Lancang-Mekong River Cooperation and Trans-Boundary Water Governance

A Chinese Perspective*

Xing Wei

Abstract: Water is a strategic resource for life and the development of all nations, thus water security governance has been an issue of vital importance to countries, especially those which do not have guaranteed sources of potable water. The Lancang-Mekong Cooperation (LMC) mechanism, which focuses on water resources cooperation along the Lancang-Mekong River, serves as a good example. The current features of water security governance in the Lancang-Mekong River Basin indicate the necessity and importance of the LMC mechanism. Against the background of climate change and deficiency in governance capacity, all the Lancang-Mekong countries should concentrate on water security governance in the region. China, in particular, should continue to practice the Asian Security

Xing Wei is a PhD student at the Graduate School of the Party School of the Central Committee of CPC, and Assistant Fellow at the National Institute of International Strategy, Chinese Academy of Social Sciences. His mailing address is No. 3, Zhangzizhong Rd., Dongcheng District, Beijing 100007, China. He can also be reached at xingwei@cass.org.cn.

*The article is part of the research project "A Study of Water Resources Security Governance in the Lancang-Mekong River Basin (2017YYZX004)" for the Asian Studies Center, Chinese Academy of Social Sciences.

© 2017 World Century Publishing Corporation and Shanghai Institutes for International Studies
China Quarterly of International Strategic Studies, Vol. 3, No. 3, 377–393
DOI: [10.1142/S2377740017500233](https://doi.org/10.1142/S2377740017500233)

Concept in order to serve its Belt and Road Initiative (BRI) and its vision to build a community of shared future with neighboring countries.

Keywords: Water security governance; Lancang-Mekong Cooperation (LMC) mechanism; Asian Security Concept; sustainable development.

Water resources are a basic necessity for mankind as well as a strategic asset for all countries. Countries in the Lancang-Mekong River Basin share common interests in water allocation, disaster prevention and environmental protection. Thus, water security is a key issue in the region, and the question of how to promote trans-boundary water governance along the river has attracted extensive academic interest. Scholars believe that relevant parties should adopt multi-stakeholder and multi-level governance models. As water exploitation will inevitably bring about cooperation and conflicts,¹ countries should promote practical cooperation, strive to provide more public goods, and explore innovative ways to reduce vulnerability to water conflicts.²

¹See, for example, Pan Yining, "Feichuantong anquan yu zhongguo-dongnanya guojia de anquan guanxi — yi lancangjiang-meigonghe ciquyu shuiziyuan kaifa wenti weili [Non-traditional Security and the Security Relations between China and Southeast Asian Countries]," *Southeast Asian Studies*, No. 4, 2011, pp. 31–36; Li Xinlei, "Chongtu yihuo hezuo: Kuaguo heliu shuizhili de lujing yu jizhi [Conflict or Cooperation: Ways and Mechanisms in Managing Transnational Water Resources]," *Foreign Affairs Review*, Vol. 33, No. 1 (2016), pp. 126–152; and Wang Zhijian, *Shuibaquan, anquan zhixu yu zhidu goujian — guoji heliu shuizhengzhi fuheti yanjiu* [Hydro-Hegemony, Security Order and Institution Construction: Research on International River Politics and Complexities] (Beijing: Social Sciences Academic Press, 2015), p. 25.

²See, for example, Li Zhifei, "Water Security in China's Neighboring Diplomacy," *China Quarterly of International Strategic Studies*, Vol. 1, No. 4 (2015), pp. 625–646; Li Zhifei, "Shuiwenti yu Guojiguanxi: Quyu Gongong Chanpin Shijiao de Fenxi [Water Issues and International Relations: an Analysis from the Perspective of Regional Public Goods]," *Foreign Affairs Review*, Vol. 30, No. 2 (2013), pp. 108–118; Sebastian Biba, "Desecuritization in China's Behavior towards Its Transboundary Rivers: the Mekong River, the Brahmaputra River, and the Irtysh and Ili Rivers," *Journal of Contemporary China*, Vol. 23, No. 85 (2014), pp. 21–43; Sebastian Biba, "China's Continuous Dam-building on the Mekong River," *Journal of Contemporary Asia*, Vol. 42, No. 4 (2012), pp. 603–628; Oliver Hensengerth, "Transboundary River Cooperation and the Regional Public Good: The Case of the Mekong River Contemporary Southeast Asia," *Contemporary Southeast Asia*, Vol. 31, No. 2 (2009), pp. 326–349; and Pichamon Yeophantong, "China's Lancang Dam Cascade and Transnational Activism in the Mekong Region: Who's Got the Power?," *Asian Survey*, Vol 54, No. 4 (2014), pp. 700–724.

Water Security in the Lancang-Mekong River Basin

The Lancang-Mekong River is a natural waterway linking China, Cambodia, Laos, Myanmar, Thailand, and Vietnam. As an upstream country, China enjoys a geographical advantage that also leads to disputes over water exploitation with downstream countries, for China is endowed with more abundant water resources than the Mekong countries. According to Table 1, the downstream Mekong countries depend heavily on external-water supply, which often results in some political tension. However, China is by no means exercising “hydro hegemony” as many observers comment.³

Table 1. Water Resources in China and the Mekong Countries.

Country	Total Renewable Water Resources (10 ⁹ m ³ /year)	Total External Renewable Water Resources (10 ⁹ m ³ /year)	External Dependency Ratio (%)
Cambodia	476.1	355.5	74.67
China	2840.0	27.32	0.9619
Laos	333.5	143.1	42.91
Myanmar	1168.0	165	14.13
Thailand	438.6	214.1	48.81
Vietnam	884.1	524.7	59.35

Source: Food and Agriculture Organization (FAO).⁴

To begin with, water pollution of the Lancang-Mekong River is a sensitive issue between China and the Mekong countries.⁵ Since the downstream Mekong countries have relatively weak abilities of water governance, they are constantly affected by waste water from household use, mineral and dam development, as well as garbage from the upstream. The mineral development causes topsoil stripping and industrial slag heaping. Treated improperly, landslide, soil erosion, and vegetation deterioration

³Wang Zhijian, *Shuibaquan, anquan zhixu yu zhidu goujian — guoji heliu shuizhengzhi fuheti yanjiu*, pp. 35–38.

⁴FAO AQUASTAT Main Database (2014), May 25, 2017, <http://www.fao.org/nr/water/aquastat/data/query/index.html>.

⁵Deng Qing and Zeng Guangquan, “Yunnansheng lancangjiang liuyu shengtai huanjing baohu duice yanjiu [Research of Countermeasures for Ecological and Environmental Protection in Lancang River Watershed, Yunnan Province],” *Yunnan Environmental Science*, Vol. 23 (2004), p. 136.

will occur. Although only 15.3 percent of waste water is caused by mineral development, almost all the lead, arsenic, cadmium elements in the Lancang River come from discharges of mineral companies. Growing population, increasing industrial activities, and the additional use of agrochemicals may further aggravate pollutant loads in the Mekong Basin.⁶

The Mekong countries have made enormous efforts to curb upstream pollution, and the overall water quality of the Mekong River is relatively satisfactory. Monitoring data collected by the Mekong River Commission (MRC) since 1985 show that the water quality in the mainstream is relatively stable and meets the agreed minimum standards in all but a few locations around urban centers, including the densely-populated Mekong Delta. As developing countries, the Mekong countries need foreign investment, especially from developed countries. Therefore, Western countries tend to seize the opportunity to interfere in regional water governance in order to promote their agendas, tackling the imagined “China threat” being one of them.

Dam-building activities have also brought about disputes over water allocation between China and the downstream Mekong countries. In 2010, the downstream Mekong countries suffered greatly from drought and some of them believed that the upstream dams were the culprits; China was blamed for building dams on the Lancang River. Vietnam also objects to dam-building by Laos on the Mekong River, believing that more dams on the river will harm the balance of the environment and economy in the riparian region.

According to the MRC 2012–2014 flow monitoring records, there is a clear indication of increased average dry season flows emanating from the upper basin as a result of the recently completed new storage dams in China. However, in the mainstream below the confluence with the Tonle Sap River at Phnom Penh, such changes are not evident, possibly as a

Water security has become an issue of conflict among Lancang-Mekong countries.

⁶Mekong River Commission, “IWRM-based Basin Development Strategy 2016–2020,” June 13, 2017, <http://www.mrcmekong.org/assets/Publications/strategies-workprog/MRC-BDP-strategy-complete-final-02.16.pdf>.

consequence of the annual variability of outflows from the Tonle Sap Lake. Further monitoring is required to confirm the expected impacts of flow augmentation as a result of the new reservoirs in the basin. The 2009–2010 scenario assessment, validated by recent reviews and monitoring data, suggests that the redistribution of seasonal flows from the wet season to the dry season by the existing and planned hydro-power developments in China and the Lower Mekong Basin (particularly in Laos) could provide additional dry season flow volumes to meet some planned consumptive water demands of the Lower Mekong countries in the foreseeable future. But at the same time, the uncoordinated operation of storage dams would cause negative impacts such as delay of the flood onset due to dam filling and unexpected flow changes in the dry season, which would impact the Tonle Sap and the delta.⁷

Undoubtedly, dam-building activities have, to some extent, disrupted the ecosystem and bio-diversity in the Mekong River Basin. The Intergovernmental Panel on Climate Change (IPCC) believes that hydro-power dams along the Mekong River and its tributaries will have severe impacts on fish productivity and bio-diversity by blocking critical fish migration routes, altering the habitat of non-migratory fish species, and reducing nutrient flows downstream.⁸ Similarly, the World Wildlife Fund (WWF) noted that as a great biological treasury, riparian countries in the Greater Mekong Sub-region (GMS) are faced with great challenges in bio-diversity and living environment.⁹

Moreover, climate change has exacerbated water risks in the Lancang-Mekong River. A rising temperature and irregular precipitation to the third pole — the Tibetan Plateau, where the Lancang River rises, are caused by the climate change. Consequently, the water volume in the Mekong River has been dramatically influenced. The flow in the upper Mekong is dominated by rainfall runoff (up to 44 percent), followed by snow melt

⁷Mekong River Commission, "IWRM-based Basin Development Strategy 2016–2020."

⁸Intergovernmental Panel on Climate Change (IPCC), *Climate Change 2014: Impacts, Adaptation, and Vulnerability (Part B: Regional Aspects)* (Cambridge: Cambridge University Press, 2014), p. 1355.

⁹Yu Yichun et al., "Lanmei hezuo, raobukai shuihuati: Lianjie sanshiyi ren de maoyi zhongshu [Lancang-Mekong Cooperation, with Inevitable Water Issues: A Trade Center Linking 3 Billion People]," *huanqiu.com*, March 22, 2016, <http://world.huanqiu.com/exclusive/2016-03/8746594.html>.

(approximately 33 percent), and glacier melt (approximately 1 percent).¹⁰ Climate change leads to irregular monsoon and precipitation in the Mekong riparian areas. A higher temperature will also cause more speedy snow melt. Hence, combating climate risks is a significant way of managing vulnerability in the water security of the Lancang-Mekong River.

Significance of the Lancang-Mekong Water Governance

There is expectation that China and its neighboring countries along the Lancang-Mekong River are stepping toward a community of shared future, with an emphasis on water governance. The core of Lancang-Mekong water governance is water security, with two implications. First, a country's sovereignty shall not be jeopardized by water issues; and second, a country's economic and social development will not be sacrificed for water uses from other countries.¹¹ When upstream countries control the volume of river flow or pollute the water, downstream countries will be affected. Notably, water security cooperation has been highlighted in Article Five of the Convention on the Law of the Non-navigational Uses of International Watercourses.¹² In fact, regional or sub-regional cooperation can enhance political, diplomatic, economic and cultural influences of Asian countries.¹³ Therefore, it is in the interest of all riparian countries along the Lancang-Mekong River to cooperate to develop their national strengths and ensure trans-boundary water security.

Joint efforts by Lancang-Mekong countries are key to their collective security and development goals.

¹⁰ICIMOD, GRID-Arendal, CICERO, "The Himalayan Climate and Water Atlas: Impact of Climate Change on Water Resources in Five of Asia's Major River Basins," June 13, 2017, http://www.grida.no/_cms/OpenFile.aspx?s=1&id=1812.

¹¹Li Zhifei, *Shui yu zhongguo zhoubian guanxi* [Water and China's Neighboring Relations] (Beijing: Shishi Press, 2015), pp. 4-45.

¹²*Convention on the Law of the Non-navigational Uses of International Watercourses* (New York, May 21, 1997), AudioVisual Library of International Law of the United Nations, http://legal.un.org/avl/pdf/ha/clnuiw/clnuiw_e.pdf.

¹³Yang Jiemian, "Xinshiqi zhongguo waijiao sixiang, zhanlue he shijian de tansuo chuangxin" [Exploration and Innovation of Theories, Strategies, and Practices in China's Diplomacy in a New Era], *China International Studies*, No. 1 (2015), pp. 21-22.

First of all, Lancang-Mekong water governance can mediate conflicts of national interests. Different riparian countries have different emphases in terms of utilization of river water: China and Laos emphasize hydro-power industry; Thailand and Vietnam emphasize the importance of water in agriculture; and Cambodia emphasizes the fishery industry. In addition, China, Laos, Myanmar, and Thailand all need the water carriage. Water security cooperation includes all six countries and will coordinate each country's interests and resolve disputes on the same platform.

More importantly, the Lancang-Mekong water governance is beneficial to China-ASEAN relations, which includes a double track between China and ASEAN member countries as well as the ASEAN itself. The ASEAN as a regional framework has enhanced the stability of bilateral relations and expanded geographic national interests.¹⁴ In November 2011, water cooperation was added to the agenda of the ASEAN Plus China, Japan and the Republic of Korea Summit, where suggestions and measures were raised to promote water security cooperation in the Lancang-Mekong River Basin.

Even more fundamentally, Lancang-Mekong water governance is in line with the goals and principles of China's Belt and Road Initiative (BRI). As an integral part of the 21st Century Maritime Silk Road, the Lancang-Mekong River Basin undertakes important functions and tasks for constructing the China-Indochina Peninsula Economic Corridor. China boasts rich experience and has made remarkable achievements in building hydroelectric infrastructure. With the advance of the BRI, inter-connectivity between China and the Mekong countries can be greatly improved through the building of smooth land-water transportation channels, cross-border power supply networks and power-transmission routes. Therefore, Lancang-Mekong water governance can further strengthen security ties between China and the Mekong countries, which, in turn, will facilitate the implementation of the BRI.

Today, China has established comprehensive strategic partnerships with all five Mekong countries. In 2015, China's total trade volume with the five countries reached US\$193.9 billion, and two-way exchange of visitors totaled 15 million. China is now the largest trading partner of Cambodia,

¹⁴Zhang Yunling, *Zai lixiang yu xianshi zhijian: Wo dui dongya hezuo de yanjiu, canyu yu sikao* [Between Ideal and Reality: My Research, Participation, and Contemplation on East Asian Cooperation] (Beijing: Social Sciences Press, 2015), p. 231.

Table 2. Developments of the LMC Mechanism since 2014.

Date	Issue
November 2014	At the 17th China-ASEAN Summit, Chinese Primer Li Keqiang proposed establishment of the Lancang-Mekong Cooperation (LMC) mechanism.
November 2015	The first LMC foreign ministers' meeting was held in Yunnan, China. The LMC mechanism was launched.
March 2016	The first LMC leaders' meeting was held in Sanya, China.
December 2016	The second LMC foreign ministers' meeting was held in Siem Reap, Cambodia.
March 2017	The China Secretariat for the LMC was set up in Beijing.

Source: Ministry of Foreign Affairs of China.

Myanmar, Thailand and Vietnam. It is also the top investor in Cambodia, Laos and Myanmar. Against this backdrop, the Lancang-Mekong Cooperation (LMC) mechanism has been initiated by China to foster better governance in the trans-boundary river basin and also leverage the geographical proximity, cultural affinity and economic complementarity of all the six countries.¹⁵ The LMC mechanism comprises three cooperation pillars: political and security issues, economic and sustainable development, as well as social, cultural and people-to-people exchanges. The LMC framework also lists connectivity, production capacity, cross-border economic cooperation, water resources, agriculture and poverty reduction as its five key priorities. More specifically, nearly 100 early harvest projects have been put on the agenda, laying a solid foundation for all-round and long-term cooperation among the Lancang-Mekong countries.¹⁶

The Asian Security Concept and China’s Contribution to LMC

To further enhance water security in the Lancang-Mekong River Basin, China’s contribution is indispensable. China’s neighboring diplomacy has long been focused on Northeast, Southeast and Central Asia where China

¹⁵“Address by H.E. Li Keqiang Premier of the State Council of the People’s Republic of China at the First Lancang-Mekong Cooperation Leaders’ Meeting,” Chinese Foreign Ministry, March 23, 2016, http://www.fmprc.gov.cn/mfa_eng/wjdt_665385/zyjh_665391/t1350422.shtml.

¹⁶*Ibid.*

has close contacts and strong influence.¹⁷ On May 21, 2014, Chinese President Xi Jinping proposed the Asian Security Concept at the 4th Conference on Interaction and Confidence Building Measures in Asia (CICA) Summit held in Shanghai. As President Xi pointed out, Asia has come to a crucial stage in security cooperation where it needs to build on the past achievements and strive for new progress. It is necessary to advocate common, comprehensive, cooperative and sustainable security in Asia and to innovate around the concept of security. Common security means respecting and ensuring the security of each and every country. Comprehensive security means upholding security in both traditional and non-traditional fields. Cooperative security means promoting the security of both individual countries and the region as a whole through dialogue and cooperation. Sustainable security means that we need to focus on both development and security so that security would be long-lasting.¹⁸

Guided by the Asian Security Concept, the LMC mechanism is very likely to further promote water governance and better address challenges to regional peace and development in the Lancang-Mekong River Basin.

First, the LMC mechanism emphasizes common security of the whole basin, covering all riparian countries, big or small, which differentiates itself from other governance frameworks such as the GMS, MRC, ASEAN Mekong Basin Development Cooperation (AMBDC), and Golden Quadrilateral Economic Cooperation (QEC). For example, the Asia Development Bank (ADB)-funded MRC also encourages dialogues on water governance, but it excludes China, the most important upstream country. Thus it cannot reflect the real intention or represent the interests of all riparian countries. In comparison, the LMC mechanism is more open, inclusive and functional. As part of China-ASEAN cooperation, the LMC mechanism can promote

¹⁷“Xi Jinping zongshuji xilie zhongyao jianghua duben: Guanyu guojiguanxi he woguo waijiao zhanlue [Serial Important Remarks by General Secretary Xi Jinping: International Relations and China’s Diplomatic Strategy],” Xinhua News, May 11, 2016, <http://news.xinhuanet.com/world/2016-05/11/c.128974581.htm>.

¹⁸“The 4th Conference on Interaction and Confidence Building Measures in Asia (CICA) Summit Held in Shanghai. Xi Jinping Presides over the Summit and Delivers Important Speech Advocating Common, Comprehensive, Cooperative and Sustainable Security in Asia for New Progress in Security Cooperation of Asia,” Chinese Foreign Ministry, May 21, 2017, http://www.fmprc.gov.cn/mfa_eng/topics.665678/yzxhzyxrcshydscfh/t1162057.shtml.

mutual political trust between China and ASEAN countries. Also, since the ASEAN Regional Forum (ARF) mainly focuses on non-traditional security cooperation, the LMC mechanism can coordinate and institutionalize water crisis management in cooperation with the ARF. Finally, China and the other five riparian countries, as major participants in the Lancang-Mekong water governance, continue to consolidating their common interests and increasing their common security.

In the spirit of ensuring common security, China released upstream water for the interests of downstream countries under the coordination of the LMC mechanism. Due to severe drought in late 2015 and early 2016, the agricultural and fishery industries of Vietnam, Laos, and Thailand were damaged, and the underground water near the Mekong Delta in Vietnam faced seawater intrusion. At the request of downstream countries, China released more water from the Jinghong Dam to downstream rivers in March 2016. This timely effort relieved the downstream drought and demonstrated the positive side of upstream dam building, which was also welcomed by the downstream governments and people.

Second, from the perspective of comprehensive security, transboundary water disputes, as non-traditional security issues, are intertwined with traditional security governance.¹⁹ Since all the Mekong countries are developing countries whose economies highly rely on the agricultural sector, they have increasing demand for water resources. For instance, 91 percent of Vietnamese export rice yields are harvested in the Mekong Delta.²⁰ Therefore, water problems may jeopardize national security if they are poorly handled. Transnational migrants driven by the change of river water volume may also soar under certain circumstances. The decrease in

The LMC mechanism will contribute more to regional peace and development under the Asia Security Concept.

¹⁹Li Zhifei, "Zhongguo kuajie heliu wenti yingxiang yinsu fenxi [An Analysis of the Influential Factors of China's Transboundary Rivers]," *Quarterly Journal of International Politics*, Vol. 11, No. 2 (2015), p. 88.

²⁰Economic and Commercial Counselor's Office of the Embassy of China in Vietnam, "Yuenan 91% de chukou dami chanzi jiulongjiang pingyuan [91% of Vietnamese Rice Export Yields Harvested in the Deltaic Plain of Mekong]," Chinese Ministry of Commerce, November 21, 2011, <http://vn.mofcom.gov.cn/aarticle/jmxw/201111/20111107839524.html>.

the quality and quantity of renewable resources, population growth, and unequal resource access can act singly or in various combinations to exacerbate the scarcity, for certain population groups, of cropland, water, forests, and fish. This can reduce economic productivity, both for the locals and the whole region. Those affected may migrate or be expelled to other nations. Transnational migration often trigger ethnic conflicts, insurgencies and rural rebellions. In developing countries, migration and productivity losses may eventually undermine the state control over ethnic rivalries and give opportunities to elites challenging central authority.²¹ The LMC mechanism, therefore, provides an ideal platform of coordination for trans-boundary water resources that can indirectly enhance the comprehensive security in the region.

Third, cooperative security, with its non-exclusive approach, has become the core element for water governance in the Lancang-Mekong River Basin. The Mekong countries are economically less developed compared with China. However, all the six riparian countries share common interests in combating natural disasters and should thus work together to deal with the security dilemma. As long as relevant countries adhere to the path of strengthening their mutual trust and cooperation, upstream dams can be conducive to regulating downstream water flow. By seeking common interests, the LMC mechanism tries to identify roles of all riparian countries. As a result, an agreement is possible due to mutual understanding.²² China, along with the Mekong countries, has established a cooperation center on water security, in which all riparian countries can share relevant technologies and information, as well as jointly build capacities on disaster management.

Finally, sustainable security is the ultimate goal of water governance in the Lancang-Mekong River Basin. It is noteworthy that all riparian countries have set principles on environmental and biological protection in their water-related laws and regulations. China, in particular, has prioritized "green development" in its overall national planning and also applied the idea into the Lancang-Mekong water governance in order to make new

²¹Thomas F. Homer-Dixon, "Environmental Scarcities and Violent Conflict: Evidence from Cases," *International Security*, Vol. 19, No. 1, Summer, 1994, pp. 31–32.

²²Wei Ling, "Xiao xingweiti yu guoji zhidu [Lesser Agents and International Institutions]," *World Economics and Politics*, No. 5 (2014), pp. 87–88.

contributions to global environmental security.²³ In a word, the LMC mechanism is set to promote sustainable water security of all riparian countries and facilitate water-related cooperation in a green and open way.

Challenges for Lancang-Mekong River Cooperation

China and the Mekong countries have equal rights to use and protect the Lancang-Mekong River. However, the riparian countries do not necessarily possess equal power. Evidently, upstream countries are less dependent on downstream countries. To balance China's water power, downstream countries often manipulate different national interests and even welcome interference from Western countries and non-governmental organizations (NGOs).

Above all, the Lancang-Mekong countries have different interests in exploiting water resources. China and Laos pay much attention to hydro-power development. The MRC estimates that Laos would receive 70 percent of the export revenues (US\$2.6 billion per year) generated by the mainstream dams once all of them are operational. In the case of China, being an energy-hungry juggernaut, it badly needs electricity for its own development. Fisheries in the Mekong account for 12 percent of Cambodia's GDP and provide its people with a vital source of nutrition. The Vietnamese part of the Mekong Delta, the Cuu Long region, accounts for 33 percent of Vietnam's prosperous agricultural sector and 90 percent of its rice exports, which are the third largest in the world.²⁴ The weak mandate of the MRC and the associated Agreement on the Cooperation for the Sustainable Development of the Mekong River Basin indicate insufficient institutional capacity. Additionally, China and Myanmar are not parties to the agreement nor members of the MRC.²⁵

²³"Communiqué of the Fifth Plenary Session of the 18th CPC Central Committee (Excerpts)," Chinese Academy of Translation, November 30, 2015, http://www.catl.org.cn/2015-11/30/content_37196189.htm.

²⁴Nguyen Khac Giang, "New Rule-based Order Needed to Save the Mekong," East Asia Forum, March 29, 2016, <http://www.eastasiaforum.org/2016/03/29/new-rule-based-order-needed-to-save-the-mekong>.

²⁵Scott W. D. Pearse-Smith, "'Water War' in the Mekong Basin?," *Asia Pacific Viewpoint*, Vol. 53, No. 2 (2012), p. 153.

Besides, traditional security relations constantly influence the riparian water governance. China and the Mekong countries have built comprehensive strategic cooperative partnerships bilaterally, which contribute to solving bilateral conflicts by negotiation, cooperation and coordination. However, due to historical issues, some riparian countries are worried about China's rapid rise. For instance, there remains the issue of the South China Sea between China and Vietnam. Clearly, it will be a long process for China to establish solid mutual trust with the Mekong countries.

Furthermore, big powers outside the region interfere from time to time in the riparian water governance. Some Mekong countries have placed their hopes on Western powers to reduce their dependence on China's water supplies. The Mekong countries are economically and socially underdeveloped, and they continue to receive foreign assistance. For Western powers, they intend to improve relations with the riparian countries by strengthening soft power in water governance and improving local economies and environment. In doing so, they advocate their own framework of water governance, so as to increase their influence in the region and counterbalance the LMC mechanism.

Interference of outside powers may harm Lancang-Mekong water governance.

In 2009, the United States launched the Lower Mekong Initiative (LMI), a multinational partnership including Cambodia, Laos, Myanmar, Thailand and Vietnam to create integrated sub-regional cooperation. The Initiative has six pillars, namely, agriculture and food security, connectivity, education, energy security, environment and water, and health. By interfering in the

Lower Mekong water governance, the United States has promoted its Asia rebalancing strategy, strengthened bilateral relations with the Lower Mekong countries, and deepened its cooperation with the MRC, so as to check China's influence in neighboring countries. Moreover, the Japan-Mekong Summit is also a platform where Japan exerts its influence on the Mekong countries. As an important bond between Japan and the Mekong countries, the summit has facilitated Japan's investment. Also by adopting the soft power model, Japan has formed a friendlier image there.

The European Union (EU) has extensive relationship with the Mekong countries, and has dispatched diplomatic representatives in all the riparian

countries. Through foreign direct investment (FDI), the EU has promoted cooperation between the management institutions of the Rhine and Danube and MRC. Moreover, the Asia-Europe Meeting is also an important platform. In the Chair's statement of Foreign Ministers' Meeting of the 12th Asia-Europe Meeting, ministers reaffirmed their engagement to address emerging challenges in order to promote sustainable water management, including integrated river basin management and flood risk control, and to ensure access to safe drinking water and sanitation. They encouraged further concerted actions for tangible cooperation in water-related issues through trans-boundary, sub-regional and bi-regional cooperation between Asia and Europe, and especially between the Mekong and Danube regions.²⁶ India, Korea, Australia and other countries have also launched similar water diplomatic activities in the Mekong region so as to promote their own interests.

In addition, NGOs are significant actors in regional water governance. Numerous NGOs exist in the Mekong countries, such as the Living River Siam and Mekong Program on Water, Environment and Resilience. The Living River Siam is founded by scholars and NGO activists addressing Thai social and environmental problems. Its founders are dedicated to dealing with large dams and national resources management policies related with environmental and social problems. The Mekong Program on Water, Environment and Resilience is supported by over 30 friendship agencies, most of which are government- or international organization-affiliated research institutions and NGOs. The six riparian countries have joined the Mekong Program, aiming at the riparian governance research, including biological, political, and economic aspects. After conducting studies and taking feedback from the local people, the NGOs can come to conclusions that satisfy their publicity strategy. However, these conclusions may not necessarily be in accordance with the riparian countries' interests.

Climate change has also made water governance increasingly difficult. In the case of the Lancang-Mekong River Basin, rainfall projections in

²⁶"Working Together for a Sustainable and Secure Future 12th ASEM Foreign Ministers' Meeting-Chair's Statement," Asia-Europe Meeting, November 13, 2015, http://www.aseminfoboard.org/sites/default/files/documents/2015%20-%20ASEM%20FMM12%20-%20Chair%20Statement_0.pdf.

summer show an increasing trend over both upper basins, with an increase of about 5 to 10 percent over the southern areas where the normal precipitation is low. In the upper part of the basin where the normal precipitation is higher, the projected increase ranges from 10 to 25 percent. And the average winter minimum temperature rose significantly (by 2°) between 1951 and 2007, with the greatest warming occurring in the northern tip and central part of the basin (over 1°). The average maximum summer temperature has also shown an increasing trend of around 0.5°, although there is some spatial variation. Rainfall projections in winter also show increasing trends of about 10 percent over most parts of the basin. Future warming in the summer season is projected over the entire upper Mekong basin, mostly in the range of 1.5–2.5° from 2021 to 2050, although it may exceed this in some pockets.²⁷

Long-lasting climate change causes many obstacles to Lancang-Mekong water security cooperation.

The snow melt caused by global warming seriously hits the Lancang River rising from the Tibetan Plateau. Some of the melt water seeps into the earth, and the other comes into the Lancang River. The water flow will be affected at the river source. Specifically, in the short term, the seasonal water flow will increase, but in the long run, after the melt is over, the supply of river flow will be scarce, which means the drought will be more severe

in the dry season. Shifts in precipitation will exacerbate droughts in some areas while increasing flood risks in others. Such changes have serious consequences on people's daily life and their production-related activities. Reduced water availability leads to lower agricultural and fishery output, which in turn threatens the livelihoods of populations dependent on that sector and forces people to seek new livelihoods elsewhere.²⁸ Agricultural output has been noticeably impacted by intensified floods and droughts which caused almost 90 percent of rice production losses in Cambodia during 1996–2001.

²⁷ICIMOD, GRID-Arendal, CICERO, "The Himalayan Climate and Water Atlas: Impact of Climate Change on Water Resources in Five of Asia's Major River Basins," May 15, 2017, http://www.grida.no/_cms/OpenFile.aspx?s=1&id=1812.

²⁸RSIS Centre for Non-Traditional Security (NTS) Studies, "Policy Roundtable on Asian Non-Traditional Security," July 30–31, 2012, Singapore, p. 8.

Vietnam and Cambodia are two of the countries most vulnerable to climate impacts on fisheries.²⁹

Conclusion

Water security in the Lancang-Mekong River Basin has been faced with challenges against the background of social-economic development and global warming. Trans-boundary water governance efforts under the LMC mechanism are necessary to achieve collective security and development goals. Guided by the Asian Security Concept, China can make great contribution by practicing common, comprehensive, cooperative and sustainable security along the Lancang-Mekong River. Despite some challenges, China needs to collaborate with the Mekong countries to provide more public goods for trans-boundary water governance. The increasing supply of public goods and overall improvement of water governance will eventually present the Lancang-Mekong community with a shared future and also secure the implementation of China's Belt and Road Initiative.

Looking ahead, the multi-level trans-boundary water governance model should be emphasized while the special features of the Lancang-Mekong River Basin should also be taken into consideration. It may be helpful to study European experience on multi-level water governance. At the ASEAN, the LMC mechanism, as well as the bilateral levels, communication and coordination should be enhanced. At the national and provincial levels, also for NGOs, enterprises, and scholars, a multi-level governance framework should be established. Moreover, the role of think tanks is very important. Track 1.5 or Track 2 academic exchanges can reduce discrepancies and expand consensus. With regard to the LMC mechanism, China should help develop it into a sub-regional organization, and set up representative offices in the Mekong countries. Also, China and the Mekong countries should release their water flow data and initiate a consultation process concerning dam-building activities. In terms of sharing trans-boundary water data, China has shown increasing willingness to

²⁹*Climate Change 2014: Impacts, Adaptation, and Vulnerability* (Cambridge: Cambridge University Press, 2014), p. 1355.

reassure downstream countries.³⁰ Besides, Chinese NGOs can help improve the country's image in the Mekong countries. Building more trust and consensus, China and the Mekong countries should develop joint plans to address climate risks in the region.

³⁰Palmo Tenzin, "China, India and Water Across the Himalayas," *National Interest*, July 29, 2015, <http://nationalinterest.org/blog/the-buzz/what-could-start-war-between-india-china-13447?page=2>.