

## **Considerations on the integrated watershed management in western China**

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**[Abstract]** With the increasing demand for energy caused by the development of western China and the rapid development of the economy, accompanied by the government reform in hydroelectricity departments, an upsurge of hydroelectricity exploitation is now appearing in the southwest part of China. A series of large hydropower stations are being planned for all of the big rivers in western China. It should be a promising situation for local governments and enterprises to take part in the exploitation and development of energy industry if the plans are made on the basis of an integrated watershed development strategy and management. Otherwise the development will relapse into a situation of messy administration where each part is doing things for its own benefits. Such decentralized management of watershed is a great obstacle for sustainable development.

Watershed is an organic unit in the natural and ecological systems. It is an aggregation of numerous natural resources. The exploitation and utilization of watershed should be a comprehensive development process of all resources that follows the principle of integrated management and allocation. It is the essential condition to guarantee the environmental protection and sustainable development in watershed areas. Based on this idea, the planning of hydroelectricity projects should have a thorough consideration for the integrated effectiveness of the dam before the construction. Rough development for energy is not only a waste of resources but also places a greater restriction on further development. The current debate on hydroelectricity development is a reflection of the conflict between energy development and other social sectors.

Currently, the development of strategic watershed management in western China lags behind the speed of economic development. We suggest that the central government should set up professional administrative institutions in watershed management for rivers in western China and improve relevant laws and regulations. Integrated development programmes should be made for the exploitation of some important rivers like Lancang and Nujiang. These programmes should unify the localized and national benefits, and the development and the protection. It should also take into account the benefits to upper and down reaches of the river. The purpose of the programmes is to facilitate the harmonious and sustainable development of watershed in western China.

**[key words]** rivers in western China, development programmes, integrated management

In the past years, in order to strengthen water management of some important watersheds, the central government had established seven professional water management institutions for Changjiang River (the Yangtze River), Yellow River, Huaihe River, Zhujiang River (Pearl River), Songjiang and Liaohe River, Haihe River, and the Tai Lake. These institutions are directly controlled by the Ministry of Water Resources and are in charge of the strategic planning and effective management for the watershed areas. Watershed is an organic unit of nature and ecology. The successful domestic and international experiences have already shown that united and integrated planning and management is essential to environmental protection and sustainable development in watershed areas. To compare with other experiences, our emphasis on the strategic planning and management for water resources in western China is far less than what is necessary. This situation is extremely serious especially to some important multinational rivers like Lancang, Nujiang, Honghe (the Red River), Irrawaddy and Yaluzangbu. Up to now, there is neither a professional administrative institution nor an integrated strategic plan for the management of water resources in these river sheds. The planning and management of water resources lags far behind the speed of economic development.

In 1996, the Ministry of Water Resource decreed that large scale water usage from Yaluzangbu River, Nujiang River and Lancang River must be approved by the Water Resources Management Committee of Changjiang River, and the water usage from Honghe River and other board rivers must be approved by Zhujiang Water Resources Management Committee (refer to “Notices of license for water usage from multinational rivers, board rivers and multiprovincial rivers”, January 1996). The license system of water however cannot act as a substitute to integrated watershed management due to the constraints of geography conditions, administrative authority, resource allocation, administrative regionalism etc. Up to now, some necessary institutions are still not established. The staff is not allocated and relevant regulations are not stipulated. All these problems make it difficult to carry out normal monitoring and administration. In the investigation of the Lancang and Nujiang Rivers, some local government leaders had never met with any professional water resource management institutions and staff. They are even unclear about the administrative relationships and procedures among the relevant institutions.

The rivers mentioned above are all multinational rivers especially for Lancang, Nujiang and Irrawaddy. These three rivers are also multiprovincial rivers. The Lancang River flows across Qinghai, Tibet and Yunnan provinces in China and then goes down through Myanmar, Laos, Cambodian and Vietnam where it becomes known as the Mekong River. The river is named as the “Danube in East”. In some countries, it is seen as the mother river and plays important roles in the social, economic and cultural aspects in these countries. The Nujiang River is also a very important multinational river that flows through China, Myanmar and Thailand. Together with the Irrawaddy, it is named as the mother river of Myanmar and has an extremely close relationship with the normal lives of local inhabitants.

Due to the important location of these rivers, the exploitation and water resources management of the rivers is not only an issue of national resources management and development of western China but also an important issue of international relationships with the countries down stream. From this viewpoint, the significance of the multinational rivers management is greater than domestic rivers. A sustainable development of these rivers is not only the requirement for the self-development of China but also the requirement for maintaining harmonious international relationships. The loose management of these rivers can have severe impacts on countries at the lower reaches and cause international conflicts. Lessons in this field have already emerged in some development plans about hydroelectricity exploitation and navigation development in the past years. The international community has stipulated a series of regulations and conventions for the water resources management and environmental protection of multinational rivers. Some international agreements signed by our country also have relevant regulations in this field. All of these ask us to give high emphasis to this issue. Evasion of these obligations should not be the solution to the problem. Although some of the previous conflicts were caused by misunderstandings, it is still necessary and urgent for us to strengthen our management on water resources and communications with other countries. Such efforts will be helpful in avoiding conflicts and facilitating good international relationships.

The “Three Parallel Rivers” region was accepted as a World Natural Heritage site in July 2003. The approval of the application shows that these three rivers (Lancang, Nujiang and Jinsha River) have caught the attention of the world and play both important domestic and international roles. Among these three rivers, however, only the Jinsha River has professional institutions for water resources management. The other two are still waiting for comprehensive and integrated plans and management.

As a socialist country, natural resources are owned by the state as described in the constitution. Water resources, as an important natural resource, are also under the administration of the central government. Early in 1964, the central government had asked that *“in order to improve the effectiveness of water resources, all regions and sectors must have integrated plans in the exploitation and utilization of water resources. The development programmes must consider the demands of navigation, flood control, drainage, irrigation, power generation, water supply, aquatic production and timber transportation ”*(refer to the “Directions of the State Council on enhancing sea-route management and maintenance”, March 3<sup>rd</sup>, 1964). The Law of Water of People’s Republic of China published in January 1988 has a clear description on integrated plans and management: *“the exploitation and development of water resource and flood prevention construction should carefully consider all aspects including the local and central development needs for. It should follow the integrated and effective principle so that to exert the comprehensive roles of water resources ”*. The amended Law of Water in 2002 provides more detailed provisions in a specific chapter of “Water

resources planning”. In this chapter, different plans are classified clearly in legal framework. According to the provision, regional plans in watershed area should be in accordance with the overall watershed strategy and specific plans must follow the integrated plans. Integrated and regional watershed development plans as well as other specific plans that related closely with land usage should be consistent with the overall strategies of national economic and social development. They should also be accordance with strategies of land use, urban development, environmental protection and others. This regulation consists of the characteristics and the development trends of water resources management. It is important legal evidence for the development of integrated watershed management strategies in western China.

The rapid development of western China and the whole country in recent years has greatly increased the demand for energy. The increased demand together with the government reform in the hydroelectricity departments has accelerated the upsurge of hydroelectricity constructions in southwest China. A series of hydropower stations has been planned on the Lancang and Nujiang Rivers. Some of the projects are already in construction and others are in preparation. The passion of local governments and enterprises in contributing to national energy development should be encouraged if and only if the development plans are set on the basis of an integrated strategy. Departing from this precondition, the development of water resources will fall into a situation of messy administration with each part conducting projects for their own benefit, and cause difficulties in the coordination between local profits and overall benefits, development and protection as well as the up-stream and down-stream benefits. Due to these constrains of geography and industry, local governments and investors will find it impossible to make an integrated development strategy for the whole watershed. It is difficult for them to take the needs of other sectors and places into consideration. In the view that the watershed is an aggregation of diverse natural resources and has comprehensive roles, development simply for energy will cause the waste of resources. Furthermore, rough construction will further restrict the development in other aspects. Current debates on the development of hydroelectricity in Nujiang River have shown the conflict between simple energy development and the needs of other sectors.

Depending on the above information, the improvement of strategic planning for multinational rivers is an important and urgent requirement for current development. Suggestions in this field include:

- I. To establish professional institutions for the whole watershed to be in charge of the comprehensive management for water resources. Domestic and international experiences have illustrated that professional water resource management institutions can act effectively in integrated watershed management. It is also a social development trend in the current situation of water shortage. The multinational rivers of southwestern China should have

specific professional institutions for the administration and strategic planning. It should be considered by the central government to organize a watershed management committee for the integrated administration of rivers like Lancang, Nujiang, Irrawaddy, Honghe and Yaluzangbu. If possible, specific management committees should be set up for the administration of multinational and multiprovincial rivers like Lancang and Nujiang River. Advanced experiences of other countries should be introduced in the organization of such institutions from the beginning. The adoption of international experiences can help to meet the demand of the market economy and to connect with international conventions. The institutions should also include the representatives of all stakeholders. The objective of establishing professional institutions is to sustainably manage natural resources as well as to practice new models of administration in watershed management.

- II. To organize full-scale investigations of the Lancang, Nujiang and other important multinational rivers under the cooperation of related state and provinces. These investigations can be organized by the professional institutions mentioned above. The objectives of the investigations are to provide evidence of the development of integrated strategies. The strategy should follow the principle of “making overall plans and taking all factors into consideration” that include the factors of: the different roles of water resources, the capacity of the environment, the demands of all stakeholders, the requirement of flood control, pollution control, ecological protection, energy generation, navigation, irrigation, water supply, aquatic production, and sediment control etc. Developments of the integrated strategy like this can increase greatly the cost-effectiveness of projects and speed up the development of western China. It is favourable in dealing with the relationship between development and protection, between resource allocation and utilization, between upper reach and lower reaches, between government sectors and between different stakeholders. As a result, it can fulfill the demands of different sectors in water resource utilization. In addition, the integrated strategy for multinational rivers in southwestern China is also an important practice for the legislation development of western China.