

EGU25-20779, updated on 28 Apr 2025

<https://doi.org/10.5194/egusphere-egu25-20779>

EGU General Assembly 2025

© Author(s) 2025. This work is distributed under the Creative Commons Attribution 4.0 License.



Impact of Dams on Salinity Intrusion and Agricultural Productivity: Evidence from Mekong River

Ha Vu

International Institute for Applied Systems Analysis (IIASA)

The paper examines how upstream dam construction impacts freshwater levels downstream, affecting salinity intrusion and agricultural productivity in the delta. The study combines historical records of dam construction on the Mekong River, water level observations, and agricultural productivity statistics, with satellite data as proxies for salinity index and vegetation coverage. The findings show that increased reservoir capacity significantly reduces downstream freshwater discharge, decreases rice yield, and intensifies saltwater intrusion, while annual electricity output partially mitigates these effects. These impacts are most severe during dry seasons and closer to the shore. Two mechanisms are identified: the disruptive but temporary "filling effect" in the first-year post-dam completion, and the persistent, smaller "operational effect" over time.