



Water Knowledge #3

Perceptions of Integrated Water Resources Management in Myanmar

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Introduction: Water Resources Management in Myanmar

In 2010, Myanmar re-entered the global scene after 22 years of isolation (Jones, 2014; ADB, 2014). Since then, the country has been changing at a rapid pace as a result of ongoing political and economic reforms (Kattelus *et al.* 2014; IISS, 2011; International Crisis Group, 2012). These reforms are opening new opportunities for Myanmar and foreign investors and international donors have lined up to take part in Myanmar's transformation, resulting in steady economic growth¹. One area of especially rapid growth is the hydropower sector, which is driven by high-energy demands in the region and is increasing pressure on Myanmar's water resources (IEA, 2015; Kattelus *et al.* 2014).

While Myanmar boasts an abundance of water resources, spatial and temporal distribution is highly uneven, resulting in water scarcity and desertification in the central dry-zone, floods and salinization issues in the Ayeyarwady Delta and flash floods in the North and Western parts of Myanmar. Deforestation due to illegal logging causes erosion and sedimentation in rivers and reservoirs, the former causing problems for navigation. Myanmar's climate is strongly influenced by the Indian Monsoon circulation (Taft and Evers, 2016). Variability and a change in patterns such as intensification of pre-monsoon tropical cyclones, early termination of monsoons, the increase in average rainfall in most areas and a declining trend in other areas are expected to aggravate flood events and drought periods (Wang *et al.* 2013; Shrestha and Aung Ye Htut, 2016).

Water management in Myanmar is scattered across ministries and departments resulting in an overlap of responsibilities in some sectors, while others remain neglected (OECD, 2014). Gaps in institutional resources affect Myanmar's capacity to implement and enforce effective laws and regulations (SEI, 2015). Water resources are managed ad hoc, with no clear long-term planning and the hierarchical structure of ministries and departments results in little or no cooperation or policy integration. Decisions have to move up and down the hierarchical ladder resulting in delays in planning and implementation (Myanmar government official, personal communication, February 2016).

In the National Water Policy adopted in 2014, the government called for an Integrated Water Resources Management (IWRM) approach to face these and future problems that will arise as a direct result of the country's development (Myanmar National Water Policy, 2014). IWRM can be defined as "a process that promotes the co-ordinated development and management of water, land and related resources to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems" (GWP, 2009). How this concept is understood in Myanmar and what principles of IWRM are considered important is not yet clear.

As part of the CGIAR Research Program on Water, Land and Ecosystems in the Greater Mekong, researchers proposed a framework consisting of four constructs considered important parameters that can indicate the extent of IWRM implementation in a river basin: policy integration, public participation, gender inclusion, and adaptivity. The Q-methodology was used to identify perceptions among stakeholders comprising 31 participants from union, regional, and local governments, NGOs, academics, and the

¹ 8.5 percent in real terms in 2014/2015, but is projected to slow to 6.5 in 2015/2016 due to natural disasters (World Bank, 2016).

private sector. Four distinguishing viewpoints and narratives emerged. Results showed that institutional arrangements and mechanisms for public participation require greater attention for successful implementation of IWRM in Myanmar.

An important principle of the participatory approach to development is the incorporation of local people's knowledge into program planning (Cooke and Kothari, 2001). Participation is expected to enhance the effectiveness of water resources management (Özerol and Newig, 2008), and to involve and empower local communities. Critical scholars, such as Cleaver (1999:608) suggest that "participation has been translated into a managerial exercise based on 'toolboxes' of procedures and techniques" and to achieve the intrinsic value of participation, appropriate techniques are needed to ensure real involvement in decision-making. Fung (2006:66) states that appropriate techniques or "mechanisms for public participation vary along three important dimensions: who participates, how participants communicate with one another and make decisions together, and how discussions are linked with policy or public action". These are questions that need to be addressed to find successful mechanisms for Myanmar, where a governance system with space for participation has been absent for decades and where participation is not a matter of course.

In 2014, the World Bank granted a loan of USD 100 million to the Myanmar government for the implementation of the Ayeyarwady Integrated River Basin Management Project (AIRBMP). The project aims to strengthen integrated, climate resilient water management in the Ayeyarwady River Basin through a multi-phased approach (AIRBMP, 2014). This project provides the opportunity for Myanmar to manage its water resources according to IWRM principles. In line with the adoption of the IWRM-based national water policy by the Myanmar government, a national water law is in preparation and Myanmar now has to determine what they value and understand as 'good' IWRM practice to translate policy into nation-wide practical plans.

The WLE research project examined perceptions of four constructs underlying IWRM, policy integration, public participation, gender inclusion, and adaptivity among people responsible for the implementation of future water management plans in Myanmar. The assumption is that perceptions of these constructs are an indication of how likely it is that IWRM principles will be adopted in water management plans. Policy integration is expected to be challenging in a context where rigid hierarchical structures are the norm (UNDP, 2015) and effective public participation is expected to pose challenges. With regards to compliance with Goal 6.5 of the Sustainable Development Goal (SDGs), Akkerman *et al.* (2015) recognize that practical approaches on how to measure the extent to which water management plans follow principles of IWRM are rare.



Methods: Q-Methodology to study attitudes and beliefs

The Q-methodology is a mixed-method approach for the systematic study of beliefs, and attitudes (Work *et al.* 2015; Brown, 1993; Van Exel and De Graaf, 2005). Based on quantitative factor analysis, the Q-methodology does not require a large sample (Raadgever *et al.* 2008; Watts and Stenner, 2005) and involves the analyses of ranked statements (the Q-set) about IWRM onto a grid according to a quasi-normal distribution. To identify perceptions, semi-structured interviews were conducted with eight Myanmar officials working in the water sector at national and local level along with an examination of government reports, policies, reports from NGOs and international development and financial institutions. Initially, 87 statements were developed of which 41 formed the final Q-set. The sample was composed of 12 national government officials, three regional government officials, two local government officials, four academics, six NGOs and four participants from the private sector. Approximately half the sample were women.

Q-sorting of the 87 statements started with a short introduction to the research topic, an explanation of the procedure and the assurance of anonymity. The participants then received cards with the statements, which they classified as agree, disagree or neutral. The statements are then arranged from 'strongly agree' to 'strongly disagree'. The exercise concluded with an interview to explore participants' reasons for their distribution.

Results

The complete analysis (Van Dorp *et al.*, n.d.) provides detail on viewpoints regarding the four constructs (policy integration, public participation, gender inclusion, and adaptivity). Of particular interest is the consensus among the participants on 13 statements. For example, one statement is related to policy integration: "Data should only be available for the ministries and departments, not to the public", was strongly rejected by all four viewpoints. Reasons mentioned by participants included statements such as: "A country is composed of people and the government so data should not be only for the government. It has to be shared with the public. They have the right" and "We cannot make any research without data."

There was also consensus on statements regarding public participation (e.g. "Local people know the local water system and should therefore be consulted"). Reasons given included "In the delta area, people know when the tide will come and the water level increases. They know more than us sometimes" and "In the past, if the government does a project they never do public consultation. The public does not know what is planned and people cannot express their feelings because they are not consulted. They have no choice. In the future, this must change".

The consensus statements on gender reflect different viewpoints, some negative ("Women are too busy to manage the household and should not be burdened with water management decisions") and some more promising ("Women and men have same chances and in Myanmar women can participate in the water management sector so they are not excluded. There isn't any rule for women to be excluded from water management").

Consensus statements indicate an awareness of potential impacts of climate change and land use changes (“Sometimes we cannot pump groundwater for drinking water supply, I think that is due to climate change; climate change adaptations in livelihoods is part of our projects for five years. I see that there are more organizations getting involved: deforestation, urbanization and mining are important land use changes in Myanmar. There is a lot of sedimentation in the river due to mining and deforestation, and also pollution from mercury. We have to dredge a lot because of that”).

Other positive signs are that participants believed that ministries should work together to reduce climate change impacts, a general consensus that planning should cover more than 10 years in the future, all water management plans should incorporate climate change scenarios, and government should inform citizens more about possible climate change impacts.

The detailed analysis of viewpoint by factor (A to D) and construct is provided by Van Dorp *et al.* (n.d.).

Prospects for IWRM in Myanmar

Further study is needed to understand perceptions of IWRM throughout all states and regions, with specific attention to ethnic minorities. Because the Q-methodology uses a small-sample size, a different method might be better suited, such as focus group discussions and structured interviews. The statements did not cover transboundary issues, which, from a current Union perspective, are minimally addressed. With increasing federalization of the country, however, transboundary issues will become of more importance in Myanmar.

Policy integration and cooperation within and between ministries is limited, resulting in long decision-making processes, inefficiencies, and delays in the implementation of plans. With the new government, however, participants expect this to change quickly. The present organizational culture characterized by segregated departments and ministries makes it challenging for projects such as the Ayeyarwady Integrated River Basin Management Project (AIRBMP) to adopt IWRM principles. An important aspect is the absence of data-sharing between ministries. Making policies with insufficient or unreliable data is already difficult, *let alone* integrating policies when information is not shared.

There are discussions about whether the Ayeyarwady River Basin should have a river basin organisation, or whether a new ministry should be established for natural resources management. These institutional arrangements are important aspects of IWRM. Participants believe that regional governments should have more responsibility for decision-making. Increasing responsibilities would also change the hierarchical structure that is widely seen as an obstacle to integration. In addition, there is an urgent need for expert knowledge and capacity building. Cooperation between ministries and sharing knowledge is one key aspect of policy integration. Most government officials with water management tasks are engineers. Considering possible impacts on fish populations or local livelihoods as a result of closing off a tributary is not necessarily something they are trained to include in their calculations. Whether a more holistic approach advocated by IWRM can be successful depends to a large extent on cooperation between ministries and departments and, most of all, the sharing of knowledge and data. The results of this study show a consensus on the need to involve citizens in



water management decisions. Questions remain about who should participate, and how outcomes are linked with policy or public action.

The results related to gender inclusion show that women did not feel excluded from decision-making. Participants agreed with the statement that “the man is head of the household”, suggesting that while Myanmar has a traditional family structure, men are not perceived as being more capable of making water management decisions than women. Some participants who confirmed that while women are excluded when it comes to higher positions in government, within the family they are equal.

Conclusion

Policy integration and public participation are perceived as the two topics with the widest divergence of viewpoints among the four constructs. Seven of the 13 Q-set consensus statements concern adaptivity, suggesting this construct is perceived similarly among the participants. Statements regarding adaptivity systematically scored high, indicating that it is believed to be an important part of water management in Myanmar. All plans should incorporate climate change scenarios and the government has a major responsibility to inform its citizens about possible climate change impacts.

Four distinct ‘viewpoints’ and related narratives were identified as part of the Q-methodology. Those holding Viewpoint One have strong beliefs about policy integration and believe that decision-making power should be more equally divided among government levels, and that only full cooperation will lead to effective and sustainable water management. Those expressing Viewpoint Two believe that decentralization is important for IWRM and emphasize the importance of the role that women play in water management. Viewpoint Three holders believe that public participation is empowering for vulnerable groups, although they also have strong opinions about gender equality. Viewpoint Four distinguishes itself from the others through the belief that future land use change is more important than climate change. People who hold this viewpoint believe this topic as important for future water management in Myanmar. Climate change receives a lot of attention, which can be partly attributed to donors’ focus on climate change.

The findings suggest that Myanmar water professionals are open to aspects of the IWRM approach to water management, with special interest in policy integration and cooperation and public participation. Ongoing projects such as the Ayeyarwady Integrated River Basin Management Project will provide further knowledge on the extent these ambitions can be implemented, given the current organizational structure in the water sector as well as limited experience with public participation.

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The CGIAR Research Program on Water, Land and Ecosystems in the Greater Mekong (WLE Greater Mekong) is a research-for-development initiative that seeks to improve the governance and management of water resources by generating and sharing the knowledge and practices needed to do so. The programme works in the Irrawaddy, Mekong, Red and Salween river basins. WLE Greater Mekong works through a wide range of partners and builds on the work of the CGIAR Challenge Program on Water and Food (2002-2014). The program is based in Vientiane, Lao PDR. For more information, see wle-mekong.cgiar.org

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