

STATISTICS FOR CLIMATE CHANGE POLICY AND DATA AVAILABILITY

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Environment Statistics Workshop

Lome, 18-23 October, 2015



What is climate?

- ✓ Climate is the state of the atmosphere observed when 30 or more years of weather data are averaged. Frequently used indicators of weather are temperature, rainfall, snow, humidity level, wind speed, and sunshine hours.



What is climate Change?

- ✓ Climate change is said to occur when there are significant differences in the state of the atmosphere observed in every 30 or more years over a period of at least 60 years.
- ✓ When there is climate change one may expect to see:
 - frequent extreme weather such as heavy rains causing floods;
 - inadequate rains causing drought;
 - high temperature causing heat stroke, heat wave and melting of polar ice cap;
 - extreme cold and avalanches; and
 - frequent wind storms and dust storms.



What is climate change policy?

- ✓ **It is a set of official ideas, attitudes, actions or plans that is used as a basis for making decisions regarding climate change issues.**
- ✓ **The Gambia has no fully-fledged or stand-alone climate change policy. Efforts are currently underway for securing one through EU funding.**
- ✓ **However, sectoral strategies and national plan do incorporate some measures aiming at addressing climate change issues.**
- ✓ **A climate change policy would dictate the nature of climate change strategies that would be defined for the various sectors and responsible institutions.**



Factors influencing changes in weather and climate

- ✓ The sunlight and its radiation.
- ✓ The composition of gases in the atmosphere.
- ✓ The atmosphere is made up of various gasses, such as water vapour, carbon dioxide, methane, etc and each reacts differently to allowing radiation to reach the earth surface and in preventing the heat generated from escaping back out into space, just like the glass in greenhouse .
- ✓ This can be further divided into natural and man-made factors. The increased use of fossil fuel by man has greatly increased the amount of carbon dioxide in the atmosphere causing global warming.
- ✓ The interaction of the atmosphere with the sunlight, ocean, land, polar ice cap, plants and animals influences the weather - temperature, rainfall, snow, humidity level, wind.



Why is climate important?

- ✓ Weather and climate affects our lives. Understanding and predicting what the coming days or summer might bring, or predicting how climate will change over the next century is of vital importance - both for our economy and for society.
- ✓ The society, governments and businesses are vulnerable to climate change. It would help if we can understand and predict the risks from climate variability and change.
- ✓ Changes in climate can affect food production, water availability, wildlife and human health. Weather conditions, such as storms, can damage infrastructure like roads, bridges, electricity and communication infrastructure and buildings.
- ✓ Sea level rise can cause water to gradually cover low-lying countries, in particular those below sea level.



Why is statistics on climate change important?

- ✓ Statistics on climate change are needed to help us:
- ✓ Understand and predict the type of weather and climate that may come.
- ✓ Assess the impact of climate change and weather on the environment, economy and human health. The National Disaster Management Agency (collects data to prepare chronology of natural disasters).

- ✓ Formulate mitigation and adaptation measures. These are measures that intended to:
 - secure radical reductions in greenhouse gas emissions;
 - minimize vulnerability to the impacts of climate change;
 - provide resilience to the impacts of climate change; and
 - support the delivery of renewable and low carbon energy and associated infrastructure.

- ✓ These measures are central to the economic, social and environmental dimensions of sustainable development.



Why is statistics on climate change important (Contd)?

- ✓ The Gambia was able to prepare the following using available statistics on the environment including climate change:
- ✓ The National Adaptation Plan of Action (NAPA);
- ✓ the National Appropriate Mitigation Action (NAMA) on the sectors of agriculture, energy, forestry and waste geared towards reducing emissions from these sectors; and
- ✓ The Intended Nationally Determined Contributions (INDC).
- ✓ The Gambia has taken measures to formulate national planning policy framework on climate change. The role of environment statistics including climate change statistics is critical in this process.
- ✓ Statistics on the environment which include climate change statistics can be used to evaluate progress made on the implementation of the mitigation and adaptation measures mentioned above.



Relevant policies in place

- The Program for Accelerated Growth and Employment (PAGE) , mentioned the following objective under Chapter 8 section 6:
- **Environment, disaster risk reduction, and climate change**

During the PAGE 2012 - 2015 implementation period. The Government will specifically develop a National Climate Change Strategy that will facilitate the mainstreaming of climate change in national and sectoral policies, programmes, and plans as part of the national development agenda.'



Relevant policies in place (contd)

- In the agriculture sector, the Government will adopt and implement the following strategies:
- optimization of the use of natural resources,
- the increase and stabilization of crop productivity,
- the stabilization of the rural population, and the management of
- rangeland and the preservation of eco-assets.



Relevant policies in place (contd)

- Insofar as integrated energy planning in the energy sector is concerned, the Government's strategic decisions will be:
 - to reduce the pressure on natural forests through;
 - providing access to reliable technologies and better or cheaper fuels, to limit damages to infrastructure;
 - to improve energy efficiency, to restore biodiversity and the health of ecosystems;
 - to develop a less polluting public transport system,
 - to promote clean technology;
 - to minimise the impact of flooding and saline intrusion in lowlands; manage water resources; disaster risk management.
- the Government will seek out sources of alternative and renewable energy (solar and liquefied petroleum gas) and technological innovation and diffusion. It will promote and strengthen integrated coastal zone management, e.g., by boosting the adaptive capacity of coastal communities and by encouraging the optimal use of marine resources.



Relevant policies in place (contd)

- Disaster management must not be seen as providing relief but rather should be
- seen as a continuum of development. Therefore, the emphasis has now shifted from managing crisis to managing risks and vulnerabilities through disaster risk reduction.
- The ultimate goals are numerous and include:



Relevant policies in place (contd)

- strengthening disaster risk reduction institutions through institutional strengthening and capacity building
- strengthening disaster risk reduction at the local level
- integrating disaster risk reduction and climate change adaptation for development programming
- improving and reinforcing proper building codes and land use planning
- integrating disaster risk reduction into the formal and informal education system and health sector
- harmonizing and re-aligning partner interventions towards disaster risk reduction
- strengthening the climate change early warning systems
- empowering young people as advocates for disaster risk reduction



Indicators and data availability

■ Examples of climate change statistics



■ The focal point of three conventions collect data in their respective areas through projects or larger environmental programmes.



■ The three conventions are the United Nation Framework Convention on Climate Change (UNFCCC) submits national communication to its conference of parties (COPs);



■ The Biodiversity Convention also reports to its COPs



■ United Nations Convention to Combat Desertification (UNCCD) also reports to its COPs



■ The State of the Environment Report



Indicators and data availability

Pressure on atmosphere

Year	GHGs in Gigagram (Gg)							
	Carbon dioxide (CO ₂)	Methane (CH ₄)	Nitrous Oxide (N ₂ O)	HFCs	Carbon monoxide (CO)	NMVOC	Nitrogen Oxide (NO _x)	Net removals of CO ₂
1993	181.1	193	0.23	-	73	7	3	-50,000
2000	329	43.8	3.9	1.4	195.6	10.2	6.8	+110.2

Source: 1993 and 2000 National GHGs Inventories.

- Provisional estimates show that GHG emissions in CO₂ equivalents are on the rise, CO₂ emissions have increased from Gg 1969 in 1993 to Gg3192 in 2000.
- Although the Gambia is classified as a net sink in 1993 (i.e., the amount of greenhouse gases removed from the atmosphere was more than the amount emitted)
- It is expected that the Second National Communication would describe the Gambia as a net source .

Indicators and data availability

State of the atmosphere

Baseline climate scenarios of The Gambia		
Year	Indicator	Annual Average
1951-1990	Mean temperature (°C)	27.5
1951-1990	Minimum temperature (°C)	20.9
1951-1990	Maximum temperature (°C)	34.1
1951-1990	Rainfall (mm)	878.7
1970-1985	Radiation (w/m ²)	255
1951-1990	Relative humidity (%)	61
1951-1990	Wind (Knots)	4
1951-1990	Potential evapotranspiration (mm)	2072.4

Source: Climatology and Agrometeorology Units, Department of Water resources

Indicators and data availability

In The Gambia, there has been decreasing rainfall and increasing temperatures from the mid-forties to date.

The average temperatures of the Gambia range from 18° to 30 °C during the dry season and 23 ° to 33 °C during the wet season.

The moisture quality in the atmosphere which is indicated as relative humidity (RH) is about 68% along the coastal area and 41% inland during the dry season and generally above 70% during the wet season throughout the country.

The annual rainfall ranges from 850mm to 1200mm.



Indicators and data availability

Coastal erosion and sea level rise



Indicators and data availability

Coastal erosion and sea level rise



Indicators and data availability

- DATA REQUIREMENT FOR VULNERABILITY AND ADAPTATION ASSESSMENT
- A: Data requirement for the development of baseline and climate change scenarios
- 1 Temperature
- Mean monthly temperature
- Mean annual temperature
- Mean monthly maximum temperature
- Mean annual maximum temperature
- Mean monthly minimum temperature
- Mean annual minimum temperature
- Soil and Earth temperatures



Indicators and data availability

■ 2 Rainfall

■ Daily rainfall for all stations

■ Average monthly rainfall

■ Average annual rainfall

■ 3 Solar radiation

■ Daily solar radiation for all sectors

■ Average monthly solar radiation

■ Average annual solar radiation.



Indicators and data availability

- B. DATA REQUIREMENT FOR THE AGRICULTURE SECTOR
- 1. Soil classification for each site (clay, loam, sand)
- 2. a minimum of 30 years of daily data on minimum and maximum temperature, rainfall, solar radiation and sunshine hours.
- Latitude and longitude of the site
- Most common variety of crops sown, plant population, row spacing, sowing depth, planting date and socio-economic crop data for validation



Indicators and data availability

- C. DATA REQUIRED FOR THE GRASSLANDS/LIVESTOCK MODEL (SPUR2)
- D. DATA REQUIREMENT FOR FOREST IMPACT ASSESSMENT
- E. DATA REQUIREMENT FOR THE WATER RESOURCES
- F. DATA REQUIREMENT FOR THE COASTAL ONE (SEA LEVEL ASSESSMENT)
- G. DATA REQUIREMENT FOR SOIL EROSION ASSESSMENT
- H. DATA REQUIREMENT FOR THE HEALTH ASSESSMENT
- I. DATA REQUIRED FOR FISHERIES ASSESSMENT



THANKS

MERCI BOUCOUP

