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Impact of Large Scale Reservoirs Development on Hydrological Regime in Chao Phraya River Basin, Kingdom of Thailand

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This study proposes system models for assessing effects of social changes on hydrological cycle in river watersheds, as well as water movement and balance especially among Asian countries, which are expected to be still dynamically developing with population and economical growths, industrial transfer and urbanization, while Japan is going to be in a stable developed stage.
The models aim at quantitative assessment of interactions between meteorological-hydrological dynamics and social dynamism, and also of the availability and risk of freshwater resources in Asia.
Also discussed are Japan's future water resources policies in connection with food and industrial policies, and strategic perspectives concerning how to contribute to the world.
As mentioned above, I intended to use the Chao Phraya River basin in Thailand as a case study.
The goal of our study is to clarify the effect of the human activities on water resources and water circulation. The Chao Phraya River basin was selected for this study. The Chao Phraya River basin, the largest basin in Kingdom of Thailand is located in central and northern part of Thailand. This basin has two large-scale dams named Bhumibol Dam across the Ping River and Sirikit Dam across the Nan River. This large storage dams are beneficial to the country for generating electricity and discharging water for the irrigation project areas and flood mitigation on both banks of the Ping, Nan and the Chao Phraya rivers.
This paper has evaluated the water usage and flood control facilities of Bhumibol Dam. As the results of comparing the annual change of monthly runoff before and after dam construction, the minimum runoff increased drastically and the maximum runoff decreased.
As the results of numerical analysis, it is clarified the water usage has become stable and the high water has decreased by the operation of Bhumibol Dam.

References

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