THE SOCIO-QUANTITATIVE ANALYSIS OF WATER-ENERGY-FOOD-CLIMATE NEXUS IN INDIA

Purnanjali Chandra[1*], KS Kasiviswanathan[2], B Soundharajan[3], ClaudiaTeutschbein[4]

1Tata Institute of Social Sciences, Mumbai, India ; 2Indian Institute of Technology, Roorkee, India ; 3Amrita Vishwa Vidyapeetham, Coimbatore, India ; 4Uppsala University, Uppsala, Sweden

*Correspondence YP: chandrapurnanjali11@gmail.com

IAHR YPN

Hosted by Spain Water and IWHR, China

Abstract

The climate change effects have evolving a as global phenomenon with a major hurdle in accomplishing the sustainable management of resources and development. These require to be dealt with an integrated approach rather than in silos. While quantitative and policy analysis of climate change has been discreetly handled in the food-water-energy (FWE) sectors, this paper examines the climate change impacts on the FWE nexus for suggesting viable solutions to mitigate the effects. The temporal and geographical data, stakeholder and policy analysis were utilized to make the comparison between the Global and Indian context mainly to provide a broader framework of solutions and also to establish the "global to local" connection in the nexus study.

Keywords: climate change , water-energy-food nexus, drought, biofuels.

Introduction

- The Water, Energy, and Food sectors are intertwined to one another and operate as motor wheels of an engine(Hoff, 2011)
- Climate change is one of the major drivers triggering greater tradeoffs in the nexus.
- An isolated approach to mitigate climate change impacts can lead to greater complexities.
- Different practices in agriculture, drought mitigation or even reducing the carbon footprints – lack an integrated approach both in policies as well as in technologies.

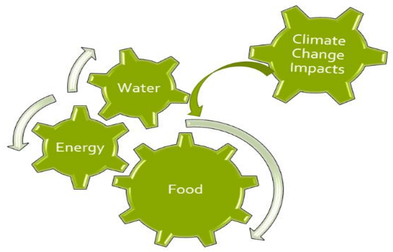

Figure 1: The water-energy-food nexus

Methodology

- Reports, published articles, policy documents and literatures on infrastructures aid in developing a comparative study.
- Tools highlight in establishing the "global to local" connect in the work.
- The work emphasizes the concept of interconnectedness among the three vital sectors of food, water and energy while combating the Climate change impacts.

WATER

-Changed rainfall patterns and river flow regimes that impact large dam infrastructures.

-Affects the ground and surface water sources

FOOD

-Drought is one of the worst predicted consequence of the food security of a region.

-Trade off between energy and food crops to shift to biofuels is an alarming move

ENERGY

-The implication of climate felt on food loss and reducing water reserves is often managed in India through energy subsidies to extract water from greater depth. This triggers trade offs.

-The shift to biofuels is a cause of worry for both the food and energy sectors.

Discussion

- It identifies major gaps in the nexus approach for resource management in India
- Highlights the loop hole to shift to flex crops and first generation biofuels in the Indian context.
- Lack of integrated approach in technological infrastructures such as dams and its implication on livelihood practices
- To involve stakeholders to ensure better cross-sectoral management of food, water and energy while mitigating climate change impacts

Summary

The work comments on mechanisms to strengthen cross-sectoral interactions in India and highlights policy modifications, improvisation of ideas on green economy and infrastructures as well as stakeholder participation among other measures to adapt to climate change impacts on WEF nexus.

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