

# TOGO

## 1. INTRODUCTION

Togo is a country of West Africa, located on the coast of the Gulf of Guinea, between 6<sup>th</sup> and 11<sup>th</sup> of Northern latitude and 0° and 2° longitude. It is limited to the West by Ghana, in the East by the Republic of Benin, in North by Burkina Faso and the South by the Atlantic Ocean. Togo has a surface of 56.600 km<sup>2</sup> and a total population estimated at four (4) millions inhabitants.

It is a country of mountains which take it in scarf in the shape of a chain of the South - West in the North-East and plains. Three large basins divide the togolese territory: the basin of Oti with its affluents in the North which covers 26.700 km<sup>2</sup>, either 47,3 % of the country ; the basin of Mono in one -third of the central of the East with 21.330 km<sup>2</sup> or 37,5 % and the coastal basin of 8.000 km<sup>2</sup> or 14,3 %.

The climate of Togo is of tropical type soudanian in North with one dry season and a rainy season, and guinean type in the South characterized by two seasons of rain which alternate with two dry seasons.

The temperature varies between 18° and 33°; precipitations lie between 800 and 1650 mm a year.

The primary, secondary and tertiary sectors contributed respectively in 1999 for approximately 41,0 %, 21,1 % and 37,9 % with the GDP.

The poverty which touched 30 % of the population towards the end of 1980 quickly increased and reaches today 70 %.

## 2. STATE OF SEARCH ON OZONE

According to our investigation, it revealed that it does not exist in Togo neither measurements and follow-up nor on ozone or the ultraviolet ones. The faculty of science of University of Lomé (Département de Chimie Atmosphérique), does not have laboratory in this direction. In the same way, the Persons in charge of the National Service of the weather affirm to have installed a station in Kouma-Konda (South-Western of the country), but which is provided only for traditional statement concerning rainfall, direction and intensity of the wind, the temperature and atmospheric pressure

However, within the framework of the setting of the UN Convention on the Climatic Changes, IPCC Methodology allowed to know the precursors of ozone in stratosphere. That is the carbonmonoxide (CO), the oxidesnitrogen (Nox) and the organic compounds nonmethane birds (COVNM).

The year 1995, is the basic year in Togo for gases inventory purpose of greenhouses and precursors of ozone.



### 3. INVENTORY OF THE PRECURSORS OF OZONE

#### Emission of carbon monoxide (CO)

The CO emissions are the second source of GES in absolute value, without taking into account the values of potentials of total various gases, for a total of 716,59 Gg. These emissions come from three great activities sectors which are Energy 350,68 Gg (49 %), Agriculture 240,26 Gg (33,5 %) and Affectation of the Grounds and Forestry 125,65 Gg (17,5 %) cf fg

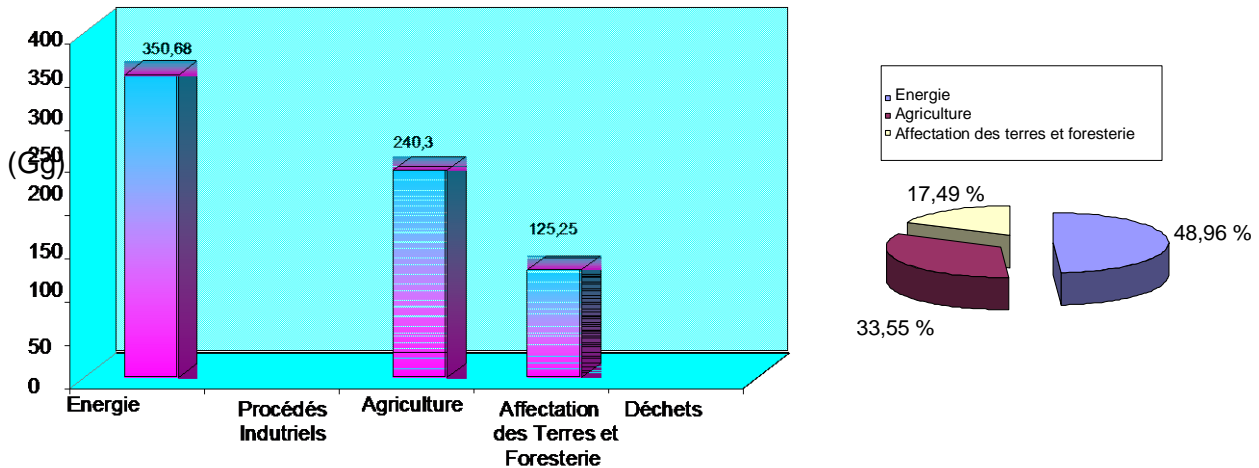


Figure 1: Emissions de CO en 1995, par secteur et en pourcentage.

#### Emission of oxidenitrogen (NOx)

The total emissions of NOx in Togo come in 5<sup>th</sup> position for an estimate from 18,94 Gg, value rather low which does not take account of national realities. The sectors of Energy, Agriculture and affectation of the Grounds and Forestry are the most significant sources with respectively 10,44 Gg; 4,92 Gg and 3,58 Gg cf fig 2.

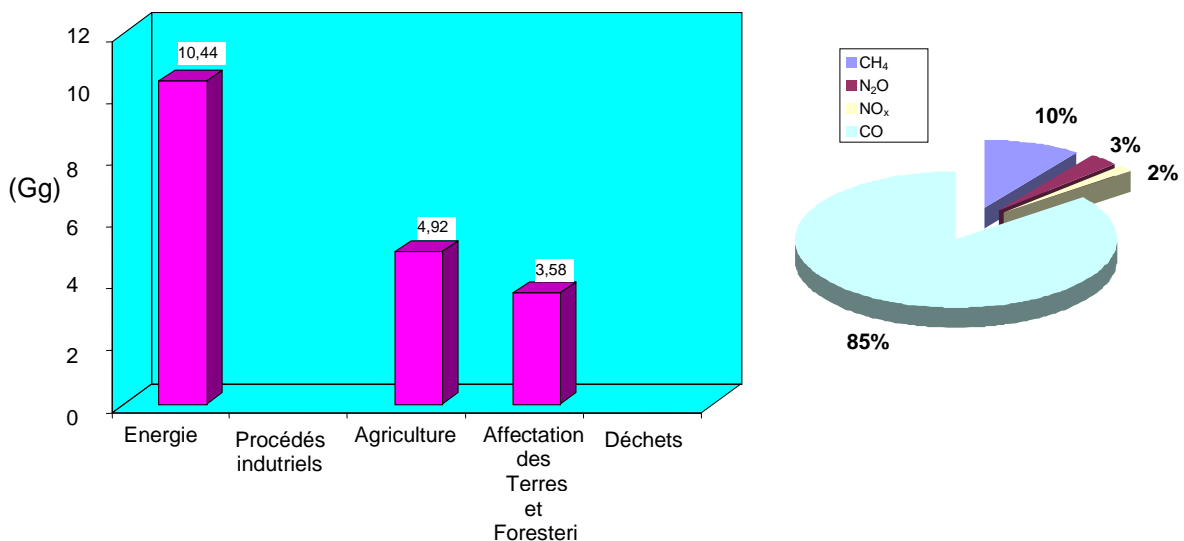


Figure 2 : Emission des oxydes d'azote en 1995

### Emission of organic compounds nonmethane birds (COVNM)

The principal contributions on the whole of the nonmethane emissions of organic compounds volatile (COVNM) come mainly from the Energy sector with 32,35 Gg and 6,94 Gg for under sectors Residence-Craft industry and Transport respectively the share of the processes Industrial are only of 0,24 Gg. Lack of data on the solvent has not allowed to estimate emissions of this sector which should largely exceed those of the sector energy. (cf fig 3),

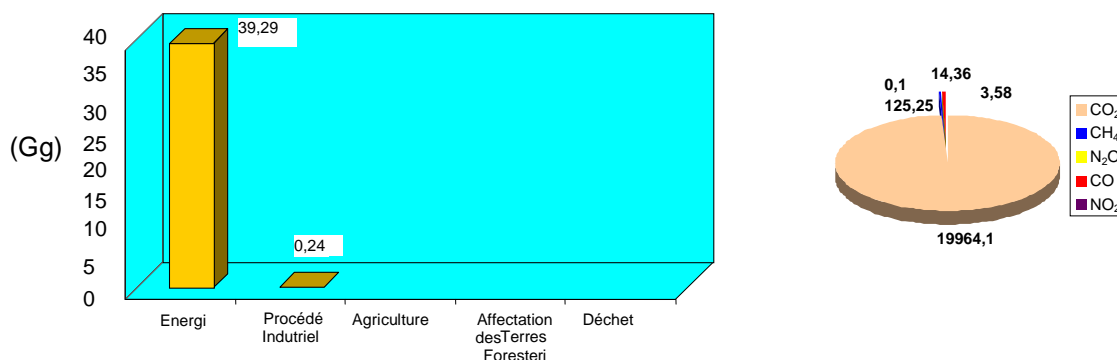


Figure 3 : Emissions de COVNM en 1995.

#### 4. IMPACT OF THESE GASES ON THE LOCAL CLIMATE

The precursors of ozone being gases for purpose of greenhouse, it is obvious that the contribute to the warming of the local or regional climate, which can cause the reduction of rainfall and increase dry seasons.

#### 5. CONCLUSION

It is essential for the Government to set up a national unit of search on ozone and to reinforce the capacity of measurement and of follow-up of station of Kouma-Konda and to create other stations which must be necessary fit out with some suitable tools.

Creation a powerful laboratory for atmospheric studies purpose is more imperative than any requirement as the same as a high level training program, which can offer to the future researchers required competences. The success of this program and the search lies in a technical and financial support to the Togolese Government by the World Meteorology Organisation (WMO), the Francophony and other traditional financial Backers of Togo.

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