
Case study: Integrated Water Resources Management in Myanmar

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Short summary

This is about the promotion of Integrated Water Resources Management (IWRM) in Myanmar. The National Water Resources Committee (NWRC) is an APEX body that transforms the segregated pattern of piece-wise and often overlapping water resources development and management by various government departments and line agencies into one consolidated coordination mechanism that oversees, monitors, directs and supports all water related activities leading to inclusive water governance.

The Republic of the Union of Myanmar is the largest country on the main land of South East Asia. Myanmar shares borders with Thailand, Laos, China, India, and Bangladesh. Its coast line stretches 2832 km from the west to the south along the Bay of Bengal and the Andaman Sea.

Myanmar is one of the ASEAN member countries and endowed with rich natural resources, abundant water resources and cultivable land, and favorable climate. Myanmar is a forest-clad mountainous country, with plateaus, valleys and plains. It can be divided as four ecological categories such as Mountainous Region, Central Dry Zone, Ayeyarwady Delta and Coastal Zone.

The total land area of Myanmar is about 261200 sq mile (67.65 million hectares) and current land use in Myanmar 2011 status stood as follows:- forest cover-48.16%, arable and permanent crop-18.75%, and other land-33.09%. Myanmar is a country endowed with abundant water resources. The catchment area of Myanmar's ten principal river basins comprises about 737800 km². Potential water resources volume is about 1082 km³ for surface water and 495 cubic km for groundwater, as well constitute national water resources annually. Total storage capacity of dam/reservoir is 21283 million cubic meter. Average annual rainfall is 7.99 feet (2435 mm) and evaporation is 4.48 feet (1365mm). Annual

average flow into the rivers is 2.96 feet (900mm). (Evaporation and sinking into the ground is about 63% and flow into the sea is about 37%)

As an agro-base country of Myanmar, water utilization for agricultural sector stands for 89% and domestic use is about 10% and industry use is only 1% of the total water use. The total utilization of the nation's water resources is only about 5 percent of the potential. This figure refers mostly to agriculture, domestic and water utilization for hydropower, navigation etc, is utilized in a different manner and remains in the system. It is clear that the physical potential for further development of water resources in Myanmar is quite substantial.

However, that doesn't mean that Myanmar is free from water related issues such as floods and scarcity. There is a diversity of climatic conditions in Myanmar which present challenges for us. Rainfall is unevenly distributed over the country and over the seasons leading to floods, flash floods and also very important, to water shortages and droughts. Furthermore, the water demand in cities has increased along with population increase and urbanization and water demand in rural areas has also increased due to expansion of irrigated agriculture and other rural-based economic activities. There is increasing pressure on use of surface water and extraction of groundwater. Control and management of surface water and groundwater is therefore important for sustainable development of the country in future.

Myanmar also needs to step up its water conservation, such as rain water harvesting, strategic planning for water resources development and related infrastructure investment ahead of time.

For social inclusion, we have mobilized some water users groups to take part in such activities. People are active in social mobilization, however, yet to be active in water management. Here we also need special targeted capacity development for local community to be able to meaningfully participate in water management decision making process at all levels.

Therefore Myanmar established National Water Resources Committee (NWRC) for coordination and cooperation among water related Ministries and Departments/ Organizations, which is a consolidated coordination mechanism that oversees, monitors, directs and supports all water related activities leading to inclusive water governance.. The intellectual and technical support has been provided by the Expert Group of the NWRC that consisted of long standing Myanmar water professionals from various water related fields with the experience of 25 to 40 years. The Netherlands government supported the IWRM Strategic Study in Myanmar has been carried out to identify no-regret projects which can be implemented in a way "learning by doing".

Key words:

Adequate and equitable access to sanitation for all ; Consider needs of women and girls in access to sanitation ; Consider vulnerable groups in access to sanitation ; Increase water use efficiency across sectors ; Ensure sustainable withdrawals ; Ensure supply of freshwater to address water scarcity ; Implement IWRM ; Water cooperation ; Universal and equitable access to drinking water ; Safe drinking water ; Affordable drinking water ; Protect, restore and sustainable use of inland freshwater related ecosystems ; Reduce economic losses ; Protection of the poor and vulnerable

Issues addressed:

WASH (inequalities, schools, health centers, refugee camps, women and girls)

Public health, women and girls, schools. NWRC encourages and support women organizations led WASH trainings in formal schools and monastic schools. Celebrated Global Hand washing day together with UNICEF, Water Mothers and other organizations.

Water resources management (water-use efficiency, integrated water resources management, transboundary cooperation, sustainable extraction and supply of freshwater)

IWRM issues and management in Myanmar Water Policy, Water Law, National Water Framework Directive, supporting the formation of river basin organizations such as Ayeyarwady River Basin Research Organization (ARBRO) and Chindwin River Basin Organisation (began discussions). Background information; Formation of National Water Resources Committee; Ongoing function; International Cooperation on IWRM; Ways forward.

Water quality (pollution, dumping of toxic materials, wastewater management, recycling, reuse, restore ecosystems and aquifers)

Drinking water standards (finished); Waste water and effluent standards (ongoing); Groundwater mapping. National level Drinking water standards have been finalized. Soon to be announced. Waste water and effluent standards (ongoing); Water quality monitoring system (study begins); Groundwater potential has been studied in few areas. It will continue until the whole country is covered.

Risks (mortality, economic losses caused by natural and human-induced disasters)

Early warning system, communication, disaster risk reduction, training. Early warning system established in conventional way since 2008. Communication through mass media and trainings were done. The advanced technologies will be employed next year.

Tools for implementation:

Governance: Institutions / legal framework: National Water Policy. National Water Framework Directive; Public consulting meetings; National Water Law; Hydroinformatics Centre

Technology: IWRM Strategic Study; Learning by doing – no-regret projects

Capacity development: M.Sc and Ph.D. scholarships, Training of Trainers (TOTs) and staff development trainings; M.Sc and Ph.D. scholarships were given to junior and mid level staff members, Training of Trainers (TOTs) and staff development trainings provided to water related staff. Trainings for Government staff, individuals and NGOs.

Lessons Learned:

- **Triggers:** Legal Framework
Water policy National Water Framework Direction Water Law
Expert Group of NWRC internal and international cooperation capacity water related minister
- **Drivers:** Political; Economic; Social; Demographic
- **Barriers:** Lack of tradition for inter-ministries cooperation; budget limitations; limited capacity and technology
- **What has worked well?** NWRC meetings; National Water Forum; International cooperation; IWRM strategic study; Ayeyarwady Integrated River Basin Management Project; working with NGOs
- **What could be improved?** Cooperation among water related Ministries and organization; Budgeting; capacity building; Decision support system
- **The way forward:** Formation of Hydroinformatics Centre; Approval of National Water Law; Capacity Building for young generation; Implementation of pilot projects; Implementation of AIRBM project; Twante canal improvement; Development of Ayeyarwaddy River Master Plan; strengthening of cooperation with other IWRM practicing countries; Multistakeholders platform

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