

## Development of Comprehensive Assessment Methods and Adaptation Measures for Climate Change Impacts on Water-related Disaster, Agriculture, Freshwater Ecosystem and Local Economy

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### [Abstract]

Key Words: Climate change, Comprehensive Impact assessment, Freshwater ecosystem, Adaptation, Co-creation

Collaboration among local governments, researchers, and local stakeholders is a proven effective means of promoting adaptation to climate change in the region. In Gifu Prefecture, located in central Honshu, Japan, the increasing risk of water-related disasters and the effects of global warming on rice agriculture and river ecosystems are causing concerns. This project aims to assess these impacts, work with stakeholders to better understand their extent, and co-create adaptation measures to address them.

Remarkable results have been achieved through this project. The changes in water-related disaster risk due to global warming were assessed at the small and medium river level and shared with river managers and local disaster management officials to encourage them to take action. The project also shared with stakeholders the actual situation in the region regarding the various impacts of global warming on rice cultivation. The effects of global warming on sweetfish in the Nagara River, which is recognized as a World Agricultural Heritage site, were identified, and several new scientific findings were generated. By sharing these findings with stakeholders, the project has not only been socially implemented in local policies but also created opportunities to initiate specific adaptation measures. The project has developed several methods for analyzing the impacts of global warming by improving the understanding of river temperature variability in the Asian monsoon.

In summary, this project has demonstrated the potential of collaboration among local governments, researchers, and local stakeholders in promoting climate change adaptation in the region. By assessing the impacts of global warming and co-creating adaptation measures with stakeholders, this project has generated remarkable results, including sharing new scientific findings and initiating specific adaptation measures. The methods developed in this project can be used as a reference for other regions to improve their understanding of climate change impacts and develop effective adaptation measures.

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