

**« Data Sharing and Sustainability of River Basin Organisations.
The Mekong River Commission as Case Study »**

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Abstract:

Explaining success and failure in international river management is a challenging task. It is even more difficult to anticipate whether environmental regimes and related institutional mechanisms selected by riparian countries will actually improve the management of transboundary water resources.

On the Mekong, information management is key to an efficient development of water resources; to the production of accurate flood forecasting; and to forming a knowledge base on sustainable development. In practice, one can witness over time the improvement of water-related data exchange among riparian countries.

However, circulation and exchange of water-related data remain a major challenge. This is the case both within and among countries. Technical, financial, strategic and political factors have been found to limit this exchange. These factors include: ageing hydrometric networks; maintenance and skills; operation rules for reservoirs; seasonality; competition over water resources; international politics; and economics of regional integration.

Building up on research fieldwork in Southeast Asia and on professional experience in UNESCO's PC-CP Programme (*Conflict and Cooperation over Shared Water Resources*), this paper presents results of a recent Ph.D. research in Mekong countries. We advocate that the level and conditions of data exchange can be an indicator of hydrological cooperation on river basins, as well as a methodological tool to analyse cooperation processes. We show that poor data sharing is a direct threat to the sustainability of river basin institutions. Reasons to low information exchange are identified, as well as tentative incentives to improve it.

Introduction

Data sharing and wise information management is a key to the success of environmental regimes, and of river basin organisations in particular. Basically, the institutional sustainability of this kind of organisation rests on two major pillars: its political legitimacy, and its technical credibility. In both cases, data and information play a critical role. This communication addresses the issue of hydrological cooperation on the Mekong river basin. We focus on the production and circulation of hydrological and meteorological data for flood forecasting purposes. Data exchange is considered as a critical component of both sound water-related decisions and sustainability of the Mekong River Commission as a basin institution.

This paper is a research brief prepared in the process of a Ph.D. in Geography started in January 2003 at Laval University in Quebec, Canada. Thesis' tentative title is: "*Win/Lose*."

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*The Politics of Hydrological Data on the Mekong*². This research is based on the study of transboundary cooperation for flood management on the Mekong. We analyse the circulation patterns of water-related data and information. In particular, we aim at identifying the technical and political conditions or constraints to circulation of hydrological data in particular. A key consideration is that lack of data weakens the institutional capacity (technically and politically) of environmental regimes such as basin organisations. Research results are also expected to devise incentives likely to foster data exchange at both national and inter-national levels.

The present paper is organised as follows. First, we introduce the issue of Mekong floods as an socio-political issue of human security and as a technical challenge in terms of modelling and forecasting. Second, we connect the management of water-related hazards to the need of hydrological and meteorological data. Third, we discuss the concept of “total value” of hydrological data, based on an analysis of the multiple purposes these data can serve³.

Background: Mekong floods and flood forecasting

Floods have always been a fact of life on the Mekong. Since 2000, floods on the Mekong main stem caused annually 300 to 800 victims and 100 to 400 million USD of damage. Each year, 1 to 8 million people are affected by these disasters. Flood mitigation aims at several objectives: humanitarian (saving lives and property); socio-economic (preventing disruption of the social fabric; securing gains of development); technical (controlling or reducing hazards and vulnerability). Flood mitigation and management activities also have a strong political dimension in Mekong countries: by managing risk, authorities gain a technical credibility from public opinion, which backs up their political legitimacy to rule the nation⁴.

Flood mitigation has progressively been an objective of intergovernmental cooperation and institutional developments on the Lower Mekong. Major floods in 1966 triggered riparian countries of the lower basin to set up a flood forecasting system in January 1968, based on the SSARR model⁵; after 1978 and 1981 floods, the forecasting system was extended to the

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³ At the time of the WISC Conference, a detailed research brief is being prepared for publication that presents a synthesis of our major research results. Some of these could not appear in the present text, due to technical results.

⁴ See for instance: K. Wittfogel’s concepts of “hydraulic civilization”; M. Granet’s concept of “mandate of heaven”; A. Smith’s Thesis on flood management in Vietnam.

⁵ Streamflow Synthesis And Reservoir Regulation. Developed by the U.S. Corps of Engineers.

Mekong delta (DELTA Model⁶) as well as to major tributaries. The 1995 Agreement sets flood mitigation as one of the key objectives and tasks of the *Mekong River Commission* (MRC). The *Flood Management and Mitigation Strategy* (FMMS) has been established in 2001 to serve as framework to MRC's policies and activities related to floods.

Mitigation of flood impacts is based on appropriate emergency and relief activities. These activities need lead time over flood events, which can only be gained through appropriate flood forecasting. Efficient forecasts are based on: sound calculation models; computing capacities; and hydrological and meteorological data. Data must be sufficient both in quantity and quality, and provided timely to forecasting teams. The transboundary nature of the Mekong river basin implies that cooperation of basin countries is a key feature of flood forecasting. Efficient forecasting requires inter-governmental exchange of hydrological and meteorological data (knowledge of processes) and products (forecasts; synoptic data). The international exchange of meteorological data already receives support through WMO GTS⁷ Programme, as well as through other mechanisms and initiatives.

The need for hydrological and meteorological data

Three introductory comments need to be made on data. First, the technical importance of data exchange varies with the context. Relevant variables include: contributing areas; hydrological processes involved; location of the area for which floods are forecasted. Second, hydrological data remain needed despite progress made in remotely sensed modelling and forecasting (runoff, etc.). For instance, forecasting of meteorological events requires ground data for calibration of measuring tools, stations, radars, models, etc. Third, hydrological and meteorological data are also needed for activities other than flood forecasting only. Basically, any water-related policy, planning and project needs data: water sharing and allocation (in volume and seasonally); water utilization; irrigation; fisheries; land use planning; land cover monitoring; study and preservation of ecosystems; etc.

The lack of hydro-meteorological data has been noticed early in the development process of the Mekong river basin. For instance, the 1958 UN mission (so-called "Wheeler Mission") confirmed the lack of data already stressed in previous UN and U.S. technical reports prepared in the process of establishing the *Secretariat for Coordination of Technical Studies* on the Lower Mekong. Both the need for, and lack of data seem to have been increasing since 1957, together with the diversification process of programmes and activities on the Lower

⁶ Developed with support from UNESCO.

⁷ World Meteorological Organisation and Global Telecommunication System.

Mekong. Basically, the focus of these activities was initially on the hydraulic/hydroelectric development of water resources and navigation, and progressively integrated more holistic basin development planning, including sustainability issues.

Since 1957, the improvement of the hydro-meteorological network has been a major issue for hydrologists of MRC Member countries. A classification system of stations was adopted in 1988, and the hydrometric network has been constantly monitored and upgraded since then. International funding and assistance (aid agencies; WMO; etc.) has been instrumental in this process, including in terms of cooperation with China and access to hydrological data collected in Yunnan province⁸.

Despite this commitment, it is noticeable to see that since 1957, the exchange of hydrological and meteorological data has not been mentioned explicitly in the successive institutional agreements signed by governments of the Lower Basin. In the last few years, MRC Secretariat staff has devoted time and other resources in designing, developing or strengthening procedures supporting exchange of water-related data, basin-wide. In addition, important differences have always existed among these countries: both in terms of technical capacity (tools, methods, human resources, funding) and political commitment to engage in data exchange procedures. These differences can still be felt today, as witnessed by interviewed staff of MRC Secretariat, international organisations and aid agencies active in the Mekong basin area.

Preliminary research results⁹

This section first briefly presents the methodology followed for the research. Second, we make general observations that insist on context features (at both national and regional levels) as strong determinants of circulation patterns for water-related data. Third, we present the concept of “total value” of water-related information. It is advocated that this concept helps understand and map the hydropolitics of the Mekong basin and region.

Methodology of the research

This research started in January 2003. During this year, a literature review backed up with preliminary, focussed interviews enabled us to design a methodology for fieldwork research to be conducted in 2004 and 2005. When analysing patterns of information exchange, several scale of analysis have been considered: within countries; among countries; between countries and the MRCS.

⁸ See for instance the AusAID-funded AHNIP Programme.

⁹ As of 15 August 2005.

At the time of writing this document, interviews had been conducted in Vietnam, China, Cambodia, Lao and Thailand¹⁰, as well as at the MRC Secretariat¹¹. Additional information was collected during the Third Annual Flood Forum organized by the MRC (Vientiane, 7-8 April 2005). Resource institutions and persons include: selected line agencies in MRC countries; National Mekong Committees; Diplomats; Experts; Donors; Researchers; and the Chief Executive Officer (CEO) of the MRC¹².

Interviews have been based on structured, semi-structured or open questionnaires. There has been not systematic selection of interviewees in visited countries or organization. At this point, this document is not proper to any generalization, official statement or scientific conclusion in any way. Any information presented in this text is provided without any guarantee.

General observations

Observations made on the field confirm that access to, and quality of hydrological data remains a challenge on the Mekong river basin. Intra-national features, such as lack of technical and financial capacities for data collection and management, often limit the possibility of inter-national cooperation over data exchange. The lack of political will or commitment also plays a role, both in terms of investment in data management and transboundary access (circulation) to data produced.

Basically, hydrological data are still a political tool: at national level (power relations within and among organisations, institutions or administrations) and at inter-national level (inter-governmental negotiations). However, regional economic integration has been an incentive to improve cooperation. Two major context-level features influence data-sharing on the Mekong basin.

Mekong countries, including China, have undergone major changes over the last 20 to 25 years. A key feature is the transition from command to market economy. Consequently, the role of the State is being redefined. In some cases, its actual *capacity* is being discussed or challenged. The Water Management Sector, together with flood management activities, have been influenced by these macro-economic changes. The overall picture is one of institutional instability: State services in charge of water-related issues are confronted with major or

¹⁰ Later in this text, these countries appear as: China, Lao, Thailand, Cambodia and Vietnam. Additional fieldwork will be conducted in Myanmar at a later stage.

¹¹ In Phnom Penh (Cambodia) in 2004, and in Vientiane (Lao PDR) in 2005.

¹² We would like to extend our warm thanks to these interviewees, for their invaluable contribution to our research.

repeated organisational changes. Consequently, power relations are jeopardized, allocation criteria for public spending are revised, and salaries are kept low – if not reduced. In this context, hydrological data are a key asset to navigate through these rough institutional waters.

Although often perceived as such, water is not so far a resource under quantitative stress. However, water is a matter of competition among users – at least among those with a political and economic bargaining clout that is sufficient for voicing out their views or concerns. Because of competition over water in the form of upstream hydraulic/hydroelectric developments (both on the Mekong main stem and major tributaries), national authorities consider that sharing water-related information opens the door to a more transparent, understanding of hydrological impacts caused by their projects. Consequently, sharing data is perceived as a potential risk of later criticism emanating from downstream stakeholders.

The “total value” of hydrological data

We suggest below a tentative typology of constraints to the exchange of hydrological data. The reasoning that backs up this typology is that data sharing is challenging because of the multifaceted, *total value* of hydrological data. This value can be structured as follows:

- ?? Operational: Data enable informed decision-making and help reduce negative externalities;
- ?? Economic: Data as a commodity help data owners make up for insufficient budget or salary;
- ?? Organisational: Data help civil servants negotiate power deals through institutional instability;
- ?? Financial: Exclusiveness of data enable owners to report first to authorities allocating budget;
- ?? Strategic: Non-transmission of data help planners conceal environmental impacts of projects;
- ?? Political: Control over data help authorities limit public scrutiny and protest over water issues.

The MRC and MRCS therefore remain key assets in the basin for the following activities: upgrading of data collection and improvement of management; training of national staff; standardisation of hydrological data and products; fund-raising activities; relations with China; etc. Despite this commitment, a basin-wide framework for data exchange is still

lacking. In that respect, both the ongoing MRCS procedures for data management and the WMO-developed WHYCOS can be positive contributions.

However, additional measures are still lacking in MRC countries, as well as in PR China. For instance, the patrimonial status of hydrological data (public data and/or commodity) is either unspecified, or not enforced. In some cases, the security status of data often restricts access to water-related information, both officially and *de facto*. More generally, limited access to data deprives environmental contestation from figures to back up their views, and protects authorities from public scrutiny into water-related decisions made. In addition, water-related projects often under-estimate the issue of data.

Conclusion

Tensions or clashes over water-related values on the Mekong derive from diverging or opposed *visions* of both what the socio-economic development of the basin means and how this development should be planned. In particular, contending issues related to development planning include that stakeholders should have a say in the process, and how they can contribute. There is little hope that a reconciliation of water-related values on the Mekong can be reached in the near future. However, encouraging steps forward might include the following:

- ?? Public access to environmental information and justice (Aarhus Convention),
- ?? Establishment of national legislation fostering environmental accountability,
- ?? *Updating* of development paradigms but still with national ownership,
- ?? Increased freedom for NGOs and possibility to develop public debates,
- ?? Broader, democratic changes in state activity and public communication decontrol.

Our tentative conclusion so far is that **asymmetry in the production of and access to environmental information** is a key feature of tensions triggered by diverging views or visions of the development of the Mekong.