

The ADB/WB/MRC ‘Mekong Water Resources Assistance Strategy’: Justifying large water infrastructure with transboundary impacts

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1. Introduction

In a working paper released in June 2006, the World Bank and the Asian Development Bank (ADB) outlined their new Mekong Water Resources Assistance Strategy (MWRAS) (World Bank and ADB, 2006). The strategy is a major new collaboration between the Banks and the Mekong River Commission. It promotes the construction of controversial water infrastructure projects in three sub-regions of the Mekong Basin where transboundary impacts would occur that include dams, irrigation schemes, and water transfer projects. The MWRAS propose to stimulate better transboundary management of the Mekong River and its tributaries, which will also result in the development of a regional strategy and program for the Banks. The strategy claims that livelihood restoration programs for affected communities could mitigate any negative impacts from the projects, suggesting that affected communities might even benefit from the new river flows leading to potential ‘win:win’ situations.

The MWRAS proposes to provide assistance to the four countries of the Lower Mekong Basin who share the Mekong River and its tributaries and also constitute the membership of the MRC, namely: Cambodia, Laos, Thailand, and Vietnam. Three geographical sub-regions are planned to be targeted by the MWRAS, namely: Northeastern Thailand and Northwestern Laos, where large-scale trans-basin water transfers are proposed; the Sesan, Sre Pok and Se Kong river basins where the interests of Cambodia, Vietnam, and Laos coincide under extensive hydropower development plans; and the Mekong Delta shared by Vietnam and Cambodia to address flood/ navigation/ agriculture and wetlands associated projects. In each target region controversy has arisen in response to the proposed development initiatives put forward by the respective states, although no reference is made to these social histories within the MWRAS report.

The MWRAS claims that economic and other pressures on each of the Mekong countries means it is inevitable that large-scale water infrastructure projects will go ahead. The MWRAS does not question whether the infrastructure projects themselves are the most effective way to reduce poverty in the region or if they are sustainable. Instead it claims that development in the Mekong Basin over the past decade has been too cautionary and has ‘tended to avoid any risk associated with development, at the expense of stifling investments’. Rather than calling for the sustainable development of the Mekong Basin, the MWRAS legitimizes infrastructure plans by calling for ‘Balanced Development’, in which trade-offs between economic benefits, social equity and ecological integrity must be made.

The aim of this paper is to examine some of the central tenets of the MWRAS and explore its wider implications for water resources development in the Mekong basin. The paper begins by examining the MWRAS's use of hydrological modeling to justify large infrastructure development. Shortcomings in the model's application are identified and the broader implications of computer modelling in water-resources planning are discussed. The paper then highlights the new relationship between the Banks and the Mekong River Commission (MRC), and briefly explores the implications of the MRC's new role. The paper then considers whether application of the principles of 'Integrated Water Resources Management', as promoted by MWRAS, will lead to equitable and sustainable water resources management as evaluated in the light of experience from the Mekong region to date. The value of wide stakeholder participation is also discussed. In the final section, the paper discusses the MWRAS's upcoming major project in the Sesan-Srepok-Sekong river basin. It is argued that the MWRAS will allow hydropower developers to ignore their accountability to downstream affected communities because the MWRAS will take responsibility for developing necessary mitigation programs, reframing them as 'win:win' scenario development projects despite the fact that no integrated planning has taken place.

2. The application of hydrological modelling to justify infrastructure development

A key justification put forward by the MWRAS for infrastructure development is the results of a report, commissioned by the World Bank, that employed a hydrological model to predict likely river flow changes arising from six development scenarios for the Mekong Basin ranging from 'Low' to 'High' (World Bank, 2004). The model, called the Decision Support Framework (DSF), was developed by the Mekong River Commission (MRC) under the Water Utilization Program and is designed to simulate the hydrological flow in the Mekong River and its tributaries. The low development scenario describes a minimum level of development based on population growth up until 2020. The high development scenario includes extensive hydropower construction throughout the basin, together with a significant expansion in irrigated agriculture made possible through water transfers.

Founded on the reports analysis, the MWRAS working paper's executive summary writes 'The bottom line message of this Mekong Water Resources Assistance Strategy is that the analytical work on development scenarios has, for the first time, provided evidence that there remains considerable potential for development of the Mekong water resources...' According to the MWRAS, the hydrological model shows that even under a high development scenario overall river flows remain comparable to as they are today. However, the hydrological model is capable only of simulating *water flow* in the river, and completely ignores the likely significant changes that will occur to the river's *ecology* as a result of changes in sediment flow, water quality, timing of the flood pulse, and the blockage of fish migrations that will result from dam and water diversion projects.

This section begins by describing the importance of the flood pulse to the Mekong River's ecosystem and identifies that the DSF model is unable to evaluate important ecological changes likely to occur as a result of changes in river hydrology and their consequent socio-economic impacts. That the DSF model is also unable to simulate hydropower plants and that localized impacts are not accounted for is also briefly discussed. Overall, it is put forward that the MWRAS misrepresents the findings of the DSF hydrological model in an attempt to justify infrastructure development.

2.1 Undervaluing the importance of the Mekong River's flood pulse

The Mekong River's 'flood-pulse' is vital to the productivity of the River and its flood plains (Lamberts and Bonheur, 2006; Fox and Sneddon, 2005). In the flood-pulse process, exchanges of water, nutrients and organisms occur between terrestrial and aquatic environments (plant matter from the land to the water and water to the dry land) according to an annual flood-drought cycle driven by the Mekong River's hydrology that seasonally inundate flood-plains. The exceptional ecological productivity of the Mekong River and its flood plains is linked inextricably to the system's annual flood pulse. Yet, this productivity is extremely vulnerable to man-made alterations, including the minimum and maximum water levels (Lamberts and Bonheur, 2006).

Using measurements from only a few key points on the Mekong River, the DSF hydrological model study predicts that whilst the dry season flows will notably increase as a result of infrastructure development, wet season flows will change only a little. The MWRAS claims that therefore the overall *shape* of the hydrograph is preserved and therefore there will be minimal impact. This is misleading, however, because it is actually the *range of flows* during the wet *and* dry season that maintains the Mekong's productive flood-pulse ecosystem and not just the magnitude of flood in the wet season alone. Furthermore, the timing, duration, height, extent, continuity of flooding, number of peaks, the speed at which the water floods the land, water quality, and sediment load are all critical characteristics of the flood-pulse (Lamberts and Bonheur, 2006). Ecosystems have adapted and become dependent on this cycle. The DSF model is unable to simulate even basic characteristics, such as water quality indicators and river sediment loads that are necessary to link hydrology to ecology and therefore evaluate consequences of altering characteristics of the flood pulse.

Environmental Impact Assessments (EIA) currently made for individual water infrastructure projects are inadequate to assess the cumulative impact on the Mekong River's flood-pulse character and the consequences. Lamberts and Bonheur (2006) argue that because of this the importance of the flood-pulse generally lacks recognition and conclude these shortcomings '...lead decision makers to believe that mitigation of negative impacts on flood pulsed ecosystems is possible.' Regarding the MRC's role in managing the Mekong River, Fox and Sneddon (2005) identify that because the 1995 Mekong Agreement focuses upon the river as a water resource, rather than the river as a land-water ecosystem interaction, it is poorly equipped to handle management of the complexity of the flood-pulse phenomena. Instead the MRC over-simplifies the situation to the strictly physical characteristic of maintenance of minimum flows. The DSF

model's application under the MWRAS exemplifies how more complex impacts beyond hydrological change remain ill-considered.

2.2 The DSF is unable to simulate hydropower dams

The MWRAS report states '...The development scenarios modeling exercise demonstrated that the Mekong river system has significant tolerance for development, including for hydropower...' Yet the DSF model is not capable of accurately simulating hydropower plant operation. The release of water from hydropower reservoirs varies throughout the day in response to power generation needs. The DSF model simulates the Mekong's hydrological system at a daily time-step resolution and is therefore incapable of accounting for the subtleties of hydropower operation (Adamson, 2006). Simulation of hydropower requires operational data and specialized models more sophisticated than the DSF.

2.3 The MWRAS does not account for localized impacts

Changes to local flow regimes arising from infrastructure development can result in accelerated river-bank erosion, water quality problems, and decimation of ecosystems including wild fisheries amongst many other impacts. By examining the hydrograph of the Mekong River from a macroscopic perspective important local hydrological changes are ignored by the MWRAS, as are the likely negative impacts.

There are numerous examples of localized changes to rivers both globally and within the Mekong Basin as a result of infrastructure projects. For example, the commissioning of hydropower dams constructed on the Mekong mainstream in Yunnan Province, China has led to alteration to water discharges, water fluctuations, and sediment transport downstream of the dam in Chaeng Saen, Thailand on the Thai-China border (Campbell, 2004; Lu and Siew, 2006). The Sesan River in Cambodia has seen the destruction of its fisheries, massive and rapid changes in river flow, and river bank erosion which has severely affected river-side communities' livelihoods (Rutkow et al, 2005).

2.4 The Mekong River and Livelihoods

In the Mekong Basin, there is presently a poor scientific understanding regarding the link between flow conditions and the ecological systems dependent upon them (Campbell, 2005). It is widely accepted, however, that changes in flow regime will lead to changes in ecology and furthermore these changes can occur in unexpected and dramatic ways. The sustained health of the Mekong River's ecology is of vital importance to the tens of millions of people whose livelihoods are linked to the River (e.g. Assembly of the Poor and SEARIN, 2002). It cannot be assumed that changes judged acceptable to the River's hydrograph as a result of infrastructure construction will result in either equally proportional or equally acceptable accompanying ecological and social changes. Indeed, it is not clear by what criteria the MWRAS has decided that changes to the overall hydrograph are acceptable. It will be the poorest people in the Mekong Basin who will disproportionately be affected by changes in the rivers hydrology and negative impacts on ecosystems, as they are the ones most dependent on the River's wild-capture fisheries, aquatic plants, and other natural resources.

2.5 The role of hydrological modeling in river-basin planning

Accurate hydrological modeling is one of the cornerstones of river-basin planning. As such, the World Bank (2004) report does provide a valuable starting point for discussion on the potential impact of infrastructure on the Mekong River system. Yet Ian Campbell, the ex-director of the MRC's Environment Program points out 'Modelling has an important, but overrated, role in integrated management... What are the ecological consequences of those hydrological changes and, more importantly, what are the livelihood consequences? These are the key questions which cannot be answered using modelling...' (Campbell, 2005)

The MWRAS misleadingly argues that the DSF hydrological model results prove that the Mekong River can accommodate further infrastructure development. Yet the model's results are narrowly hydrological and do not account for ecological or socio-economic impacts. Hydrological modeling exercises should inform a broader participatory decision-making process that evaluates wider social, environmental, economic and cultural issues. Hydrological models in themselves are not able to provide justification for infrastructure development.

3. A new relationship between the Mekong River Commission, and the World Bank and ADB

The Mekong River Commission (MRC) was established in 1995 through the Mekong Agreement to facilitate cooperation for 'the sustainable development, utilization, conservation and management of the Mekong River Basin water and related resources...' In the past decade, the MRC has developed a knowledge base for managing the Mekong Basin, but has been reluctant to engage in controversial river development issues. The Banks have also actively avoided engagement with the MRC over their more controversial projects, such as the recently approved Nam Theun 2 hydropower scheme in Laos. Under MWRAS, the World Bank and the ADB will embark in a major new collaboration with the MRC.

Apparently in response to the member country Governments' demands the MRC is now attempting to re-orient itself from its current role as a Basin *Management* Organization to that of a Basin *Development* Organization that would more actively advance the development of large infrastructure projects. The MWRAS encourages this change in direction and envisions a close collaboration between the Banks, the MRC, and the member country Governments to develop new large water infrastructure projects.

A decade on from the MRC's formation, however, there has been considerable discussion over the organizations future role (e.g. Hirsch et al, 2006; Dore, 2006). Of particular relevance to the MWRAS, questions have been raised over whether it is appropriate for the MRC to transition to a Basin Development Organization. Many civil society stakeholders think that there are already too many organizations promoting infrastructure-orientated development projects in the Mekong Basin. For example, in a recent study on the MRC's future Hirsch et al (2006) recommend that the MRC, as a transboundary agency, should work towards securing a 'triple bottom line' – the economic,

environmental, and social/cultural needs of stakeholders - acting as a counter-balance to economic development plans that generally respond to narrower national agendas.

To date donor financing has largely supported the MRC's programs and arguably many of the programs to date have been donor-driven. The donors have viewed the 1995 Mekong Agreement, which defines the scope of the MRC's activities, as a development framework 'with a primary concern for the environment and the peoples whose livelihoods depend on the river.'¹ If through partnering with the MWRAS the activities of the MRC become inconsistent with the policies of the respective donor agencies the funding for the MRC should be withdrawn.

4. The need for meaningful participation of all stakeholders

To date, preparation of the MWRAS has been a Banks-led process developed almost exclusively in consultation with the Mekong region Governments, who the Banks consider to be the main stakeholders. The MWRAS working paper does acknowledge a role for affected communities, although mainly in the context of community-development programs. Overall, the MWRAS seems to put forward a two-tier system in which local communities are to be consulted on addressing the negative impacts resulting from large infrastructure projects, but not on the overarching decision as to whether the infrastructure projects themselves should be developed. Affected communities, however, often have little to benefit from the development of hydropower dams or large-scale irrigation schemes (Fox and Sneddon, 2005).

In this section the participation process of the MWRAS to date is examined. The 'Rights and Risk' approach developed by the World Commission on Dams is put forward as an appropriate approach to ensuring meaningful multi-stakeholder participation. Assuming the MWRAS is to proceed, the need to strengthen the MRC's capacity to facilitate meaningful participation is identified as necessary.

4.1 Participatory processes of the MWRAS to date

The policies of both the World Bank and the ADB requires public consultation and participation in decision-making for their operations, on the basis that participation is a principle of good governance (ADB, 2004; ADB, 2005; World Bank, 2006). The ADB has recently published a staff handbook which defines consultation as a spectrum ranging from information sharing through to empowerment (ADB, 2006^c). According to the World Bank 'Participation is a process through which stakeholders influence and share control over development initiatives and the decisions and resources that affect them' (Guttal and Shoemaker, 2004).

To date, civil society participation in the development of the MWRAS is contrary to the Banks' rhetoric. Of fourteen official MWRAS consultations held throughout 2004 and 2005, only one was with regional civil society groups. The single civil society consultation, held in December 2004 in Vientiane Laos, was attended by NGOs and did not include representatives from local communities from the three MWRAS target

¹ Foreword by Ms. Susan Ulbæk, Head of Asia Department, Danish Ministry of Foreign Affairs in Hirsch et al, (2006)

regions. Whilst there is value in consulting NGOs who may work in the target areas or hold expertise on associated issues, the views of these organizations cannot be taken to directly represent the interests of affected communities. More recently, a second short 'dialogue' was also held in Vientiane in July 2006, although this was not an official consultation (Nicro, 2006).

Discussion at the 2004 workshop led to a series of recommendations towards the MWRAS from civil society (TEI, 2004). These included that the scope of the hydrological model be broadened to simulate social and environmental parameters - such as sedimentation, salinity, and fisheries - and the development scenarios also investigate local impacts that might arise from infrastructure construction. Neither recommendation has been incorporated into the MWRAS's use of the hydrological model. According to the meeting's summary report, civil society participants appreciated the opportunity to engage with the World Bank and the MRC at the workshop and requested that consultations be conducted every six months (TEI, 2004). There was a genuine hope that regular consultation would support communication and build trust between the World Bank, the MRC, and civil society, and therefore reduce the potential for conflict arising from proposed water infrastructure projects with transboundary impacts. Yet, despite this opportunity the World Bank failed to organize follow-up consultations.

4.2 The MRC and participation

The MWRAS indicates that an important avenue of participation will be through the MRC structure, and in particular the National Mekong Committees (NMCs). In a recent publication on public participation, the MRC writes 'all relevant stakeholders should have the opportunity to directly and indirectly influence project design, implementation and effects' (MRC, 2005). At the same time, the MRC differentiates stakeholders into two categories: *Internal stakeholders* which are the governing bodies in the MRC structures and the principal line agencies of each member country; and *external stakeholders* which are non-state bodies such as NGOs, implementing partners, civil society organizations, policy advocates, research groups, individuals, the media, and other groups who have interest or stakes to gain or lose. Unfortunately, it has been obvious to most external stakeholders that to date the MRC has engaged predominantly with the internal stakeholders *i.e.* member country governments and the MRC's donors. Hirsch et al (2006) identifies that the MRC adopting an investment facilitation role risks losing donor and civil societies confidence in the organization as an impartial body. They recommend that the MRC 'transcend narrow national agendas and embrace a more representative range of national interests, not least the interests of basin communities and stakeholders' by following the principles of Integrated Water Resources Management.

4.3 The benefits of participation

The MWRAS analysis claims that competition between water users is unavoidable and trade-offs will have to be made between economic, social and environmental uses of the Mekong River. The critical issue, however, lies not in the fact that difficult decisions must be taken - which are inevitable in any development process - but in the way in which decisions are taken. Equitable decision-making requires that all stakeholders affected by a decision are meaningfully involved in the decision-making process. There is

nowadays wide-spread recognition that successful implementation of development projects cannot occur without the meaningful participation of all concerned stakeholders at both the local and national levels, and increasingly also incorporating regional cooperation dimensions.

Recognizing the value of the Mekong River to all of its users, the MWRAS working paper writes ‘All water in the river currently serves an economic or social purpose, thus, shifting water uses to other activities inevitably will have impacts on current users.’ Affected communities, who are the existing users of the rivers resources and who arguably exercise a customary right over access, therefore have a right to be participants at the negotiation table. Meaningful participation processes enable a sharing of knowledge and experience between local stakeholders and experts, and works through a progression of negotiated agreements towards solutions that ensure equitable allocation of risk and benefits.

4.4 Enabling participation of all stakeholders: The Rights and Risks approach

The recommendations of the World Commission on Dams (WCD) are very clear on the need for informed participation by all stakeholders, stating that ‘the most unsatisfactory social outcomes of past dam projects are linked to cases where affected people played no role in the planning process...’ (WCD, 2000, p176). The MWRAS participation process to date has not systematically identified all stakeholders who should be consulted.

The first strategic priority of the WCD requires gaining public acceptance before the development of large infrastructure projects. Central to achieving this strategic priority is that *all* legitimate stakeholders should have a formal role within the decision-making process. Legitimate stakeholders are identified according to the ‘Rights and Risks’ approach, in which all those stakeholders whose Rights may be affected by a project are identified and an assessment of entailed risks undertaken. Based on this analysis, all identified stakeholders must participate fully and actively in the decision-making process. Overall, the recommendations of the WCD provide a multi-stakeholder, participatory, process-orientated framework for water- and energy-sector planning, from the initial planning stage right the way through to post-construction monitoring.

Both the World Bank and the ADB claim that their existing policies are largely in-line with the recommendations of the WCD. Yet, by identifying the Governments as the Mekong Basin’s main stakeholders, the Banks are falling short of conducting a proper multi-stakeholder decision-making process for the MWRAS.

5. Can MWRAS successfully apply the principles of Integrated Water Resources Management?

Throughout the 1990’s the concept of Integrated Water Resources Management (IWRM) has risen to become the predominant water-sector development paradigm promoted by almost all major international development institutions. The MWRAS argues that by applying the management/ development principles of IWRM and by investing in community-based programs the environmental and social impacts of large infrastructure projects can be mitigated.

This section briefly outlines the key concepts of IWRM and then discusses challenges faced by IWRM both globally and in the Mekong Region to date. It is argued that there is a significant risk that IWRM will be used as a catchword to justify infrastructure development rather than to conduct truly integrated water resources planning and management.

5.1 Key principles of IWRM

According to the most widely cited definition, developed by the Global Water Partnership (2000), 'IWRM is a process which promotes the coordinated development and management of water, land and related resources, in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems.' IWRM recognizes that traditional water management, characterized as top-down, supply-led, technology-orientated and sector-driven, has resulted in unsustainable utilization of water resources with high environmental, economic and social costs. IWRM calls for the 'integrated' management of water usage, addressing the needs of: population water supply; agriculture; industry; energy; navigation; natural ecosystem etc... Recently, however, some academics have questioned whether the ambitious principles of IWRM are applicable in practice (i.e. Biswas 2004).

The Dublin principles, prepared at The International Conference on Water and the Environment in Dublin in 1992, are commonly considered IWRM's foundational principles. Table 1 describes the four Dublin principles, together with their relevance to IWRM.

Table 1: The Dublin Principles (adapted from GWP, 2000)	
1. Fresh water is a finite and vulnerable resource, essential to sustain life, development and the environment.	<ul style="list-style-type: none"> • Water resources have natural limits • Human activity can impact water productivity • The linkages between the upstream and downstream users of water should be recognized • A holistic approach should be adopted integrating the management of natural systems and human activities that place a demand on water
2. Water development and management should be based on a participatory approach, involving users, planners and policymakers at all levels.	<ul style="list-style-type: none"> • Real participation only takes place when stakeholders are part of the decision-making process. • A participatory approach is the only means for achieving long-lasting consensus and common agreement. • Participation should occur at the lowest appropriate level • Management of international rivers requires cross-border committees and conflict resolution mechanisms
3. Women play a central part in the provision, management and safeguarding of water.	<ul style="list-style-type: none"> • Women play a key role in the collection and safeguarding of water, yet presently have a much less influential role than men in management, problem analysis and in the decision-making process related to water resources. • IWRM should promote women's participation in decision making
4. Water has an economic value in all its competing uses and should be recognized as an economic	<ul style="list-style-type: none"> • Many past failures in water resources management are attributable to the fact that water has been viewed as a free good, or the full value of water has not been recognized. • Having ensured basic human needs, water should be allocated to its highest value

good.	<ul style="list-style-type: none"> • Other economic principles such as full cost pricing, rational use and cost recovery should be applied
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Under the IWRM paradigm, ‘integration’ is called for in the management of natural water systems (i.e. surface water and groundwater, upstream and downstream, etc) and the management of human systems that make use of water, made possible for example by ensuring policy coordination between water-using sectors and through participation of all stakeholders in the decision-making process. Overall criteria in pursuing IWRM objectives are: economic efficiency in water use; equity; and environmental and ecological sustainability (GWP, 2000).

According to IWRM best practice, the most appropriate scale at which to manage water resources is the sub-basin or tributary level. Basin management requires the establishment of ‘River Basin Organizations’ (RBOs) with decision made by River Basin Committees (RBCs). In theory RBOs are a progressive co-management arrangement in which central-level Government ministries delegate more responsibility to local water users and local authorities to make management decisions regarding the river basins. An underlying rationale of the RBO model is that the support of local communities and other non-state water-users is necessary for the effective management of water resources necessitating decentralized, participatory decision-making arrangements.

5.2 Is IWRM workable in practice: A global perspective

Whilst IWRM is an appealing concept, it has been difficult to implement in practice. Biswas (2004), a renowned water expert, has recently written ‘While at first glance, the concept of IWRM looks attractive, a deeper analysis brings out many problems, both in concept and implementation, especially for meso- to macro-scale projects.’ According to Biswas, definitions of IWRM, such as that of the Global Water Partnership above, are formulated with in-concise development phrases such as ‘economic and social welfare’, ‘water, land and related resources’, ‘sustainability’ and ‘vital ecosystem’ that are of limited value in practice because they do not offer measurable indicators or concrete pointers to guide management decisions. Biswas furthermore questions whether it is possible to integrate water resources management considering the sheer complexity of coordinating multiple sectors (energy, agriculture...), and notwithstanding the commonly found inter-ministerial conflicts of interest that act as barriers to cross-sectoral management. Biswas’ overriding conclusion is that despite IWRM’s recent popularity there is little evidence that it has been successfully applied to date and that ‘in the real world, the concept [of IWRM] will be exceedingly difficult to be made operational.’

5.3 The MWRAS and IWRM

In order to generate the ‘win’ situation for local communities that will be affected by infrastructure development, the MWRAS proposes application of the IWRM paradigm at the country-level to address both cross-border and cross-sectoral water issues. More specifically, MWRAS proposes to:

- support the development of institutional frameworks and capacity building for IWRM, in particular in Lao and Cambodia

- support the establishment of sub-basin RBOs and promote IWRM coordination at the national level
- support the Mekong River Commission Secretariat and the National Mekong Committees as key implementing institutions of the IWRM framework.

Whilst correctly identifying the need for capacity building, the MWRAS turns a blind eye to more complex issues that will require addressing, including: barriers to meaningful local participation and decentralization of power; vested interests and competition within and between Ministries; and regional politics. The MWRAS makes no assessment of the barriers to IWRM, and therefore fails to evaluate the risk of promoting it.

The task of applying IWRM principles to transboundary river systems, which the MWRAS proposes to tackle, is particularly daunting. Biswas' (2004) concerns towards IWRM are directed in particular towards meso- and macro-scale projects. To date, infrastructure development in the Mekong River Basin has generally be driven by national interests rather than transboundary cooperation considerations (for example hydropower development in the Sesan and Srepok sub-basins - see case study in Section 6). Whether, therefore, it will be possible to meaningfully apply the principles of IWRM to transboundary river management remains to be seen. It is possible, however, that under the MWRAS 'IWRM' will be used as a catchword by project developers to justify the construction of water infrastructure with transboundary impacts under the pretense that the projects have been holistically planned applying IWRM principles.

5.4 Experience of River Basin Organizations in the Mekong Region

To date, RBOs have proven difficult to establish in the Mekong Region. Even in Thailand, where the concept is most advanced, success on the ground has been limited. RBOs have been established in some form in each of Thailand's 25 river basins promoted through Thailand's Seventh National Plan (1992-1996). The RBC's are charged with preparing water management plans and developing criteria for equitable and sustainable water allocation. Yet the RBCs still lack formal recognition and exist more as consultative forums rather than empowered decision-making bodies. Molle (2005) observes that 'The odds are high that these proto-RBOs will remain paper organizations with limited power and a consultative role rather than strong participants in arenas of negotiation and decision-making'.

Vietnam has established three RBOs to date, including in the Srepok and Red river basins. Contradictorily, however, the RBOs are conceived mainly as coordinating bodies between Government ministries and line agencies to ensure a flow of information that allow decisions to be taken centrally (Molle, 2005). There is weak local stakeholder buy-in including amongst the local authorities themselves (World Bank and ADB, 2006).

In Cambodia and Laos RBOs remain at the conceptual stage. In Cambodia, the MWRAS working paper highlights the Tonle Sap Initiative and it's steps towards establishing the Tonle Sap Basin Management Organization, although this organization remains at an early stage of development, has been developed in a top-down and bureaucratic manner, and faces numerous challenges (Rosien, 2006). In Laos, under the ADB's 'Nam Ngum

River Basin Development (Sector) Project' (2002) attempts are also being made to establish a RBO.

Considering the current political, cultural, and social context in the Mekong Region, it is questionable whether conditions are conducive for the establishment of meaningful RBOs. Whilst RBOs should certainly be promoted, it is overly-optimistic for the MWRAS to assume that the RBO concept will be readily implemented any time soon.

5.5 Operation of infrastructure

As a component of the IWRM approach, the MWRAS proposes that responsible operation of the infrastructure itself will minimize local negative impacts. Such arrangements do exist in several developed countries defined through licensing agreements. At present such transboundary licensing arrangements are wholly undeveloped in the Mekong Region. Where infrastructure is constructed licensing arrangements are indeed desirable, although the MWRAS provides no details as to how it will proceed to stimulate these agreements.

Typically, operation of infrastructure is driven mainly by the service provided rather than the needs of affected communities. Operating infrastructure under sub-optimal conditions results in lower profits. In the case of hydropower, for example, demand for electricity in urban centers determines when water is released from the reservoir, not when downstream communities require a particular flow in the river. Hydropower schemes are suitable for peak power generation, which is the most valuable form of electricity. Operating under base power generation conditions, which may result in reduced downstream impacts, incurs a significant economic forfeit.

5.6 The risk of failure of IWRM

The MWRAS proposes that mitigating impacts from large-infrastructure is simply a question of organizing affected communities to adapt to new river conditions, which they will benefit from through adopting new livelihood strategies. Unfortunately, the experience to date both globally and in the Mekong region has been that it is far easier to construct large infrastructure than to establish RBOs and implement successful livelihood restoration programs.

Promoting an approach that would see large-scale infrastructure developed parallel to community-development programs to mitigate impacts entails significant risk. Whilst there is sufficient experience in the region to ensure that infrastructure construction proceeds roughly to schedule, success with community-based programs remains generally limited. Failure in community-based programs would result in affected communities being unable to adapt to the new environmental circumstances with potentially catastrophic results. The MWRAS working paper refers favorably to the experience gained from the Nam Theun 2 hydropower project in Laos, yet both official reports and civil society investigations identify that community-based programs are lagging behind the infrastructure work (ADB, 2006; IRN, 2006). Other livelihoods restoration programs in the region to date, such as at the ADB-financed Theun-Hinborn hydropower project in Laos, have also only seen limited success (IRN, 2007).

Overall in the Mekong Region, Molle (2005) concludes ‘that despite encouraging changes and trends, there is still a significant gap between the rhetoric of participation or IWRM and reality on the ground’. It is widely recognized that there is only limited experience of implementing IWRM in the Mekong region, varying between each country. Furthermore IWRM is yet to be applied in trans-border circumstances. In-depth training on IWRM for both government institutions and other organizations, such as the MRC, is required. In light of these challenges, the MWRAS needs to provide further substantial analysis on how fundamental barriers to IWRM will be overcome.

6 Joining a controversy: The MWRAS target areas

Many of the infrastructure projects proposed in each of the MWRAS target areas have been the subject of considerable controversy, although very little recognition is given in the various MWRAS reports to this volatile dimension. Ignoring these complexities, the MWRAS tries to scientifically rationalize the planning of the target areas, for example by promoting the application of IWRM and the findings of the hydrological model.

Since the publication of the MWRAS working paper in mid-2006, the ADB has prepared a detailed 21 month study that will commence in March 2007 focusing on the Sesan-Srepok-Sekong (3S) river basin (referred to as the MWRAS 3S Basin study). This section provides a brief overview of development that has occurred in the 3S river basin to date, and describes civil societies’ response to existing and proposed infrastructure developments. The upcoming MWRAS 3S Basin study is briefly described and some of its key challenges identified. In the case of the 3S basin, it is argued that the MWRAS may become an arrangement convenient to hydropower project developers to avoid their direct responsibility to mitigate downstream impacts instead of an initiative promoting equitable water resources development throughout the entire basin².

6.1 Overview of proposed development in the Sesan-Srepok-Sekong Basin

The total area of the Sesan, Srepok and Sekong (3S) rivers basins is 78,650 km², shared between Cambodia (33% of basin area), Laos (29%) and Vietnam (38%) (ADB, 2006^b). The Srepok and Sesan rivers begin in Vietnam’s central highlands flowing westwards into Cambodia. The Sekong river flows southwards through Laos before passing into Cambodia (see figure 1). All three rivers merge just before joining the Mekong in Stung Treng province Cambodia, the combined discharge of which constitutes 17% of the Mekong River’s annual flow. Poverty in all of the provinces that constitute the 3S basin are above the respective countries national averages (ADB, 2006^b).

In a Summit held between the Prime Ministers of Cambodia, Laos and Vietnam in October 1999, the goal of building a triangle of development in the shared 3S river basin was set in motion³ (VNS, 5.12.06). In November 2004, at the 10th ASEAN summit, the

² Development of infrastructure in the other two target areas has also raised concerns. For the Mekong Delta see, for example Miller (2000). For the Northeastern Thailand - Northwestern Laos trans-basin water transfers see, for example, Watershed (2004).

³ The economic triangle region is defined as Ratanakiri and Stung Treng in Cambodia, Atapu and Sekong in Laos, and Kon Tum, Gia Lai, Dak Lak and Dak Nong in Vietnam

Vientiane Declaration was adopted by the three countries Prime Ministers together with a development Master Plan for social and economic development. Japan in particular has indicated willingness to provide donor support for the initiative and more recently the USA has also recently expressed interest, although progress to date on the Master Plan has been slow (Ministry of Foreign Affairs of Japan, 27.11.04; Kareth, 2006). The most recent Fourth Summit on the economic triangle was held in Da Lat town, Lam Dong province, Vietnam on 5th December 2006, at which it was agreed to establish a ministerial-level Joint Coordination Committee (Ministry of Foreign Affairs of Vietnam, 13.12.06).

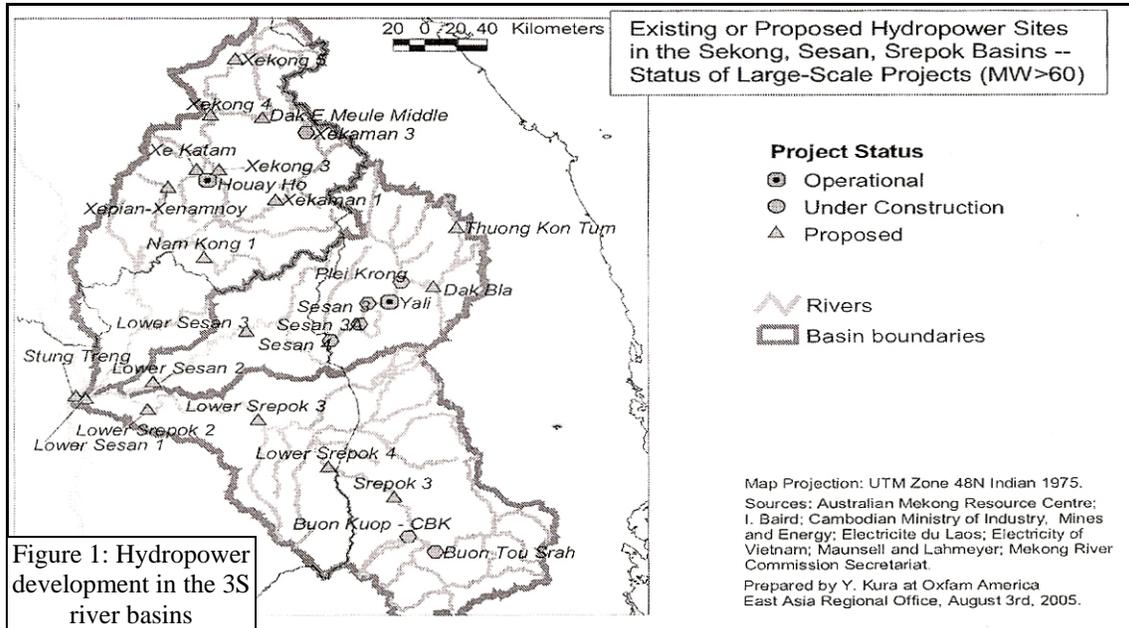


Figure 1: Hydropower development in the 3S river basins

The most notable projects developed, under construction or planned in the 3S region to date are hydropower schemes along the 3S Rivers and their tributaries. These schemes, including those constructed on the Sekong River in Laos, are primarily to provide electricity to Vietnam which is presently facing serious energy shortages. Several hydropower schemes are already built and numerous others are presently under construction:

- On the Sesan River the 720 MW Yali Falls dam located in the Central Highlands of Vietnam, approximately 80 km away from the Cambodian border, began full operation in December 2001. Sesan 3 (280 MW) began full operation in mid 2006 and Sesan 3A (96MW) began partial operation in November 2006 (Vietnam News Agency, 24.11.06). Pleikrong (110 MW), and Sesan 4 (330MW) are presently under construction (SPN, 2006^b).
- On the Srepok River one small hydropower scheme, Dray H'linh 1 (12MW) was built in 1990. Five larger hydropower schemes are presently under construction: Buon Kouop (280 MW), Buontua Sraha (86 MW), Srepok 3 (220 MW), Srepok 4 (70 MW), and Dray Linh new (16MW) (SPN, 2006^c).

- On the Sekong River and its major tributaries at least 9 medium to large hydropower schemes are planned. Sekamen 3 is under construction. At present, one dam has been built in the Sekong Basin, the Houay Ho (150 MW) completed in 1997 (Hubble, 25.1.07).

Cambodia is also examining the possibility of building several dams along its lengths of the Sesan and Srepok Rivers. In August 2006, the Cambodian Government requested the Government of Vietnam to conduct a hydropower feasibility study for the Sesan River in Cambodia. Vietnam has since proposed five potential sites for dams and plans to begin constructing one 90 MW dam in Cambodia soon (SPN, 2006^b). In October 2005, the Cambodian Government announced it is considering building the Lower Srepok 2 hydropower dam (200 MW) in Stung Treng, Cambodia (3SPN, 2006^c).

Planning of the 3S dam cascades is going forward under a very poor development process. EIAs, if conducted at all, mostly have not been released to the public. No comprehensive options assessment has been conducted, and baseline studies for the 3S Rivers in Cambodia have not been made. Despite the high probability of significant transboundary impacts, to date only one transboundary public consultation has been held in January 2007 at which an inadequate EIA was presented (see section 6.3).

6.2 Transboundary impacts resulting from the Yali Falls dam and civil society response

The social, economic and environmental impacts arising from construction and operation of the Yali Falls dam on Cambodian communities living along the Sesan River in Ratanakiri are now well documented (Fisheries Office and NTFP, 2000; Rutkow et al., 2005; Baird and Mean, 2005; 3SPN 2006^a). Over 50,000 people from 16 ethnic groups living along and depending on the Sesan River for their fishing and farming have experienced, to varying extent, daily erratic water levels, worsened water quality, increased health problems, a major decline of fish populations and species, and the loss of livelihood and economic security. Since 1996, 39 deaths have been documented caused by flooding as a result of the Yali Falls Dam (3SPN 2006^a).

In response to the negative impacts a local people movement in the structure of a non-governmental organization called the 'Sesan Protection Network' was established in 2001 (3SPN, 2006^d). Based in Banlung Town, Ratanakiri Province the organization conducts research, documentation, information sharing, advocacy, networking, and capacity building activities (3SPN, 2006^d). Sesan River villagers demands, submitted to the Cambodian Government in May 2005, include (3SPN, 2006^a):

1. Restoration of the natural flow
2. Compensation for past harm
3. No more dams until agreement is made with communities
4. Improvement of the water release notification system
5. Benefit sharing and economic development
6. Insurance if the dam breaks
7. Greater participation in environmental governance

As the threat of unrestrained hydropower development spread to all three rivers in the 3S basins the civil society movement also strengthened. At present, a coalition of NGOs named the '3S Working Group' is working together with communities affected by hydropower dam development on the Sesan, Srepok and Sekong Rivers. As a result of civil societies efforts there has been some progress, including (Rutkow et al, 2005):

- The Prime Minister of Vietnam issuing Five Solutions to EVN to address downstream impacts arising from operation of the Yali Falls Dam. Since 2000 a notification system for planned water releases has been put in place, organized through the Sesan Committee. Unfortunately, in reality the system is not effective and for many villagers advanced warning is still not guaranteed.
- Formation of a 'Se San Management Utilization Committee' in 2000 leading to informal and then formal negotiation between Cambodia and Vietnam⁴. Meetings, however, have been sporadic and not resulted in compensation for downstream communities or the return of natural flow conditions to the river. Instead the committee focused on developing a series of studies
- In 2004 the MRC secretariat conducted a basic water quality study, in cooperation with the Cambodian and Vietnamese governments. The results concluded that water quality was acceptable, but noted that the scope of the study did not cover specific water quality parameters that would be expected to result in some of the negative health impacts experienced by villagers

6.3 Experience from the Srepok transboundary EIA workshop, January 2007 and reference to MWRAS

On January 12th 2007 a 'Stakeholder Meeting on the EIA Report of Hydropower Development in Vietnam on Cambodian Part of Srepok River' was held in Phnom Penh, Cambodia (Rith, 14.1.07). This meeting represented the first time that the Cambodian and Vietnamese Governments, represented through their National Mekong Committees (NMC), have openly discussed an EIA with affected communities and non-government organizations. Only intensive and sustained effort by civil society throughout 2006 led to the consultation taking place.

On a positive note, there was commitment from the Vietnamese and Cambodian NMC representatives to form a cross-border committee to address trans-boundary impacts from the Srepok River dam cascade. A similar transboundary EIA workshop is also planned for the Sesan River for March 2007. Finally, Vietnam committed to operate the dam furthest downstream in each cascade (Srepok 4 and Sesan 4) as re-regulating dams in an attempt to minimize diurnal water change as a result of dam operation further upstream.

Yet the EIA report presented was inadequate and is actually only an Addendum to the Vietnam National Hydropower Plan rather than a full EIA (Ryder *et al* 2007; SWECO

⁴ Subsequently replaced by the Standing Committee on Coordination of Dams-Canal Along Border of Cambodia, Vietnam, Laos and Thailand in 2004 in Cambodia, although this committee often has no operational budget and therefore is of limited effectiveness.

Grøner, 2006). Development of the Vietnam National Hydropower Plan was supported by the Norwegian Agency for Development Cooperation (NORAD) and the Swedish International Development Cooperation Agency (SIDA). Despite this, shortcomings compared to international EIA standards include: inadequate collection of baseline data; no assessment of compensation or benefit sharing options (including costs); no cost-benefit analysis; and unrealistic mitigation measures with no estimate of cost or allocation of responsibility (Ryder *et al* 2007).

Because five of the dams along the Srepok River in Vietnam are already under construction it is now highly unlikely that construction will be suspended or the decision to build the dams reversed. The dams have been developed under a poor planning process inconsistent with the principles of IWRM. For example, no options assessment was conducted to evaluate whether there are better options to provide electricity to the people of the central highlands of Vietnam and to the national grid. Also no cost-benefit analysis was conducted for the basin to determine if there are better ways to utilize the Srepok River's resources.

The Vietnam NMC chairperson referred to the upcoming MWRAS 3S basin study several times during the consultation, and its implications are discussed in the following section.

6.4 Proposed MWRAS activity in the 3S Basin

In its upcoming MWRAS study for the 3S River basin, the ADB identifies that substantial potential exists for agriculture, forestry, hydropower, fisheries, ecotourism, and increased processing of agriculture and forestry products (ADB, 2006^b). The ADB also recognizes that 'Uncoordinated development will condemn these relatively healthy river basins to progressive degradation', singling out hydropower as of particular concern. In order to avoid uncoordinated development, the ADB recommends adopting IWRM as an appropriate integrated management strategy. The main intended outcome of the study is the establishment of joint sub-basin institutional arrangements. It is intended to work through the existing NMC arrangements, other committees working on water management issues, and within the broader framework of the 1995 Mekong Agreement. The study intends to strengthen the capacity for IWRM and develop a 'road map' for basin development under different scenarios.

It is clearly a matter of urgency that effective institutional arrangements between Laos, Cambodia, and Vietnam are put in place for effective trans-boundary cooperation of the 3S Rivers. Whether this is possible remains to be seen - the study design leaves the details completely open ended for the NMCs to determine. Experience to date, for example with the 'Sesan Committees' mentioned in section 6.2, would suggest that significant challenges lie ahead especially if more difficult and urgent issues are to be tackled such as re-operation of hydropower schemes to reduce downstream impacts or licensing agreements that commit hydroscheme operators to financial liability if the dams are not operated as agreed. Furthermore, the MWRAS's own analysis indicates that the countries' NMCs are not necessarily in a position of sufficient influence within their respective Governments to mainstream into national policy the recommendations of the

study, and therefore ensure implementation of basin development roadmap prepared (World Bank and ADB, 2006).

In implementing the upcoming study it will also be important to take account of the considerable social histories of the 3S region related to hydropower development, as the MWRAS has not done to date. The NMCs will therefore require further support to improve their capacity to engage civil society stakeholders effectively (Hirsch et al, 2006).

At the Srepok transboundary EIA meeting of January 12th 2007 the Vietnam NMC chairperson, referring to the MWRAS 3S basin study, suggested that ADB grants and loans could support mitigation programs in Cambodia necessary because of hydropower construction upstream in Vietnam (personal notes). The Vietnam NMC Chairperson also noted that the MWRAS would provide a road map for social and economic development for the region, in-line with the 'economic triangle' master plan approved by the Prime Ministers of Cambodia, Laos and Vietnam. The Srepok River cascade of dams (and the Sesan) is already under construction, and therefore it is too late to apply the principles of IWRM to the 3S river basin in its 'relatively healthy' state, as it is described in the MWRAS 3S basin study proposal⁵. Instead the MWRAS will become an exercise in mitigation of downstream impacts arising from hydropower operations. In this light the MWRAS is found to take pressure off the hydropower scheme planners and operators by taking responsibility for addressing the negative downstream impacts. The MWRAS will justify its involvement by re-packaging the mitigation programs as development projects identified as 'win:win' scenarios through application of the planning principles of IWRM. Furthermore, it is conceivable that the ADB will provide grants and concessional loans for the mitigation programs thus also relieving the hydro-developers of their financial responsibility. Yet, Rutkow et al (2005) identify that the hydro-developers have responsibilities under International Law to address downstream transboundary impacts.

7 Conclusions

Whether the MWRAS will result primarily in the construction of large-scale water infrastructure or if, on the other hand, innovative solutions will be pursued that contribute towards equitable and sustainable water resource use and poverty alleviation remains an open question. The MWRAS initiative is at an early stage. The target areas identified by MWRAS are comparatively poor and do require assistance, yet investment in large water infrastructure is not the most economic, equitable or sustainable solution. A comprehensive assessment of all options must be made for each MWRAS target area, including a 'no large infrastructure' option, to prepare basin 'roadmaps'. Honest valuation of all functions of the river basins, not just economic values, is required.

To date, consultation with civil society has been limited. If the MWRAS is committed to promoting the principles of IWRM then ensuring meaningful multi-stakeholder

⁵ It is interesting to note that Danida funded a US\$ 1.6 million in the Srepok basin entitled 'Integrated Water Resources Management for the Srepok River Basin (2002-2006)' which established a River Basin Planning Management Agency. No reference to this agency was made in the Srepok EIA consultation or the SWECO Grøner report.

participation must be a priority, which for the ADB and World Bank is also a matter of policy. The MWRAS must not assume the main stakeholder of the Mekong River to be only the National Governments as it does presently.

There are a number of risks faced by the MWRAS. These include that the NMCs have a shared understanding and are committed to the principles of IWRM, including the principle of meaningful participation. The NMCs are also not guaranteed to be able to ensure that national policy becomes aligned with roadmaps produced. There is also a high risk that national interests will take precedence over trans-boundary cooperation. Wider stakeholder buy-in also cannot be assumed and must be fostered over time through meaningful participation and cooperation.

The MWRAS aspires to improve trans-boundary cooperation on the shared water resources of the Mekong River, an urgent and necessary objective. IWRM is an attractive set of principles by which to manage water resources yet its effective implementation remains unproven, especially on international rivers. The MWRAS working paper calls for the 'Balanced Development' of the Mekong Basin realized through the application of IWRM principles, in which trade-off choices between economic, social and environmental values must be made, and under which investment should be less precautionary. Yet this aggressive version of IWRM put forward by the MWRAS is not consistent with more widely held views on IWRM that aspire to 'economic efficiency in water use; equity; and environmental and ecological sustainability.' Therefore, there is a very real risk that, under MWRAS, a distorted form of IWRM could be adopted that would justify high-risk large water infrastructure projects resulting in development that is neither sustainable nor equitable.

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