Journal of Earth Science & Climatic Change

Commentary Open Access

Climate Change and Its Impact on Food Security

Rahul Mehtha*

Department of Environmental Science, Maharshi University, Gujarat, India

Abstract

A vulnerability index is defined as the ratio of demand to supply as influenced by population, affluence, technology and climate indicators. The present situation as well as projections of demand and supply following the Intergovernmental Panel on climate change.

Keywords: Climate change; Food security; Model

Introduction

Warming of the climate system is unequivocal and is associated with surface climate variability [1]. Inter-annual variability in precipitation has important consequences on ecosystem functioning and may have predictable impacts on plant's net primary production (NPP) and crop yields. In the middle and high latitudes, increases in temperature and precipitation associated with increases in the atmospheric CO_2 concentration may have some beneficial impacts on plant growth, while in arid and semi-arid regions, even small temperature increases may have negative impacts [2]. If these climate trends continue in the future, they may alter local food production and increase the vulnerability of local populations, especially in developing countries, where nearly 70% of people live off agricultural products in rural areas and where the livelihoods of roughly 450 million of the world's poorest people are entirely dependent on managed ecosystem services.

The human demand for the products of photosynthesis (NPP) is a powerful measure of the aggregate footprint of human action on the biosphere [3] and an indicator of food security and the vulnerability of the population to climate variability and changes. Assessments of food security and vulnerability are central to the survival and sustainability of population livelihoods and social structure. Investments are therefore needed to improve our ability to understand, predict, mitigate or otherwise adapt to the multifaceted impacts of climate change, demographic evolution and technological advances. Better use of climate information in assessing risks and vulnerability and developing safety nets and insurance products as an effective and practical response is already being piloted in some areas with fairly positive results.

In this paper, we use a methodology similar to that developed in to estimate the fraction of terrestrial NPP appropriated to produce the food and wood products required to support local populations in Morocco. This approach allows a comparison of the rate of NPP required to support human appropriation (NPP demand) as influenced by demographic and technological changes with the rate of terrestrial NPP production (NPP supply) as influenced by climate changes. While based on our methodology is distinctly different from it in the sense that it explicitly [4].

We present the first detailed analysis using a unique combination of satellite, socioeconomic and field data to explore the relationship between food and wood demand and supply in Morocco. We analyze both the present and projected near future situations at spatial scales fine enough to provide guidance on local policies on food security. Because the UNFAO data reflects the influence of population, affluence and product preferences, combined with our model, which includes the effect of technology on the demand and aspects of the effect of climate change on the supply, we were able to model food and wood appropriation for both current conditions, as well as potential future socioeconomic trajectories in Morocco. The methodology fully accounts for impacts in particular ecosystems and identifies the specific source areas for the NPP required for foods and wood.

References

1. Bounoua L, DeFries RS, Imhoff M.L, Steininger MK (2004) Land use and local climate: A case study near Santa Cruz, Bolivia. Meteorol Atmos Phys 73–85.
2. Droogers P (2004) Adaptation to climate change to enhance food security and preserve environmental quality: example for southern Sri Lanka. Agr Water Manage 15–33.
3. Imhoff M, Bounoua L (2006) Exploring global patterns of net primary production carbon supply and demand using satellite observations and statistical data. J Geophys Res 111.
4. Zhao M, Running SW (2011) Response to Comments on Drought-Induced Reduction in Global Terrestrial Net Primary Production from 2000 through 2009. Sci 1093.

***Corresponding author:** Rahul Mehtha, Department of Environmental Science, Maharshi University, Gujarat, India, E-mail: rahul.mehtha.11@yahoo.com

Received: 08-Mar-2022, Manuscript No. jescc-22-57135; **Editor assigned:** 10-Mar-2022, PreQC No. jescc-22-57135 (PQ); **Reviewed:** 24-Mar-2022, QC No. jescc-22-57135; **Revised:** 29-Mar-2022, Manuscript No. jescc-22-57135(R); **Published:** 05-Apr-2022, DOI: 10.4172/2157-7617.1000611

Citation: Mehtha R (2022) Climate Change and Its Impact on Food Security. J Earth Sci Clim Change, 13: 611.