

## Editorial

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Should a poor country such as Cambodia develop its water resources with the priority in environmental conservation, in economic growth or in poverty reduction? There is enough justification for all these priorities. However, there are many stories of failure from cases in which the scope has been too one-sided, in any direction, and genuine multidisciplinary is needed.

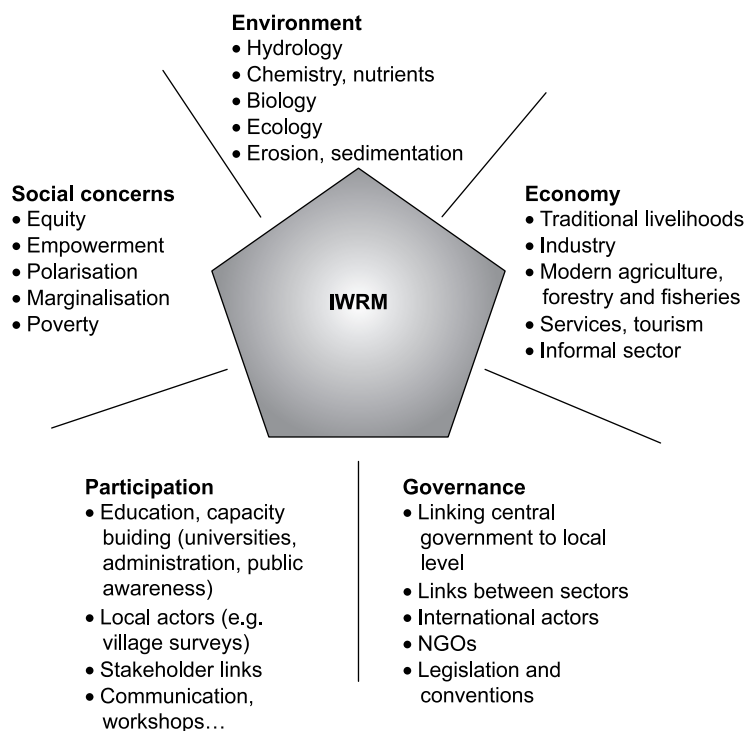
It is difficult to figure out a country in which the poor people would still be as rural-based and as profoundly dependent on aquatic resources as Cambodia. The lifeline of the country is the Mekong River, and the heart of that river is Cambodia's Great Lake, the Tonle Sap Lake, the largest permanent freshwater lake in Southeast Asia. With its unique seasonal flood dynamics it is a world-class natural treasure. Equally, it is the source of livelihood for millions of poverty-driven rural people, who make their living out of the rich ecosystem of the lake and its floodplain.

Cambodia shares the hostile and volatile past with most of the Lower Mekong River Basin countries. It became increasingly pacific during the 1990s, but is still in the process of recovery. The government institutions are slowly getting on track, remaining still overly weak in comparison to the development challenges of the country. Cambodia has also gradually rejoined the international community. Some important landmarks are the membership in the newly established Mekong River Commission (MRC) in 1995, as well as joining the Association of Southeast Asian Nations (ASEAN) in 1999 and the World Trade Organisation (WTO) in 2004.

MRC's backbone is the Mekong Agreement of 1995. It defines the MRC's mandate as working towards "... a balance between the economic, social, and environmental decisions and development. With the majority of the basin's inhabitants being rural-based and poor, socio-economic considerations inevitably assume vital importance in development planning and implementation". MRC's Vision statement returns to the question stated in the first paragraph: "An economically prosperous, socially just and environmentally sound Mekong River Basin".

Both of these are in accord with the sustainable development concept, as stipulated at the Johannesburg Summit on Sustainable Development in 2002. Consistent with this philosophy, the concept of Integrated Water Resources Management (IWRM) was strongly promoted. The Johannesburg Plan of Implementation includes the commitment to prepare IWRM and water efficiency plans by 2005 for all major watersheds of the world.

IWRM can be summarized as follows: waters should be used to provide economic well-being to the people, without compromising social equity and environmental sustainability. This should happen in a basin-wide context, with stakeholder participation and under good governance (Figure 1). Therefore, IWRM aims at developing democratic governance and



**Figure 1.** The facets of IWRM

promotes balanced development in poverty reduction, social equity, economic growth and environmental sustainability.

It is important to realize that the Mekong Agreement of 1995 is in full accord with the IWRM principle. The MRC has the mandate to implement IWRM in the Lower Mekong River Basin, but MRC is not alone. There is a spectrum of other actors, ranging from international to national, to the grassroots level.

The first paper of this Special Issue, by Sokhem & Sunada, addresses the institutional question in its broadness, and reveals an array of deficiencies. They even come up with an idea of establishing a joint agency for the Mekong that would amalgamate the various tasks of the ASEAN, Asian Development Bank and the MRC. This scenario is still something of a dream, but it remains clear that institutional and governance shortcomings are one of the major bottlenecks to sustainable development in the Mekong Basin. For this reason alone cooperation between these major players in the region must be improved to avoid overlapping and rivalry, and each institution should be allowed to focus on its core knowledge. The geographic focus of this study, as well as of this whole Special Issue, is Cambodia's Tonle Sap Lake.

After Sokhem's visionary contribution, Varis & Keskinen document a sectorial policy analysis of Cambodia. Water-related issues are handled by several ministries which all have their own mandates, strategies, agendas, ambitions and policies. The possibilities of finding combinations of sector policies for achieving these, often conflicting, goals were analysed using a probabilistic, Bayesian network model. Four policy scenarios were

constructed, one promoting each of the three development goals of economic growth, poverty reduction and environmental protection separately, and one integrated, compromise scenario. The results indicate that a compromise policy is possible, being far more balanced and acceptable than any of the policies that target only one of the three goals at a time.

The economy of the Tonle Sap Area relies predominantly on fish and rice. Both of these are connected with water. Resurreccion presents an analysis of the current situation of the communities in managing their resources and possibilities for developing community-based fisheries. Community fisheries have been recently endorsed by the Cambodian government to address the needs for local and sustainable management of fisheries resources. Local women are being urged to participate in these institutions. Putting women into this programme only as a way of addressing poverty reduction and conservation goals without recognizing actual gender/social inequalities, may inadvertently reproduce existing gender hierarchies rather than actually transforming them.

Heinonen examines the livelihoods in villages and their various interrelations to water resources, environmental changes and migration. Little is known of these connections, despite their profound importance to a large proportion of the Khmer population. The process of urbanization is accelerating rapidly, and the roots to the sprawl of urban shanty towns are in the impoverished living conditions in rural areas, often greatly influenced by water-related factors.

Keskinen analyses the social and participatory dimensions of water management with a socio-economic diagnostic of the Tonle Sap Area, and makes a strong argument for a more multidisciplinary approach to water modelling. The extensive poverty and a significant dependency on natural resources are particularly alarming since the services provided by natural resources are in a clear decline. The deterioration of natural resources and the rapid population growth is an unsustainable combination that has resulted in worsening living conditions throughout the area. The communities need diversification of their sources of income, as well as better opportunities to take part in the decisions that have an impact on their livelihoods, in order to combat the growing polarization that seems to take place in regions increasingly exposed to market-driven economy.

Lamberts argues that the ecosystem productivity is the great and disregarded unknown when linking environmental, social and economic aspects in the IWRM process. It is at the centre of environmental changes as well as people's livelihood and welfare, and in the Tonle Sap system, which is obviously one of the most productive freshwater ecosystems of the world, these issues are particularly pronounced.

Kummu and others have developed an integrated modelling system, supported with primary data collection and analysis to allow an assessment of the impacts of planned developments on the lake's ecosystem and riparian communities. They argue that the understanding of the ecosystem functions and tools for predicting the development impacts are essential for IWRM, as well as for sustainable basinwide planning and national and regional policy making.

The outcome of these seven studies yields important experience of the IWRM concept and its implementation in the Mekong Basin. Besides a high practical relevance, the analysis reveals how well the Mekong Agreement works, and how far the real-life IWRM process is from 'An IWRM and Water Efficiency Plan' as promoted in Johannesburg.

It becomes clear that whereas various international agendas promote IWRM, and even though the accomplishment of IWRM and water efficiency plans for all major rivers of the

world was agreed upon, IWRM is a far more strategic issue than is often recognized. The MRC's ongoing Basin Development Plan process is the third of its kind in its history. The first two, one in the 1960s and the other in 1987, both failed. This was due to various reasons, not least because of the wars at that time, but the baseline is that they both shared the typical problem of such plans: they were not really rooted in the societies and the cultures of the riparian countries.

Without the common recognition and ownership of the IWRM concepts in the villages, at the local governance and government levels and in the international setting, IWRM remains a theoretical concept with not much sound scientific background from real-life development projects and not much sustainable impact on the environment, society and economy. Seeing the water issues in the broad, cross-cutting framework of other development issues such as the ones discussed in this context—and integrating the visions and policies of the sector—would be the way to go towards a better future through successful freshwater management.

It is important to recognize that in the majority of developing regions of the world, IWRM plans require massive international efforts because of trans-boundary character of the problems, accorded typically with complicated and difficult political settings. Experience from all parts of the world, over several decades, is available. It is a very colourful experience with plenty of failures but also success stories. It seems that this experience should urgently be put together in order to evolve the present approaches to IWRM, which often tend to be fairly simplistic.

This Special Issue has been written in close co-operation with the MRC, and several other key actors including many riparian ministries, a number of academic institutions, NGOs and the academia. The MRC has carried out a comprehensive Basin Development Plan (BDP, Phase 1) for the Lower Mekong Basin, supported by a massive 6-year background analysis programme under the title of Water Utilization Programme (WUP). The future direction of BDP and WUP is not fixed, but one possible solution is to merge these two into one MRC programme under World Bank/GEF funding. This Special Issue leans partly on the MRC/WUP-FIN Lower Mekong Basin Modelling project, which is complementary to both of these MRC activities. WUP-FIN is funded by the Ministry for Foreign Affairs of Finland, and led by the Finnish Environment Institute (SYKE). Helsinki University of Technology was responsible for putting together this Special Issue, with funding from the Academy of Finland, under the project 211010. A workshop preparing for this Special Issue was organized in cooperation with the Royal University of Phnom Penh, on 1–2 February 2005 in Phnom Penh, Cambodia. The active participation of 50 experts from the leading water research and management organizations is greatly appreciated.