

Synergies and Trade-offs among Climate Policies and Sustainable Development Goals in terms of Water

Sector

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[Abstract]

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The implementation of mitigation and adaptation measures for climate change is expected to have significant synergies with efforts to achieve the Sustainable Development Goals (SDGs). However, there are also trade-offs that need to be considered. While the IPCC 1.5° Special Report published in 2018 and the IPCC Special Report on Climate Change and Land published in 2019 conceptually examined the issue, a more detailed quantitative analysis is needed.

To address this, a study was conducted that analyzed future estimates of SDG indicators for water and examined the synergies and trade-offs between mitigation and adaptation measures on a country-by-country and region-by-region basis. The study identified multiple synergies between these climate policies and water-related SDG indicators in Southeast Asia, Africa, North America, and South America. Mitigation measures had greater synergy with the water-related SDG indicators in Africa and the Indochina Peninsula. The study also estimated the affected population for each climate policy measure, finding that mitigation measures benefited 0.12-120 million people (0.17-1.7% of the global population) from the synergies of the water-related SDG indicator, while the population facing trade-offs was 0.2 million - 2.8 million. Adaptation measures had synergies of 0.17-390 million people (0.2-5.3%) for SDG indicators related to water. The trade-off from adaptation measures is 0.5 billion people (0.7%) in water resources.

These results indicate that mitigation and adaptation measures generally have greater synergies than trade-offs with respect to water-related SDG indicators and should be actively pursued, and that measures to reduce their impacts are needed in countries where trade-offs are a concern.

To increase synergies and reduce trade-offs between climate policy and water-related SDG indicators, various measures can be taken. These include providing funding for river protection in developing countries to prevent water-related disasters and improving agricultural management practices to adapt to reduced grain production without relying on fertilizer application and to conserve water quality by reducing nitrogen concentrations. The expansion and consideration of different technologies, such as carbon sequestration in soil, can also be useful.

In addition, when promoting strong mitigation measures through increased biofuel production, it is crucial to consider regions with high water stress, such as part of Africa, and the sustainability of local water resources. These findings offer valuable suggestions for future international contributions related to climate policy and the sustainable development goals.

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