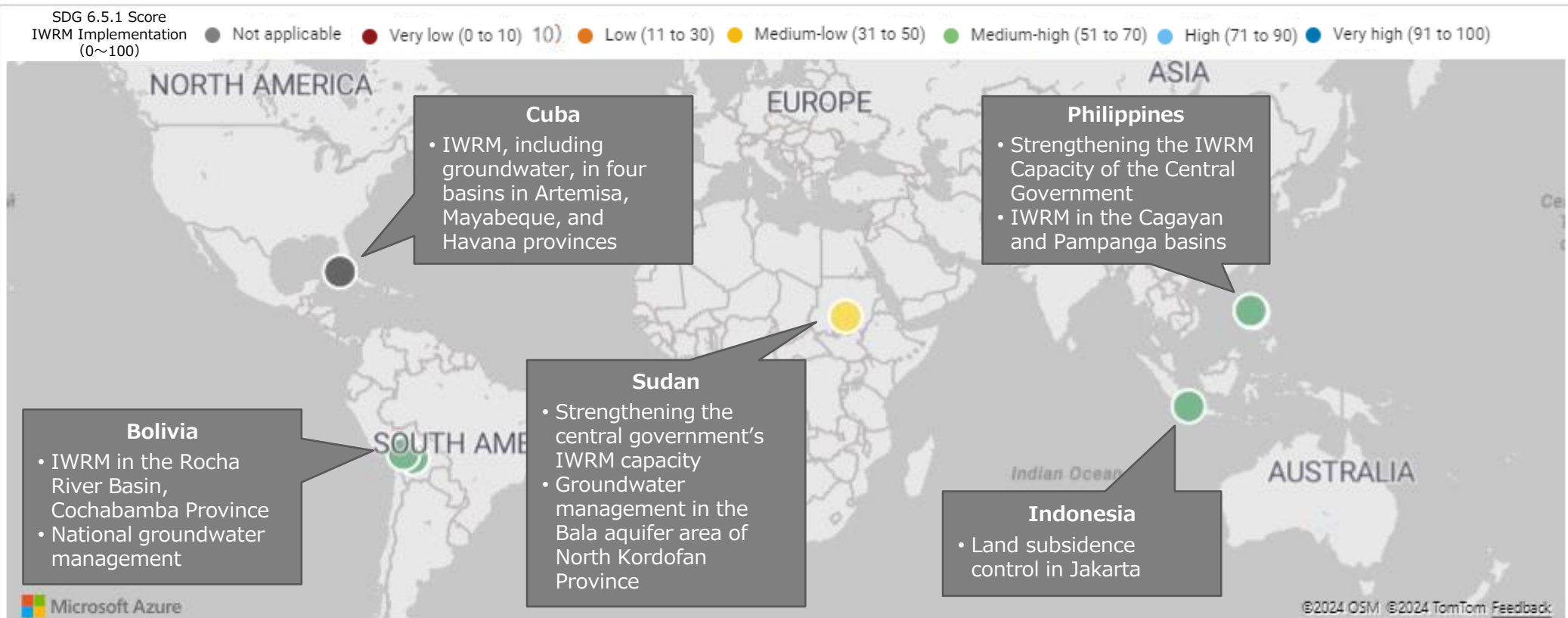


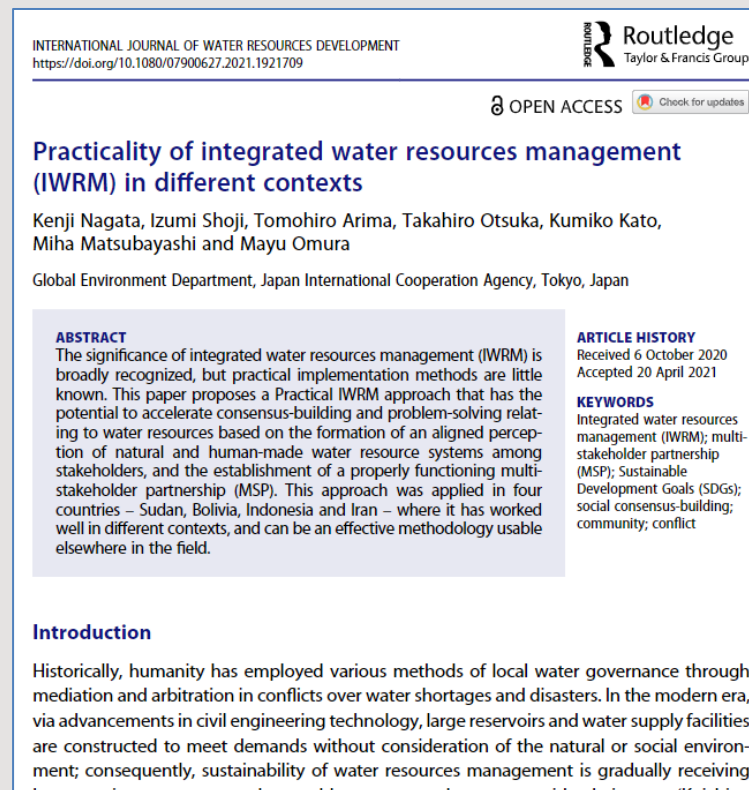
### Cluster Strategy for Practical Integrated Water Resources Management (IWRM) to Resolve Water-related Issues in the Regions

Support for improving the water resources management capacity of seven regions/basins in five countries.

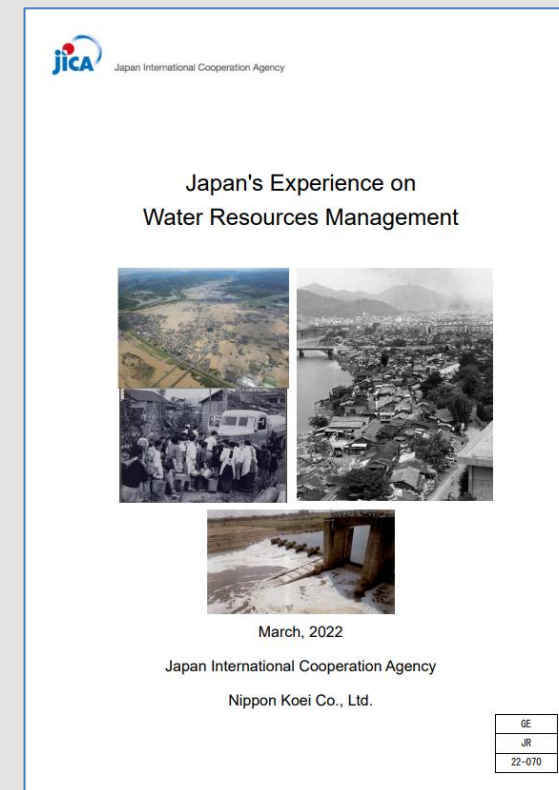


# 1 Explore the concept of “Practical Integrated Water Resources Management” and present it to the world

JICA is sharing its practice-based knowledge with the world on how to promote social consensus building based on the concept of “Integrated Water Resources Management” to solve problems faced by local communities and watershed people.



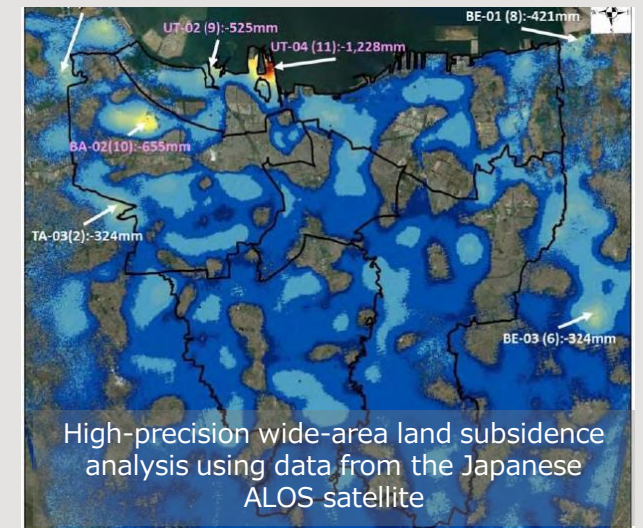
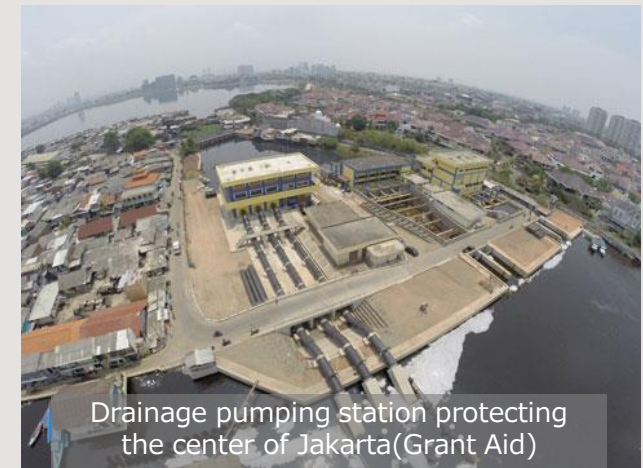
Wrote a paper on practical integrated water resources management and published in the International Journal of Water Resources Development <Link>.



Prepare educational materials (text and PowerPoint presentation in English) summarizing Japan's experiences and lessons learned in water resources management. <Link>

## 2 Stop land subsidence in Indonesia's Capital, Jakarta by applying Integrated Water Resources Management (IWRM)

Jakarta is experiencing rapid land subsidence due to excessive groundwater pumping, resulting in serious damage from storm surges and flooding. To halt the progress of land subsidence and promote adaptation measures to the impacts that have already occurred, JICA has established an implementation system that encompasses a wide range of related agencies of the central and provincial governments, and provided comprehensive support which includes a data collection system including construction of land subsidence observation wells, highly accurate wide area land subsidence analysis using satellite data, assessment of inundation risk and social costs, awareness surveys and education of residents and groundwater users, recommendations for groundwater pumping regulations and securing alternative water sources to groundwater, establishment of a committee for land subsidence countermeasures, and formulation of an action plan.



### 3 Strengthening basin councils and regional water resources management to support sustainable groundwater use in Cuba

In the province of Havana, where the Cuban capital is located, and the neighboring provinces of Artemisa and Mayabeque, large amounts of groundwater are pumped from four basins, and groundwater is the source of approximately 95% of the water for domestic use in the capital Havana and 80% of the water for agriculture in these areas. As a result, the groundwater level is declining and salinization is occurring, and large amounts of energy are being consumed to convey water from other basins. Sustainable groundwater management in each basin and efficient use of water resources over a wide area across all four basins are critical issues.

JICA is supporting the National Institute of Hydraulic Resources, the Ministry of Agriculture, and the basin councils to improve their capacity to promote IWRM. JICA is working to strengthen monitoring of water resources and water use, functionalize the basin councils, strengthen cooperation between the National Institute of Hydraulic Resources and the Ministry of Agriculture, and develop a wide-area water resources management plan.



Inefficient agricultural groundwater use



Groundwater level monitoring



Basin council meeting