



Food Security and Sustainable Development in the Era of Climate Change: A Review

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ABSTRACT: The drastic change in climate is severely going to impede the process of providing food security and sustainable development to the millions of people across the globe. Three major challenges have arisen that threaten to drastically complicate efforts to overcome food insecurity and malnutrition climate change, the growing use of food crops as a source of biofuel and soaring food prices. Food access will be affected through reduction of income from animal production, reduction of yields of food and cash crops lowered forest productivity and changes in aquatic populations, as well as increased costs of control. Food prices impact food access of households, inter-alia by limiting the acquisition of appropriate foods for a nutritious diet and the purchasing power of food aid programme, in another dimension climate adversely affect the food utilization. The proper synergy is to be developed for mitigating the adverse affects of climate change on food security and sustainable development.

Keywords: Food security; sustainable development; Hunger; Bioenergy and Climate change.

INTRODUCTION: World hunger reached a historic high in 2009, with more than one billion people living in chronic hunger. During the World Summit on Food Security in 2009, FAO's director general called it to the world's attention that "every six seconds a child dies of hunger in the world" and called on countries to agree on immediate action to reverse the situation and to end the scourge of hunger and malnutrition. However, unless substantial and sustained remedial actions are taken immediately, such as development of policies and programmes for improving food and nutrition security and adoption of adaptation and mitigation strategies for climate change. (FAO, 2014). Food security exists when all people, at all times, have access to sufficient nutritious food to meet their dietary needs for an active and healthy life. The four pillars of food security are adequate availability of food in the marketplace or from production; access to food, meaning the wherewithal to buy or otherwise obtain food; utilization of food, including dietary intake and the ability to absorb and use the nutrients in the body; stability, which is the ability to maintain sufficient nutrition over time

Effects of climate change: Three major challenges have arisen that threaten to drastically complicate efforts to overcome food insecurity and malnutrition climate change, the growing use of food crops as a source of biofuel and soaring food prices. As a result of climate and global environmental changes such as

land degradation and changes in hydrological resources, essential ecosystems' services, agricultural production systems and access to food are likely to decline drastically particularly in Sub-Saharan Africa and South Asia. This will increase the risk of hunger and malnutrition in the two regions that are home to three of every five undernourished people. Furthermore, climate change is expected to exacerbate under nutrition through its effects on illnesses, such as diarrhea and other infectious diseases. Projected increases in the frequency and intensity of droughts and floods and their potential impact on crops and livestock losses are especially worrisome rising bioenergy demand is likely to affect nutrition through a number of pathways. (Natham and De lang., 2013) As demand for biofuels is likely to remain high and to be met with food crops for the foreseeable future, this may lead to the clearing of biodiversity-rich land for cultivation, including tropical forests and wetlands. Intensified production of energy crops such as sugarcane, as well as increased cereal production to meet competing demand for food, feed, fiber and fuel, may mean excessive or poorly managed use of water and farm chemicals, causing illnesses and deterioration in environmental health, with negative implications for nutrition. (FAO, 2013)

Bioenergy demand is a significant driver of recent Dramatic increases in food prices. According to an analysis by the International Food Policy Research

Institute (IFPRI), it accounted for 30% of the escalation in global cereal prices between 2000 and 2007 and for nearly 40% of the increase in the real global price of maize. The growing use of food crops to produce biofuels has been considered by the former Special Rapporteur on the Right to Food of the UN Human Rights Council as: “A crime against the humanity”. (Garnett, 2011)

Challenges and Mitigation strategies: Climate and environmental change will affect all four dimensions of food security, namely food availability (i.e., production and trade), stability of food supplies, access to food and food utilization. climate change will have varied impact on food production and trade. Agricultural output in developing countries is expected to decline by 10–20% by 2080, depending on whether there are beneficial effects from CO₂ fertilization. Evidence from models from the 4th IPCC assessment suggests that moderate local increases in temperature (1–3C), along with associated CO₂ increase and rainfall changes, can have small beneficial impacts on the production of major rain-fed crops (maize, wheat, rice) and pastures in mid- to high latitude regions (Throw and Killman, 2010). Trade in cereal crops, livestock and forestry products is projected to increase in response to climate change, with increased dependence on food imports for most developing countries. Secondly climate will have effect on food stability and access. Food insecurity and loss of core livelihood strategies may be exacerbated by the loss of cultivated land and nursery areas for fisheries through inundation and coastal erosion in low-lying areas affecting food stability and access to food. (Greenpeace, 2012) Food access will be affected through reduction of income from animal production, reduction of yields of food and cash crops lowered forest productivity and changes in aquatic populations, as well as increased costs of control. Food prices impact food access of households, inter-alia by limiting the acquisition of appropriate foods for a nutritious diet and the purchasing power of food aid programme, in another dimension climate adversely affect the food utilization. Referring to the ability to absorb and use food nutrients and is related to individual health status, water and food sanitation, and food and water safety among other factors. (IPCC, 2012). Climate change may affect health outcomes and food utilization with additional malnutrition consequences. Now the question is how to minimize the adverse affects of climate change on food security. To address this challenge requires integrated approaches for adaptation, mitigation and sustainable development. Strategies should include measures that would simultaneously reduce pressures on biodiversity and food security and contribute to carbon sequestration. (Smith et al., 2013)

CONCLUSION: Adaptation is a key factor to address the impacts climate change will have on food production and food insecurity. Early impacts of climate change can be effectively addressed through adaptation; however, options for successful adaptation diminish and associated costs increase, with increasing climate change impacts. Sustainable development can reduce vulnerability to climate change by enhancing adaptive capacity and increasing resilience. Plans for sustainable development should promote adaptive and mitigation strategies, for example, by including adaptation and mitigation measures in land-use planning and infrastructure design or by including measures to reduce vulnerability in existing disaster risk reduction plans. Mitigation in agriculture has a significant potential and can use available technologies which can be implemented immediately. Agricultural mitigation measures often have synergy with sustainable development policies and many influence social, economic and environmental aspects of sustainability. In order to improve the mitigation potential in this sector, synergies between climate change policies, sustainable development and improvement of environmental quality should be promoted. Adaptation and mitigation measures should be developed as part of overall and country specific development programmes such as Poverty Reduction Strategy Papers, pro-poor strategies and national Food and Nutrition Action Plans. In this framework international organizations should assist countries to assess their capacity building needs for the development of integrated adaptation, mitigation and sustainable development strategies to address food security and nutrition challenges from climate change and biofuel demand.

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