Journal of Hydrology 536 (2016) 351–364

Contents lists available at ScienceDirect

Journal of Hydrology

journal homepage: www.elsevier.com/locate/jhydrol

Data sharing in international transboundary contexts: The Vietnamese perspective on data sharing in the Lower Mekong Basin

Hang Ngo Thu [1], Uta Wehn *

UNESCO-IHE Institute for Water Education, Integrated Water Systems and Governance Department, Westvest 7, 2611 AX Delft, The Netherlands

ARTICLE INFO

Article history:
Received 7 October 2015
Received in revised form 14 February 2016
Accepted 17 February 2016
Available online 27 February 2016
This manuscript was handled by Geoff Syme, Editor-in-Chief

Keywords:
Integrated water resources management
Climate change
Transboundary data sharing
Mekong River
Willingness to share data
GEOSS

SUMMARY

Transboundary data sharing is widely recognised as a necessary element in the successful handling of water-related climate change issues, as it is a means towards integrated water resources management (IWRM). However, in practice it is often a challenge to achieve it. The Mekong River Commission (MRC), an inter-governmental agency established by Cambodia, Lao PDR, Thailand and Vietnam, has adopted IWRM in its water strategy plan in order to properly manage the transboundary waters of the Mekong River. In this context, data sharing procedures were institutionalised and have been officially implemented by the four member countries since 2001. This paper uses a systematic approach to identify the extent of data sharing and the factors influencing the willingness of key individuals in the Vietnam National Mekong Committee and its Primary Custodians to share data. We find that the initial objectives of the Procedures for Data and Information Exchange and Sharing (PDIES) have not been fully achieved and, further, that Vietnam has much to gain and little to lose by engaging in data sharing in the MRC context. The primary motivation for data sharing stems from the desire to protect national benefits and to prevent upstream countries from overexploiting the shared water resources. However, data sharing is hindered by a lack of national regulations in the Vietnam context concerning data sharing between state agencies and outdated information management systems.

1. Introduction

In the coming decades, fresh water resources will become scarcer in the Mekong Delta. Predictions indicate that rising sea levels due to climate change will lead to the loss of land, fresh water and livelihoods in the region (Eastham et al., 2008; Wassmann et al., 2004). The discourse on climate change in the Mekong Delta embraces the concept of integrated water resources management (IWRM) (Gerlak and Schmeier, 2014), highly promoted since the 1990s as a means to achieve sustainable development (Al Radif, 1999; Rahaman and Varis, 2005). Full participation by the various stakeholders is vital to sound decision-making in this field and to reaching lasting compromises between socio-economic development and environmental protection (Savenije and Van der Zaag, 2008). The sharing of scientific information is an indisputable precondition for successful negotiation between water users, researchers and managers (McDonnell, 2008). Data sharing is argued to soften the negative effects of droughts and floods on people's livelihoods by reducing uncertainties and providing early warnings (Gerlak et al., 2011; Uitto and Duda, 2002). It furthermore provides a basis for assessing and evaluating the impacts of socio-economic activities on water resources (Timmerman and Langaas, 2005), enhances the functions of ecosystems (Dudgeon, 2003) and strengthens adaptive capabilities to climate change (Wilby and Dessai, 2010). In transboundary contexts, data sharing is considered to be a means of building trust between riparian countries and thus a contribution to long-term commitment and strong international cooperation (Feitelson and Haddad, 1998; Fischhendler and Katz, 2013; Kliot, 2005).

In the Lower Mekong, the establishment of the Mekong River Commission (MRC) in 1995 opened an official channel for the four member countries to prepare the region for the consequences of climate change (Jacobs, 1996) and to solve water issues while seeking intergovernmental consensus (Browder and Ortolano, 2000; Ha, 2011; Hori, 1993; Jacobs, 1995; Kristensen, 2000; Radosevich and Olson, 1999). The existence of this organisation has reduced the risk of water conflict escalation (Lauridsen, 2004; Pearse-Smith, 2012) and has contributed to water resources development by providing water research and recommending water policies to the four member countries (Kristensen, 2000). In comparison with other river basins, such as the Zambezi River, where the riparian countries are not interested in a joint water resources management

* Corresponding author.
E-mail addresses: thuhang1710@gmail.com (H.N. Thu), u.wehn@unesco-ihe.org (U. Wehn).
[1] Present address: Department of Water Resources Management, Ministry of Natural Resources and Environment, Hanoi, Viet Nam.

http://dx.doi.org/10.1016/j.jhydrol.2016.02.035
0022-1694/

mechanism (Shela, 2000), or the struggle to operate a river basin organisation in the Nile River Basin (Swain, 2002), the MRC can be considered the front runner in transboundary water management. Backer (2006) argues that even under difficult circumstances (war and political suspicions), the MRC 'has gathered and processed substantial amounts of data on the river and its basin, obtained through cooperation by all member states' (p. 66). Moreover, hydrological data and water-related information sharing was institutionalised and put into practice by the MRC with the ratification of the "Procedures for Data and Information Exchange and Sharing" (PDIES) in 2001. Although this has increased the transparency of information (Wolf, 1997), the MRC's implementation of the data sharing procedures has been highly criticised. Data on water quality and hydrology are too poor to be used for water resources management (Chenoweth and Feitelson, 2001), hydrological data from the Mekong's tributaries is absent, and the skill level of participants is insufficient to manage the information system (Campbell, 2009). Furthermore, some important reports were not made available to the affected public, for example those on the environmental impacts of the construction and operation of the Yali dams in the Se San River (Bearden, 2010; Dore and Lebel, 2010).

From this perspective, it can be argued that the institutions and mechanisms for data sharing under the PDIES framework are not sufficiently able to support sound decision making for water management. However, the real issue may lie elsewhere. There is little knowledge about the influence of socio-economic and political aspects on the willingness of key individuals to share data in related organisations in this region, with the exception of the research by Plengsaeng et al. (2014), which identified the technological and non-technological barriers on the Thai side that influence data sharing in the Lower Mekong. This raises the need to identify the drivers and bottlenecks in other national contexts as well under the umbrella of the Mekong Agreement (Cambodia, Lao PDR and Vietnam) in order to tackle these barriers and promote efficient data sharing and collaboration. This research therefore aims to investigate the current situation of PDIES implementation in Vietnam, identify the drivers and obstacles influencing the willingness of key individuals to share data in the Vietnam National Mekong Committee and its line agencies, and to provide recommendations on how to address the factors influencing effective implementation in the Vietnamese context.

The paper is comprised of six sections. The second section provides background on the legal basis for data sharing as well as on the structure of the Vietnam National Mekong Committee. The third section provides the theoretical context by reviewing the data sharing literature in general as well as that on IWRM in particular. In addition, it presents a model for the willingness to share that can help to identify the drivers and obstacles for data sharing in the Vietnamese context. The fourth section presents the research methodology. The results, discussion and recommendations of this research are presented in section five. The final section concludes with reflections on the theoretical framework, the limitations of the research, and suggestions for future research.

2. Background on data sharing institutions in the Lower Mekong and Vietnam

2.1. Creating institutions for data sharing

The Mekong River Commission was formalised in 1995 by Cambodia, Lao PDR, Thailand and Vietnam under the Agreement for the Cooperation on the Sustainable Development of the Mekong Basin (see MRC, 1995). Since its establishment, the MRC has been the first and only inter-governmental agency of the four riparian countries that aims to develop joint water resources development and management strategies and generate solutions for the transboundary water and environmental issues in the Lower Mekong River basin. This agency consists of three main bodies in its hierarchy: the Council, the Joint Committee and the Secretariat (MRC, 1995). The highest level is the Council whose members are ministers of environment and/or water. They take mutual decisions and formulate policies for cooperation and coordination of joint activities and projects under the Mekong Agreement 1995. The direct body that assists the Council is the Joint Committee, whose members are the heads of department from the four riparian countries. The Joint Committee's main tasks are to put the policies and strategies made by the Council into practice and to supervise the operation of the MRC Secretariat. At last level of the MRC's structure is the MRC Secretariat. This is the main operational body that carries out the decisions and tasks assigned by the Council and the Joint Committee. This level provides the necessary technical services and financial administration for the operation of the MRC. In addition, it also cooperates with local focal points, the National Mekong Committees, to conduct the MRC's activities. At the time of writing, the MRC Secretariat has about 150 staff and is located in Phnom Penh, Cambodia and Vientiane, Lao PDR.

The principles established by the MRC have played a critical role, serving as an umbrella under which the four member countries have been able to develop their foreign policies and cooperate towards sustainable use of the Mekong River water resources (Pichyakorn, 2002). In terms of data sharing, this agreement laid the foundation for information exchange among the member countries. Chapter 3, Article 5, Point B of the Mekong Agreement, states: 'During the wet season, intra-basin use shall be subject to notification to the Joint Committee' and 'During the dry season, intra-basin use shall be subject to prior consultation which aims at arriving at an agreement by the Joint Committee'. More specifically, in Chapter 4, Article 24, Point C, the Agreement regulates that one function of the Joint Committee is 'to regularly obtain, update and exchange information and data necessary to implement this Agreement'. As a result, procedures for data and information exchange and sharing were promulgated in 2001 and followed up by the construction of the HYCOS hydro-meteorological monitoring network (MRC, 2012). Twelve types of data and information are required to be shared: water resources, topography, administrative boundaries, natural resources, agriculture, urbanisation/industrialisation, navigation/transport, environment/ecology, flood management, infrastructure, socio-economics, and tourism (MRC, 2001, p. 3).

2.2. Vietnam National Mekong Committee (VNMC)

The composition of the VNMC is highly interdisciplinary, with participation by seven Ministries[2] and representatives from 17 local provincial people's committees[3] in the Mekong Delta and the Central Highland. The VNMC is responsible for the initial collection and storage of data (MRC, 2002). In addition, it is fully authorised to nominate the line agencies that will provide the required data/information to the MRC-IS. Therefore, the VNMC is also in charge of certifying Primary Custodians (PCs) as internal users. Since 2006, the VNMC has actively participated in the Information and Knowledge Management Programme (IKMP) under the MRC, whose main purpose is to develop a database and modelling tools to support the monitoring network of the MRC and to provide information services for the National Mekong committees and their line agencies.

[2] The Ministry of Natural Resources and Environment, the Ministry of Foreign Affairs, the Ministry of Planning and Investment, the Ministry of Agriculture and Rural Development, the Ministry of Industry and Trade, the Ministry of Transportation, the Ministry of Science and Technology.

[3] Provinces: Kontum, Long An, Ben Tre, Kien Giang, Dong Thap, Can Tho, Tra Vinh, Soc Trang, An Giang, Tien Giang, Hau Giang, Ca Mau, Bac Lieu, Dak Lak, Dac Nong, Gia Lai, Vinh Long.