MINISTRY OF HOUSING, URBAN PLANNING, ECOLOGY AND SUSTAINABLE DEVELOPMENT

SECOND NATIONAL COMMUNICATION OF GABON ON CLIMATE CHANGE

UNDER THE UNITED NATION CONVENTION FRAMEWORK ON CLIMATE CHANGE
SUBMITTED IN NOVEMBER 2011 IN DURBAN AT COP 17

MINISTRY OF HOUSING, URBAN PLANNING, ECOLOGY AND SUSTAINABLE DEVELOPMENT

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National circumstances

Gabon is a small country in central Africa:

- **crossed by the equator;**
- **covers 267.667 km², population according 2003 census is 1. 5 millions, GDP = 3000 dollars per inhabitant;**
- **the type of climate is equatorial, hot and humide;**
- **presents two big ecological formations: forest an d Savannah;**
- **Out of 26,8 millions hectares of aire, 20 millions are classified in forests and savannah (around 75% of superficy) and the remaining part is dedicated to the agriculture**
- **The coastline is around 850 kms;**
- **Maritime facade is associated with numerous waterways of 10.000 km2;**
- **Economy of the country relies mostly on oil, mining and timber**

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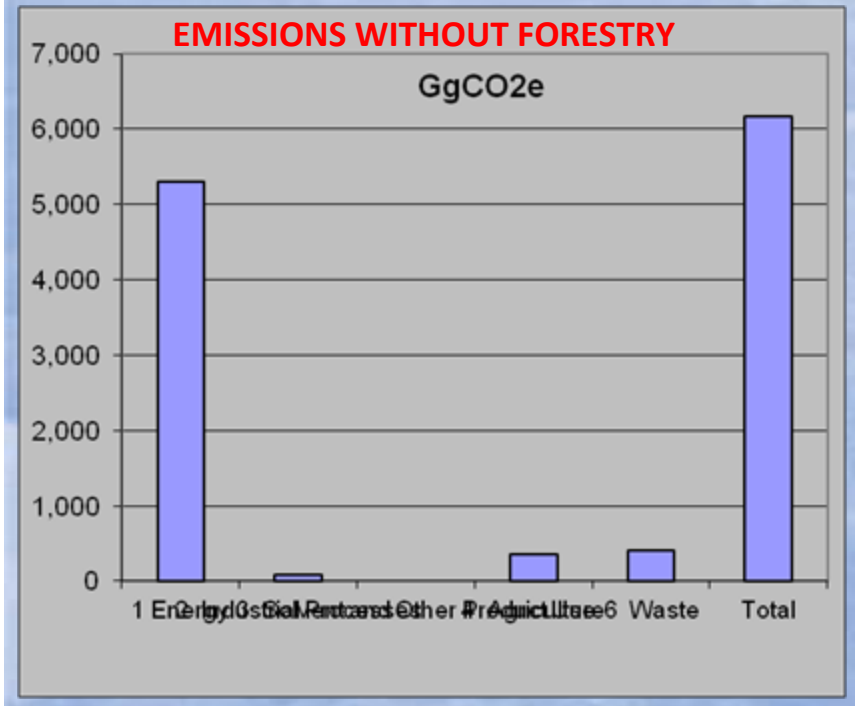
Greenhouse Gas Inventory

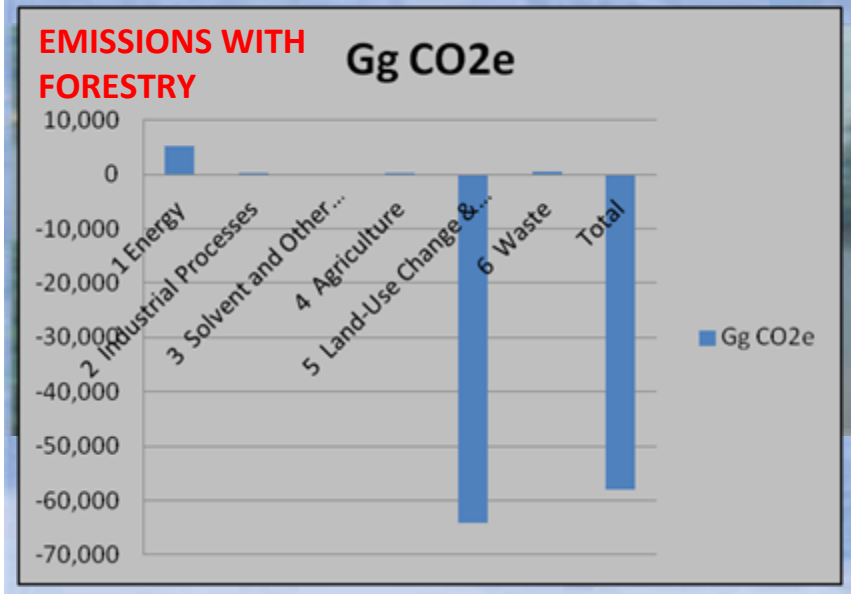
- **Reference year: 2000**
- **Gases involved were :**
  - **CO2, CH4, NO2 ;**
  - **NOX, CO, COVNM;**
  - **SO2 was also given.**

- **However, because of the lack of data, HFC, PFC and SF6 were not estimated.**

- **This inventory was carried out for the Energy, Forestry, Agriculture, Waste and Industrial Process sectors using revised 1996 IPCC Guidelines**

KEY OUTCOMES OF GHG INVENTORY





- These results hide a reality on the basis of emissions in Gabon, in fact the forest sector emits more, even if it absorbs the overall gas emission of the country;
- Energy sector represents approximately half of forest sector gas emission.

This graph shows:

- in general, the huge potential of Gabon in terms of absorption;
- all emissions are absorbed;
- Gabon has absorbed, in 2000 via its forest, 57 992 Gg CO_2e

	Gg CO2e				
	CO_2 Emissions	CO_2 Removals	CH_4	N_2O	Total
1 Energy	5 065	0	211	25	5 301
2 Industrial Processes	90	0	0	0	90
3 Solvent and Other Product Use	0	0	0	0	0
4 Agriculture	0	0	124	239	363
5 Land-Use Change & Forestry	10 536	-74 767	70	7	-64 154
6 Waste	2	0	376	29	408
Total	15 693	-74 767	780	301	-57 992

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Vulnerability and Adaptation study: case of Mandji Island

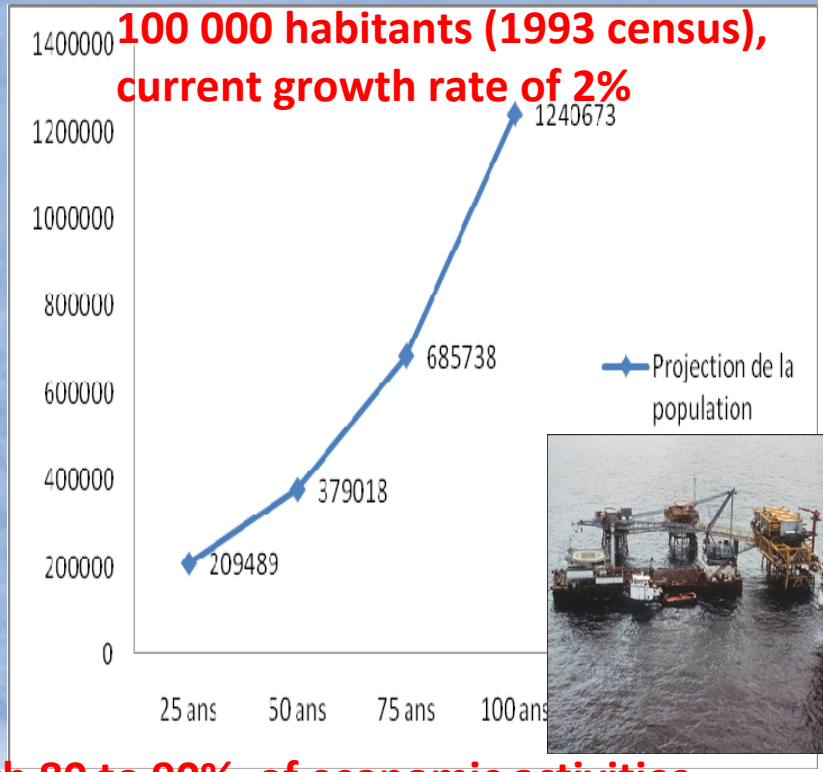
Sectors taken into account for the study: Health, Water resources, Agriculture, and Coastal zone.

Choice of the study zone

Physical aspects

Social and economic aspects

100 000 habitants (1993 census), current growth rate of 2%



Economic town with 80 to 90% of economic activities.

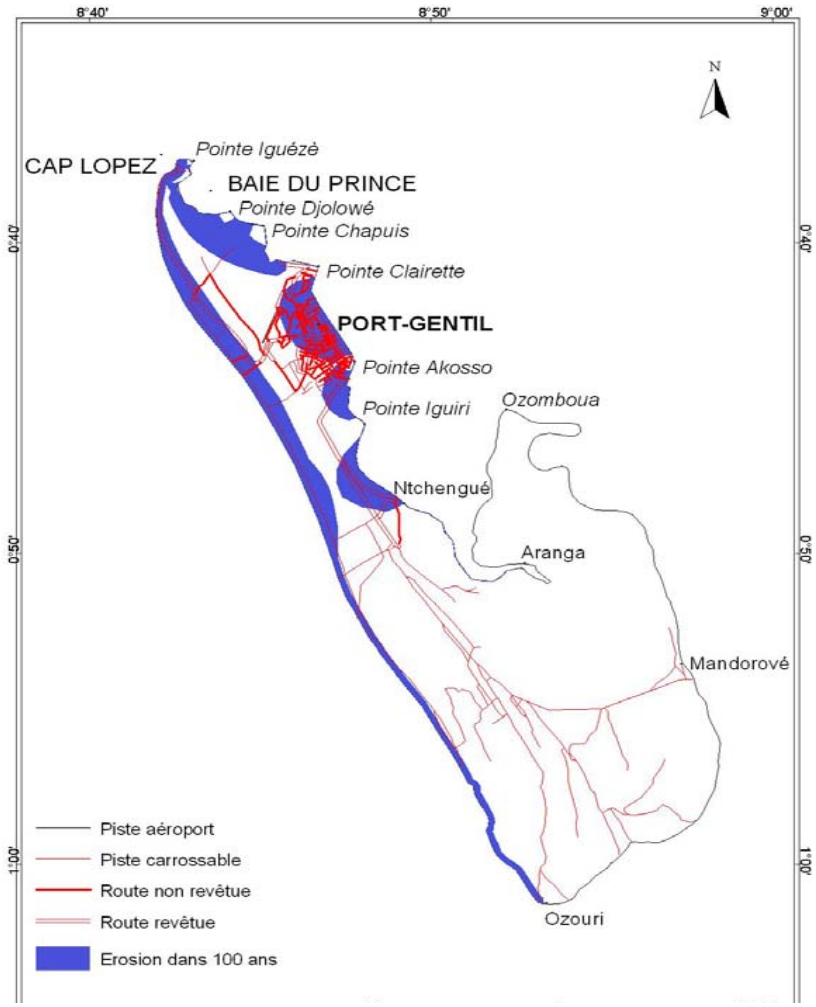
KEY OUTCOMES OF VULNERABILITY

BIO PHYSIC CONSEQUENCES / *Vulnerability and exposure to coastal erosion*

Since 1960 in cape Lopez, the sea has gained almost 230 meters.

Approximatly **4,60 m/year**

The current measures of the field show an increase of the phenomenon on the entire territory, with extreams attending 20 to 30 meters during the high tides.



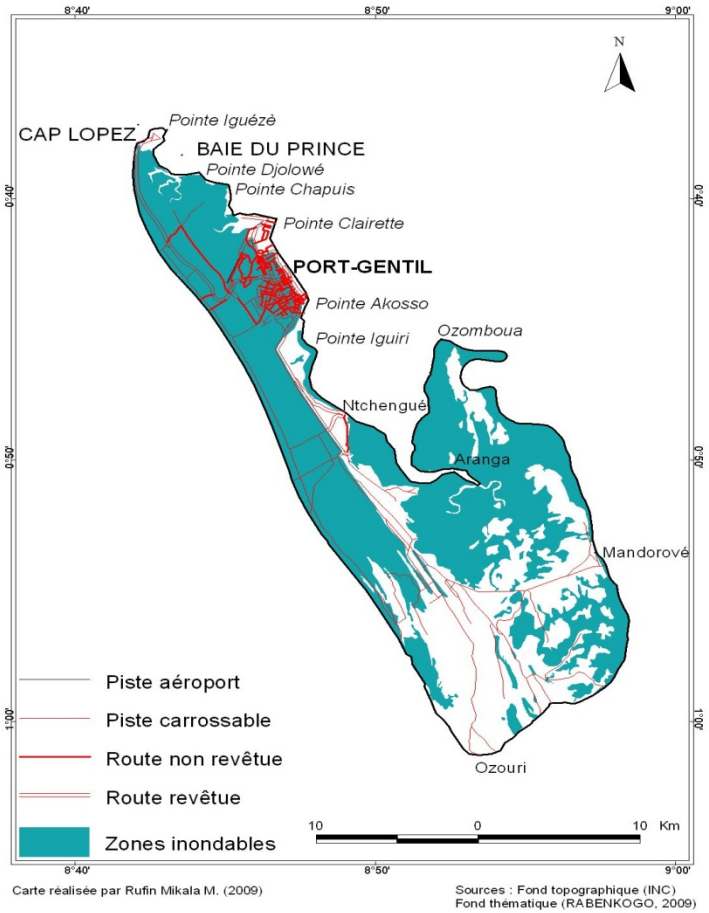
Vulnerability Analyse

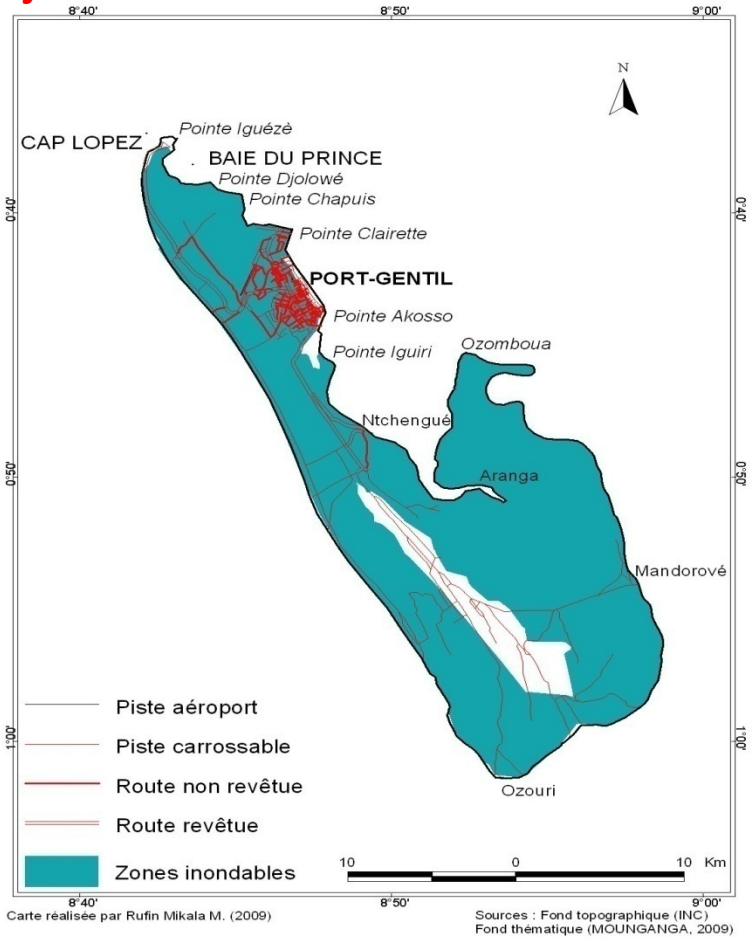
KEY OUTCOMES OF VULNERABILITY

BIO PHYSIQUES CONSEQUENCES / Vulnerability and exposure to flood

Mandji Island : 442 km². flooding zones : 282 km², almost 64% of the total area of the

In **2100, 90% or 400 km², will be subject to flood**

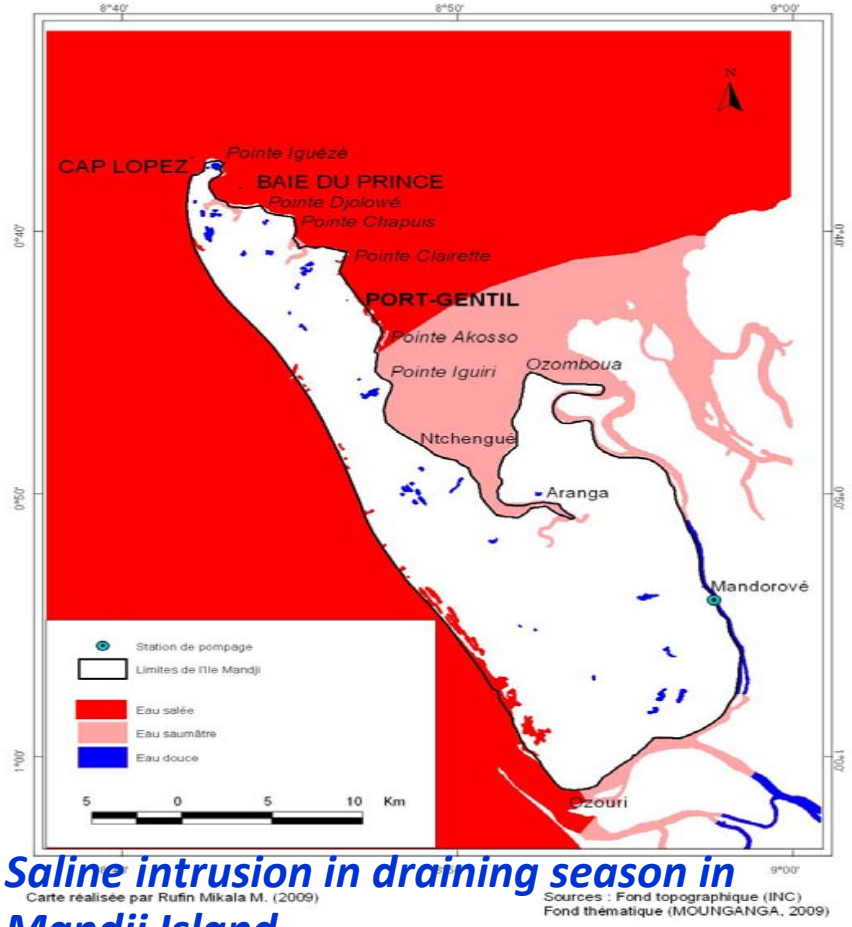




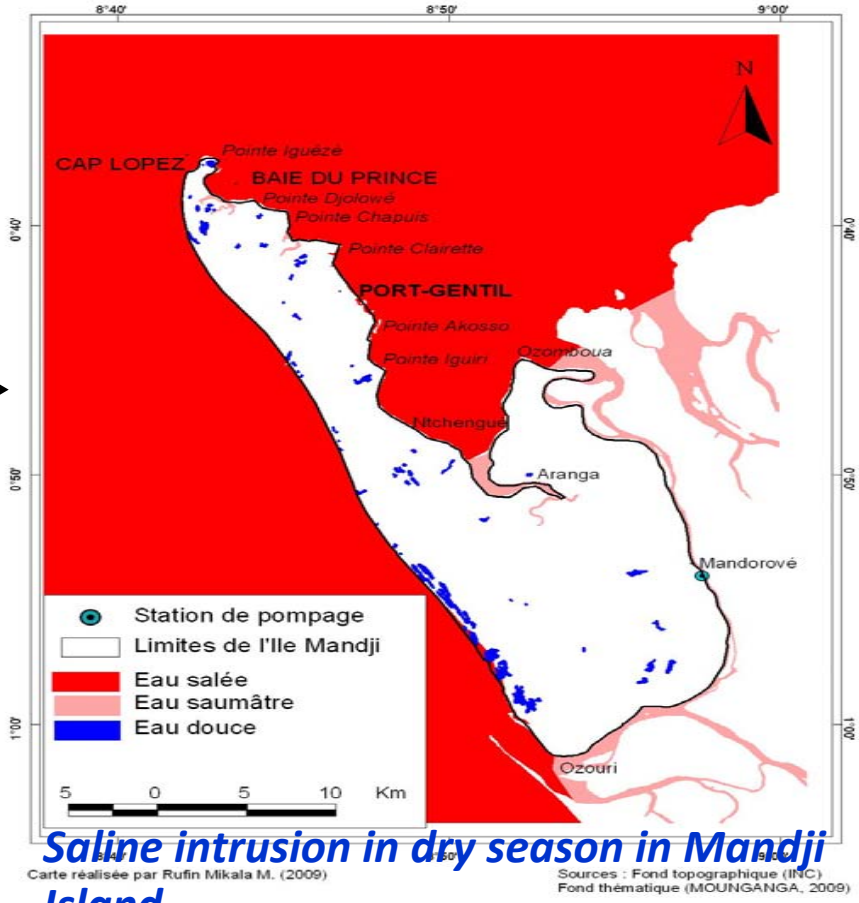
KEY OUTCOMES OF VULNERABILITY

BIO PHYSIC CONSEQUENCES / *Vulnerability to water salt*

In draining season, saline intrusion is about 5 km from the station



Saline intrusion in draining season in Mandji Island



Saline intrusion in dry season in Mandji Island

KEY OUTCOMES OF VULNERABILITY

BIO PHYSIC CONSEQUENCES / Vulnerability to decrease of biological resources

Loss in biodivesty

- **ish population**
- **coastal habitats habitats serving as nurseries like mangroves.**
- **Etc..**

KEY OUTCOMES OF VULNERABILITY

SOCIAL AND ECONOMIC CONSEQUENCES / Consequences on population health

Contamination of water resources, and creation of gites of proliferation deseases vectors like malaria, Chikungunya or Dengue.

KEY OUTCOMES OF VULNERABILITY

Social and economics consequences / consequences on fishing sector

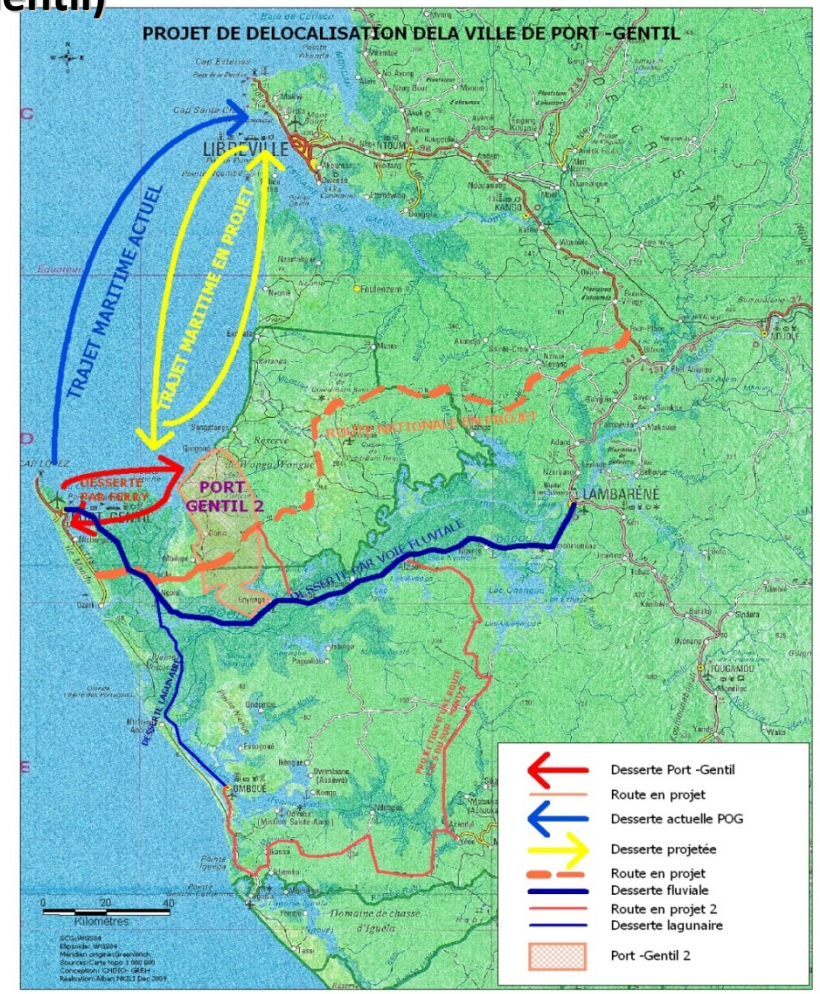
- Loss of the habitats of fish;
- Modification of distribution of species due to change in temperature;
- Communities : instability of means of living, decrease of the amount of fish for living, risk of security

KEY OUTCOMES OF ADAPTATION

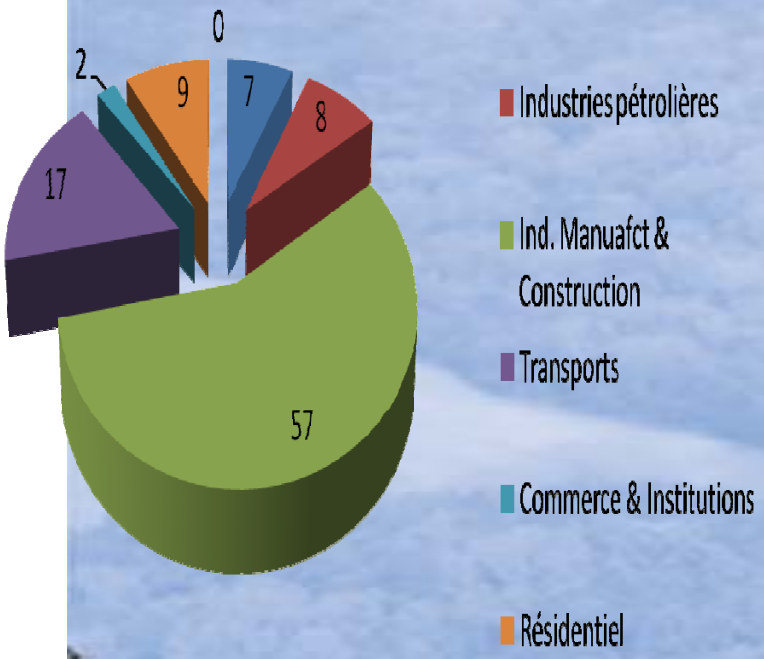
Adaptation plan

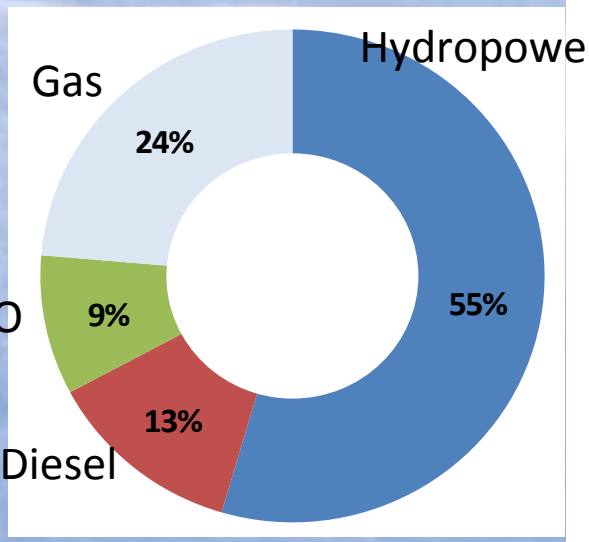
- Coastal erosion and marine submersion management;
- Flood management by discharge of river water and the rise of the water table;
- Management of saline intrusion;
- Social dynamics;
- Policy and institutions.

Long term perspective (Relocation of Port Gentil)



Mitigation measures in the energy sector





Energy demand in 2008

Type of combustible	Power supply (MW)	Energy demande (GWh)	Combustible consumption
Hydropower	170	894	
Gas	84	388	13 202 820 m^3
Gasol	83	207	57 203 100 l
Heavy Fioul	33	149	28 069 800 m^3

Mitigation measures in the energy sector

CO2 EMISSION SUMMARY BETWEEN 2000 & 2008	
CO2 EMISSION (T) 2000-2008	3 964 256
ANNUAL MEAN OF EMISSION 2000-2008	440 473
EXPECTED CO2 EMISSION (T) 2009-2030	9 690 404

Scenario of mitigation in line with the Ali Bongo Ondimba society project « Gabon Emergent » is the construction of six hydropower infrastructures of 744 MW up to 2020;

Barrages Dam	Région	Année de mise en service Year of commisionning								
		2012	2013	2014	2015	2016	2017	2018	2019	2020
Grand Poubara	DRE	120	+ 50		+ 50					
Fe II	DRI				32					
Dibwangui	DRI				10					
Chutes de l'Impératrice	DIE					47	+ 46			
Ngoulmendjim	DIE					50	+ 40			
Booué	DRI							300		

Mitigation measures in the energy sector

CO2 EMISSIONS AVOIDED FROM 2020

Thermal power	Diesel (en l)	Production in Kwh	CO2 emission avoided (T)/an	Economie Financière /an	Emission avoided 2020-2030	Financial economics 2020-2030 (*1000 fcfa)
Bitam	1 921 900	581 000	553	903 293	8 848	14 452 688
Minvoul	328 900	1 010 000	961	154 583	15 376	2 473 328
Mitzic	931 200	3 160 000	3005	437 664	48 080	7 002 624
Bifoun	131 800	400 000	380	61 946	6 080	991 136
Fougamou	807 600	2 570 000	2444	379 572	39 104	6 073 152
Makokou	2170900	6 870 000	6533	1 020 323	104 528	16 325 168
Mayumba	814 200	2 460 000	6533	382 674	104 528	6 122 784
Lambaréné	4 430 000	17 740 000	2339	2 082 100	37 424	33 313 600
Oyem	6 789 000	21 290 000	20 247	3 190 830	323 952	51 053 280
TOTAL	**18 325 500**	**56 081 000**	**42 995**	**8 612 985**	**687 920**	**137 807 760**

Key challenges

- ❖Lack of reliable database;
- ❖incomplete time series;
- ❖low disaggregation in some industries;
- ❖the absence of emission factors and local conversion;
- ❖ shortness of vulnerability analyzes;
- ❖ uncertainties in climate model results;
- ❖ the limits of statistical methods for long-term projections of natural and socio-economic;
- ❖Poor mobilization of financial resources

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Key challenges

- limited experience in the use of models;
- weakness in the analysis of economic and social costs of damage;
- adaptation analyzes do not incorporate the evaluation of current policies and measures;
- weakness in the economic analysis of adaptation options.

Lessons learnt and / or innovation and best practices

- Need to develop national emission factors mainly in the forest sector;
- Need to improvement of the building of the energy balance;
- Need to carry out the inventory or collect all needed data in all sectors in the annual basis;
- Need to put in place an permanent institution for the GHG inventory