



The Effects of Climate Change in Mali

Cheick Oumar Kangama* and Raymond Kodio

Faculty of Agronomy and Animal Medicine/University of Ségou/Mali

*Corresponding author

Dr. Cheick Oumar Kangama, Faculty of Agronomy and Animal Medicine/University of Ségou/Ma.li. Tel:+223.7901.6528/6984.0254; E-mail: kangama31@yahoo.fr.

Received: 11 Nov 2022; Published: 18 Nov 2022

Abstract

From a geographical point of view, Mali is a country in West Africa where agriculture is mainly rainfed and therefore largely dependent on climatic conditions. This strong dependence of agriculture on the climate deserves special attention since agriculture is the foundation on which the economy of Mali is based.

Climate change is nowadays a major challenge for the socio-economic development of all developing countries. It emerges from the various studies carried out on climate change in Mali that the main climatic challenges to which the country is exposed are among others: droughts, floods, strong temperature variations. These climate changes primarily threaten the primary sector (agriculture, livestock, fishing) and the exploitation of forests, all key sectors of the economy.

Introduction

In Mali, the impact of climate change has been heavily felt over the past forty years with the increase in the rate of desertification. The rise in temperature leading to massive migratory flows from rural areas to urban centers. Climate change is nowadays a major challenge for the socio-economic development of all countries.

Developing countries like Mali are particularly at risk, due to their human capital and economic vulnerability. It emerges from the various studies carried out on climate change that the main climatic challenges to which the country is exposed are, among others: droughts, floods, strong temperature variations. Sustainable land management is a major concern for Mali, whose economy is essentially based on the primary sector, in particular (agriculture, livestock, fishing) and the exploitation of forests, all key sectors for the economy.

Specific objectives of this study

- Recognize the effects, impacts and drivers of climate change.
- Understand the risk drivers of vulnerability in the context of climate change.
- Distinguish the typologies approaches and tensions of adaptation to climate change.
- Explain the different approaches and stages of planning for climate change.

What is climate change?

The term “climate change” refers to long-term variations in

temperature and weather conditions. In other words, climate change refers to all the variations in climatic characteristics in a given place over time: warming or cooling. It is caused by a rapid increase in greenhouse gases in the atmosphere due mainly to the burning of fossil fuels (coal, oil and natural gas). These heat-trapping gases warm the land and oceans, causing sea levels to rise with melting glaciers, changing rainfall, fires and drought. These impacts affect human health, forests, agriculture, etc.

Impacts of climate change on agriculture

Agriculture is, however, directly and indirectly affected by climate change much more negatively in developing countries. According to CILSS (2016) (Permanent Inter-State Committee for the Fight against Drought in the Sahel), the evolution of the climate in sub-Saharan Africa is characterized by irregular rainfall, the resurgence of heavy rains, floods and the significant increase temperatures. For climate-realists (as opposed to climate-skeptics) climate deterioration is due on the one hand to uncontrollable climatic conditions and on the other hand (in 90% of cases) to anthropogenic actions such as industrial activity, demand for fuelwood and timber, agricultural expansion, overgrazing, bush fires.

Faced with this vulnerability, climate change adaptation efforts have been deployed both globally and nationally to find answers. Dumas (2007), quoted by Gnanglé et al (2011) defines adaptation to climate change as all the measures or adjustments that make it possible to mitigate the damage of climate change or to take advantage of its positive consequences.

What are the means of combating climate change?

Five solutions to fight global warming:

- Prioritize less polluting transport.
- Eat less meat, more vegetables and eat locally.
- Reduce waste.
- Fight against digital pollution.
- Reduce electricity consumption

Recommendations

1. Design and implement good development policies and programs.
2. Increase investments in favor of agricultural productivity.
3. Relaunch national research and extension programs.
4. Make the adoption of agriculture a key point in international climate negotiations.
5. Recognize that strengthening food security and adapting to

climate change are closely linked.

6. Encourage community coping strategies.

Conclusion

Climate change constitutes 0for developing countries a major challenge for their economy. These climate changes mainly threaten the primary sector (agriculture, livestock and fishing) on which the economy is based. Mali must move towards new methods of agricultural production for sustainable and resilient agriculture (organic agriculture, agroecology) for clean agriculture, without the use of synthetic chemical fertilizers. To save the climate, all the countries of the world are invited to use renewable energies (wind turbines, solar hydraulics, etc.) by abandoning fossil fuels [1-11].

Références

1. R. Delecolle, J.-F. Soussana, J.-P. Legros (1999) Impacts attendus des changements climatiques sur l'agriculture française C. R. Acad. Agric. France 85 : 45-51.
2. GIEC/IPCC, Climate change (2001) : impacts, adaptation and vulnerability, Contribution of Working Group II to the third assessment report of IPCC, Cambridge University Press, Cambridge, 2001
3. E. Le Roy Ladurie (1983) Histoire du climat depuis l'an mil, Flammarion, Paris (1983)
4. JM. Moisselin, M. Schneider, C. Canellas, O. Mestre (2002) Homogénéisée de température et de précipitation Les changements climatiques en France au XXe siècle : étude des longues séries. La Météorologie 38: 45-56.
5. V. Perarnaud, B. Seguin, E. Malezieux, M. Déqué, D. Loustau (2002) Agrometeorological research and applications needed to prepare agriculture and forestry adapt to 21st century climate change WMO Int. Workshop on reducing vulnerability of agriculture and forestry to climate variability and climate change, Ljubljana, Slovénie (7-9 octobre 2002)
6. K.R. Reddy, H.F. Hodges (2000) Climate change and global crop productivity, CABI Publishing, Wallingford. Clim. Change (à paraître)
7. C. Rosensweig, D. Hillel (1998) Climate change and the global harvest, Oxford University Press, Oxford, UK.
8. F. Ruget, O. Bethenod, L. Combe (1996) Repercussions of increased atmospheric CO2 on maize morphogenesis and growth for various temperature and radiation levels Maydica 41: 181-191.
9. B. Seguin (2002) La recherche agronomique face à l'effet de serre Le courrier de l'environnement 46 : 5-20.
10. B. Seguin (2002) Changement climatique, gestion des ressources et territoires, actes des entretiens du Pradel (12-13 septembre 2002)
11. J.-F. Soussana (2001) Changement climatique. Impacts possibles sur l'agriculture et adaptations possibles Demeter, Armand Colin, Paris 2001: 195-22.

Copyright: ©2022 Cheick Oumar Kangama, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited