



REPÚBLICA DA GUINÉ-BISSAU

Presidência do Conselho de Ministros

O MINISTRO

N/Refª 94-A/GMP/05

Bissau, 28/02/05

Exmª Senhora

Secretária Executiva da Convenção-Quadro das Nações Unidas sobre as Mudanças Climáticas

Bona - Alemanha

Assunto: Carta de Adopção da Primeira Comunicação Nacional da Guiné-Bissau à COP da CQNUMC

(Conar.)

UNFCCC		No. 1578	
Date: - 1. DEZ. 2005			
Prog.	Actn	Info	IPR
ES/EDM		✓	
COOP.			
ICA			
IMP	✓		
MIS			
SD			
AS			
CAS			
IS			
Libray		✓	
Subj.		Initial	
		National	

Como é do conhecimento da Instituição que V. Exª dirige, a Guiné-Bissau é parte signatária da Convenção-Quadro das Nações Unidas sobre as Mudanças Climáticas desde Junho de 1992, aquando da "Cimeira da Terra", que então teve lugar no Rio de Janeiro.

Considerando o disposto nos artigos 4º e 12º da aludida Convenção-Quadro, o Governo da Guiné-Bissau, reunido extraordinariamente em Conselho de Ministros a 17 de Janeiro transacto, e na sequência da exposição sobre a Primeira Comunicação Nacional feita pela equipa técnica que a elaborou, tenho o prazer de comunicar a V. Exª que o nosso Governo decidiu adoptá-la como instrumento de trabalho, a nível interno, tendo recomendado a sua divulgação, pelos meios adequados, à Comunidade Internacional.

Apresento a V. Exª os meus melhores cumprimentos.



O Ministro,

Filomeno Lobo de Pina



REPÚBLICA DA GUINÉ-BISSAU

Presidência do Conselho de Ministros

O MINISTRO

Translated from the original Portuguese's letter

N/Refª 94 - A/GMP/005

Bissau, 28/02/005

His Excellency Mrs  
United Nations Framework Climate Change Convention Secretary

Bona - Alemanha

Object: Guinea-Bissau's Adoption Letter .

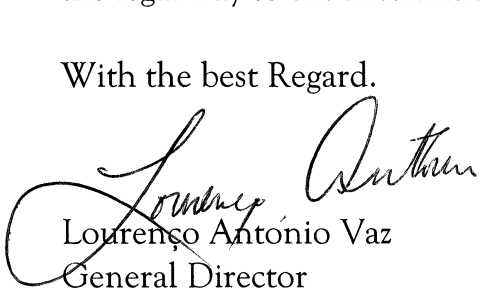
Dear Colleague,

My compliments.

Since June 1992, on the Earth Summit which had been holden in Rio de Janeiro , for your knowledge, Guinea-Bissau is being the signatory Part of the UNFCCC.

Regarding the articles 4<sup>th</sup> and 12<sup>th</sup> of the UNFCCC , the Guinea-Bissau's Government through the Ministers' Conceal held an extraordinary meeting on the 17<sup>th</sup> January 2005, and according with the First National Communication elaborated by a National Technical Team, I have the pleasure to inform his Excellency that our Government has decided to adopt the document in the reference as an internal tool for guideline, recommending his publication by the legal way to the International Community.

With the best Regard.

  
Lourenço António Vaz  
General Director





# **Comunicação Nacional Inicial da Guiné-Bissau sobre as Mudanças Climáticas**

*Initial National Communication  
of Guinea Bissau about climatic changes*

*Communication Nationale Initiale de la Guinée Bissau  
sur les changements climatiques*



**Executive Summary of Guinea-Bissau's Initial National  
Communication to the Signing Parts of the United Nations'  
Convention on Climatic Changes**

**September 2004**

## **Executive Summary**

The Guinea-Bissau's Initial National Communications on Climatic Changes inserts on the application of the articles 4<sup>th</sup> and 12<sup>th</sup> of the United Nations' Framework Convention on Climatic Changes (UNCCC) signed during the Rio de Janeiro Summit in 1992, and also from the resolutions 10/CP2 and 12/CP8 of the Conference of the Parts. The Initial National Communication is a result of a study process done in four phases: (i) the inventory of the greenhouse effect of gases; (ii) The vulnerability and adaptation; (iii) the attenuation/mitigation; (iv) the qualitative analyses on socio-economical impacts of the climatic changes.

The first phase aimed on the forests, agriculture, industry, solid and energetic residues sectors, while the second had as objectives the following sectors, detailed by their sub sectors: (i) primary sector with the agriculture sub sectors (forest, animal husbandry and fisheries); (ii) the secondary sector encompassing the sub sectors of water, energy and industry; (iii) the tertiary with a particular emphasis on tourism sub sector; (iv) the natural ecosystems' sectors with emphasis on coastal zone, taking into consideration the ecological and economical importance of this zone; (v) a transversal sector (the socio-economical) encompassing the health, sanitization and food security.

The third phase encompassing agriculture, forest and energy, followed by a macro-economical analyses of the attenuation/mitigation measures of the studied sectors.

The fourth and last phase, the qualitative study on socio-economical impacts of the climatic changes.

The year of 1994 was chosen as the reference year for the determination of the basic situation, and a methodological process was applied for each phase, nominally the definitions of the climatic and socio-economical scenarios, with modeling on the MAGIC/SCENGEN's modulation developed by East Anglia University (Wigley and Rapper, 1987). At the end of each of the

phases, their reports were nationally validated in technical seminars that took place in different localities of the country.

According to COP's resolution concerning the structure of a National Communication, the National Communication is composed by 7 chapters (parts).

The first chapter deals with the analyses of the national situation, nominally the physical, biological and socio-economical contexts; the second with the priorities for development as related to climatic changes and the institutional framework; the third with the national inventory of the greenhouse effect of gases; the fourth with the general description of the vulnerability and adaptation measures and their articulations with national policies and plans; the fifth with the attenuation/mitigation, and the macro-economical analyses of the options attenuation/mitigation; the sixth is geared towards pertinent informations such as technology transfer, research and systematic observations, education, training and capacity strengthening; finally, the seventh deals with the socio-economical impacts of the climatic changes in Guinea-Bissau.

Guinea-Bissau: the country submitting its first National Communication on Climatic Changes has a surface of 36 125 Km<sup>2</sup>. Located in West Africa, it's limited to the North by Senegal, to the East and South by the Republic of Guinea, and to the West by the Atlantic Ocean.

The main geographical coordinates of the country are: latitudes North 12° 20' (Cabo Roxo) and 10° 59' (Ponta Cagete); the meridians 13° 38' and 16° 43' West, with the extreme maximum in latitudes of 193 Km and 330 Km in longitude.

The country is divided into a continental and an insular zone, the last constituted by the Bijagós Archipelago that includes a string of islands such as the Jeta, Pecixe, Areias, Caiar, Como and Melo Islands. Eighty-eight islands make up the Bijagós Archipelago, but only 21 of them are populated.

From the bio-geographical standpoint, Guinea-Bissau belongs to the Guinea-Congolese and Sudanese transition Zone. According to Malaisse, the flora Zaire-Guinean in the Cantanhez (Tombali Region, South of the country) and also in Casamance, are the farthest locations of this type of vegetation, present in the coastal zone, while in the East of the territory the Sudanese/Sahelian regime is predominant, giving origin to the Guinean and sub-Guinean humid vegetations' formations, with predominance of the dry and semi-dry thick forests.

The sub-humid forests (deciduous) and the formations of natural palm trees constitute the Sudanese/Sahelian zone where the open forest and the arboreal savannahs are the main vegetations. Concerning the flora, and according to an inventory of existing literature, 1,186 species of plants exist in Guinea-Bissau, grouped in 160 families, 12 of those considered to be endemic to the country.

Concerning the wildlife, it's rich and diversified, with 374 species of birds grouped into 31 families, with prominence for 30 families, being part of the latest, the seagulls and the kingfishers.

The aquatic and marine fauna are influenced by the environmental conditions where they live, marked by estuaries, large mangrove surfaces, shallow waters, and adequate temperatures. The Bijagos Archipelago should be considered a humid zone with international importance, since it's host for over 1% of the entire world population of birds.

The results of the last inventory in Guinea-Bissau points out the existence of 11 species of primates, 21 of carnivores, 19 ungulates, 8 rodents, 10 species of bats, 85 reptiles, and 31 amphibians.

In terms of climate, it coincides with the geographical division of the country. In the coastal zone the climate is humid sub-Guinean, with an average rainfall of 1,200 to 2,500 mm/year. For the

continental zone the climate is of Sudanese type, with an average rainfall of 1,000 – 1,500 mm/year. The average annual temperature is 26.8 C, with weak thermic amplitude (3-4 C). The warmest period of the year is from March to May, with temperatures reaching maximal values of 32-39 C, being the cooler period December –February, with maximal temperatures of 25-30 C and minimum of 16-20 C. The average relative humidity is 70%.

Concerning the socio-economical context, the population of the country is estimated to be 1,181.641, with a birthrate of 2.3%/year, and 64.7% of that population lives bellow poverty levels, 20.8% of those under extreme poverty (with less than 1US\$/day), this according to DENARP, as extracted from the Rapid Appraisal on Poverty (2003). 70% of the population is rural, having as their main socio-economical activities the exploitation of **non-renewable** ? natural resources (agriculture, fisheries, forests, animal husbandry and extraction of natural products). 80% of the population lives in the coastal zones considered to be much richer than the continental zones in terms of biodiversity, and constitutes also headquarter for five protected areas of the country.

The economy of the country is based on the exploitation of the natural resources. The following proves so:

- (i) Agriculture contributes 50% to the GNP, provides 80% of jobs and 90% of the country's exports;
- (ii) Fisheries contributes 3-4% to the GNP (data from 1991 and 1997), with an input of 30% in the national budget;
- (iii) Forest products contributes with 6% to the GNP and 6.2% of the country's exports;
- (iv) The animal husbandry, tourism and other sectors contribute with 17%.



- (v) In spite all the resources, the per capita is 260 US\$/year, owing the country 900 million dollars to foreign creditors (1996), representing the foreign debt a major constraint for the development of one of the poorest countries of the world. Guinea-Bissau is among the less advanced countries (LAD), ranking 172/173 on the Human Development Report (2003) with a human development index below the average in terms of life expectancy, adult literacy, low primary, secondary and university schooling rates, GDP per capita, amongst the elements of reference on human development.

Concerning the analyses of priorities for development in relation to climatic changes and institutional framework, Guinea-Bissau has adopted in the past years various instruments of policy and management for diverse sectors of development, where the priorities of the national development are defined and are related indirectly to the climatic changes, those priorities are also complemented and strengthened by actions defined at the sub-regional and regional framework.

Between those policies and the global and regional strategies, one should mention the National Long Term Prospective Study (NLTPS) with a time-frame to the year 2015, which defines all sectors of the national economy and the alternate different scenarios for the integrated development options (forms) for the government; the National Strategy for Poverty Reduction Document (DENARP) recently drafted and considered to be the support for all development actions and strategic partnerships for the development of Guinea-Bissau, namely for poverty reduction and Good Governance Program (GGP). The different sectors of the national development such as the agrarian, fisheries, tourism, urbanism, health and others, had drafted policies that, if correctly implemented and monitored, will minimize the climatic changes' effects on them.

Still in this chapter, the new tools of the national policies encompassing the problematic of climatic changes have been drafted. Documents such as the National Plan for Environmental Management (NPEM), the National Strategy and Action Plan for Biodiversity (NSAPB), the Decrees instituting protected areas, the Regional Strategy for of Marine Protected Areas of West Africa, and the New Partnership for Africa Development (NEPAD). Concerning the disastrous effects of the climatic changes on the development priorities, the documents above mentioned are considered to have a potential for the minimization of the impacts of the development actions on climatic factors, reason why an attention should be called on the need to ensure the implementation of the foreseen actions state on the main policies' instruments in sectors such as agriculture, forest, animal husbandry, fisheries, management of solid residues, the automobile and industrial parks. Attempt was made to adequate the different legislations to minimize the conflicts between the needs of development and the protection of the environment and the PIP, as above mentioned, as made clear by the preoccupation to integrate the global objectives of development contemplating the impacts on environment in the projects to be selected. On the other hand, it's important not to lose sight that the climatic changes can negatively affect the pursuit of the development objectives.

Nevertheless, if not approached realistically, there are factors susceptible of compromising negatively the aptitude and the possibility of adaptability to climatic changes, factors such as the geographical (coastal and continental vulnerabilities), economical, demographic and climacteric. The institutional framework is approached under the historical point of view and to the framework favourable to the implementation of the CCNUCC.

The National Inventory of gases with the greenhouse effect (GGE) was done according to the 1996's Intergovernmental Panel on Climatic Changes revised resolutions (IPCC).

Calculations for the studies were done for the six main gases: CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, CO, NO<sub>x</sub> and COVNM. The potential values of the Global Warming (GWP) were 1 for the CO<sub>2</sub>, 21 for CH<sub>4</sub> and 310 for the N<sub>2</sub>O, including the direct and indirect radioactive effects of those gases for a temporal horizon of 100 years, according to the Second Evaluation Report of IPEC (1995). In absence of national values scientifically justifiable, all coefficients or emission factors used in the calculations of emissions by sector were taken from the resolutions of IPCC, being the methodology used TIER 1 (values by defect).

In 1994 (year of reference) it was evident that CO<sub>2</sub> emissions represented about 91% of all gas emissions in Guinea-Bissau, and the gas was originated mainly by the energy sector, due to the consumption of liquid fossil carburant (oil derivates), from the forest's biomass (wood and charcoal burning). Meanwhile, it was the agriculture and animal husbandry sectors that registered the largest emissions of CH<sub>4</sub> (93%), N<sub>2</sub>O (100%), CO (98%) and NO<sub>x</sub> (79%), in spite of the insignificancy of the registered values for N<sub>2</sub>O and NO<sub>x</sub>.

For the general description of the measures of vulnerability and adaptability, there was an analysis of the physical-environmental scenarios (between them climatic) and socio-economical and the impacts of climatic changes on the sectors considered to be vulnerable, such as agriculture, forests, animal husbandry, fisheries, water, energy, industry, tourism and the coastal zone.

From the communication it stands out that the vulnerability of Guinea-Bissau in general and of its coastal zone are results of: (1) the origin of the geological and geomorphologic formations and the dynamics of the coastal line; (2) From the concentration of the main biodiversity resources of the country in this zone, resulting in strong demographic pressure on them.

To illustrate the first point, it would be enough to remember that the formations of the coastal line are essentially sedimentary with a weak alluvial dominance of recent deposit of sediments

(quaternary era). This is the case of the coastal deltas and the Bijagós Archipelago, while in the continental zone the geological and geo-morphological formations are more ancient (primary and secondary eras). It's a must to remember that two thirds of Guinea-Bissau's territory is below 50 meters of sea level, which favours coastal erosions, exacerbated by the rising of the temperature and consequently the raising of average sea level.

Once vulnerability was analysed, strategies of adaptation by sector and their articulation with national development policies and plans were defined.

Concerning the part related to attenuation, and for practical reasons due to the usage of mitigation modulations, three sectors were studied: agriculture, forests and energy. Basic scenarios for attenuation were drafted for each option, resulting in definition of the strategies for implementing the mentioned options.

Besides the information's referred in the chapter as "other information's", an effort was made in terms of informations related to the difficulties and inexistence of financial resources, technical means and capabilities needed for implementing the foreseen actions under the communication's framework.

The adaptation measures translated into projects and/or programs within the framework of the present communication will be subject to presentation to COP, followed by sector consultancies and round tables, implicating the Government of Guinea-Bissau and its bilateral and multilateral partners. A list of the projects for financing was also presented, taking into consideration sectors and transversal projects. Sector projects encompass sectors such as the coastal zone, agriculture, forests, water, energy, tourism, meteorology and sanitation. Transversal projects are related with the strengthening of the national capabilities within the different sectors, and the national research program on climatic changes.

The socio-economical analyses of the impacts of the climatic in Guinea-Bissau were done. These are essentially the primary

sector (agriculture, forests, fisheries, and animal husbandry), the water resources and the coastal zone. Identifications were made and were based in the following criteria: a) The importance to the national economy; b) The articulation with the poverty alleviation objectives; c) the typology of the populations per sectors' of activity; d) the environmental resources; e) the existing production systems and exploitation by sector of activity; f) the benefices (for the populations, communities and at national level) coming from the exploitation of the resources by sector of activity; g) the relationship with other sectors.

## **Conclusions from the National Communication**

Data from the GGE's inventory proves that globally Guinea-Bissau is far from being a polluter and emitter of those gases, leading to the conclusion that its share in the global warming is negligible, as long as the socio-economical factors responsible for the emissions are not aggravated, assuming the adoption of measures tending to limit the emissions.

Referring to GGE's emissions, the carbon dioxide (CO<sub>2</sub>) is the leading emitted gas in Guinea-Bissau, with 85.95% of the country emissions, being its main source the energy sector, nominally energy produced from biomass (86.82%-wood and charcoal) and from fossil carburant (13.8%). It's followed by carbon mono-oxide resulted from the animal husbandry and the energy sector, the bush fires and agricultural crop residues' incomplete combustion, the domestic utilization of wood and charcoal, and from the inefficient utilization of fossil carburant in transportations. In term of the others GGE's, methane (CH<sub>4</sub>) produced in greater numbers by the agricultural sector (91.85%), followed by the production of solid residues, being the culprit for the emissions of CH<sub>4</sub> in the agricultural sector the intestinal fermentation of cattle food and the slash and burn methodology for upland rice cultivation. Methane comes also from the solid

residues accumulated in the waste sites and from the more than half of them not deposited in those locations.

A progression on emissions will have a negative impact over the climatic parameters conducting to climatic alterations: the Meteorological Services foresees a decline on rainfall of 11.7%, a raise of temperature of 2% and a raise of the sea level by 50 cm by the year 2100. Based on those projections, and on the climatic scenarios used, the vulnerability of the productive sectors', the natural ecosystem and others were evidenced in relation to climatic changes. In spite of the enormous pressure on the different sectors, one of them - the forests - is the main source of CO<sub>2</sub> fixation, calculated to be 11 288 401 kilotons.

The vulnerability is translated into the followings: (i) in the agricultural fields, the projections when associated to the limits of the crops, leads to the general conclusion that climatic variations do not constitute a big danger for the sector, even though some crops might be affected. The big danger comes from the timely and spatial irregularity of the rainfall distribution; (ii) concerning the forests, besides the risks coming from pressures on forestry resources, the climatic changes will affect the vegetation cover through the degradation of the forests' populations, leading to successive changes on forests' types, emphasizing the sahelization and desertification processes; (iii) for the animal husbandry, the scenario based in the same projections leads to the same conclusion, excepting for the East of the country, where the rainfall diminution will extend the dry season period, and consequently the availability of pasture and water, intensifying thus the changes of places for the herdsmen in search for pasture; (iv) in the fisheries, except for the anthropological pressures, the sector will not incur to great risks up to the 2100's horizon, if we take into consideration the adaptation of the living creatures to a biotic factor induced by climatic variations; (v) the climatic parameter that affects more the water sector (availability) is the diminution of the rainfall. Within the period 1941-1969 the reduction in rainfall went up to 10% in the coastal line and 15% in the interior of the country. This trend affects negatively the

recharging of non-confined superficial aquifers and the contributions of the rivers, favouring salt intrusion.

In the particular case of the coastal zone, the coastal line is vulnerable not only to phenomena like the erosion, salt intrusion, but also to inundations and storms that will occur in the future, as well as to human pressures. The raising of the sea level is a latent problem in the case of Guinea-Bissau due to the representation of its low laying lands. Even below of the 50 cm (strong scenario for the sea level rising in 2100), many countries (amongst them Guinea-Bissau) with important coastal plains, will not be in conditions to protect their sandy coasts.

The consequence of a possible rise of the sea level in the next 100 years, if appropriate measures were not taken, will increase the physical processes (tide energies, tides, currents and sediments' deposition), with considerable impacts, not only on the coastal ecologies and the multiple productions and functional regulations, but also at the level of the biodiversity resources (fishes, crustaceous, shellfishes, vegetations) and the types of usage (tourism and maritime transportations).

The ecosystems; aquatic, continental, marine and estuaries are subject to the impacts of climatic changes: observing the evolution of rainfall for the last 45 years (1954-2000) and the foreseen projections, it becomes clear that if the tendency for diminutions prevails, we'll assist to: (i) a progressive reduction of the rainfall's months, with the consequent increase of the dry season; (ii) the continuous reduction of the hydro resources and the contribution of the hydrographical estimated to be actually 45 billions of cubic meters.

The impacts of the climatic changes on the hydrographical basins and soils will only be felt through the changes of their protecting vegetations, with grave consequences for the soils. For instance, the Boé, the Bafatá's upland and some parts of the country with "predominance" of lithosols and litholic soils will be under the threat of drought, desertification and bowallization of the soils.

In order to favour a better implementation of those actions, aspects such as technology transfer, capability strengthening, information's networking, durability and specialization of the institutions, sub-regional and international cooperation are to be prioritised within the framework of the Climatic Changes Convention. To complete the present national communication, socio-economical analyses of the climatic changes effects on the priority sectors and strategies for adaptation were done, leading to the conclusions of the vulnerability of the rural populations.

The drafting of the present national communication is consequently an important stage that will be followed by the drafting of the National Action Plan of Adaptation (NAPA) and future national communications.



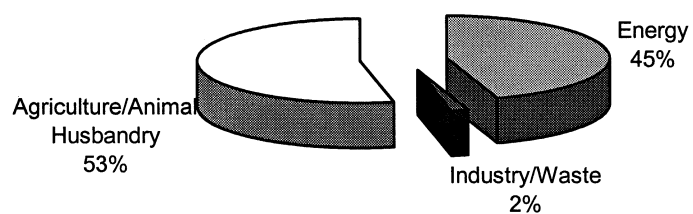
**Table 23 – National Inventory of gas emission with greenhouse effects non-controlled by the Montreal Protocol.**

<b>CATEGORIES OF SOURCES AND SUMIDOUROS ? OS GASES W/ GREENHOUSE EFFECTS</b>	<b>Emissions of CO<sub>2</sub> (Gg)</b>	<b>Sequestrations of CO<sub>2</sub> (Gg)</b>	<b>CH<sub>4</sub> (Gg)</b>	<b>N<sub>2</sub>O (Gg)</b>	<b>CO (Gg)</b>	<b>NO<sub>x</sub> (Gg)</b>	<b>COVNM (Gg)</b>	<b>SO<sub>2</sub> (Gg)</b>
<b>Total of emissions and national sequestrations</b>	<b>1359,88</b>	<b>- 11288401</b>	<b>31,84</b>	<b>2,73</b>	<b>106,32</b>	<b>4,88</b>	<b>0,34</b>	<b>NE</b>
<b>1. Energy</b>	<b>178,58</b>	<b>NO</b>	<b>0,017</b>	<b>0,0032</b>	<b>1,972</b>	<b>1,005</b>	<b>NE</b>	<b>NE</b>
Fossil Fuels (sectorial method)	178,58		0,017	0,0032	1,972	1,005	NE	NE
1. Energetic Industries	NE		0,008	0,002	0,042	0,557	NE	NE
2. Manufacture & Construction Industry.	NE		NE	NE	NE	NE	NE	NE
3. Transports	NE		0,005	0,001	1,921	0,406	NE	NE
4. Other sectors (Agriculture and Fisheries)	NE		0,003	0,0002	0,006	0,028	NE	NE
5. Others (Residential)	NE		0,001	0	0,003	0,014	NE	NE
B. Leaking Emissions of Fuels	NO		NO		NO	NO	NO	NO
1. Solid Fuels			NO		NO	NO	NO	NO
2. Petroleum and natural gas			NO		NO	NO	NO	NO
<b>2. Industrial Process</b>	<b>0,028</b>	<b>NO</b>	<b>NO</b>	<b>NO</b>	<b>NO</b>	<b>NO</b>	<b>0,336</b>	<b>NO</b>
A. Mineral products	NO				NO	NO	NO	NO
B. Chemical industry	0,028		NO	NO	NO	NO	0,336	NO
C. Metallurgy	NO		NO	NO	NO	NO	NO	NO
D. Other productions	NO				NO	NO	NO	NO
E. Production of halocarbons and hexafluoride of sulphur								
F. Consumption of halocarbons and hexafluoride of sulphur								
G. Others	NE		NE	NE	NE	NE	NE	NE
<b>3. Use of solvents and other products</b>	<b>NE</b>			<b>NE</b>			<b>NE</b>	
<b>4. Agriculture</b>			<b>29,71</b>	<b>2,72</b>	<b>104,34</b>	<b>3,87</b>	<b>NE</b>	<b>NE</b>
A. Enteric fermentation			16,99					
B. Management of residues (manure)			NE	NE			NE	
C. Rice crop			8,135				NE	
D. Agricultural soils			NE	2,62			NE	
E. Burning of savannas			1,25	0,02	32,75	0,56	NE	
F. Burning of agricultural residues			3,33	0,088	71,59	3,31	NE	
G. Others			NE	NE	NE	NE	NE	
<b>5. Changes in the use lands and forests</b>	<b>NE</b>	<b>-11288401</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>
A. Changes on forest stock and other biomasses	NE	-11288401						
B. Forest and prairie conversions	NE	NE	NE	NE	NE	NE	NE	NE
C. Abandon of exploited lands		NE						
D. Emissions of CO <sub>2</sub> from soils and absorption of CO <sub>2</sub> by soils	NE	NE						
E. Others	NE	NE	NE	NE	NE	NE		
<b>6. Garbage / Trash</b>			<b>2,12</b>	<b>0</b>	<b>0,003</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>
A. Discharge of solid garbage			2,09		0,003		NE	
B. Treatment of residual waters			0,03	0	NE	NE	NE	
C. Burning of Trash					NE	NE	NE	NE
D. Others			NE	NE	NE	NE	NE	NE
<b>7. Others</b>	<b>NO</b>	<b>NO</b>	<b>NO</b>	<b>NO</b>	<b>NO</b>	<b>NO</b>	<b>NO</b>	<b>NO</b>
<b>For the memory:</b>								
<b>International Soutes (?)</b>	<b>NE</b>		<b>NE</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>
Aerial Transportation	NE		NE	NE	NE	NE	NE	NE
Maritime Transportes	NE		NE	NE	NE	NE	NE	NE
<b>CO<sub>2</sub> emissions from the biomass</b>	<b>1181,28</b>							

Source: Inventory of Gas Emissions with Greenhouse Effect, 1994, 2001 report.

Note: The NO and NE standard indicators (IPCC) have the following meaning:  
 NO – emission Non-occurred, that is, does not happen in the Country due to absence or insignificance of antropic activities associated  
 NE – Emission not estimated, due to difficulties to control the emission factors

**Graphic # 01 - Contribution of Sectors to the Global Warming**



**Graphic # 02 - Global Emissions for each type of Gas w/ Greenhouse Effect, 1994**

