Use Water-Energy-Food Nexus to Combat Climate Change and Promote Sustainable Development in Mekong River Basin

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INTRODUCTION

The Mekong River Basin is one of the most significant rivers in South East Asia. It is the engine of regional development due to its critical food production, water availability/consumption and energy production. Local communities and regional economies rely heavily on the Mekong for fish and rice production. Nevertheless, Laos, Cambodia, and Myanmar remain some of the world’s most impoverished places. However, the regional security and development is significantly threatened by climate change, environment-water degradation, diminished / vulnerable agricultural production. Moreover, the dramatic increase in dam building in the River adds significant additional stress.

Nowadays, population growth, depletion of natural resources and increasingly degraded environment all make the agriculture and food security more crucial than ever, as these are increasingly threatening the achievement of Sustainable Development Goals (SDGs) and as food security has been deeply embedded in every aspect of the development of Mekong region.

RESEARCH CONTENT

The Vulnerability Assessment Index will be used for each city to: analyze its water, energy and food interactions, determine its vulnerability to threats, and provide suggestions on future actions it may take to improve its stability from a nexus perspective.

This research examines the major risks of Mekong River Basin and in case study will use Vietnam as an example to examine and analysis each risks-water risks, food risk and energy risk, and conduct the score analysis.

Impact of Climate Change on Temperature and Precipitation of Mekong River Basin

As the risk analysis showed, Vietnam will undergo high risks of the booming of hydropower infrastructure. Therefore, technologies and policies that can reduce the water assumption and energy, enhancing its technology and efficiency during the agriculture production activities are needed to combat future climate related water disaster.

RESEARCH RESULTS & CONCLUSION

The Vulnerability Assessment Index (VI) will be used to analysis country’s vulnerability for this Water, Food and Energy Security under the threats of climate change.

Here will use Country of Vietnam as example to illustrate the vulnerability assessment index and the index score system.

As the risk analysis showed, Vietnam will undergo high risks of the booming of hydropower infrastructure. Therefore, technologies and policies that can reduce the water assumption and energy, enhancing its technology and efficiency during the agriculture production activities are needed to combat future climate related water disaster.

Country Cambodia, Laos will conduct the same risk analysis to evaluate its vulnerability of each factors and make plans and recommendations of its development plan.

RESEARCH IMPLICATION

The vulnerability models and scenarios to examine water, food and energy risks of Mekong country and the vulnerability index could help policy institutions in developing science based water management and development policy of Mekong region. This research could provide information on strategies of tackling the climate change threats, balance the trade off of hydropower development for satisfy energy demand with the local water and food security. This vulnerability index could contribute in water resources analysis, examine tradeoff and alternatives of food production, water use, consumption and energy impact, make plans to enhance productivity and efficiency during agriculture activities. Complicated issue need multi-interdisciplinary and holistic approach! Examine linkages of between water, food and energy is the key to sustainable development of riparian countries of Mekong River Basin.

REFERENCES


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THANK YOU!