example, the flu virus spreads more easily in winter in the northern hemisphere due to climatic conditions that promote the infectivity of the virus;

(iv) After certain weather events such as rain, the concentration of airborne spores decreases sharply, as raindrops promote the drawdown of aerosols ("rain out", "wash out") and clean the air fromairborne particles; a few days after the rain, there is again an increase in the number of spores in the air, etc..

This topic includes all airborne diseases and conditions that are caused or aggravated by exposure to unhealthy levels of pollutants (such as PM, SO2 or O3), generally found in urban areas, and in particular, in cities where air quality regulation and management is not well structured. Airborne diseases and conditions include but are not limited to upper and lower respiratory diseases, obstructive pulmonary diseases, asthma, allergic rhinitis, lung cancer, ischemic heart disease and strokes.

This topic includes health statistics on morbidity (such as incidence and prevalence) and mortality of these diseases or conditions, as well as the associated impact on the labour force and economic costs. Where available, the fraction and burden attributable to

pollution-related diseases, premature deaths and pollution-based AVCI are included in this topic.

The prevalence of acute respiratory infections (ARI) is generally measured in the Cameroon Demographic and Health Surveys and mothers are asked whether their children suffered from coughing during the two weeks preceding the interview and, if yes, if it had been accompanied by short and rapid breathing of pulmonary origin (characteristic symptoms of ARI).

Some images on "Airborne diseases and conditions"

1-Population exposure to several dry season diseases (top left); 2-Population concerned about the announcement of the first case of Covid-19 deaths in Yaoundé (top right) ; 3-Photo of the Cameroonian student who was also the first African to have contracted the coronavirus in China and who quickly recovered from the disease. He opened up at the BBC (bottom left); 4-illustration of the spread of airborne Covid-19 micro-particles (bottom left)

Sources: 1-https://philieradar.com/cameroun-la-saison-seche-source-de-plusieurs-maladies/ ; 2-Le point Afrique, du 24 mars 2020 ; 3-BBC News Afrique du 17 Feb 2020 ; 4-Sciences et avenir : https://www.sciencesetavenir.fr/sante/covid-19-la-piste-de-la-transmission-aeroportee-toujours-prend-de-l-ampleur_153760.

Table 5.2-1 : *Trends in the reported prevalence of air pollution-related diseases (acute and chronic respiratory infections) (%) in children under 5*

	2001	2007	2011	2014	2018
Residence					
Yaounde/ Douala	-	-	7.0	3.3	1.2
Other urban	-	-	3.9	3.0	1.1
Total urban	2.2	3.1	5.0	4.7	1.1
Rural	3.1	3.5	5.7	4.5	0.9
Survey region					
Douala	2.2	1.7	6.8	1.6	0.8
Yaounde	1.4	2.9	7.2	6.5	1.5
Adamawa	1.5	7.3	4.4	4.9	0.1
Centre	8.5	5.2	5.1	7.9	1.4
East	3.9	0.7	2.9	4.0	0.7
Far-North	0.6	1.1	6.0	5.6	0.4
Littoral	1.7	1.0	2.0	3.7	1.2
North	3.4	2.4	5.6	2.8	0.4
North-West	2.5	3.7	7.3	1.7	2.0
West	3.7	8.2	3.7	1.3	2.3
South	5.2	5.4	3.0	3.5	1.0
South-West	2.5	2.5	4.9	2.0	0.0
Cameroon	**2.8**	**3.3**	**5.4**	**4.0**	**1.0**

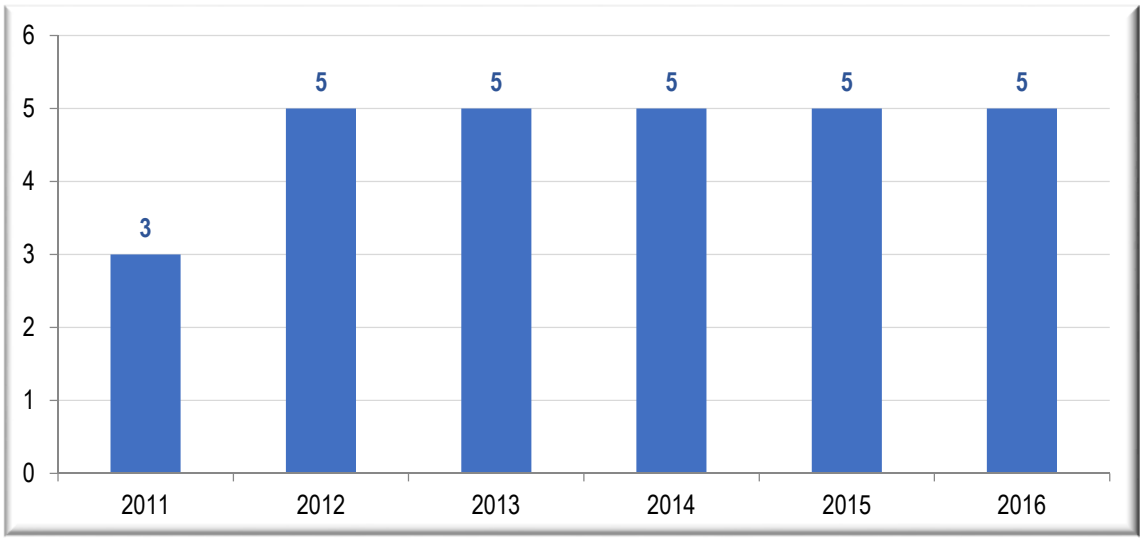
-information not available
Source: NIS, ECAM2 (2001) ECAM3 (2007), DHS-MICS (2011), MICS5 (2014) and CDHS-V(2018)

Table 5.2-2 : *Tuberculosis reporting rate per 100,000 inhabitants and proportion of deaths on TB cases treated in Cameroon between 2006 and 2018*

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Smear-positive pulmonary tuberculosis (TBP SM+) /New cases	82	76	79	79	77	77	75	73	72	69	65	55	55
All forms of tuberculosis (Notification)	138	132	131	127	122	121	118	118	116	121	116	103	95
Deaths (%)	6	7	6	6	6	6	7	6	6	6	6	6	-

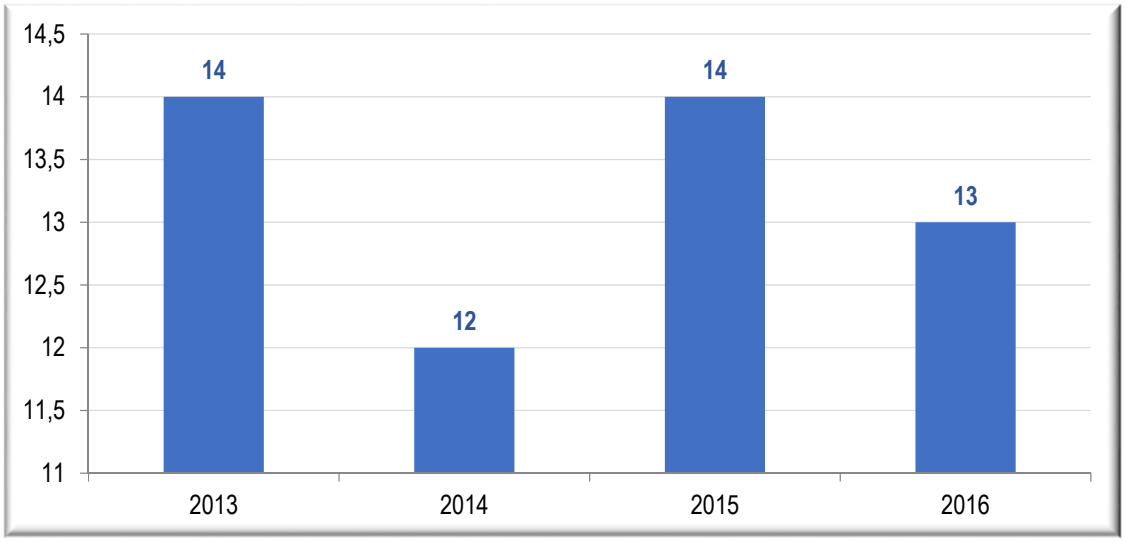
Source: MINSANTE/PNLT, 2006-2018 annual reports; PNLT, 2006-2017 activity reports

***Figure 5.2-1** : Total current health expenditure in % of the GDP from 2011 to 2016*



Source: WHO, GHED 2016

***Figure 5.2-2** : Funding from external sources in % of the2013 to 2016current health expenditure*



Source: WHO, GHED 2016

Topic 5.2.2: Water-related diseases and conditions

Water holds a great place in human life. Without it no life is possible, without it, it is the desert, men and animals would die. According to the NGO “Action pour le Développement” (ACDEV), man uses it to drink, wash and bathe, wash dishes, do laundry, cook, build the house, give to domestic animals (cattle, goats, etc.)to drink.

Relationships between man and water are complex and varied.

Water is necessary for economic development, but dams or irrigation networks can be harmful to health by the diseases they bring.

Water is essential for all life, but it can also be the source or vector of many diseases and thus cause death.

According to WHO, 80% of diseases are due to lack of hygiene or water.

Water emerged only recently as being able to play a role in health. It was identified as a disease transmission factors only in 1854during a cholera outbreak in London. Gradually the correct access to drinking water has made it possible to increase life expectancy on condition that at the same time the hygiene conditions improve. Water-related diseases are very diverse in relation to water and the mode of transmission.

Four major disease groups are linked to water availability and quality, as well as to effective management of water resources:

- diseases related to acute or chronic lack of clean water;

- diseases related to water contamination;

- diseases related to toxic contamination of water; and,

- vector-borne diseases.

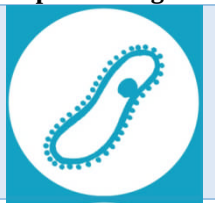
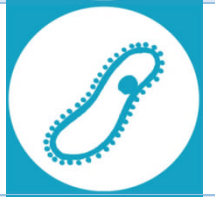
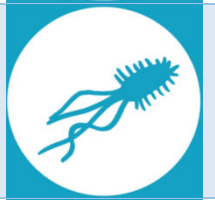
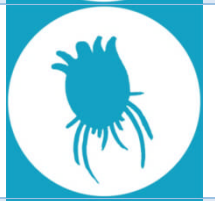
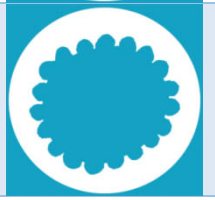
These diseases include: cholera, dengue fever, diarrhea, scabies, hepatitis, mal nutrition, onchocerciasis, malaria, schistosomiasis, trachoma, typhoid.

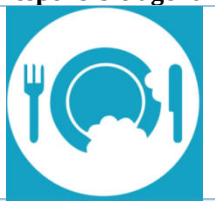
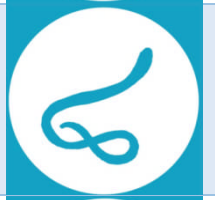
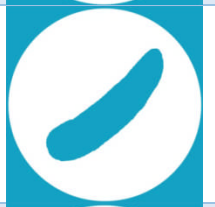
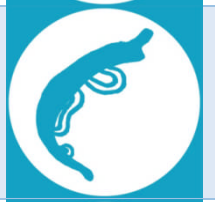
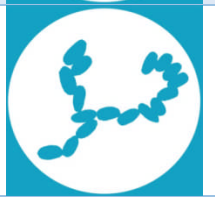
Some images on "Water-related diseases and conditions"

1- *Anthropic pollution of the water resource in the study area of the EPESS GAROUA project: toilets upstream of the well (top left); bed of a river filled with decomposing slaughterhouse waste (top right); 3- Mayo Pitoa, downstream of the bridge: It is an affluent of La Bénoué, which supplies the locality's population and livestock with water in which fishing activities are also carried out. It also serves as a receiver of slaughterhouse waste located upstream, producing its greyish color (bottom left); 4- Dental fluorosis: Stains on teeth (dental fluorosis) are the result of long-term exposure to fluorine concentrations above 0.5 mg/l. These cases of fluorosis were noted in a remarkable way in the populations of the Figuil Council in the Mayo-Louti Division during the EPESS Garoua Project (bottom right).*

Sources: 1 to 4 (photos © EPESS Garoua, BGR, NIS, CRH 18 january 2017). (photos © BGR, 11 january 2017).

Table 5.2-3 : *List of some water-related diseases, mode of transmission and treatment.*

N°	Sickness	Definition / transmission	Treatment	Microbe image/ responsible agent
1.	**Cholera**	Cholera, also known as “dirty hand disease”, is caused by the bacterium Vibrio cholerae. It is transmitted through the consumption of food or water contaminated by feces of infected persons	Cholera treatment involves replacing lost fluids and electrolytes. The use of oral rehydration salts is the fastest and most effective way to achieve this. Prevention also helps to combat the disease (adequate supply of drinking water, good personal and food hygiene, hygienic evacuation of excreta).	
2.	**Dengue fever**	Dengue fever is a serious influenza-like infectious disease, transmitted by infected female tiger mosquitoes (genus Aedes), with rarely fatal outcomes. Dengue affects infants, children and adults.	There are no vaccines to protect against dengue fever. The most effective method of prevention remains personal protection that must prevent mosquito bites: mosquito nets, long-sleeved clothing and repellent products	
4.	**Diarrhea**	Diarrhea is a symptom of an infection caused by a large number of bacterial, viral and parasitic organisms, most of which can spread through contaminated water. It is more common when there is no clean water for drinking, cooking and cleaning, and when essential hygiene rules are not followed.	Fighting this scourge requires access to safe drinking water, improved sanitation, adequate personal and food hygiene, and health education on how infection spreads.	
5.	**Scabies**	Contagious skin infection caused by a microscopic mite (Sarcoptes Scabiei), scabies spreads rapidly under promiscuous conditions. It is most frequently reported by a papular eruption between the fingers of the hand.	Personal hygiene is an important preventive measure and access to an adequate water supply is essential for the fight against this disease. Treatment of patients is done by acaricide ointment preceded by a hot bath with careful soaping. Infested clothing should be sterilized or washed in hot soapy water.	
6.	**Hepatitis**	Two of the viruses that cause hepatitis (hepatitis A and E) can be transmitted through water and food. Infectious causes include inadequate water supplies and poor sanitation and hygiene.	There is no anti-viral drug. Prevention involves education about good sanitation and personal hygiene, including hand washing, adequate clean water supplies and proper waste disposal.	

N°	Sickness	Definition / transmission	Treatment	Microbe image/ responsible agent
7.	**Malnutrition**	Under nutrition affects one person out of three of all ages, even though it particularly affects the poorest and those who have insufficient access to clean water, good sanitation and a lack of health education.	Interventions that contribute to the prevention of malnutrition include: improving water supply, sanitation and hygiene, education in good hygiene practices, better access to food in sufficient quantity and quality, and basic health services.	
8.	**River blindness**	The second leading cause of infectious blindness in the world, onchocerciasis, or river blindness, is a parasitic disease caused by sand fly, a small black midge that reproduces in the water	Two main measures are available to combat river blindness: spraying insecticides on the larval breeding sites of the black flies and treating patients with a drug (invermectin) that kills young worms.	
9.	**Malaria**	Malaria is the most important parasitic infectious disease in the world. It is caused by a Plasmodium parasite, transmitted at night during the bite by a female Anopheles mosquito. Without rapid and effective treatment, malaria can progress to a serious and deadly brain form.	No vaccine is available to fight malaria. Preventive antimalarial drugs do not guarantee absolute protection against infection. So it is important to protect one's self from mosquito bites: by using mosquito nets, mosquito repellents, malaria prevention during pregnancy, early detection and control of malaria epidemics.	
10.	**Schistosomiasis**	Schistosomiasis or bilharzia is a waterborne disease considered the second most common parasitic infection after malaria. Transmission occurs when people with schistosomiasis contaminate freshwater sources with their feces.	Improving sanitation and drinking water supplies minimizes contamination of freshwater and reduces contact with it, reducing the risk of transmission. Health education is a fundamental component that guarantees community participation in control interventions.	
12.	**Typhoid**	Typhoid and paratyphoid fevers are infections caused by Salmonella typhi and Salmonella parathyphi bacteria. People become infected through the ingestion of food or beverages that have been handled by an infected person or through drinking drinking water contaminated with feces or effluents containing bacteria.	Personal hygiene, hand washing, safe water supply, adequate sanitation, A vaccine is available, although it is not recommended systematically and does not provide total protection against infection.	

Source: SOLIDARITÉS INTERNATIONAL, Paris, online at: **https://www.solidarites.org/fr/**

Table 5.2-4 : *Reported prevalence (%) of some water-related diseases among persons below 5 years in 2014*

	Diarrhea			Typhoid
	2011	2014	2018	2014
Residence				
Douala/Yaounde	16.1	11.2	13.0	*
Other urban	18.7	17.9	12.3	*
Total urban	17.7	15.5	12.6	0.3
Rural	23.3	23.2	11.4	0.3
Survey region				
Douala	11.2	11.4	11.1	0.2
Yaounde	20.8	11.1	14.9	0.0
Adamawa	13.4	22.0	10.4	0.3
Centre (Excluding Yaounde)	15.9	16.9	17.8	0.0
East	18.2	21.3	10.8	0.7
Far North	31.2	35.8	11.4	0.4
Littoral (Excluding Douala)	16.2	11.4	7.3	0.0
North	35.8	24.8	11.3	0.2
North-West	8.5	9.7	9.3	0.4
West	14.2	8.6	11.0	0.6
South	14.7	14.1	12.8	0.3
South-West	11.9	8.5	4.1	1.6
Cameroon	**20.9**	**20.0**	**11.9**	**0.3**

Source: NIS, DHS-MICS (2011), MICS 5 (2014) ,CDHS-V (2018), ECAM4 (2014)

Topic 5.2.3: Vector-borne diseases

Vectors are living organisms capable of transmitting infectious diseases from one host (animal or human) to another. They are often hematophage insects that, during a blood meal, ingest pathogenic microorganisms present in an infected host (man or animal), to re-inject them into a new host after a reproduction of the pathogen. Often, once a vector becomes infectious, it is able to transmit the pathogen for the rest of its life cycle at each subsequent blood meal (WHO).

The term "**vector-borne disease**" may well be part of our vocabulary in the years to come. Along with the words "pandemic" and "lockdown", which we have had to integrate into our daily lives since March 2020 with the advent of the corona virus in our latitudes.

What are **vector diseases**? These are human diseases caused by parasites, viruses or bacteria transmitted by "vectors". Responsible for nearly one in five infectious diseases worldwide, they currently cause more than one million deaths each year. An ever-increasing number, especially because of global warming.

Malaria, having mosquito as a vector, is probably one of the most well-known vector diseases, but there are many more.

There are more than 700,000 deaths worldwide each year from vector-borne diseases such as dengue fever, yellow fever, Japanese encephalitis, leishmaniasis, Chagas disease, onchocerciasis, malaria, schistosomiasis and African human trypanosomiasis.

They primarily affect tropical and subtropical areas and disproportionately affect the poorest populations. Since 2014, major outbreaks of dengue fever, malaria, chikungunya, yellow fever and Zika virus disease have affected populations in many countries, causing deaths and overloading the health system. Other diseases such as chikungunya, leishmaniasis and lymphatic filariasis lead to chronic suffering, lifelong morbidity, disability and occasional stigma.

Outstanding facts

- Dengue is a viral infection transmitted to humans through the bite of infected mosquitoes. The main vectors of the disease are mosquitoes of the species Aedes aegypti and, to a lesser extent, of the species Ae. Albopictus.
- The virus responsible for the disease is called the dengue virus (DENV). There are four serotypes of this virus, which means it is possible to be infected four times.
- • Although many DENV infections only cause mild manifestations, some can cause acute flu-like illness. Sometimes life-threatening complications occur. This is called severe dengue fever.
- There is no specific treatment for dengue or severe dengue. Early detection of signs of progression to severe dengue and access to appropriate medical care can reduce the mortality rate of severe dengue to less than 1%.
- Dengue occurs in tropical and subtropical regions around the world, with a predilection for urban and semi-urban areas.
- The global incidence of dengue has increased dramatically and half of the world's population is now at risk of contracting the disease. Approximately 100-400 million infections occur each year, but over 80% are generally mild and asymptomatic.

- Effective vector control measures are essential to prevent and combat dengue fever. Continued community participation contributes substantially to the success of the fight against the vector (WHO).

As a matter of fact, vector-borne diseases are a significant public health burden in Cameroon. These include malaria, sleeping sickness, river blindness and many others transmitted by insects or other vectors. For example, in Cameroon, three million people were infected with malaria in 2021 according to official figures, whereas the WHO through its modelling system predicts that there have been 6 million cases. With respect to other diseases such as river blindness, the presentation **made that day** showed that 10 million Cameroonians are at risk of onchocerciasis.

According to data provided by the Ministry of Public Health, Cameroon registers nearly 2 million cases of malaria each year. The disease is also the primary reason for consultation, with 43% of children under the age of 5 reporting to hospitals in the country. In addition, malaria accounts for 12.8% of deaths in health facilities. (MINSANTE, 2019).

Some images on "Vector-borne diseases"

1- Female anopheles sting (top left); 2- A community health worker provides malaria care to a child in Cameroon; 3-patient under an insecticide-treated net (bottom right) Mobilizing communities to help prevent and control malaria in Cameroon (top right);4-different types of mosquitoes: tiger mosquitoes, Aedes albopictus, Chikungunya, dengue, etc., Vectors of transmission of several diseases to humans and animals (bottom right).

Sources:1- online at : thenewhumanitarian.org ; 2- Ministère de la Santé, Cameroun ; 3- online at :https://afrique.le360.ma/autres-pays/societe/2019/02/05/24935-cameroun-paludisme-2-millions-de-cas-enregistres-chaque-annee-24935; 4- online at : eidatlantique.eu

Table 5.2-5 : *List of common vector-borne diseases by vector*

Vector		Disease caused	Type of pathogen
Mosquito	*Aedes*	Chikungunya	Virus
		Dengue fever	Virus
		Lymphatic filariasis	Parasite
		Rift Valley fever	Virus
		Yellow fever	Virus
		Zika	Virus
	Anopheles	Lymphatic filariasis	Parasite
		Malaria	Parasite
	Culex	Japanese encephalitis	Virus
		Lymphatic filariasis	Parasite
		West Nile fever	Virus
Aquatic snails		Schistosomiasis (bilharzia)	Parasite
Black flies		Onchocerciasis (river blindness)	Parasite
Plague		Plague (transmitted from rat to man)	Bacteria
		Tungose	Ectoparasite
Lice		Typhus	Bacteria
		Typhus and recurrent lice fever	Bacteria
Sand flies		Leishmaniasis	Bacteria
		Pappataci fever virus (phlebotomy fever)	Virus
Ticks		Crimean-Congo hemorrhagic fever	Virus
		Lyme disease	Bacteria
		Recurrent fever (borreliosis)	Bacteria
		Rickettsioses (e.g. purple fever and Q fever)	Bacteria
		Tick encephalitis	Virus
		Tularemia	Bacteria
Reduviidae or Assassin bugs		Chagas disease (American trypanosomiasis)	Parasite
Tsetse flies		Sleeping sickness (African trypanosomiasis)	Parasite

Source: WHO, on **https://www.who.int/fr/news-room/fact-sheets/detail/vector-borne-diseases**

Table 5.2-6 : *Malaria incidence rate (per 1,000 inhabitants) from 2014 to 2018*

Survey region	2014	2015	2016	2017	2018
Adamawa	93	115	90	123	110
Centre	52	60	86	100	103
East	172	197	159	183	161
Far North	75	75	51	63	85
Littoral	63	64	72	79	75
North	83	79	61	61	77
North-West	61	61	60	75	63
West	66	75	69	73	70
South	46	69	68	77	72
South-West	96	123	111	111	74
Cameroon	**73**	**80**	**76**	**86**	**86**

Source: MINSANTE/PNLP, 2014-2018 annual reports

Table 5.2-7 : *Malaria deaths per 100,000 inhabitants from 2014 to 2018*

Survey region	2014	2015	2016	2017	2018
Adamawa	37	40	21	25	19
Centre	6	4	8	6	5
East	41	27	27	28	20
Far North	43	31	15	18	25
Littoral	6	3	4	7	5
North	40	33	21	25	23
North-West	11	6	6	8	6
West	8	8	7	6	9
South	8	6	10	21	7
South-West	11	7	6	8	13
Cameroon	**20**	**16**	**11**	**13**	**13**

Source: MINSANTE, *2014-2018 annual reports*

Table 5.2-8 : *Reported prevalence of malaria among children under 5*

	2011	2014	2018
Residence			
Douala/Yaounde	23.0	17.9	11.8
Other cities	25.2	22.3	15.2
Residence			
Total urban	24.4	20.7	13.9
Rural	27.1	29.1	16.6
Survey region			
Douala	18.9	16.7	9.5
Yaounde	26.9	19.4	14.1
Adamawa	18.0	23.2	16.4
Centre (excluding Yaounde)	32.1	37.2	23.0
East	19.7	35.5	14.0
Far North	28.9	31.1	17.2
Littoral (excluding Douala)	23.5	23.8	9.9
North	35.0	26.4	12.0
North-West	15.6	16.7	13.2
West	19.6	14.7	17.9
South	27.3	30.5	16.6
South-West	33.0	25.3	15.6
Cameroon	**25.9**	**25.6**	**15.4**

Source: NIS, DHS-MICS(2011), MICS5 (2014), CDHS-V (2011)

Topic 5.2.4: Health problems associated with excessive UV exposure

Solar radiation is essential to life, but it can be extremely dangerous to human health. Too long sun exposure can cause many and various skin reactions.

The solar beam consists of electromagnetic waves that transport energy.

From a health point of view, the important rays are:

- ultraviolet A (UV A)
- ultraviolet B (UV B)
- the visible
- the infrared

The beneficial effects of the sun on the skin

Solar radiation is essential to life because:

- it has an anthracitic action: the UV helps in the synthesis of vitamin D
- it improves diseases such as certain dermatoses
- has an antidepressant action

If the sun can be beneficial for our body, we must also protect ourselves from it, so as not to suffer its inconvenience. Below are some dangers of the sun and some tips to protect yourself (published in the magazine Doctissimo of 03/06/2020).

Health risks from excessive sun exposure

1. **Skin aging**

Through repeated sun exposures, the skin becomes thinner and more sensitive. Wrinkles and brown spots appear. If it is pleasant to enjoy the sun, it is advisable to expose yourself with moderation.

Protect your skin, avoid the hottest hours (12 noon - 4PM) and go in for short and regular exposures.

2. **Sunburns**

Sunburn appears beyond a certain dose of UV B rays received by the skin. This dose depends on the intensity of UV radiation, the duration of exposure and the sensitivity of the individual to the sun. Sunburn is a first degree skin burn.

An exposure of 15 minutes may be enough, if you have incorrectly spread your cream, for example, for sunburn to appear. It can be a first-degree burn if red, or a second-degree burn if blistering. To avoid sunburn, apply a suitable sun cream and reapply every 2 hours. Always make sure you stay hydrated. The less water in your cells, the greater the risk of sunburn. *"Don't forget that the health of your skin is also in the dish: beef liver, eggs, colourful vegetables (carrots, mangos,...) are among the skin's protective foods."* (Dr Alexandra Dalu, doctor graduated from Paris V René Descartes Hôpital Necke).

3. **Insolation or heat stroke**

Intense exposure to the sun, especially when the body is unprepared, can cause the famous potentially dangerous heat stroke in sensitive populations, such as infants and the elderly. It can also affect sportspersons. It manifests as headache, fever, vomiting or diarrhea and can lead to loss of consciousness.

4. **Photosensitizing reactions**

This is an abnormal reaction to solar exposure. Some drugs can cause this type of reaction, such as antibiotics prescribed for urinary tract infections, acne or rosacea, certain anti-inflammatory gels for muscle pain, or even certain essential oils (citrus essences), for example. If you are on treatment, check your medication leaflet.

If you have undergone an aesthetic treatment (peeling) or dermatological laser, be careful not to expose yourself immediately to the sun. Follow your doctor's recommendations scrupulously.

5. Risks to the eyes

- UV can cause serious eye damage to unprotected eyes.
- According to the WHO, 20% of cataracts might be caused by solar exposure;
- More rare, ophthalmic are ocular burns that can occur in the mountains or at the seaside, when the reverberation is particularly intense. If you work outdoors in this type of environment, be especially vigilant;
- Keratitis is inflammation of the cornea also caused by the sun

In general, always protect your eyes with suitable sunglasses that cover enough.

6. Breakouts of pimples

Teenagers appreciate the sun all the more as it tends to decrease their acne problems,... Caution, however, because a "bounce" effect often appears a few weeks after exposure. The positive effect is therefore of short duration.

7. Melasma or pregnancy mask

Melasma mainly affects pregnant women, but not only them. Thus, men may be concerned by these spots that are located on the face, neck, even the neckline. Melasma can also be triggered by hormonal treatment, by taking a birth control pill or by an irritating product that has been previously applied to the face.

8. Light eruption and post-inflammatory pigmentations

Light eruption is a form of allergy that causes red patches and rashes on the skin of the face, neck, neckline and arms. It affects young women with fair skin at the beginning of a solar exposure (in early summer for example) and can last several weeks.

In principle, symptoms decrease over time. Taking beta-carotene-based supplements to prepare the skin for sun is often effective in prevention.

9. Risks of skin cancer

If exposures are too frequent and prolonged, or if there is no suitable sun protection, the risk of skin cancer increases significantly. Skin carcinomas can occur in young adults aged 35 or 40, and melanomas can be more severe.

Childhood sunburn is a significant risk factor. It is therefore particularly recommended that children under the age of 15 protect themselves to avoid any sunburn, for example by wearing a long-sleeved garment. If you have a phototype less than 3 (clear skin), have your beauty spots checked regularly by a dermatologist.

10. More vulnerable hair

If it is beneficial for the growth, the sun also weakens our hair over the exposures by making them dry, dehydrated and brittle. This is especially true if your hair is exposed to pollution, seawater, chlorine in swimming pools and if it is colored or having wicks.

If it is beneficial for the growth, the sun also weakens our hair over the exposures by making them dry, dehydrated and brittle. This is especially true if your hair is exposed to pollution, seawater, chlorine in swimming pools and if it is colored or mechanized.

Remember to moisturize and nourish them with suitable hair masks. By changing the pH of the scalp, the sun can also promote the appearance of dandruff in persons susceptible to this type of problem. Consider

using a sebum regulator or fall arrest shampoo to prevent fall hair loss.

11. Effect on the immune system

Ultraviolet rays, by affecting the skin, can have harmful effects on the immune system. They may induce immune depression leading to susceptibility to certain skin or general infectious diseases.

Protective measures

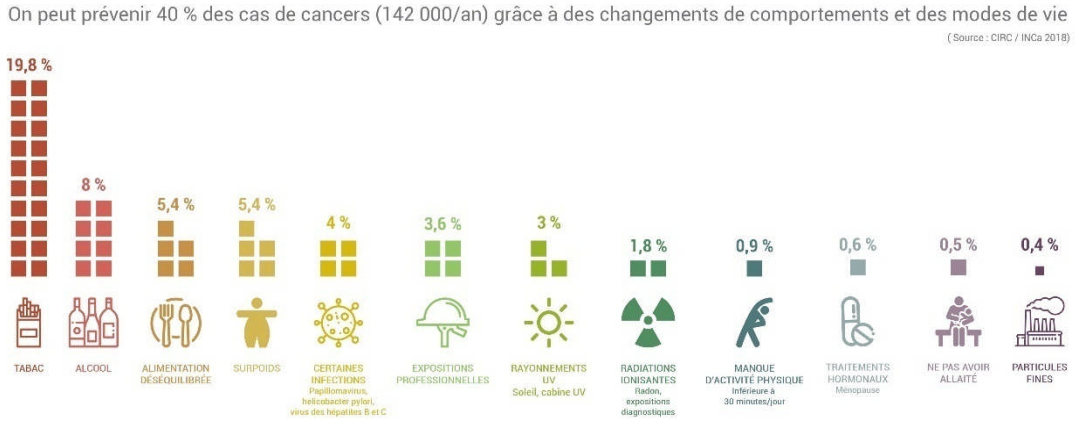
The idea is not to live away from the sun, but instead to avoid sunburns and intense sunbathing. Short, but regular exposures are preferable to more rare but prolonged exposures. Sunglasses, hats and sunscreen are essential for all ages. In cold or rainy season, it is desirable to let the skin rest. It is important to limit children's exposure to the maximum and never expose babies. Finally, make sure to consume enough antioxidants and drink enough water to protect your skin.

Some images on " Health problems associated with excessive UV exposure"

Excessive sun exposure can cause skin cancer (top left); 2) and 3) Different types of cancer caused by excessive sun exposure: melanoma (top right), basal nodular carcinoma on black skin (bottom left) ; 4- Illustrations of good reflexes to protect against UV rays from the sun (bottom right).

Sources: 1- woman at the beach_Kribi, Carrefour Ndokoti INFOS of 20 May/2020; 2- on: https://www.futura-sciences.com/sante/actualites/medecine-ipilimumab-traitement-prometteur-melanome-23990/; 3- Online interactive black skin development at: http://jird.info/wp-content/uploads/2018/01/03.pdf; 4- Ramsay Health

***Figure 5.2-3** : Proportion of cancers linked to major risk factors*



Source: National Cancer Institute of France

***Table 5.2-9 :** Percent distribution of women and men age 15-49 according to whether they were informed or not by a medical doctor or a health care provider that they had Cancer or a tumor and according to whether they are or not on medication, by some background characteristics, Cameroon DHS 2018*

	Women				Men			
Background characteristics	Had never been informed by a doctor or health care provider that they had a cancer or a tumor	Had ever been informed by a doctor or health care provider that they had a cancer or a tumor and:		**Total**	Had never been informed by a doctor or health care provider that they had a cancer or a tumor	Had ever been informed by a doctor or health care provider that they had a cancer or a tumor and:		**Total**
		Taking no meditation	Taking medication			Taking no medication	Taking medication	
Residence								
Yaounde/Douala	99.7	0.3	0.1	**100.0**	99.9	0.1	0.0	**100.0**
Other urban	99.9	0.1	0.1	**100.0**	99.6	0.3	0.1	**100.0**
Total urban	99.8	0.1	0.1	**100.0**	99.7	0.2	0.1	**100.0**
Rural	99.7	0.2	0.1	**100.0**	99.8	0.2	0.1	**100.0**
Region								
Adamawa	100.0	0.0	0.0	**100.0**	99.7	0.3	0.0	**100.0**
Centre (excluding Yaounde)	99.7	0.0	0.3	**100.0**	99.9	0.0	0.1	**100.0**
Douala	99.6	0.3	0.1	**100.0**	100.0	0.0	0.0	**100.0**
East	100.0	0.0	0.0	**100.0**	100.0	0.0	0.0	**100.0**
Far-North	100.0	0.0	0.0	**100.0**	99.4	0.4	0.2	**100.0**
Littoral (excluding Douala)	100.0	0.0	0.0	**100.0**	100.0	0.0	0.0	**100.0**
North	99.6	0.4	0.1	**100.0**	99.7	0.3	0.0	**100.0**
North-West	99.4	0.3	0.3	**100.0**	99.7	0.3	0.0	**100.0**
West	99.9	0.0	0.1	**100.0**	99.4	0.4	0.2	**100.0**
South	99.7	0.2	0.1	**100.0**	99.9	0.1	0.0	**100.0**
South-West	99.9	0.1	0.0	**100.0**	100.0	0.0	0.0	**100.0**
Yaounde	99.7	0.2	0.1	**100.0**	99.9	0.1	0.0	**100.0**
Total15-49	**99.8**	**0.2**	**0.1**	100.0	**99.7**	**0.2**	**0.1**	100.0

Source: CDHS-V (2018)

Table 5.2-10: *Percent distribution of women age 15-49 who ever heard of cervical cancer; percentage who heard about cervical cancer screening test and percentage who were ever tested for cervical cancer; percentage of women age 15-49 tested for cervical cancer screening test according to the date when last tested and the last results; percentage of women age 15-49 whose test result is abnormal/positive and who were treated or who had follow-up visits, by some background characteristics, Cameroon DHS 2018*

Background characteristics	Percentage ever heard of cervical cancer	Percentage ever heard about cervical cancer screening test	Percentage ever did a cervical cancer screening test	Among women who did a cervical cancer screening test							
				Date of last test			Results of the last cervical cancer screening test				
				<1 year	1-3 years	>3 years	Abnormal/ positive	Normal/ Negative	Not clear/ not conclusive	Did not receive results	Does not know
Residence											
Other urban	69.8	45.1	6.6	19.4	46.8	33.8	1.3	96.4	0.0	2.3	0
Total urban	49.2	29.1	3.9	22.7	47.7	29.6	1.6	95.3	1.5	1.1	0.5
Rural	57.9	35.9	5.1	20.9	47.2	31.9	1.4	95.9	0.7	1.7	0.2
Other urban	31.5	17.2	1.4	28.7	41.1	30.2	3.7	88.3	4.6	3.3	0
Region											
Adamawa	16.2	6.8	1.1	*	*	*	*	*	*	*	*
Centre (Excluding Yaounde)	65.9	39.9	1.8	(28.5)	(51.2)	(20.3)	0.0	(93.6)	(6.4)	0	0
Douala	70.2	43.6	7.5	21.8	47.4	30.8	2.2	96.2	0.0	1.6	0
East	45.4	33.5	3.0	(23.5)	(42.7)	(33.8)	(1.8)	(98.2)	0	0	0
Far-North	7.8	3.1	0.1	*	*	*	*	*	*	*	*
Littoral (Excluding Douala)	49.9	31.7	3.3	(25.2)	(43.8)	(31.0)	(4)	(96)	0	0	0
North	26.3	14.5	0.5	*	*	*	*	*	*	*	*
North-West	41.8	21.6	9.3	34.9	36.0	29.0	2.5	93.7	1.2	2.6	0
West	66.2	37.5	4.5	15.9	52.1	32.0	2.6	94.5	0	2.8	0
South	45.8	19.3	1.6	*	*	*	*	*	*	*	*
South-West	50.8	32.0	5.4	*	*	*	*	*	*	*	*
Yaounde	69.3	46.8	5.6	16.0	45.9	38.2	0	96.8	0	3.2	0
Total15-49	46.1	27.5	3.5	22.3	46.1	31.6	1.9	94.5	1.4	2	0.2

Source: CDHS-V (2018)

Topic 5.2.5: Toxic substance-and nuclear radiation-related diseases and conditions

Smoking and its consequences

The National Institute of Statistics (NIS) and the Ministry of Public Health published in 2014 the report of the Global Adult Tobacco Survey (GATS) – conducted in Cameroon in 2013.

About 1.1 million Cameroonians use tobacco. 6,720,000 people are exposed to secondary tobacco smoke. The situation is not without consequences for the well-being of the populations. Smoking, whether active or passive, exposes to the risks of serious diseases.

The main effects among adults are an increase of about 25% in the risk of ischemic heart disease and lung cancer. Children's exposure to tobacco smoke increases the risk of sudden infant death, respiratory infections, ear infections and asthma, according to the *Coalition Camerounaise Contre le Tabac (C3T).*

There has been clear scientific evidence that passive smoking is the cause of death, disease and disability, and is dangerous, particularly for unborn children and infants. It can cause or worsen respiratory problems in people who inhale smoke.

According to C3T, when one inhales cigarette smoke, he is exposed to a cocktail of 4000 chemicals of which more than 250 are harmful and about fifty carcinogenic. Below is an overview:

- Benzopyrene (very carcinogenic mutagen)
- Vinyl chloride (used in plastics, reduces libido)
- Mercury (highly toxic)
- Hydrocyanic acid (used in gas chambers)
- Ammonia (detergent)
- Acetaldehyde (respiratory irritant)
- Acrolein (respiratory irritant)
- Acetone (solvent)
- Naphthylamine (carcinogenic, probably involved in bladder cancer)
- Acrolein (respiratory irritant)
- Methanol (rocket fuel)
- Nicotine (used as a herbicide and insecticide)
- Cadmium (used in batteries)
- Carbon monoxide (fatal at a certain dose)
- Urethane (carcinogenic)
- Toluene (industrial solvent)
- Arsenic (violent poison)
- Dibenzacridine (very toxic, carcinogenic)
- Phenol (highly irritating, used to kill prisoners during World War II)
- Butane (respiratory irritant)
- Polonium-210 (dangerous radioactive element containing poison)
- Tar (most carcinogenic)
- Lead (prohibited in Super as toxic)

On average, tobacco use leads to a decrease in:

- 2 to 3 years for 10 cigarettes per day
- 5 to 7 years for 20 cigarettes per day
- 8 to 10 years for 40 cigarettes per day

The main diseases directly related to tobacco consumption

- Cancers of the trachea, bronchus and lung, also known as bronchial cancers
- Chronic bronchitis and obstructive pulmonary disease
- Cancers of the lips, Buccal cavity and pharynx, esophagus, and larynx.

Tobacco also remains a very important risk factor for a large number of diseases: stomach cancer, bladder cancer, cervical cancer, cardiovascular disease, increased probability of sudden infant death for

pregnant smokers. For example, there is a worrying increase in lung cancer among smokers. Finally, ophthalmologists attest that nicotine is:

- a factor responsible for decreased central vision
- a source of early cataract
- a cause of glaucoma

Harmful chemical substances

As part of the implementation of the framework legislation on the Environment adopted in 1996, the Cameroonian authorities have issued an Order regulating harmful and/or dangerous substances. This text prohibits the production, import, transit and movement on national territory of some 20 substances listed in the Stockholm Convention on Persistent Organic Pollutants. This text prohibits the production, import, transit and movement on national territory of some 20 substances listed in the Stockholm Convention on Persistent Organic Pollutants. The decree also submits the holding, marketing and conditioning of some pesticides subject to a prior authorization of the Minister in charge for the Environment. To obtain them, they must be found not dangerous for health and the environment. Substances must be stored in appropriate locations to limit their dispersion in the atmosphere, waters and other receiving environments.

Skin depigmentation

Products used for skin depigmentation are presented in the form of creams, gels, body milks or soaps. They are applied all over the body alone or in combination, once or several times a day, most often for years. The French National Agency for the Safety of Medicinal Products and Health Products (ANSM) has issued an alert since 2011 to inform the public that these products expose users to health risks. In most cases, these are skin diseases (infections, acne, stretch marks, atrophy, pigmentation disorders, etc.). These practices can also lead to an increased risk of diabetes and high blood pressure, kidney and neurological complications. Finally, it exposes the child to toxic risks if used by pregnant or nursing women.

In Cameroon, the Ministry of Public Health signed a decision in August 2022, aimed at banning depigmentation products widely used by women, constantly in search of an ever clearer skin. The import, manufacture and distribution of cosmetics and personal hygiene products containing hydroquinone and its derivatives, mercury and its derivatives, and corticosteroids, which are very dangerous to health, are henceforth prohibited. Their advertisement and marketing are also prohibited.

Artificial skin depigmentation is commonly called "Ndjansang". The practice has spread so much that it is becoming increasingly difficult to meet a black woman on the street. Some men are also doing it (Koaci magazine of August 20, 2022).

Ionising radiation

There are two types of effects from ionizing radiation on the body:

- short-term effects, known as deterministic or tissue reactions, directly related to cell lesions and for which a threshold of onset has been defined. They usually occur a few days to a few weeks after exposure;
- long-term and random (or stochastic) effects: cancers and genetic abnormalities. They usually occur several years after exposure.

Some images of "Toxic substance - and nuclear radiation-related diseases and conditions"

1-image of skin that has been depigmented using paint strippers (top left; 2- image illustrating x-ray exposure that may be a potential cancer risk (top right); 3-Young CHICHA smokers in snack-bars in Yaoundé despite the government's ban on this type of cigarette in February 2022 (bottom left); 4-Photo of a healthy lung and lung with cigarette cancer (bottom left); illustration of the spread of Covid-19 micro-particles19 airborne (bottom left)???

Sources: 1-Camer press agency du 03/03/2021; 2-FYI Connaissance, online at : https://www.youtube.com/watch?v=o7PDSA4fuwM ; 3- Crtv article : « Chicha, la tueuse silencieuse » du 10/08/2022, online at : https://www.crtv.cm/2022/08/chicha-la-tueuse-silencieuse/; 4-online at : http://unt-ori2.crihan.fr/unspf/Concours/2013_Marseille_Gandoin_Tabac/co/04b_cancers.html .

Table 5.2-11 : *Percentage (%) and number (in thousands) of adults aged 15 or more by detailed smoking status and sex in Cameroon.*

Status of smoking tobacco consumption	Men		Women		Total	
	%	Number in thousands	%	Number in thousands	%	Number in thousands
Current users of smokeless tobacco	11.8	687.6	0.6	37.8	6.0	725.5
Daily consumer	9.1	530.5	0.5	28.4	4.6	558.9
Occasional consumer	2.7	157.1	0.2	9.5	1.4	166.6
Occasional consumer, formerly daily	1.2	72.4	0.0	0.5	0.6	72.8
Occasional consumer, never daily	1.5	84.7	0.1	9.0	0.8	93.7

Source: NIS, GATS 2013

Table 5.2-12 : *Anti-tobacco policies in public places in 2016*

Smoking ban	Yes/No
Health facilities	Oui
Schools (excluding Universities)	Oui
Universities	Oui
Government buildings	No
Offices and workplaces	No
Restaurants	No
Cafés andbars	No
Public transport	No

Source: WHO, Tobacco country profile, 2017

Table 5.2-13 : *Percentage and number of adults aged 15 or more who work indoors and are exposed to tobacco smoke at workplace, by smoking status and some background characteristics – GATS Cameroon, 2013.*

Background characteristics	Adults exposed to tobacco smoke at workplace[1]			
	Total		Non-smokers	
	Percentage (%)	Number in thousands	Percentage (%)	Number in thousands
Total	**19.2**	**382.3**	**17.5**	**330.4**
Sex				
Male	20.9	251.8	18.8	209.1
Female	16.7	130.5	15.7	121.3
Age (years)				
15-24	24.6	95.9	23.3	89.4
25-44	18.2	204.1	16.5	174.2
45-64	14.5	64.1	11.8	48.7
65+	*	*	*	*
Residence				
Urban	19.5	306.0	17.8	263.0
Rural	18.1	76.3	16.7	67.4
Level of education				
No education	26.4	17.2	24.5	15.5
Incomplete primary	42.9	49.6	41.6	44.0
Complete primary	31.5	71.5	31.5	69.2
Incomplete secondary	19.9	182.4	17.5	152.2
Complete secondary	15.6	29.6	15.0	28.2
University	6.6	30.9	4.7	20.3

Source: NIS, GATS 2013

Note :[1] In the last 30 days. Among respondents who work away from home and usually work indoors, or indoors and outdoors.

***** To indicate the removal of estimates based on unweighted numbers below 25.

Table 5.2-14 : *Percentage and number of adults aged 15 years or more, that are exposed to tobacco smoke at home, by smoking status and some background characteristics – GATS Cameroon, 2013.*

Background characteristics	Adults exposed to tobacco smoke at home [1]			
	Total		Non-smokers	
	Percentage (%)	Number in thousands	Percentage (%)	Number in thousands
Total	**15.5**	**1,860.5**	**12.6**	**1,420.4**
Sex				
Male	16.8	973.8	10.8	554.9
Female	14.3	886.7	14.0	865.4
Age (years)				
15-24	13.9	615.4	13.1	569.6
25-44	15.5	756.3	11.4	507.3
45-64	17.5	341.8	12.9	230.0
65+	20.0	147.0	16.3	113.4
Residence				
Urban	8.2	494.1	6.4	363.5
Rural	22.8	1,366.5	19.0	1,056.8
Level of education				
No education	13.1	362.9	11.0	291.0
Incomplete primary	21.0	435.9	15.8	301.7
Complete primary	24.0	302.7	19.2	219.6
Incomplete secondary	14.5	665.2	12.2	533.4
Complete secondary	9.3	35.0	8.2	29.3
University	6.4	58.8	5.3	45.3

Source: NIS, GATS 2013

Note :[1] Adults who reported that smoking inside their home occurs daily, weekly or monthly.

Table 5.2-15 : *Percentage of adults age 15 years or more who have been exposed to tobacco smoke in various public places in the past 30 days by smoking status (smoker) according to some background characteristics – GATS Cameroon, 2013.*

	Adults exposed to tobacco smoke[1] in …				
Background characteristics	**Administrative offices/buildings**	**Private workplaces**	**Health facilities**	**Schools**	**Universities**
Total	**2.8**	**5.7**	**2.0**	**2.3**	**0.9**
Sex					
Male	4.4	7.7	1.9	2.2	1.5
Female	1.3	3.8	2.1	2.5	0.4
Age (years)					
15-24	3.0	4.2	1.2	3.6	1.5
25-44	2.7	6.6	2.3	1.8	0.7
45-64	3.2	7.6	3.2	1.7	0.6
65+	1.5	3.5	1.8	0.2	0.0
Residence					
Urban	3.6	7.1	2.0	2.9	1.7
Rural	1.9	4.3	2.0	1.7	0.1
Level of education					
No education	0.9	1.5	1.7	0.4	0.1
Incomplete primary	1.5	2.6	1.7	0.8	0.1
Complete primary	1.9	9.2	1.4	1.5	0.0
Incomplete secondary	3.5	6.9	2.3	4.6	0.7
Complete secondary	5.6	6.8	2.8	4.3	0.9
University	7.7	13.5	2.3	0.9	8.1
Non-smokers	**2.8**	**5.5**	**2.0**	**2.3**	**0.9**
Sex					
Male	4.6	7.5	1.9	2.1	1.4
Female	1.3	3.8	2.1	2.5	0.4
Age (years)					
15-24	2.9	4.2	1.2	3.7	1.3
25-44	2.7	6.2	2.4	1.7	0.7
45-64	3.5	7.5	3.2	1.7	0.6
65+	1.5	3.7	1.9	0.0	0.0
Residence					
Urban	3.6	6.8	2.0	2.8	1.6
Rural	2.0	4.2	2.1	1.9	0.1
Level of education					
No education	0.9	1.6	1.7	0.4	0.1
Incomplete primary	1.7	2.8	1.8	0.8	0.1
Complete primary	1.6	9.0	1.6	1.5	0.0
Incomplete secondary	3.4	6.4	2.3	4.8	0.7
Complete secondary	5.9	7.2	3.0	1.4	1.0
University	8.1	13.5	2.5	1.0	7.3

Source: NIS, GATS 2013

Note :[1] Among all adults in the last 30 days.

Table 5.2-16 : *(continuation) Percentage of adults age15 years or more who have been exposed to tobacco smoke in various public places in the past 30 days by smoking status (smokers) according to some background characteristics – GATS Cameroon.*

	Adults exposed to tobacco smoke[1] in…				
Background characteristics	**Restaurants**	**Bars, night clubs**	**Café or tea house**	**Public transport**	**At least one public place**
Total	**8.7**	**30.8**	**4.2**	**12.9**	**43.0**
Sex					
Male	12.9	40.7	6.5	15.3	53.5
Female	4.8	21.4	2.1	10.8	33.2
Age (years)					
15-24	10.6	28.7	4.6	12.5	42.8
25-44	8.8	34.0	4.6	14.8	46.2
45-64	6.6	32.9	3.0	12.6	43.3
65+	2.4	16.1	2.0	4.6	21.7
Residence					
Urban	12.3	39.6	5.5	17.1	54.4
Rural	5.1	21.9	2.9	8.8	31.5
Level of education					
No education	2.4	5.1	0.7	4.3	12.8
Incomplete primary	4.2	20.6	2.4	6.7	30.3
Complete primary	8.3	41.2	3.8	14.7	51.9
Incomplete secondary	11.5	41.4	5.4	18.2	56.8
Complete secondary	16.9	46.3	7.8	18.4	60.7
University	21.1	57.0	12.0	21.9	73.2
Non-smokers	*8.6*	*28.9*	*4.0*	*12.5*	*41.5*
Sex					
Male	13.2	38.1	6.2	14.6	51.6
Female	4.8	21.3	2.1	10.8	33.1
Age (years)					
15-24	10.5	27.7	4.3	12.0	42.0
25-44	8.5	31.7	4.4	14.3	44.3
45-64	6.7	30.2	2.9	12.1	41.2
65+	2.3	15.4	2.0	4.9	21.1
Residence					
Urban	11.8	37.6	5.1	16.3	52.8
Rural	5.3	20.0	2.8	8.6	29.9
Level of education					
No education	2.4	4.9	0.5	4.3	12.6
Incomplete primary	4.4	18.4	2.5	6.8	28.3
Complete primary	8.5	38.2	3.8	14.4	49.5
Incomplete secondary	11.3	39.4	5.1	17.9	55.3
Complete secondary	14.2	43.8	4.9	15.7	59.0
University	21.5	54.6	11.9	19.7	71.5

Source: NIS, GATS 2013

Note: [1] Among all adults in the last 30 days.

Table 5.2-17 : *Percentage of adults, aged 15 years or more, who visited various public places in the past 30 days and who were exposed to tobacco smoke, by smoking status (smoker), according to some background characteristics-GATS Cameroon, 2013.*

	Adults exposed to tobacco smoke[1] in…				
Background characteristics	**Administrative offices/buildings**	**Private Work place**	**Health facilities**	**Schools**	**Universities**
Total	**12.8**	**22.3**	**5.3**	**7.0**	**17.2**
Sex					
Male	15.1	23.6	5.7	6.2	21.4
Female	8.6	20.3	5.0	7.8	10.6
Age (years)					
15-24	13.9	20.6	3.6	7.8	19.9
25-44	11.3	21.2	5.5	6.0	14.5
45-64	12.5	26.0	8.1	6.7	*
65+	*	42.5	5.6	*	*
Residence					
Urban	11.8	21.5	4.6	7.2	17.2
Rural	15.3	23.8	6.3	6.7	*
Level of education					
No education	26.9	37.3	6.4	7.2	*
Incomplete primary	21.3	18.1	5.5	3.9	*
Complete primary	10.7	25.5	3.3	4.2	*
Incomplete secondary	12.2	21.8	5.6	8.6	19.6
Complete secondary	9.8	13.6	5.2	8.9	*
University	11.2	22.7	4.5	2.2	19.4
Non-smokers	**12.9**	**22.1**	**5.3**	**6.8**	**16.3**
Sex					
Male	15.5	23.5	5.6	5.8	20.4
Female	8.6	20.2	5.0	7.8	10.6
Age (years)					
15-24	13.7	20.8	3.6	7.9	17.7
25-44	11.2	20.5	5.5	5.4	14.9
45-64	13.6	26.2	7.8	6.7	*
65+	*	46.8	5.8	*	*
Residence					
Urban	11.9	21.2	4.4	6.8	16.2
Rural	15.1	23.9	6.4	6.9	*
Level of education					
No education	27.2	39.0	6.0	6.9	*
Incomplete primary	22.3	20.0	5.4	3.8	*
Complete primary	8.5	24.6	3.5	4.0	*
Incomplete secondary	12.1	20.9	5.5	8.8	20.6
Complete secondary	10.6	14.7	5.2	3.0	*
University	12.0	22.8	4.7	2.3	17.0

Source: NIS, GATS 2013

Note :[1]Among all adults in the last 30 days.

* To indicate the removal of estimates based on unweighted numbers below 25.

Table 5.2-18 : *(continuation) Percentage of adults aged 15 years or more, who visited various public places in the past 30 days and who were exposed to tobacco smoke by smoking status according to some selected background characteristics – GATS Cameroon, 2013*

Background characteristics	Adults exposed to tobacco smoke[1] in…			
	Restaurants	Bars, night clubs	Café or tea house	Public transport
Total	*31.9*	*84.8*	*25.6*	*22.9*
Sex				
Male	32.8	88.1	27.3	26.2
Female	29.8	79.5	21.6	19.6
Age (years)				
15-24	35.6	84.4	25.1	22.7
25-44	29.6	85.4	25.5	24.9
45-64	27.7	84.5	25.7	21.2
65+	*	83.3	*	11.0
Residence				
Urban	33.6	86.4	24.1	23.9
Rural	28.4	82.1	28.9	21.1
Level of education				
No education	27.9	73.5	14.2	16.1
Incomplete primary	29.0	81.0	28.4	14.7
Complete primary	26.1	87.7	22.6	22.2
Incomplete secondary	33.7	85.3	23.7	26.2
Complete secondary	31.9	81.4	32.8	22.7
University	34.1	88.6	35.0	26.7
Non-smokers	*32.0*	*83.6*	*24.4*	*22.2*
Sex				
Male	33.0	86.8	25.8	25.3
Female	29.9	79.3	21.6	19.6
Age (years)				
15-24	35.5	83.8	23.9	22.0
25-44	29.6	83.9	24.5	24.4
45-64	28.2	82.6	23.9	20.4
65+	*	82.3	*	11.6
Residence				
Urban	33.3	85.4	22.7	23.0
Rural	29.4	80.4	28.5	20.9
Level of education				
No education	27.7	72.3	10.3	16.1
Incomplete primary	31.8	78.8	28.7	14.7
Complete primary	26.6	86.0	22.1	21.6
Incomplete secondary	33.5	84.3	23.0	25.9
Complete secondary	27.9	80.2	22.7	19.5
University	35.1	87.7	34.8	24.2

Source: NIS, GATS 2013

Note :[1]Among all adults in the last 30 days.

* To indicate the removal of estimates based on unweighted numbers below 25.

APPENDICES

Glossary

Highways: They are roads designed and built exclusively for motor traffic. They do not service riparian properties and consist, for two (02) directions of traffic, of distinct roadways separated from each other by an uncirculated median or exceptionally by other means. They do not cross roads, highways, railways, trams or pedestrian roads. They are specially marked and reserved for certain categories of road motor vehicles.

Solid fuel :a solid-state flammable material that is used as a source of thermal energy by combustion. Households generally use solid fuels for cooking. The solid fuels identified are coal or lignite, charcoal, wood, wood chips/sawdust, bark and wood residues, straw, branches, grass, agricultural residues and dung.

Urban stratum in the strict sense and rural stratum in the broad sense in NIS' surveys. The main objective of this stratification is to reduce sampling errors. In a stratified sample, the sampling error depends on the variance of the population within strata but not between strata. It is therefore useful to create strata with low internal variability or important homogeneity. In order to have relatively homogeneous strata with regard to the phenomenon of poverty, the NIS distinguishes three strata: urban strata comprising cities of at least 50,000 inhabitants, semi-urban strata that include cities of 10,000 to less than 50,000 and rural strata that include small communities of less than 10,000. So, in all NIS publications, the urban corresponds to the urban stratum in the strict sense as defined above and the rural area according to NIS corresponds to the rural stratum in the strict sense (i.e., agglomerations with a population of less than 50,000).

Consumption per adult-equivalent: Total nominal expenditure on all goods and services including the value of own consumption divided by an equivalence scale to take into account the differences in household composition (household size, age and sex of members).

Coverage with diarrhea oral rehydration salts: This coverage is estimated by the percentage of children below 5 years who had diarrhea during the past two weeks and who received ORS (fluids prepared from ORS sachets or preconditioned ORS drink) with zinc supplement. This information comes from the DHS and MICS surveys carried out in Cameroon.

Intermittent preventive treatment coverage of malaria during pregnancy: This is the percentage of women who received at least three doses of intermittent preventive treatment during prenatal consultations during their last pregnancy.

Care demands for pneumonia symptoms: This is the percentage of children below 5 years who are suspected of pneumonia (cough and breathing difficulties not caused by a blocked nose or chest problem) who were taken to a competent health provider within the two weeks before the survey. As a matter of fact, Accute Respiratory Infections symptoms include short and rapid breathing associated with chest congestion problems and/or breathing difficulties associated with chest congestion problems.

Population density: Average population size per square kilometre (inhabitants/km2);

Poverty Incidence (or poverty rate): Ratio of the number of individuals living below the poverty line over the total population

Malaria incidence per 1,000 inhabitants (SDG 3.3.3): This is the number of new confirmed reported malaria cases per 1,000 inhabitants per year. This indicator corresponds to SDG 3.3.3. This information comes from the National Malaria Control Programme annual reports.

Airborne disease is a disease caused by pathogens transmitted in the air through small particles with time and at a distance. These diseases are numerous and of considerable importance in both human and veterinary medicine.

Final material (finished/developed/improved) of walls (coating): Main material used (cement, limestone, cement, clay bricks, cement bricks, covered adobe (cement), wood planks elaborated for the construction of walls.

Final material (finished/developed/improved) of the floor: main material (parquet or waxed wood, tile, cement, carpet) used for the floor construction of dwellings effectively occupied by a household.

Final material (finished/developed/improved) of the roof: Main roof material (aluminium, zinc), wood, tile, cement used to cover the roof of the dwelling effectively occupied by the household.

Monetary poverty: It is the situation of an individual (or household) living in a household whose income or money consumption is below the poverty line retained.

Demographic weight: Proportion of population living in part of a territory;

Rural population: population living in the rural area. The rural area is all villages (by opposition to cities).

Urban population: Population living in an urban area. The urban area is all the cities that correspond to any group of dwellings that meets at least one of the following two criteria: (i) to be the head quarter of a Subdivision, Division or Region; (ii) to have an agglomerated population of at least 5,000 inhabitants and to have the following infrastructures: a secondary or post-primary school; health structure, functional water and electricity distribution facilities, a daily market.

Precarious housing: A habitat is considered precarious if one of the following criteria is checked: (i) If the housing is considered non-lasting. A dwelling is non-lasting if: (a) the floor of the house is in earth or sand and the house is in poor condition, or b) it is vulnerable to accidents (if there are tight passages between houses (instead of roads/streets) with many electrical and or high voltage cables connected to the nearest substation), or c) it is located in risk areas (nearly four or more hazardous locations: landslide area, flood zone, river edge, steep hillside, pile of garbage, industrially polluted area, railway, power plant, air bridge); (ii) If the dwelling does not have security (not a valid document (lease, contract, title deed), or when household members feel at risk of being evicted from the dwelling); (iii) If the dwelling is considered overcrowded, when there are more than three persons per room used for sleeping.(iv) If there is no improved source of water in the dwelling (Tap in Dwelling/compound, Public Tap/Fountain, Pump Well/sinking well, Protected Well, Protected Water Source, Rainwater, Mineral Water and Bottled Water);(v) If the accommodation does not have improved sanitary facilities (flush/manual flush connected to a sewer system, flush/manual flush connected to a septic tank, flush/manual flush connected to a toilet, improved self-ventilated toilet pit, toilet pits with slab).

Prevalence of tobacco use among people aged 15 years or more, by age - SDG 3.a1: This is the prevalence of current tobacco consumption among people aged 15 or more by age. “Smoking tobacco products” include the consumption of cigarettes, bidis, cigars, cheroots, pipes, chicha (hookah, or water pipe), fine-cut smoking objects (rolling tobacco), krekets, and any other form of smoking tobacco. This information comes from the Global Adult Tobacco Survey conducted in Cameroon in 2013 (GATS) and the 2014 MICS survey.

Reported prevalence of malaria among children under 5 years: The percentage of children under 5 years who had fever within the 2 weeks preceding the interview is an indirect measure of the malaria diagnostic test. Fever, which is the most common symptom of malaria, is the most reliable basic criterion for the diagnosis, treatment and monitoring of malaria. As a matter of fact, the biological diagnosis of malaria is based on the detection of plasmodium using a Rapid Diagnostic Test (TDR) or microscope on a drop and/or a blood smear. Data presented are from Demographic and Health Surveys (DHS) and Multiple Indicator Cluster Surveys (MICS).

Improved sanitary facilities not shared: An improved sanitary facility is a non-shared sanitary facility that prevents users from being in touch with human waste or excreta. In the NIS surveys, it is measured by the availability of improved sanitary facilities (flushed toilets, fitted latrines) in the dwellings and the fact that it is not shared with other households.

Dwellings with final materials: dwellings with main wall, roof and floor materials simultaneously in final materials and the total population.

Solid fuels for cooking: A solid fuel is a solid-state flammable material that is used as a source of thermal energy by combustion. Households generally use solid fuels for cooking. The solid fuels identified are coal or lignite, charcoal, wood, straw, branches, grass, agricultural residues and dung. Cooking and heating using solid fuels lead to high levels of indoor smoke containing a complex mixture of pollutants harmful to health. The main problem with the use of solid fuels is their incomplete burning, which produces toxic elements such as carbon monoxide, polycyclic aromatic hydrocarbons, and sulphur dioxide (SO2), among others. The use of solid fuels increases the risk of contracting acute respiratory illness, pneumonia, chronic obstructive pulmonary disease, cancer, and possibly tuberculosis, asthma, or cataracts and contributes to low birth weight of babies born to pregnant women exposed to smoke. The main indicator for monitoring the use of solid fuels is the proportion of the population using solid fuels as the main source of household energy for cooking. The presence and extent of indoor pollution is dependent on cooking practices, cooking locations, and the types of fuels used.

Improved Drinking Water Source: An improved water source is a source that, by the nature of its construction, protects satisfactorily water from external contamination, especially from fecal matter. Examples include: piped water supplying the home; public water terminal/fountain; sinking well; protected dug well; protected spring; rainwater tank. **In Cameroon, an improved drinking water source is considered to be any source of supply from the SNEC/CAMWATER/CDE which represent the public water distribution companies, to these sources are also added water from the sinking well, protected well, protected springs, rainwater and mineral water.**

Decent sanitary facilities: these are the facilities including flushed toilets or fitted latrines.

Potable Drinking Water Source: According to WHO: (i) Drinking water means water used for domestic purposes, drinking, cooking and personal hygiene; (ii) access to drinking water means that the source is located less than one kilometre from the place of its use and that it is possible to obtain regularly at least 20 litres of water per inhabitant per day; (iii) drinking water is water with microbial, chemical and physical characteristics that meet WHO guidelines or national drinking water quality standards; (iv) Access to drinking water is indicated by the proportion of persons who use improved drinking water sources: home connection; public drinking taps; boreholes; protected wells; protected sources; rainwater**. In Cameroon, a potable drinking water source is considered to be any source of supply from SNEC, CAMWATER, CDE which represent the public water distribution companies, this category also includes mineral water.**

Disinfection of the dwelling: Disinfection of the dwelling is usually performed by the hygiene service. It consists of a treatment to eliminate rodents, microbes, insects (mosquitoes, cockroaches) and other harmful parasites from the dwelling.

Road Network: It is the set of land roads allowing transport by road vehicles, and in particular, motor vehicles (cars, motorcycles, coaches, trucks...). According to the presidential decree of 20 April 2017 on road nomenclature, the roads of the national network are classified into four categories: motorways, national roads, regional roads and municipal roads.

Municipal roads: they are all other public roads of a municipality, in urban or rural areas, notably those serving villages and neighbourhoods, plantations, economic and agricultural activity areas, factories, administrative centres and residential areas.

National roads: they are (i) the main roads that connect the Capital city to the Regional Capital Cities, or that provide communication with neighbouring countries (ii) the roads affected by international traffic that cross Cameroon (iii) the roads servicing major economic or strategic centres of national importance.

Regional roads: are referred to as regional roads and classified in this category a) roads of regional importance which (i) connect the Divisional Capital Citiesto one another, to the Regional Capital City, or to the network of national roads (ii) within a region connect several Divisional Capital Cities, (iii) connect one region to another through a Divisional Capital City (iv) service economic or strategic poles of regional importance b) roads of local importance which (i) in a Division connect the Capital Cities of administrative unit one to another or to the Divisional Capital City, and to the networks of national or regional roads. (ii) also allow for connection between regions when they connect national or regional roads to one another, without crossing a Divisional Capital City throughout and (iii) within the Division, service economic poles of divisional importance.

Monetary poverty line: It is a level of the wealth status indicator that determines whether a household is poor (if its wealth status indicator is below the line) or non-poor (if the contrary). It is designed to allow people who are classified as non-poor to meet their basic needs (food and non-food). It is estimated in 2014 at 339,715 CFA francs per adult equivalent per year.

Urbanization rate: This is the percentage of the population living in urban areas (defined according to the national criteria applied in the last population census). This indicator shows the concentration of populations in cities.

Use of insecticide-treated nets: This use is appreciated by the percentage of the population in malaria endemic areas that slept under an insecticide-treated net the previous night. This information comes from 2011 DHS survey, 2014 MICS5 survey and 2018 CDHS.

Coastal areas: The interface where land meets the sea, containing both coastal environments like adjacent coastal waters. Its components may include deltas, coastal plains, marshes, beaches and dunes, reefs, mangrove forests, lagoons, fjords and other coastal features. A coastal area can be defined as an area of activity rather than an area bounded by boundaries. It refers to a densely populated area of economic importance at the land-water interface.

Human settlements include all urban and rural agglomerations, the infrastructure and facilities they must have in order to ensure their inhabitants a pleasant environment and a healthy, harmonious and balanced existence.

They are territorial entities of undetermined size or not, including at least one permanent or temporary dwelling site of a community. Synonyms: human settlement, locality, or populated area.

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