



Water Knowledge #6

# Emergence of Integrated Water Resources Management: measuring implementation in Vietnam

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## Introduction: IWRM in Vietnam

IWRM can be defined as “a process that promotes the coordinated development and management of water, land and related resources in order to maximize economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems” (GWP, 2012).

Recently, the changes in laws and regulations, such as the 2012 revised Law on Water Resources (LWR 2012), have sought to provide a legal framework for internationally recognized practices of Integrated Water Resources Management (IWRM) in Vietnam (Nguyen, 2012). IWRM is a novel approach for Vietnam. This Research Bulletin evaluates how well water resources plans adhere to the principles of IWRM, to learn and further tailor these principles to the Vietnamese situation.

## Measuring IWRM

Wolff *et al.* (2013) provide an overview of attempts to evaluate the success of IWRM strategies. Many problems arise, especially when plans in different countries or river basins are compared with one another. Water needs vary from area to area, and so do development drivers. A further problem is that the success of a plan can only be measured after it has been fully implemented, while it would ideally measure the quality of a plan while the process is still on-going.

This implies that for the more process-oriented elements of IWRM, Eco-system services provide a framework (e.g. CGIAR, 2014) to measure the sustainability of plans environmentally, socially and economically, but not to measure the more process aspects of IWRM. We propose to measure these process aspects with the constructs integration, participation, gender inclusion and adaptivity. Integration follows directly from the definition of IWRM, participation and gender inclusion follow from the underlying Dublin principles (GWP, 2012). Adaptivity is added to the lists to recognize that plans are developed for complex changing systems. Although it may not be an explicit part of IWRM, adaptivity is of paramount importance when facing an unpredictable future (Haasnoot *et al.*, 2013) and receiving increasing attention in planning of land and water resources (Timmermans *et al.*, 2015). Given the combination of current climate challenges and subsequent uncertainties regarding its impact and large uncertainties in socio-economic development, we feel it is crucial to include this construct in the proposed framework.

In spite of the normative nature of some of these constructs, it should be noted that more is not always better. For example, citizen participation on a highly technical, specialized subject, might not help much. Adaptivity, integration and participation should be adequate for the planning practice at hand. A plan that is too adaptive might be too weak and exclude large infrastructural investments, whereas too much integration can make the planning process too complex.

## Policy integration

To measure the degree of integration, the comprehensive framework by Kivimaa and Mickwitz (2006) will be used. The framework is explained in more detail in Table 1.

Table 1: Definition of policy integration adapted from Kivimaa and Mickwitz (2006)

Construct	Definition
Inclusion	To what extent all aspects of IWRM (such as industrial water use, residential water use, water quality, etc.) covered?
Consistency	Have the contradictions between the aims related to different aspects of IWRM and other policy goals been assessed and have there been efforts to minimise revealed contradictions?
Weighting	Have the relative priorities of IWRM impacts compared to other policy aims been decided and are there procedures for determining the relative priorities?
Reporting	Are there clearly stated evaluation and reporting requirements for IWRM-planning, including ex ante deadlines, and have such evaluations and reporting happened ex post? Have indicators been defined, followed up and used?
Resources	Is internal as well as external know-how about water management available and used, and are resources (e.g. budget) provided?
Coordination	What processes are there to coordinate policies between different governments, different tiers of government and within governments?

The aspect of coordination is added to the framework. Coordination in this respect refers to the existing mechanisms for horizontal coordination (cooperation between different agencies on the same level e.g. between two ministries or two provinces), vertical coordination (cooperation between for example a provincial department and a district department) (Lafferty, 2002).



### *Box 1: Integration in the Vu Gia – Thu Bon river basin*

The Vu Gia – Thu Bon river basin is located in the provinces of Quang Nam and Da Nang. The basin actually consists of connected two rivers, in which one of the branches is important for water supply to Danang, the fifth largest city in Vietnam. In the hydropower development plan for the Vu Gia – Thu Bon River Basin 2006-2010, part of the provincial power development plan, a total of 40 hydropower plants were proposed. This number later rose to 60. In 2008, the International Center for Environmental Management, in its Strategic Environmental Assessment, warned that so many hydropower plants would have detrimental impacts on other water uses and the environment (ICEM, 2008). Nevertheless, the construction of most of these hydropower plants went ahead. As a consequence, Danang has had trouble with its drinking water supply in dry periods, whilst floods occurred when hydropower plants discharged large amounts of water (Luu et al., 2014). These problems are to a large extent caused by a lack of integration. Two separate coordination bodies for the river basin were set up (ICEM, 2008), one with the support from the World Bank, the other with support from ADB. One coordination body is under MARD and involves both Quang Nam and Da Nang, whilst the coordination body under the Ministry of Environment and Natural Resources (MORE) only involves Quang Nam Province. In addition to these coordination challenges, the interests of hydropower plants were not adequately weighted against other interests, such as agriculture and drinking water supply.

## Participation

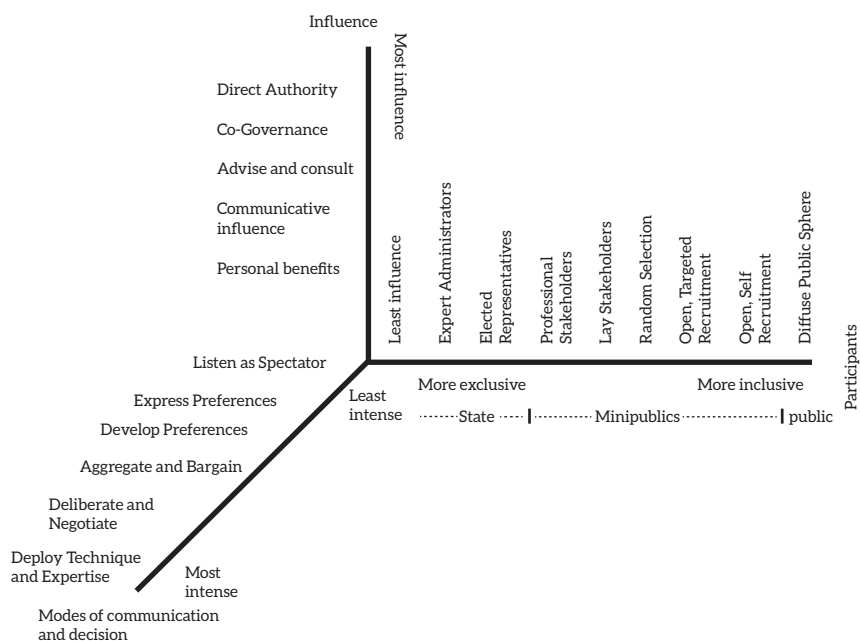
Public participation can be defined as: “the process by which public concerns, needs, and values are incorporated into governmental and corporate decision making.” (Creighton, 2005: 7). Although there are some efforts dating back from the late 1960s to measure the extent of public participation in planning, such as Arnstein’s (1969), one single measure of participation has been seen as inadequate by scholars (cf. Fung, 2006).

A participation procedure, in which a lot of influence can be exercised, but in which only a few participants are invited, is perhaps less desirable than a consultation procedure in which everybody can participate, but which offers limited scope for influence.

In response to this, Fung (2006) developed a concept that will be used in the proposed framework. He proposes three measures, which can be used to determine the degree of public participation in a planning process. These can be graphically represented in a cube, dubbed the ‘democracy cube’ (Figure 1).

In this paper, we follow his approach to measure the extent to which the public can participate in Vietnamese decision-making processes. On the first axis of the democracy cube refers to the participants in the process. The ‘Diffuse Public Sphere’ refers to the mass media, secondary associations (such as unions, cooperative associations), and informal venues of discussion. ‘Modes of communication’ reside on the second axis of the cube, ranging from least intense to most intense. On the third axis of the cube, we find the extent of authority and power.

Figure 1: The democracy cube



Pablo *et al.* (2013) argue that Fung’s (2006) framework offers distinct advantages over other frameworks, as it substantiates the values, making it easier to empirically observe the degree of participation. This includes the model’s has three dimensions, allowing more diverse terms of participation to be measured. This also means that Fung’s framework moves away from the premise that more participation is also better. As HarmoniCOP (2005: 14) points out, public participation is desirable as long as the public can “contribute to [the quality of] decision-making”. If this is not the case, public participation can be counter-productive, as a large group of stakeholders will have a harder time to come to an agreement than a small group of stakeholders. In addition, with many stakeholders involved in the process, social learning will be less likely. Furthermore, while the decision-making process will become less efficient, the costs of the process will rise (HarmoniCOP 2005, 15). Thus, different processes need different levels of public participation.

Table 2: Constructs to measure participation using Fung’s democracy cube

Construct	Definition
Stakeholders invited	Which stakeholders are invited for the consultation process?
Modes of communication	How do participants in the participation process communicate with each other?
Degree of authority	How much power and authority do participants in the consultation process have?



### *Box 2: Participation under the Law on Water Resources 2012*

The 2012 Vietnamese Law on Water Resources, contains some new provisions on gathering the opinions from individuals and other stakeholders regarding water resources management. Investors are also required to consult with local communities, relevant organizations and individuals when their projects involve exploitation of water resources or the discharge of wastewater into rivers (Nguyen, 2012). There is, however, limited information on how these changes have played out in practice. One account from Le (2015), argues that public participation has been limited because of a lack of capacity at the lower levels. Furthermore, affected people are often not aware of planning processes and governments and investors often fail to disclose relevant documents.

The law also mentions the right to complain about decisions. These rights are not, however, specified. This makes it difficult in practice for parties affected by water resource decisions to protect their rights, especially in cases when there is a lack of participation by the judiciary (Nguyen, 2012). If we refer to Fung's (2006) model, participation in Vietnam's water planning processes can be characterized as: self-recruitment (but with significant barriers to entry), personal benefits (with some elements of communicative influence, for example through the right to complain), and express preferences.

## Gender sensitivity

Men and women use water resources differently (Simon, 2013). As a consequence, gender-blind water planning can exacerbate existing inequalities between men and women. The World Commission on Dams (WCD) goes further to say: "Where planning is insensitive to gender, project impacts can at best be neutral, and at worst aggravate existing gender disparities to the extent of radically affecting the pre project gender balance" (WCD, 2000: 114). In order to meet the objectives of social welfare, a gender sensitive plan is imperative.

A typical planning process can be divided into roughly three stages, in which the first two stages do not have to happen consecutively; a preparation phase in which data is collected, a planning and decision-making phase and an execution phase. In all three phases, gender elements can be incorporated.

In the preparation phase, when the data is collected that should feed into the plan, the most important question is whether sex disaggregated data has been collected. Sex disaggregated data provides an overview of the different functions and uses of water resources in the lives of women and men (Simon, 2013). Such data also means that the impacts of a plan, whether positive or negative, can be assessed for both men and women.

In the public participation phase, participation of women can occur in different ways. Simon (2013), for example, recommends having consultation sessions with men and women separately, as well as sessions in which both genders participate. The extent to which women can participate in the planning process is, however, closely related to

the participation process as a whole. We will therefore base our selection of the criteria on Fung's (2006) democracy cube. Since government officials and national assembly members are mostly male (JICA, 2011), processes in which only expert stakeholders or elected representatives can participate are likely to be male-dominated. A participation procedure, in which professional or lay stakeholders are invited, could mean that there are more women present (e.g. the Vietnam Women's Union could be invited). Women's involvement in public consultations is no guarantee that they can participate in planning processes. Existing gender inequalities are often reflected in decision-making processes outside the home (Simon, 2013). Therefore, targeted recruitment of women participants, with separate consultation meetings for women, is seen as the most optimal situation in terms of women's participation. In short, based on Fung's (2006) participation cube, the following range will be used, from least involvement of women, through to most involvement:

- Expert stakeholders or elected representatives.
- Professional stakeholders or lay people.
- Open participation.
- Targeted recruitment of women.

In addition to gender considerations in the planning process, gender can also be addressed in the actual plan. Even with limited participation in the planning process, and even without the use of sex disaggregated data, a planning authority can decide to direct resources to activities that strengthen the position or improve the well-being of women.

Table 3: Constructs to measure gender inclusion

Construct	Definition
Sex-disaggregated baseline data	In the planning process, there is data gathered on the way women use water and how they would like to use it.
Women's participation in the planning process	Targeted recruitment of women and separate consultation sessions for women
Gender sensitive provisions in the plan	Provisions in the plan that are directly aimed at improving the position of women.

## Adaptivity of planning

The concept of adaptivity in planning refers to the extent to which plans are robust across a range of plausible futures (Walker., 2001). As pointed out by Dewey (1927), and reiterated by Haasnoot *et al.* (2013: 486), policies should promote "continual learning and adaptation in response to experience over time". This is important, as "policies designed implicitly [...] to operate within a certain range of conditions are often faced with challenges outside that range", which may hinder the accomplishment of their goals (TERI, IISD 2006, X). To derive a comprehensive set of constructs this article draws from the literature on Adaptive Delta Management (Timmermans *et al.*, 2015), urban forest management and general adaptive management.





**Box 3: Case study: Impacts of the Don Sahong hydropower dam on the Mekong Delta**

Hydropower developments on the Mekong Mainstream are thought to seriously affect the Vietnamese Mekong Delta. Despite the concerns about the impacts, people in the Delta were not consulted about their opinion of the project. Oxfam therefore supported a group of NGOs, led by GreenID, to organise a public consultation, who organized separate consultation sessions for women. This enabled women to take up a leading role in the consultation process. Female participants in the consultation process were asked to voice their opinions in the media. The outcomes of the consultation process were sent to the Vietnamese National Mekong Committee, which endorsed some points, including a call for wider consultations with affected communities in the Mekong Delta and elsewhere.

Using the time horizon of a plan as an indicator for adaptive planning is also an option. While strategic, long-term planning is not easy, adaptive management – whether this regards water or forest planning – is needed, as it enables decision-makers to “outline required action items, prioritize implementation and accommodate long-term budget planning” (Van Wassenae *et al.*, 2012, 30). Also, unexpected developments, although they “may force significant reprioritisation of short and medium-term operations”, can be countered by long-term planning, ensuring that long-term goals will still be met (*ibid.*: 30). Collingridge (1980) has argued that, due to the impossibility of taking into account all side effects or possible future developments, flexibility can increase the “correctability of decisions”. Haasnoot *et al.* (2013: 486) also reiterate Rosenhead (1990), who stressed that flexibility can indicate “the robustness of strategies under uncertainty”.

The frequency by which a plan is actually revised is a final potential constrict for evaluating adaptive, and whether the changes are triggered by time or by events. The assumption is that, the more a plan is subject to revisions, the higher its level of adaptiveness. Since river systems vary in terms of dynamics, both in terms socio economic and natural dynamics, an adaptive plan does not look the same in all river basins.

Table 4: Constructs to measure adaptation

Construct	Definition
Scenarios	How many scenarios are used to develop the plan?
Time horizon of the plan	What period is taken into account by the plan?
Flexibility	To which extent are solutions in the planning flexible or extendable?
Revision of the plan	How often are basic assumptions being updated and reviewed? Are revisions time-triggered or event triggered?

## Discussion and conclusion

This paper introduces four process related aspects of IWRM, integration, participation, gender sensitivity and adaptivity, which can be assessed to determine the quality of a water resources strategy. In order to make a valid assessment of the quality of the plan, information is needed about both the contents of a plan and the process towards the development of the plan. Process related information is however not always publicly available. Interviews with policy makers form another method to gather information.

The aforementioned approach can be used to evaluate of the quality of an IWRM plan. The method is not meant as a construct to evaluate the success of IWRM plans, but rather to examine the quality of a plan by as-sessing the planning process.

### Box 4: The Mekong Delta Plan

The Mekong Delta Plan, developed by a consortium of Dutch and Viet-namese partners, is an example of highly adaptive plan. In it, a range of scenarios were developed in terms of land use and climate change. The plan has a time horizon of almost 90 years, much longer than other plans in Vietnam that tend to have a time horizon of 15-20 years. When the regular master plans for the region and its provinces are implemented, the current developments will be assessed. Finally, the plan prioritizes the implementation of no regret measures. These are measures that fit to all scenarios in the plan. With the plan being ap-proved only recently, it remains to be see how the implementation of the plan, and reassessments of baseline data, will take place in practice. In other words, is there sufficient institutional capacity to deal with the additional pressures that come from having an adaptive plan?



Planning schedule for the Mekong Delta Plan and the Mekong Delta Program (Mekong Delta Plan, pp. 11)

The methods provide several indicators for four aspects that determine the quality of an IWRM plan. Additionally, the methods provide clear guidance on how these indicators can be measured in practice.

Future research will focus on the application of the framework on a real-life case study in Vietnam. This should help to improve the framework and test its practicality, particularly in quantification, and highlight the extent to which limitations, such as the lack of an assessment of the overall legal framework, will impact the use of the framework.



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# Water Knowledge

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