Chapter 6
Civil Society and Water Governance in Northern Thailand: Local NGOs and Management of Mekong's Tributaries in Chiang Rai

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Abstract This chapter focuses on two cases of people's organizations in water governance in Northern Thailand and aims to reveal the role of civil society as a stakeholder in water management, including water allocation and flood prevention of the Mekong's tributaries in Chiang Rai. This chapter clarifies the interaction and coordination between local NGOs and government authorities, focusing on participatory opportunities and negotiation capacity. Through the two case studies of the People's Council of Ing River and water allocation and the Association of Chiang Saen Livable City and Kok River Basin Ecology Group and flood prevention by telemetry and early warning systems, this chapter argues the limitations of local NGOs' participation and their negotiation with government authorities in interactive, cooperative way of water governance.

Keywords Water governance · Water resource management · Civil society · Local community · Local NGOs · Decentralization · Participation · International river · Mekong River · Mekong's tributaries

1 Introduction

The Mekong River is the longest river in Southeast Asia (Santasombat 2011). It is 4800 km long and covers 795,000 square kilometers of area, flowing from Southern China to Myanmar, Lao PDR, Cambodia, and Vietnam (Hirsh 2006). Along its length, there are several tributaries in all the riparian countries that have contributed to both development and disaster for people living in the areas. The Kok and Ing Rivers are the two main tributaries of the Mekong in Chiang Rai, Northern Thailand, that have affected the lives and prosperity of people in the past and continue doing

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so at present. As a precious resource, water from the Mekong and its tributaries is necessary for the daily consumption and economic production of both agriculture and industry; so, a key question is how to manage and allocate this resource fairly to all sectors and stakeholders. In addition, an unexpected and unpredictable amount of water will cause deterioration of the lives of people and the riparian states; another key question, then, is how to prevent flooding and manage the river properly.

Based on the idea proposed by Santasombat that water management needs a cross-scale and inclusive decision-making process at all levels (Santasombat 2011), this chapter extends Santasombat's study, aiming to explore the role of civil society as the stakeholder in the process of water management, including water allocation and flood prevention, for Mekong's tributaries in Chiang Rai. It argues and elaborates on the coordination among local NGOs and government authorities in terms of political power and administrative structure, as well as the interaction between local NGOs and government authorities, focusing on participatory opportunity and negotiation capacity. OECD's, GWP's, and WGF's concepts of water governance will be applied as a framework. Two case studies, namely, the People's Council of Ing River and water allocation and the Association of Chiang Saen Livable City and Kok River Basin Ecology Group and flood prevention by telemetry and early warning systems, have been examined. Field research was conducted, and documentaries were made to serve the purpose of the study.[1] The main argument of the chapter is that without local people's awareness of their rights, as well as unified, strong, and knowledgeable local NGOs, it is very challenging for local people and communities to exercise their rights under the centralized administrative structure that does not allow for water governance, in particular the participation and negotiation among actors involved.

The chapter consists of six parts starting with the introduction that shapes the research question and frames the entire chapter. Following the introduction, the concept of water governance is reviewed briefly in the second part (Sect. 1). In the third part (Sect. 2), the administrative structure of water management in Thailand, particularly in the north, is examined to gauge its nature as an obstacle to water governance in terms of inclusive decision-making and stakeholder engagement. The fourth and fifth parts (Sects. 3 and 4) elaborate the case studies of local NGOs in Chiang Rai that have been active in water management of Ing and Kok Rivers to understand the limits of local NGOs in terms of negotiation capacity and coordination skill in dealing with government authorities regarding water allocation and flood prevention. Lastly, the conclusion section presents the factors that contribute to the ineffective water governance, namely, the centralized administrative structure, nature of the issues, capacity of local NGOs, and awareness of local people and communities. Suggestions for solutions are also put forward.

[1] The 3-year project titled "Water and Sustainable Development: Civil Society and Water Management of Mekong Tributaries in Northern Thailand" (2014–2016) supported by the Network for International Development Cooperation (NIDC), The Asia Foundation, and Thailand Research Fund.

2 Water Governance: What Is It About?

In 2000, the World Water Forum in The Hague stated that the water crisis is often a governance crisis and calls for methods and tools to ensure good governance (Rogers and Hall 2003). Recently, good governance has become a key concept and approach for effective water management in many countries and regions including the Mekong and its riparian states. However, as Hirsh (2006) mentioned, the definition and agenda of governance vary depending on different contexts, and stakeholder's interests are also too complex owing to various groups of stakeholders. Therefore, governance requires an integrated approach to managing resources and also implies that inclusive stakeholder engagement is crucial. Hirsh further suggested that the process of and ability to foster negotiation for more sustainable, equitable, and productive use and management of water should be seen as a product of water governance rather than as a "best practice."

Emphasizing the process of participation and negotiation among the actors involved responding to regional and global socioeconomic and environmental changes, Imamura (2007) addressed the need for a more democratic approach to water governance. As governance involves decision-making, which is related to political power and administrative structure, considering rights and justice is inevitable. Badenoch et al. argued, "securing the rights of people with claims over water resources requires governance structures that are inclusive and not only create and allocate rights to different sectors of society, but, more importantly, protect them in the face of competing interests" (Badenoch et al. 2012, p.7). This view is supported by Santasombat, especially regarding the situation in the Mekong region, where the development and management practiced by states with a centralized and top-down policy and implementation without consultation or participation by local people and communities failed. He argued that the local natural resources should be managed by local people or communities for the following reasons. First, the resource itself is local; therefore, it is best managed by local people. Second, as their lives depend on local resources, local people have the requisite knowledge to manage these resources properly. Third, the local control of resources is crucial for a check and balance with the government's centralized administrative system and management. However, given the limited capacity of local entities, Santasombat suggested that "neither purely local level management nor purely higher level management works well by itself. Rather, there is a need to design and support cross-scale management, linking institutions both horizontally – particularly at the local level – and vertically, that is both nationally and internationally" (Santasombat 2011, p.14–15).

Since early 2000s, international organizations and international forums have provided the concepts and approaches of water governance. The Global Water Partnership (GWP) defines water governance as "*the range of political, social, economics, and administrative systems that are in place to develop and manage water resources, and the delivery of water services, at different levels of society*" (Roger and Hall: GWP-TEC 2003, p.16). Rogers and Hall elaborated that the notion of water governance includes the ability to design public policy and an institutional framework that are socially accepted and mobilize social resources to support them.

The process of water policy formulation must aim toward sustainable management of water resources, while the implementation process must be made effective with the involvement of all actors and stakeholders. In addition, as water is a scarce resource, equitable allocation and efficient management will require political drives (Rogers and Hall 2003). This chapter focuses on the political aspect of water policy to understand whether and how different degrees of political power and influence contribute to policy formulation and implementation.

The Water Governance Facility (WGF), which is a collaboration between the UNDP and Stockholm International Water Institute (SIWI) working on knowledge and capacity development related to multiple thematic areas, including integrated water resources management (IWRM), transboundary waters, water supply and sanitation, gender equality, water integrity, and climate change adaptation, shares a similar idea of water governance. For WGF, "water governance refers to the political, social, economic and administrative systems in place that influence water's use and management, essentially who gets what water, when and how, and who has the right to water and related services, and their benefits."[2] It also asserts that "governing water includes the formulation, establishment and implementation of water policies, legislation and institutions, and clarification of the roles and responsibilities of government and civil society, and the private sector in relations to water resources and services."[3] Among the four dimensions of water governance, namely, social, economic, political, and environmental, this chapter pays attention to the political dimension, which emphasizes "equal rights and opportunities to take part in decision-making process."[4] In practice, this dimension emphasizes the participation of common and marginalized people in decision-making, implementation, and conflict resolution. With the assumption that common and marginalized people should have equal rights and opportunities to take part in the decision-making process, this chapter will explore whether and how such people in Chiang Rai are able to exercise their rights in the water management process.

OECD has recently given priority to water governance, in particular, the stakeholder engagement, as an important principle. The OECD Principles on Water Governance provide a framework to understand whether water governance systems are performing optimally and help to adjust them where necessary. Under this principle, three main elements are emphasized, namely, enhancing the effectiveness of water governance, enhancing the efficiency of water governance, and enhancing trust and engagement in water governance. This chapter will look at the last element, "enhancing trust and engagement in water governance," which includes Principle 10. Principle 10 aims to "promote stakeholder engagement for informed and outcome-oriented contributions to water policy design and implementation" (OECD 2015). This chapter will examine how local NGOs interact and negotiate with government authorities in order to propose and have their demands incorporated into the water policy and plan.

[2] Water Governance Facility (WGF): watergovernance.org/water-governance/

[3] Water Governance Facility (WGF): watergovernance.org/governance/what-is-water-governance/

[4] Ibid.

3 Water Management in Northern Thailand

According to the Department of Water Resources (DWR), Ministry of Natural Resources and Environment (MoNRE), Thailand, at present, there is no law or act to govern or manage water resource.[5] In 1989, the government issued the Regulation of the Office of the Prime Minister on National Water Resources Management[6] which was revised twice in 2002 and 2007. This Regulation has provided the mechanism and guidelines to direct, administrate, control, and supervise the water resource management policy and plan. With this Regulation, two important committees, namely, the National Water Resources Committee (NWRC) and River Basin Committee (RBC), were established. The DWR functions as the secretary of both committees (DWR 2014).

The NWRC is a national-level organization appointed by the cabinet and chaired by the prime minister. The members of the committee consist of assigned deputy prime ministers, permanent secretaries, director generals, technical experts, etc. The committee mainly oversees the holistic policy and strategic plan of national water resource management including initiating and amendment of related rules and regulations; making policy and plan; budgeting; inter-agency coordinating, monitoring, and evaluation of decent authorities; and supporting RBC in policy implementation at basin level.

Regarding RBC, this committee was established according to the Regulation of the Office of the Prime Minister on National Water Resource Management in 2007. There are 25 RBCs all over the country following the main 25 river basins in Thailand (see Appendix 1). Each committee's members appointed by NWRC consist of representatives from government agencies, private sector, and civil society, with the amount of no more than 35 persons. Each RBC oversees and manages water resource of the basin including making policy and plan, budgeting, coordinating between central government agencies and local authorities, prioritizing development projects and allocating water, monitoring and evaluation, settling conflicts and solving problems, as well as coordinating with other RBCs. Under each RBC, subcommittees, working groups, and networks are set up to function at river and subriver basins as well as the provincial level. Chart 6.1 displays the structure of NWRC and RBC.

Interestingly, while NWRC and RBCs are designed and assigned to manage water resource at both national and basin levels, according to DWR, there are other 12 ministries/agencies with more than 30 departments involved in this issue (see Appendix 2). Each ministry and agency has its regulation to govern its policy and plan, as well as its budget to implement its projects and activities. In addition, due

[5] When this manuscript was written (October 2017), the draft of Water Resource Law was under consideration of the National Legislative Assembly after it was submitted in May 2017.

[6] The term for this regulation varies according to the organization involved. This regulation was issued by the Office of the Prime Minister, and it was called "Regulation of the Office of Prime Minister." However, in DWR's website and document, the term "The Prime Minister Regulation" was used. In Thai, both organizations used the same word, "Rabieb Samnak Nayokratthamontri."

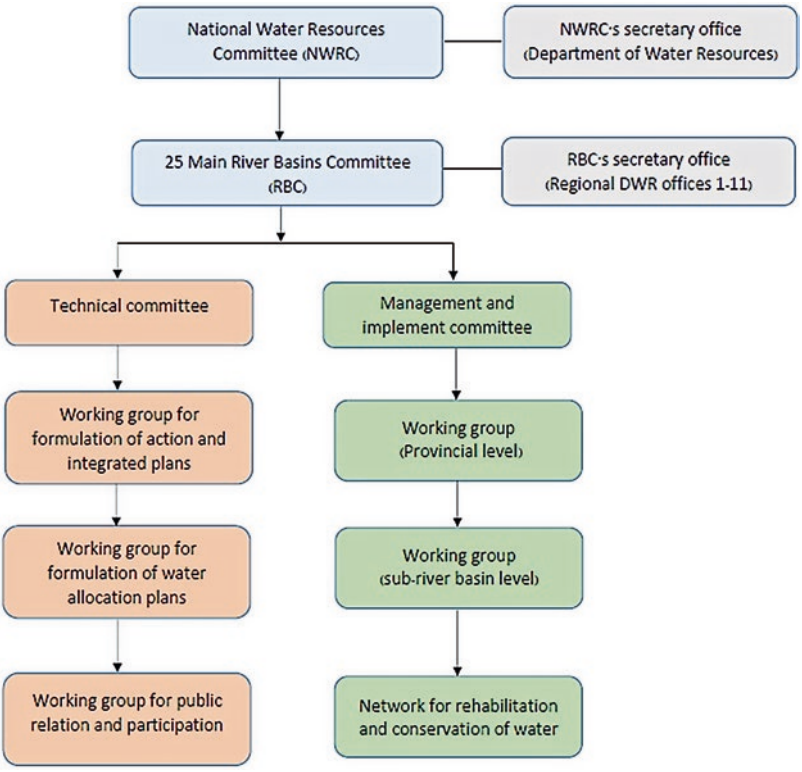

Chart 6.1 Organizational structures of NWRC and RBC (Source: Department of Water Resources (2006))

to the centralized public administration system of the country, each ministry also delegates its authorities and functions to its local agents to implement its policy by its own budget. For example, the Royal Irrigation Department (RID) under the Ministry of Agriculture and Cooperatives has offices in each province to implement its projects. This situation signifies that while the structure and line of command for water resource management is centralized, the resources for management, namely, budget and manpower, are fragmented. Thus, to achieve efficient and effective water management, inter-agency coordination is the key element. It should be noted that even with the well-coordination, there is a possibility that competition among agencies and duplication of projects may occur. Chart 6.2 displays the line of command and coordination of NWRC and other government agencies regarding water resource management.

In principle, each RBC performs its functions by formulating the water resources management plan in its area and coordinating the creation of an action plan by related agencies and the local government in line with the river basin's water resources management plan and budget frame (DWR 2014). According to its duties, the RBC organizes public hearings to compile information on local needs from local

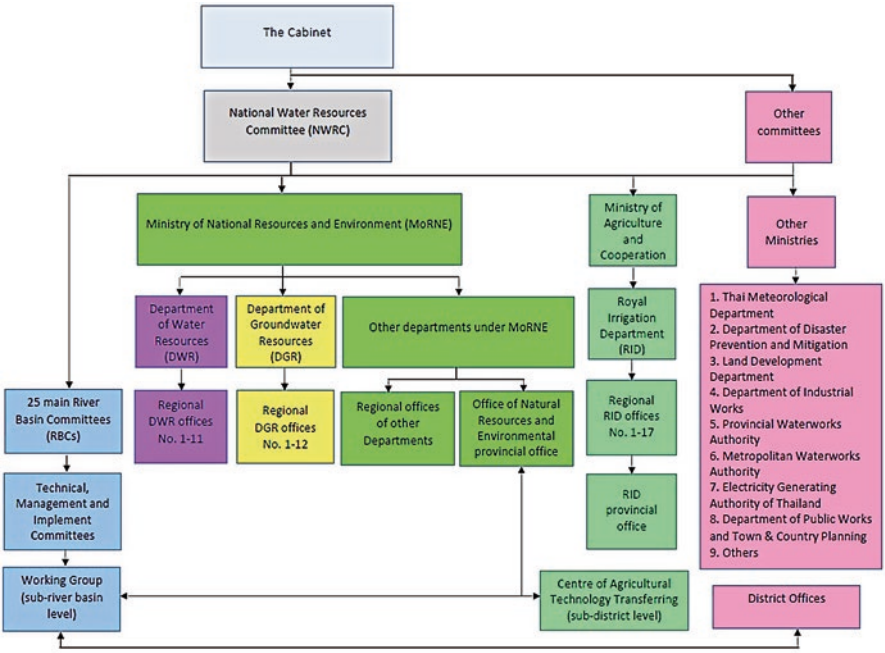

Chart 6.2 Line of command and coordination of NWRC and other government agencies for national water resource management (Source: Department of Water Resources (2006))

people and water users and drafts the river basin's development plan based on its findings and national development policy. However, in reality, RBC can only make a list of public needs and draft a plan since the authority given to it is limited due to lack of law or act, but only the Regulation of the Office of Prime Minister which has less authority than a law or act. In addition, the RBC in some basins has also been interfered by several government agencies that want it to include and implement projects of their choices into the plan instead of those based on information from public hearings.[7]

In terms of budget, although the planned projects of every government agency in each basin have to be stipulated in the development plan of that basin, and the RBC then submits it to the National Water Resources Committee to approve and forward to the Bureau of Budget for annual budget, some agencies have never proposed their projects to the RBC but submit to the central office of their departments or ministries with their acquired budget for implementing their projects independently from RBC. According to the interviews, "whether we propose our planned projects to the River Basin Committee or not, it does not matter because we are always allocated budget from the government and we can inform the River Basin Committee later when the projects are completed. Also, since the River Basin Committee has no its

[7] Interview with RBC of Kokand Mekong, April 2016.

own budget to allocate to our office, we have better directly proposed our project proposals to the Department of Disaster Prevention and Mitigation to get the budget,"[8] and "we directly propose project proposals to the Royal Irrigation Department not to the River Basin Committee, and we recognize the River Basin Committee as a project collector who totally has no authority to consider if the projects compiled should be implemented or allocated budget. Accordingly, the establishment of the River Basin Committee has no benefit at all since the Committee can function nothing."[9] These views signify another limitation of the RBC and the NWRC; they have no budget to encourage and no authority to regulate other government agencies to abide by their policies.

In the North, the Kok-Mekong River Basin Committee (RBC of Kok and Mekong) is appointed and assigned to manage water resource of Mekong River and its tributaries including Kok and Ing Rivers. This RBC's members consist of representatives from government agencies both at regional and local levels, the private sector, and groups of water users at the basin level. The Committee is chaired by the Governor of Chiang Rai Province, and the Director of the Regional Water Resources Office 1[10] of the DWR serves as its secretary. To function following its mandate, RBC of Kok-Mekong has also faced difficulties as mentioned above. This makes the committee to be only a feeble organization that is available but not important.

Regarding the stakeholder engagement, following the application of Integrated Water Resources Management (IWRM), NWRC and RBC have given priority to participation, particularly at the basin level. According to the Water Resource Management Strategies of DWR, "encouraging knowledge, understanding, and participatory process with civil society, basin based networks and organizations, local authorities, as well as other agencies involved in water resources management" is one of the implementation tactics of the DWR (DWR 2014, p. 70). However, as NWRC and RBC of which DWR serves as secretary have limited authority, budget, and manpower due to no law or act supported, its credibility of policy implementation is doubted. In addition, although NWRC and RBS have emphasized on the stakeholder engagement, their achievement is also limited due to the distrust and no participation of civil society in the area. As Neef mentioned, civic engagement in water management is low since civil society distrusts the government and believes that it cannot truly fulfill their needs (Neef 2008). This situation is also illustrated in case of the management of Kok and Ing Rivers, which some local NGOs, such as Rak Chiang Khong Group, do not avail their rights of participating in water management with the RBC due to the reason that the river basin development plan has never reflected appropriately their needs.[11]

In sum, in endeavoring to implement the IWRM, the Thai government has encountered several limitations and challenges. One of them is that the NWRC and RBC, which are the most important actors at the national and river basin levels that

[8] Interview with Office of the Disaster Prevention and Mitigation in Chiang Rai, April 2016.

[9] Interview with Regional Irrigation Office 2 in Chiang Rai, April 2016.

[10] This is the delegated authority of DWR at the regional level. There are 11 regional offices all over the country. Please see more details in Appendix 3.

[11] Interview with leaders of Rak Chiang Khong Group, April 2016.

has greatly influenced water resources management in Thailand, have no authority and resources to function effectively even though their structure and administrative body have existed for years. Without the law or act that grants the same degree of authority and resources as other agencies, the capacity, credibility, and achievement of these two agencies (NWRC and RBC) are doubted, resulting in the possibility of low degree of water governance, particularly in the river basin. The other challenge is the limited role of civil society and its participation in the decision-making process of water resource management. As water governance requires the active participation of civil society in all processes of policy decision-making, the passive role of civil society due to the past experience of mistrust between civil society and government officials has been an obstacle for practicing water governance in the river basin as well.

4 "People's Council of Ing River" and Water Allocation of Ing River

4.1 People's Council of Ing River

In 2011, the Network of Ing River Community and the Network for Natural Resources and Cultural Conservation in Mekong and Lanna Areas organized a meeting that all networks along the Ing River were invited to join. In this meeting, the idea of establishing the "People's Council of Ing River"was initiated and discussed. The concept of "People's Council" was proposed in order to transform the local movement and organization from a "community network" which was a loose cooperative form among local people and communities, to a more consolidated unit, a "council," with a permanent secretariat to facilitate the network's activities. Although the idea was widely discussed, there was no concrete action until 2013, when two more meetings were convened and the People's Council of Ing River became formally functional as a forum and a process for local people to participate in the Ing River development and management, particularly in the government's policy-making process related to the river. In addition, to support the livelihood and better standard of living of people along the river, the Council intends to extend and strengthen the existing network of acquiring knowledge and sharing it, as well as to expand the conservative areas along the river. The main principle of the Council is to provide opportunities and encourage local people to take part in the process of natural resources allocation and conservation along the Ing River in a fair and sustainable manner (Viset 2013).

As the Ing River flows through two provinces, Phayao and Chiang Rai, the Council was developed based on the existing community networks in those two provinces. In general, the river community network consists of representatives from several villages in communities along the river. Meetings and consultations are the main mechanisms of the community network. The basic function of all networks is to manage the daily water needs as well as monitor the government's development

policy and projects that may affect the communities' livelihood. With agreement among the community network's committees, rules and practices for natural resource management in the communities, including allocation, utilization, conservation, and penalties, are set and enforced. There is also coordination among multiple networks of river communities (e.g., Network of Ing River Community, Network of Kok River Community, and Network of Sai River Community), and joint activities are conducted from time to time (Rakyuttitham 2000).

The Network of Ing River Community comprises several groups and networks in both Phayao and Chiang Rai. In 1993, people living along the upper Ing River in Phayao faced serious drought. When they realized that watershed degradation was the root cause of the problem, they introduced the Phayao Lake and Watershed Conservation Area in 1994 in order to restore the forest and the Ing River. The conservative area was looked after by the communities in that area—14 communities along 12 small tributaries that flow to the upper Ing River. Therefore, in 1994, with the demarcation of the watershed conservation area, the Phayao Lake and Watershed Conservative Group of 12 Tributaries was established. It has developed into the Network of Phayao Lake and Watershed of 12 Tributaries Group over the years. In addition, during 1995–1996, the groups' activities were extended to include the local fishery in the Phayao Lake.

Currently, the Network of Phayao Lake and Watershed of 12 Tributaries Group is an active member of the People's Council of Ing River together with other networks, namely, the Love Lao River Network, the Love Yuan River Network, the Network of Alternative Agriculture in Phayao, the Network of Traditional Fishery in Phayao Lake, the Network of Natural Resources of Phayao Province, and the Network of Mid Ing Rivers (Rakyuttitham 2000). It should be noted from the historical background and foundation of these networks that natural resources management, including allocation, utilization, and conservation, is their main concern, and their activities are conducted for the people's survival and sustainable livelihood. The activities, particularly those related to conservation, by nature, are not absolutely contradictory to the government's policy of reforestation and restoration of watersheds, nor do they cause serious conflict with government officials. To some extent, the government tries to cooperate with these networks and encourage them to participate in government-led activities.[12]

In contrast, in Chiang Rai, along the lower Ing River, the Rak Chiang Khong Group was formed in 1997 in order to protest against the government-initiated Kok-Ing-Nan Water Diversion Project, which was expected to heavily affect local people along the Ing River. The most critical issue regarding the project was the nonparticipatory process of the development plan. As residents of the area where the development project would be conducted, local people believed that they had the right to be informed of the plan in order to prepare for any changes. However, this expectation was not fulfilled, which disappointed them badly and led to suspicion and mistrust against the government's project and officials. In 1997–1998, the Rak Chiang Khong Group was able to gain support from several community networks in Phayao,

[12] Interview with government officials in Phayao, August 2015.

including the Network of Phayao Lake and Watershed of 12 Tributaries Group to conduct the protest (Viset and Boonserm 2004). This was the beginning of cooperation among the community networks of two provinces along the Ing River and was the foundation for the establishment of the People's Council of Ing River later. The key element that linked all the networks together was their approach toward river development focusing on holistic and integrated management of the river and water resources. Precisely speaking, as the river flows through the area without boundaries, and the water resources belong to those who live in the riparian area, they did not believe in having a river development plan separated by administrative boundaries or top-down management without the participation of local people living along the river. Their approach continues to be used and recently became the foundation for establishing the People's Council of Ing River.[13]

Due to the strong protest, the Kok-Ing-Nan Water Diversion Project was postponed. The success of the protest reflected the fact that the top-down approach was not accepted by local communities. It also illustrated the strength of community networks as a tool to negotiate with the government and demand for the right to protect community resources that belong to all (Viset and Boonserm 2004). In addition, it encouraged local people to form several networks in Chiang Rai, and in 2013, those networks, including the Network of Local People in Lower Ing River and the Network for Conservation of Lower Ing River, became members of the People's Council. Some networks were short-lived, such as, the Love Ing-Lao Rivers Group, while other networks remained active and developed into more solid organizations later, such as the Network for Social Life and Environmental Studies (Rakyuttitham 2000). It should be noted that, in comparison to the community networks in Phayao, the community networks in Chiang Rai are different in terms of their history, origin, purpose, and means of conducting activity. The main difference lies in the two groups' different views in the political dimension; namely, the networks and members in Chiang Rai are more policy-oriented with a desire and readiness to engage in the policy-making process and utilize political power or influence to achieve their objectives, while the networks and members in Phayao emphasize non-political activities and utilize the traditional way of life to conduct activities to achieve their objectives.[14] This difference, certainly, presents both opportunities and challenges for the People's Council of Ing River, whose membership includes all community networks from the two provinces. A great deal of compromise is, then, needed to conduct activities in the name of the Council. Concurrently, it is necessary to find common interests and shared burdens and benefits among the community networks to continue the Council.

The Council frequently carries out several activities: natural resources and cultural preservation, the establishment of the Foundation,[15] participation in the

[13] Interview with members of the Council in Phayao and Chiang Rai, August 2015.

[14] Observed by the author, leadership, namely, personality and charisma of networks' leaders in Chiang Rai and Phayao, may contribute to the difference between these two groups. However, this observation needs more study to confirm.

[15] Some members of the Council have an idea to raise fund by legalizing the Council through a formal registration as a "foundation."

policy-making process for development projects along the Ing River, and drafting of the Council's proposal for Ing River development and management. The strategic plan of action calls for the conservation and restoration of the watershed forest of Phayao Lake, demarcation and expansion of the fish conservation area, diversion of water from the Mekong River to the Ing River for agriculture, and a database to accumulate traditional knowledge (Viset 2013). Following an interview with members of the People's Council in Chiang Rai, the Council aims to advocate a development policy based on sustainable development and wants this policy to be included in the development policy of the province. Instead of being a reactive victim of the government's policy and plan, the Council seeks to initiate and propose its ideas to the government through formal and informal channels, including joining government- or province-led workshops or forums, or inviting officials to join its own workshops and forums.[16]

4.2 Different Views on Water Resource Allocation of Ing River

Regarding water resource management, the Council focuses on the development of areas along the Ing River and water utilization. The Ing River originated from Phi Pan Nam in Phayao province and flows through Phayao and Chiang Rai provinces upward to join the Mekong River at Chiang Khong District in Chiang Rai. Geographically, the Ing River is divided into three parts: the upper, middle, and lower parts. It covers a total area of 4773.34 square kilometers in the two provinces (River Basin Committee of Kok and Mekong River Basins 2012). It is 325 km long, and there are 23 small tributaries flowing in, which create a large area of wetland with plenty of natural resources including forests, wildlife, birds, fish, and plants. The water from the Ing River has contributed to the survival and livelihood of people in the riparian area as it is a source of food, daily consumption, and social values. Local people use the water for agriculture, husbandry, and washing and cleaning in daily life, as well as during worship according to traditional beliefs. Local people, who are both Thai and ethnic minorities, have earned a livelihood by utilizing the existing resources and concurrently preserving them based on the sufficiency philosophy and nature dependency (Yeunyong n.a.) (Fig. 6.1).

Recently, the degradation of rivers and watershed has become more serious. The River Basin Committee of Kok and Mekong River Basins (RBC of Kok-Mekong) identified the causes of degradation of the Ing River as the following: deforestation for agriculture expansion and soil erosion, water shortage and flood, and low quality of water due to chemical contamination from agriculture and residential areas. In addition, the RBC of Kok and Mekong indicated that the inefficiency and conflict related to water management occurred due to the different interests and perspectives of several actors and stakeholders. In general, competition for water for both agriculture and daily consumption among water users usually occur between

[16] Interview with the members of the Council, November 2016.

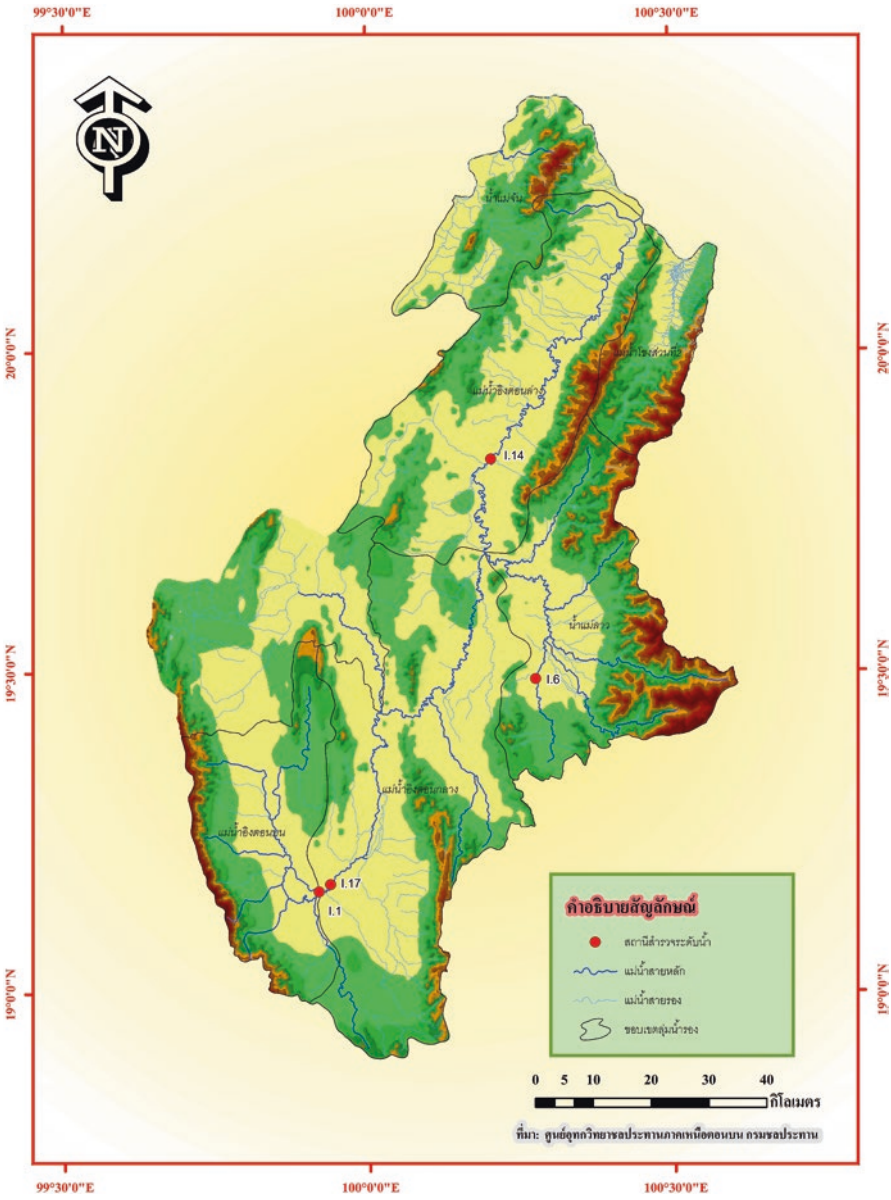

Fig. 6.1 Map of the Ing River Basin. (Source: Bureau of Water Management and Hydrology, Royal Irrigation Department https://www.hydro-1.net/Data/HD-01/1-07.html)

the communities upstream and downstream of the river. Concurrently, there existed conflicts between local communities and government officials regarding the water management and development projects in the area (RBC of Kok and Mekong River Basin 2012).

According to RBC of Kok and Mekong's document called the Kok and Mekong River Basin Integrated Development and Management Framework 2014–2016, RBC of Kok and Mekong has attempted to solve the problems of severe water degradation and shortage by giving priority to water supply management. Namely, the construction of a reservoir, wells, and a pipe system is recommended as a response to water shortage, while dykes, dams, and dredging are planned for flood prevention (RBC of Kok and Mekong River Basins 2012). The core idea that underlines these suggestions and plan is to manage water by increasing or controlling its amount through technology and construction. With the application of IWRM, RBC of Kokand Mekong recognized the importance of local participation in the process of water management, and concrete plans are supposed to be implemented during the 3-year period of the plan (RBC of Kok and Mekong River Basins 2012). Information from interviews with officials of RBC of Kokand Mekong illustrated their attempts to include local people and community networks in the process of drafting the development plan for water use in the area along the Ing River, by holding several meetings and public hearings. Apart from the effort to increase and control the amount of water, the officials conduct other activities to support local people for efficient water allocation and utilization; for example, they set up water user groups, conduct forums for dispute settlement, and organize training courses related to water management for local people.[17]

Contradictory to the government's views, local people, particularly members of the Rak Chiang Khong Group and members of the People's Council in Chiang Rai, have noted that the degradation of wetlands along the Ing River have occurred as a result of agriculture expansion and development projects implemented by the government. With the rising human population, the demand for water has been increasing sharply. Concurrently, following the government's guidelines, agricultural expansion and tourist promotion have been intensified in two provinces, since they are seen as key income generation sectors. This has contributed to excessive water use, water exploitation, and competition for water among several groups of water users. Therefore, from a local perspective, the root of the problem lies not only in the method of water control and allocation among several users and between upstream and downstream communities in different periods but also in the path of development that focuses on income growth and intensive utilization of natural resources (Yeungyong n.a.).

Due to the different perspectives regarding development direction and water utilization, local people and members of the People's Council in Chiang Rai found it necessary to negotiate with government officials. Data from interviews showed that in fact, in the past, members of the People's Council tried to voice their problems or propose their ideas through the participatory process initiated by RBC as well as

[17] Interview with officials of RBC of Kokand Mekong, August 2015 and November 2016.

other government agencies in the province. For example, some local people and members of the People's Council were appointed to sit in the RBC of the Kokand Mekong to give comments and draft the RBC's development plan. From RBC's perspective, these activities constituted local participation and stakeholder engagement. However, from local people's perspective, meetings without the mainstream ideas and comments about development policy and plan were meaningless and could not be categorized as "participation and engagement." In fact, they thought that they were only the "object" or "rubber stamp" of the government's policy and implementation plan. Therefore, some of them resigned at the end.[18]

The "understanding gap" between officials and local people or members of the People's Council in Chiang Rai reflects the need for RBC to reconsider its roles and activities to respond to the demands of local people. As Hirsh (2006) commented, in principle, RBCs have greater civil society and local participation than previous governance arrangements according to the Regulation of the Office of the Prime Minister on National Water Resource Management, but in practice, they are unable to apply that opportunity for water governance. At the same time, this "understanding gap" also provides the opportunity and space for civil society to be more active in the water governance process, particularly in the policy decision-making process, to secure efficient and effective water use for the Ing River.

5 "The Association of Chiang Saen Livable City" and "Kok River Basin Ecology Group" and Flood Prevention along the Kok River

5.1 Overview of Two Local NGOs

The Association of Chiang Saen Livable City is a group of local people living in Chiang Saen District, Chiang Rai province. Led by Mr. Suthep Lorsrithong, the Association officially registered as a formal entity with the Ministry of Interior of Thailand in 2005. Its members are local people in the area who are familiar with Mr. Lorsrithong and agreed to join the Association. Data from interviews did not show common ideas and interests among the Association's members in terms of water management or area development (Chiang Saen is the mouth of the Kok River and a historical city). According to the regulations, Mr. Lorsrithong has held official meetings and met the Association's members once a month to report the Association's activities, which are actually his activities on behalf of the Association. The main activity of the Association that Mr. Lorsrithong has carried out is participating in the government- or province-led meetings. These meetings cover a wide range of issues, such as, the development plan of the city, water management projects, and infrastructure development, as well as cultural and traditional events. Regarding water

[18] Interview with the members of the Council, August 2015.

management of the Kok River, it is interesting to note that Mr. Lorsrithong has been appointed as a member of RBC of Kokand Mekong while other members of the Association are rather passive.[19] Although the Association has existed for some time, its relations with other civil society organizations in Chiang Rai is rather limited due to the negative view that they share no common concerns or interests. For example, the Rak Chiang Khong Group pays attention to the conservation of Mekong giant catfish, but the Association of Chiang Saen Livable City is not interested in this activity, explaining that it is the job of the Department of Fisheries and not of local people and networks. Even though there are some cases where the Association shares the same view as other community networks, for example, China's threat of unexpected and unpredictable water release, which would affect people in the riparian areas of both the Kok and Ing Rivers, the role of the Association is still passive due to the lack of cooperation and support from people in the area owing to the fear of being noted as anti-government.[20] Compared with the Rak Chiang Khong Group located in Chiang Khong, the mouth of Ing River, the situation is quite different. It is also interesting to note that the Association, particularly Mr. Lorsrithong, does not participate in the activities of or cooperate with the People's Council of Ing River due to the perception that NGOs including the People's Council of Ing River and its activities are anti-government.

In terms of the relations with the government agencies, both central and provincial levels, Mr. Lorsrithong proudly explains that as the Chair of the Association of Chiang Saen Livable City, he represents one of the small number of civil society organizations invited to participate in meetings with the government agencies and be a part of a subcommittee for the RCB of Kokand Mekong.[21] This signifies the cordial relationship between the two sides. However, Mr. Lorsrithong also commented and admitted that although he has made an effort to voice his opinions to the government agencies, there is no guarantee that the government officials will recognize them. This is similar to the view expressed by the leader of the Rak Chiang Khong Group that actually the voice of local people is hardly heard by the government, particularly in the decision-making process.

Regarding water management of the Kok River, particularly flood prevention and early warning, although living at the mouth of the Kok River connecting to the Mekong River and often affected by flood, local people including members of the Association have been scarcely informed about the Mekong's situation by the related government agencies. Data from interviews illustrated their concerns; however, there has been no sign from the Association to send a signal to the government officials or cooperate with other community networks or civil society organizations, particularly the People's Council of Ing River, to raise this issue. Although they know about the telemetry and early warning system for flood prevention, local people do not find it appropriate to rely on the data and system implemented by government agencies.[22]

[19] Interview with members of the Association, April 2016.

[20] Interview with members of the Association, April 2016.

[21] Interview with the Chair of the Association, April 2016.

[22] Interview with members of the Association, April 2016.

Another group to be compared with the above civic organization in the same river basin is *The Kok River Basin Ecology Group.* This is one of the civil society organizations in Chiang Saen headed by Mr. Dusit Jitsook, a local scholar and farmer. Its activities focus on development and management of water usage in the Kok River Basin. Realizing the unsustainability of the government-led development project, particularly the construction of weir to manage the Kok River for multipurpose water utilization, Mr. Jitsook and local people living in the Kok River Basin established a group to jointly search for the method to restore the ecology and allocate water resources fairly to stakeholders in the area based on local wisdom.[23]

Regarding the cooperation with other civil society organizations in Chiang Rai, the Kok River Basin Ecology Group has cooperated with the Rak Chiang Khong Group due to the shared concerns and approach toward China's role in the region regarding Mekong River. Both groups realize the threat resulting from the Chinese dam construction upstream and the unexpected and unpredictable water release downstream for navigation by China, which causes unexpected floods in the downstream areas. To deal with this problem, it is necessary to cooperate and coordinate with both government agencies and NGOs. However, the experience of the Kok River Basin Ecology Group displayed that support from the government agencies was hard to find, while cooperation with other civil society organizations was more fruitful. The members of the Kok River Basin Ecology Group had also joined with the Rak Chiang Khong Group and coordinate with other networks in Northern Thailand to launch campaigns showing their opposition to hydropower development projects of upstream countries, including China and Lao PDR. It is interesting to note that the Kok River Basin Ecology Group does not cooperate with the Association of Chiang Saen Livable City, although they live and work in the same area, Chiang Saen, and Kok River.[24] This situation reflects the fragmentation of civil society organizations in the area, and it may lead to the weakness of these organizations in dealing with the government agencies. However, to be fair to these two groups, it should be observed that they have different standpoints and focuses. The Association of Chiang Saen Livable City concentrates on the development of Chiang Saen District, such as, maintaining and promoting their cultures and historical sites.[25] In contrast, the Kok River Basin Ecology Group aims to propose an alternative approach to development and water management in the Kok River Basin. With this difference of purpose, cooperation between the two groups seems to be very challenging.

For the relationship with the government, due to the different perspectives regarding development and water resources management, the Kok River Basin Ecology Group has rarely sought support from the government. In addition, it is seldom invited to participate in government- or province-led committees or projects; for example, the group's leader is not appointed as a member of RBC of Kokand Mekong, while the Chair of the Association of Chiang Saen Livable City is.

[23] Interview with members of the Kok River Basin Ecology Group, April 2016.

[24] Interview with members of the Kok River Basin Ecology Group, April 2016.

[25] Interview with members of the Association, April 2016.

However, the leader of the Kok River Basin Ecology Group has shared comments similar to those of the leader of the Rak Chiang Khong Group, suggesting that the participatory process initiated and practiced by the government agencies is meaningless if the people's proposed policy and plan are not included in the provincial development policy and plan.[26] In addition, the leader of the Kok River Basin Ecology Group has commented that although NGOs in Chiang Saen are strong and active, local people in the area are passive since their main concerns are issues related to their daily lives, for example, income generation, health, and education for their family members. This view is also shared by the Chair of the Association of Chiang Saen Livable City. The low degree of public awareness in Chiang Saen makes it difficult for NGOs to negotiate with government agencies for participation and engagement in the policy-making process due to limited support from the ground.

5.2 Flood Prevention in Chiang Saen: Integrated Cooperation and Local Participation?

The Kok River is a tributary of the Mekong River originated in Kengtung District, Myanmar. It meets the Mekong River near the Sop Kok Community in Chiang Saen District, Chiang Rai province, Thailand, where the confluence of the two is known as Sop Kok in the local language. The River is 128 km long in Myanmar and 157 km long in Thailand, having a total length of 285 km. Its basin in Thailand is around 7300.41 square kilometers in area, covering parts of Chiang Mai and Chiang Rai provinces. It is close to Myanmar and Lao PDR to the north, the Wang River Basin to the south, the Northern Mekong River Basin to the east, and the Ping River Basin as well as Myanmar to the west. There are three main geographic characteristics of the river basin as described by the Hydro and Agro Informatics Institute (2013): mountain, piedmont, and floodplain. Moreover, the Kok River Basin consists of four sub-basins: Mae Fang, where the basin area is 27.26% of the whole Kok River Basin; Mae Lao, 38.33%; Mae Saluay, 5.83%; and Lower Mae Kok, 28.28% (Fig. 6.2).

The Kok River has been affected by both natural and administrative problems, such as, floods, droughts, water scarcity, water quality, and water allocation and sharing. Furthermore, transboundary problems have threatened the river several times, particularly the downstream of the Kok River, where the surrounding area is easily flooded. The downstream flood occurs because of the Kok River itself and the relation between the Kok and Mekong Rivers. These flood types have normally been known as tributary[27] and combined[28] floods (Mekong River Commission

[26] Interview with the leader of the Kok River Basin Ecology Group, April 2016.

[27] Tributary flood occurs when the Kok River overflows its banks because of intense rainfall.

[28] Combined flood occurs as a result of the interaction between the Mekong River and Kok River when their water levels are high at the same time.

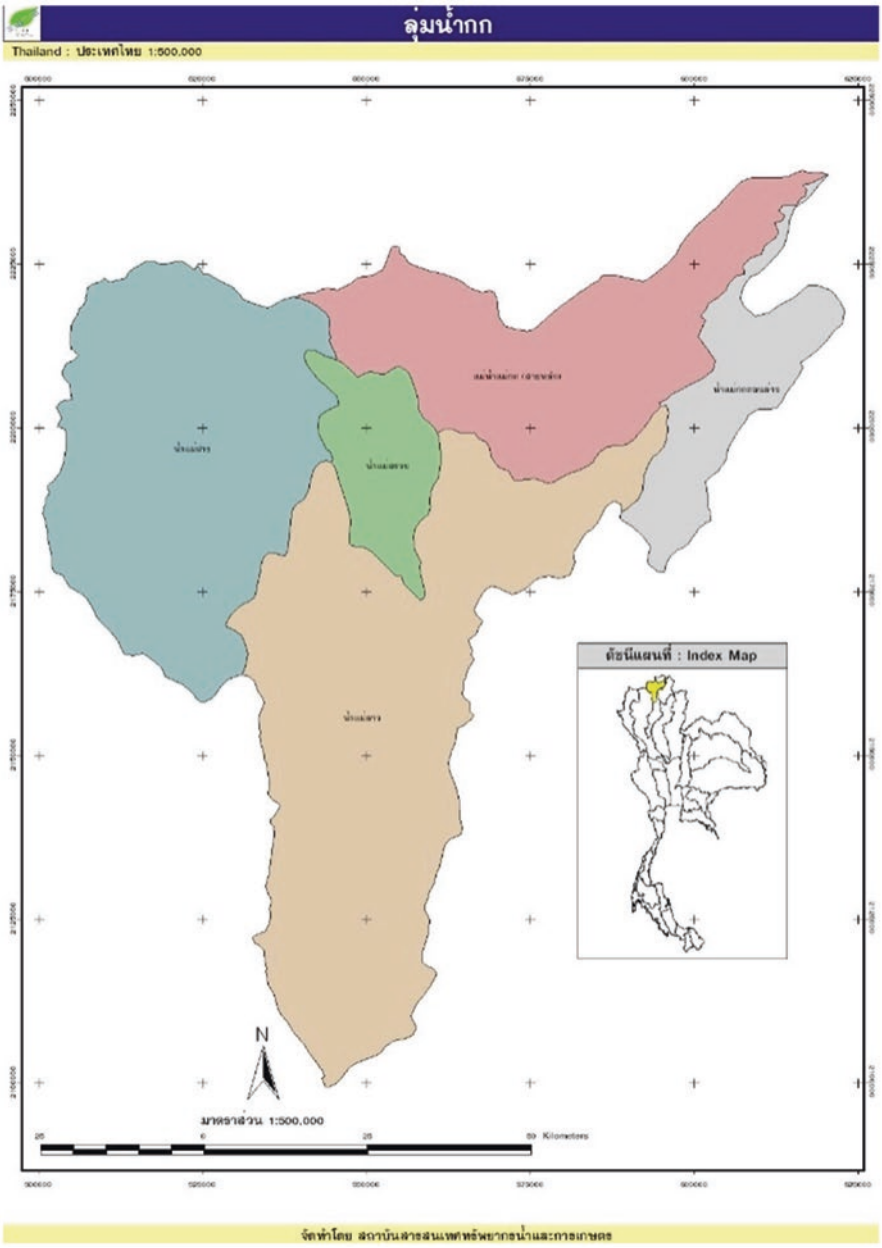

Fig. 6.2 Map of The Kok River Basin (Source: Hydro and Agro Informatics Institute)

Table 6.1 National and provincial agencies responsible for flood management

Central governmental agencies	Regional/local governmental agencies
1. National Water Resources Committee	1. Chiang Rai Provincial Office
2. Department of Water Resources	2. Chiang Rai Provincial Irrigation Office
3. Royal Irrigation Department	3. Kok and Mekong River Basin Committee
4. Department of Disaster Prevention and Mitigation	4. Disaster Prevention and Mitigation Provincial Office (Chiang Rai)
	5. Ban Saeo sub-district municipality
	6. Sob Kok Village Committee

Source: Compiled by the author

March 2012). Management of and mitigation measures for tributary floods might be easier as such flooding is affected only by factors within Thailand, such as, the water level of the Kok River and rainfall. However, combined flood management and mitigation are far more complicated because of factors outside Thailand's sovereignty, and this article concentrates only on the combined floods at the confluence of the Kok and Mekong Rivers, which are impacted by external factors.

The combined floods or transboundary floods at the downstream of the Kok River have been influenced by the relation of the Kok and Mekong Rivers. When the two rivers' water levels are high synchronously, especially during the wet season, the Kok River will not be able to flow into the Mekong, and the flow will reverse into the Kok River, causing a transboundary flood. Transboundary floods have impacted the downstream area where Sop Kok community is located for a long time. The statistical records show that almost every year, the community faces transboundary floods from the Mekong River that may devastate agricultural areas over 100 square kilometers, as well as livestock and residences.[29] It was recorded that severe transboundary floods occurred in 1966, 1971, and 2008, which were month-long flooding.

To manage and prevent flood, there are several involved agencies at both national and provincial levels. Table 6.1 shows the list of national and provincial agencies that are responsible for flood management. Under this situation, inter-agency coordination is very crucial, particularly during emergency.

At the national level, Thailand's water resource management strategy developed by the Royal Thai government in 2015 clearly stipulates that cooperation among related agencies and the participation of local people in water resource management are essential (Water Management and Policy Committee 2015). However, in practice, as mentioned earlier, each agency or department works independently with its own budget and is accountable to its home ministry. In addition, due to its own different purposes and goals, each agency is not aware about the coordination and duplication since it aims to fulfill its obligation mainly.[30]

[29] Interview with villagers of Ban Saeo sub-district municipality, April 2016.

[30] Interview with government official in Chiang Rai, August 2015 and April and November 2016, and in Bangkok in March and April 2016.

At the regional and provincial levels, although the RBC of Kokand Mekong is appointed and assigned for effective and integrated management of water resource including flood prevention, due to the limitation mentioned earlier, it is unable to accomplish its mission. Moreover, as there are other agencies in the area functioning for the same job, the duplication is inevitable because each agency carries out its activities in line with its own responsibilities assigned by its ministerial regulation, without recognizing how these activities should be integrated with those of other agencies.[31] To lucidly explain this issue, telemetry stations set up in the Kok River Basin by the Royal Irrigation Department and Chiang Rai Provincial Office to observe and forecast the water level of the Kok River and flood in its basin offer the best illustration of the lack of cooperation among governmental agencies.

Telemetry is defined as a highly automated communication process by which data are collected from instruments located in remote or inaccessible points and transmitted to receiving equipment for measurement, monitoring, display, and recoding. Telemetry is a water management system deployed by several agencies to generate data to be used in assessment and decision-making. It is used to manage water supplies for agriculture and to manage risk for early warning related to water quantity and quality. Data collection, data analysis, and data distribution are essential, and therefore, coordination is the key for management and utilization. There are more than 20 telemetry stations in the Kok River Basin installed by several central and local agencies including Royal Irrigation Department (RID), Department for Disaster Prevention and Mitigation (DDPM), and the Chiang Rai Provincial Office. Incongruously, two agencies have set up stations at the same place, never coordinated with each other to bridge their projects and thought that it was their responsibility to carry out their respective projects in accordance with their own terms of reference.[32] Data from interview suggested that in fact, every agency has considered the benefit to local people as a primary goal of its service, and the officials have conducted the projects with good intention. However, the centralized administrative system of the country has prevented them to realize about the incoordination and duplication that may happen afterward. In addition, although there are a number of telemetry stations installed by different agencies in the area, each agency utilizes its own information gathered by its own telemetry stations and rarely share information to other agencies or utilizes other agencies' information.[33] This reflects the inefficiency and ineffectiveness of information-sharing mechanism as well as telemetry stations. Finally, it should also be observed that almost all agencies installing telemetry stations had conducted the project as a "one-time activity" meaning that only the equipment was provided with no long-term maintenance cost. Then, the local authorities (municipal) or local people (village or community) have to bear the burden.[34]

[31] Interview with government officials in Chiang Rai in August 2015 and April and November 2016.

[32] Interview with government official of Chiang Rai Irrigation Project April 2016.

[33] Interview with government officials in Chiang Rai, August 2015 and April and November 2016.

[34] Interview with government officials in Chiang Rai, August 2015 and April and November 2016.

Regarding the local participation, data from interview displayed that civic participation has not been meaningful due to several reasons. From the government officials' point of view, they believe that flood prevention by telemetry system and stations is a responsibility of the government, not the local people. The local people are "object" or "beneficiaries" of the policy and project, who have no obligation to participate in the decision-making process and implementation. In addition, this project, by nature, requires technical knowledge which might be beyond local people's capacity; therefore, the government officials have rather monopolized the decision regarding the installation of stations and utilization of information.[35] On the other hand, from the local people's point of view, with the lack of knowledge and understanding about the system, it is difficult for them to utilize the information gathered by the stations for flood prevention. In addition, with the existence of social networks, local wisdom, and local leaders, they feel that it is more convenient, comfortable, and reliable to get information about the water current and its amount from their networks and leaders.[36] This situation illustrates that the local participation, although is encouraged, does not exist in reality. However, it should be noted that in consideration of local participation, the nature of the project does matter. Data from interview shows that while there was no local participation in telemetry system, local participation was high for the early warning system and evacuation rehearsal.[37]

The more critical issue regarding flood prevention is the combined flood caused by unexpected and unpredictable amount of water released from upstream for navigation. To respond to this situation, information sharing among involved agencies is critically important. Data from interview shows that information sharing among government agencies was limited and inefficient, while information distribution to local was less available as well. Although local communities, NGOs, and people in the area share the similar concerns, they seldom cooperate and voice their demands to the government both at provincial and national levels. The different standpoints regarding power and negotiation method is the main factor contributed to low degree of cooperation and no collective action among people and NGOs. The views from members of Sop Kok Village Committee and Association of Chiang Saen Livable City are similar, saying that the issue is too complicated and beyond their capacity to handle.[38] In contrast, the Kok River Basin Ecology Group has insisted that it is their rights to voice their concerns and demand for information from government agencies, as well as send a signal to the upstream countries to realize about the impacts of their policies and projects on downstream countries. This Group has cooperated closely with Rak Chiang Khong Group and the People's Council of Ing River. However, as mentioned earlier, without strong support from local people, this

[35] Interview with government officials in Chiang Rai, August 2015 and April and November 2016.

[36] Interview with villagers of Ban Saeo Sub-district Municipality, April 2016.

[37] Interview with villagers of Ban Saeo Sub-district Municipality, members of Sop Kok Village Committee, and members of Association of Chiang Saen Livable City, April 2016.

[38] Interview with villagers of Ban Saeo Sub-district Municipality, members of Sop Kok Village Committee, and members of Association of Chiang Saen Livable City, April 2016.

Group found it difficult to negotiate with the government not only in the case of transboundary flood but also the development of the river basin as a whole.[39]

6 Conclusion: The Reality of Life

It is believed that local participation and stakeholder engagement for water governance, while it is important and encouraged, is unintentionally prevented at the same time due to the institutional arrangement and centralized administrative system. However, some facts regarding key elements constructed to be "local participation and stakeholder engagement," such as roles of local NGOs, awareness of local people, and nature of the issues in the area, should be taken into consideration. The case studies of Mekong's tributaries in Northern Thailand shows that factors contributed to inefficient and ineffective water management of the Kok and Ing Rivers are from both government and civil society.

Many also believe that civil society, particularly local NGOs in the area where conflicts exist, is, in general, active and politically oriented. Table 6.2 illustrates similarities and differences among distinguished local NGOs in Chiang Rai where Kok and Ing River Basins are located. This fact signifies that local NGOs, although originated in the same area and witnessed the same problem, do not share the same interest and will not apply the same method to negotiate with the government. Unified NGOs may strengthen power for local participation; however, it is hardly accomplished due to several conditions, such as, different background and purpose of each NGO. In addition, it should also be noted that the strong NGOs and their active roles are not the prerequisite for successful negotiation. In fact, the perception of local people toward their status, rights, and power plays a crucial role in the process of local participation. This confirms the statements expressed by the leaders of both the People's Council of Ing River and Kok River Basin Ecology Group that without the public awareness, negotiation with either the national or neighboring countries' governments is almost impossible.

Concurrently, regarding the role of government officials, it is important to take note that only the institutional and organizational arrangement for local participation is not enough. The most important point is the perception of government officials regarding their authority and obligation and people's rights. As long as the government officials are unable to change their perceptions regarding local participation and transform their performance to recognize and promote "people's rights-based activities," their effort to encourage local participation will be only "ritual-based" which leads to no value for the local people.

Experiences in other continents, such as in Europe, offered a new paradigm for water resource management. Instead of an attempt to fix the state-centric institution and mechanism for water governance, "interactive governance" suggested by Edelenbos et al. may become the breakthrough for efficient and legitimate policy

[39] Interview with the leader and members of the Kok River Basin Ecology Group, April 2016.

Table 6.2 Comparisons of civic organizations

	The People's Council of Ing River	The Association of Chiang Saen Livable City	The Kok River Basin Ecology Group
Tributary (provinces)	The Ing River (Phayao and Chiang Rai provinces)	The Kok River (Chiang Rai province)	The Kok River (Chiang Rai province)
Year of establishment	2013	2005	2010
Aim and major activities	To promote sustainable development of Ing River Basin as well as Mekong River	To promote development of Chiang Saen District	To manage the Kok River Basin by local wisdom To promote sustainable development of Mekong River
Groups of networking	Wide linkage with several networks both in Chiang Rai and Phayao	No linkage with other networks	Rak Chiang Khong Group and other groups in the People's Council of Ing River
Relations with and attitude toward the government	Does not agree with government's view on local development Does not participate in government's activities	Good relationship with the government Participate in the government's activities	Does not agree with the government's view of local development Not be invited to participate in some government's activities
View toward local people	Need to be empowered	Concentrate only on their daily lives	Need to be empowered

Source: Compiled by the author

process. As Edelenbos et al. mentioned, interactive governance is an informal process with particular rules and roles that are different from the existing institutional representative system and is run parallel or prior to the formal institutions of negotiation and decision-making (Edelenbos et al. 2010, pp. 74). Termed as "civic initiatives" by Edelenbos and van Meerkerk, "it can be initiated by residents, social entrepreneurs, artists, and so on, as long as the initiative pursues a community purpose and not a direct business purpose…It is often assumed that the involvement of societal stakeholders can develop and enhance the efficiency, effectiveness, and legitimacy of decision making, implementation, and service delivery" (Edelenbos and van Meerkerk 2016, pp. 3–4). At the same time, as suggested by Edelenbos et al., the connections or interfaces between interactive governance and existing democratic institutions is also important for realizing the legitimate decision-making (Edelenbos et al. 2010). However, it should be noted that interactive governance has been developed based on European experiences of high degree of local

participation and strong democratic institutions as a prerequisite. In Asia, particularly in Thailand and in Chiang Rai, this precondition does not exist. Then, the challenge at the local level in this country is more critical, and therefore, raising the awareness of people's right is the absolute requirement for interactive governance as well as legitimate policy decision-making and implementation.

Appendices

Appendix 1

25 RBCs in Thailand

1. Salween River Basin Committee
2. Ping River Basin Committee
3. Wang River Basin Committee
4. Kok and Northern Mekong River Basin Committee
5. Chao Phraya River Basin Committee
6. Sakae Krang River Basin Committee
7. Pa Sak River Basin Committee
8. Northeastern Kong River Basin Committee
9. Chi River Basin Committee
10. Mun River Basin Committee
11. Bang Pakong River Basin Committee
12. Prachin Buri River Basin Committee
13. Tonle Sap River Basin Committee
14. Eastern Coast River Basin Committee
15. Tha Chin River Basin Committee
16. Mae Klong River Basin Committee
17. Phetchaburi River Basin Committee
18. Western Coast River Basin Committee
19. Eastern South Coast River Basin Committee
20. Songkhla Lake River Basin Committee
21. Pattani River Basin Committee
22. Yom River Basin Committee
23. Nan River Basin Committee
24. Tapi River Basin Committee
25. Western South Coast River Basin Committee

Appendix 2

Agencies Involved with Water Resources Management (DWR 2014)

1. Office of the Prime Minister
    1.1 Office of the National Economic and Social Development Board
    1.2 Budget Bureau
2. Ministry of Agriculture and Cooperatives
    2.1 Office of the Permanent Secretary/Bureau of Rainmaking and Agricultural Aviation
    2.2 Royal Irrigation Department
    2.3 Fishery Department
    2.4 Land Development Department
    2.5 The Cooperatives Promotion Department
    2.6 Department of Agricultural Extension
    2.7 Agricultural Land Reform Office
    2.8 Office of Agricultural Economics
3. Ministry of Transportation
    3.1 Marine Department
4. Ministry of Interior
    4.1 Department of Provincial Administration
    4.2 Department of Disaster Prevention and Mitigation
    4.3 Department of Public Works and Town Planning
    4.4 Department of Local Administration
5. Ministry of Information and Communication Technology
    5.1 The Meteorological Department
6. Ministry of Natural Resources and Environment
    6.1 Office of Natural Resources and Environment Policy and Plan
    6.2 Department of Pollution Control
    6.3 Department of Environment Quality Promotion
    6.4 Department of Water Resources
    6.5 Forestry Department
    6.6 Department of Groundwater Resources
    6.7 Department of National Park, Wildlife, and Plants
    6.8 Department of Marine and Coastal Resources
7. Ministry of Industry
    7.1 Department of Industrial Factory

8. Ministry of Defense
   - 8.1 Armed Force Development Command, Royal Thai Armed Force
   - 8.2 Hydrographics Department, Royal Thai Navy
9. Ministry of Energy
   - 9.1 Department of Alternative Energy Development and Efficiency
10. Bangkok Metropolis Authority
    - 10.1 Department of Drainage and Sewerage
11. Independent Public Agency
    - 11.1 National Research Council of Thailand
12. State Enterprise
    - 12.1 Electricity Generating Authority of Thailand
    - 12.2 Metropolitan Water Supply Authority
    - 12.3 Provincial Water Supply Authority
    - 12.4 Industrial Estate Authority of Thailand

Appendix 3

11 Regional Offices of DWR

No.	Office	River Basin	Province
1.	Regional Office 1 in Lampang Province	1.1 Salween River Basin	Mae Hong Son Tak Chiang Mai
		1.2 Ping River Basin	Chiang Mai Lumphun Tak Kamphaeng Phet Nakhon Sawan
		1.3 Wang River Basin	Lampang Tak Chiang Rai
		1.4 Kok and Northern Mekong River Basin	Chiang Rai Phayao Chiang Mai

(continued)

No.	Office	River Basin	Province
2.	Regional Office 2 in Saraburi Province	2.1 Chao Phraya River Basin	Nakhon Sawan Chai Nat Sing Buri Ang Thong Phra Nakhon Si Ayutthaya Pathum Thani Nonthaburi Bangkok Samut Prakarn Lopburi Saraburi Phetchabun Kamphaeng Phet
		2.2 Sakae Krang River Basin	Uthai Thani Nakhon Sawan Kamphaeng Phet
		2.3 Pa Sak River Basin	Phetchabun Lopburi Saraburi Loei Chaiyabhum Phra Nakhon Si Ayutthaya
3.	Regional Office 3 in Udon Thani Province	3.1 Northeastern Kong River Basin	Loei Udon Thani Nongkai Bungkan Sakon Nakhon Nakhon Phanom Mukdahan Nong BuaLumphu Amnat Charoen Ubon Ratchathani
4.	Regional Office 4 in Khon Kaen Province	4.1 Chi River Basin	Chaiyabhum Khon Kaen Maha Sarakham Kalasin Roi Et Yasothon Loei Phetchabun Nong Bua Lumphu Udon Thani Nakhon Ratchasima Mukdahan Sisaket Ubon Ratchathani

(continued)

No.	Office	River Basin	Province
5.	Regional Office 5 in Nakhon Ratchasima Province	5.1 Mun River Basin	Nakhon Ratchasima Buriram Surin Sisaket Ubon Ratchathani Amnat Charoen Chaiyabhum Khon Kaen Maha Sarakham Roi Et Yasothon
6.	Regional Office 6 in Prachinburi Province	6.1 Bang Pakong River Basin	Chachoengsao Nakhon Nayok Prachinburi Sa Kaeo Chonburi
		6.2 Prachinburi River Basin	Prachinburi Chachoengsao Nakhon Nayok Sa Kaeo Chonburi
		6.3 Tonle Sap River Basin	Sa Kaeo Prachinburi Chanthaburi
		6.4 Eastern Coast River Basin	Chonburi Rayong Chanthaburi Trat
7.	Regional Office 7 in Ratchaburi Province	7.1 Tha Chin River Basin	Suphan Buri Nakhon Pathom Samut Sakhon Chai Nat Uthai Thani
		7.2 Mae Klong River Basin	Kanchanaburi Ratchaburi Samut Songkhram Tak Uthai Thani Suphan Buri Nakhon Pathom
		7.3 Phetchaburi River Basin	Phetchaburi Ratchaburi Samut Songkhram Prachuap Khiri Khan
		7.4 Western Coast River Basin	Prachuap Khiri Khan Phetchaburi Chumphon

(continued)

No.	Office	River Basin	Province
8.	Regional Office 8 in Songkhla Province	8.1 Eastern South Coast River Basin	Chumphon Nakhon Si Thammsarat Narathiwat Surat Thani Songkhla Pattani Yala
		8.2 Songkhla Lake River Basin	Songkhla Phatthalung Nakhon Si Thammsarat
		8.3 Pattani River Basin	Yala Pattani Songkhla
9.	Regional Office 9 in Phitsanulok Province	9.1 Yom River Basin	Phrae Sokhothai Phayao Lampang Nan Phitsanulok Tak Phichit Kamphaeng Phet Nakhon Sawan
		9.2 Nan River Basin	Nan Uttaradit Phitsanulok Phichit Phetchabun Nakhon Sawan
10.	Regional Office 10 in Surat Thani Province	10.1 Tapi River Basin	Surat Thani Nakhon Si Thammsarat Krabi Trang
		10.2 Western South Coast River Basin	Ranong Phang Nga Phuket Krabi Trang Satun Nakhon Si Thammsarat
11.	Regional Office 11 in Ubon Ratchathani Province	11.1 Lower Kong Chi Mun River Basins	Ubon Ratchathani Amnat Charoen Mukhahan Yasothorn

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