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THE MEKONG REGION

COLLABORATION SUSTAINABILITY BETWEEN CAMBODIA AND VIETNAM

ABSTRACT

The Mekong River is one of the world's great rivers. Covering a distance of nearly 4,900 km from its source on the Tibetan Plateau in China to the Mekong Delta, the Lancang-Mekong flows through six countries: China, Myanmar, Thailand, Laos, Cambodia and Viet Nam. Climate change in the Mekong region has manifested in rising temperatures, reduced rainfall, and extreme weather events. Over the last decade these transformations were not only caused by climate change and the 2019 El Niño drought, but also generated by the operation of large-scale hydropower dams in the upper stretches of the river. Both climate change and hydropower dams threaten natural flow patterns that sustain Mekong basin diversity and endanger the livelihoods and food security of the region. Particularly hard hit have been the Tonle Sap lake of Cambodia and downstream course from central Cambodia to Vietnam, where the Mekong River Delta meets the sea. This article investigates how Cambodia and Vietnam can better collaborate to plan, fund and implement joint initiatives for sustainable development in the Greater Mekong Sub-region.

Keywords: Climate Change; river flow; Tonle Sap; Mekong dams; Mekong delta.

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INTRODUCTION

The Mekong River is the longest river in Southeast Asia. The river has a length of approximately 4,900 kms, flowing from its source on the Tibetan Plateau in China through Myanmar, Lao PDR, Thailand and Cambodia before forming a vast delta in the south of Vietnam as it meets the sea. The river basin drains a total land area of 795,000 km² and has a mean annual discharge of 475 km³, the tenth largest in the world.

The Greater Mekong Subregion, (GMS) is a trans-national region, crucial food provider and home to more than 300 million people.¹ The GMS holds irreplaceable natural and cultural riches and is considered one of the world's most significant biodiversity hotspots. The GMS is also the site of many large-scale construction projects with social and economic implications.

There are a number of Mekong cooperation frameworks including the Mekong-Lancang Cooperation (LMC, People's Republic of China), Mekong River Commission (MRC, Cambodia, Laos, Thailand, Vietnam), Mekong-Ganga Cooperation (India), Mekong-Japan Cooperation, Mekong-Republic of Korea Cooperation, Lower Mekong Initiatives-LMI, now Mekong-US Partnership (the United States) and the Friends of the Lower Mekong (FLM) and Greater Mekong Sub-region (GMS).

The various Mekong cooperation frameworks have distinct approaches and overlapping areas of cooperation. For example, the three pillars of the Mekong-Lancang Cooperation (LMC) framework focus on Political and Security Cooperation, Economic and Sustainable Development and Social, Cultural and People to People Exchanges. The LMC also has key priority areas of connectivity, production capacity, cross-border economic cooperation, water resources and agriculture and poverty reduction.² The Mekong-US Partnership focuses on economic connectivity, human capital development, transboundary water and natural resources management, and

¹ Asian Development Bank, "Greater Mekong Subregion (GMS)", https://www.researchgate.net/figure/Land-Area-and-Population-Size-of-Greater-Mekong-Subregion-Countries_tbl1_330439119 (Accessed 20 May 2023).

² Ministry of Foreign Affairs and International Cooperation, "Mekong Cooperation Framework", <https://www.mfaic.gov.kh/Page/2021-02-08-Mekong-Cooperation-Framework#:~:text=Mekong%2DGanga%20Cooperation%20has%20been,technology%20and%20telecommunications%20and%20transport> (Accessed 20 May 2023).

non-traditional security, including emerging threats such as health security, pandemic response, countering transnational crime, cyber security, and countering trafficking in people, drugs, and wildlife.

The proliferation of Mekong cooperation frameworks over the previous decade has added complexity to regional and extra-regional riparian relations. To ensure the environmental, economic and social gains of the past, the mass of cooperation frameworks require greater coordination, collaboration and complementarity.

The GMS is undergoing rapid change as economic development, urbanisation and industrialisation transform the region. The Mekong River contributes significantly to this growth through the opportunities it provides, including hydropower production, agriculture, fisheries, and transport and trade.

However, without coordinated and effective protection and development, the Mekong may hinder continued growth along the entirety of its length. Development pressures are creating new challenges for the countries in the Lower Mekong River Basin (LMB), including environmental degradation and loss of biodiversity, hydropower development, and climate change with the risk of worsening floods and droughts.

1. THE WATER TRANSBOUNDARY IMPACT ON MEKONG DELTA IN VIETNAM

The Mekong River is the life source for the countries of the Mekong region, but the past few years have seen water flows recurringly decline and processes of saltwater intrusion accelerate across the delta in Vietnam. These transboundary hydrological challenges have detrimental effects on more than 17 million people. The low-lying Mekong Delta is Viet Nam's rice bowl and one of the world's most vulnerable hotspots due to rising sea levels caused by climate change.³

Climate change in the Mekong region has manifested in rising temperatures, reduced rainfall, and extreme weather events. Over the last decade these transformations were not only caused by climate change and the 2019 El Niño drought, but also generated by the operation of large-scale hydropower dams in the upper stretches of the river.

³ Mekong River Commission, "Living on the Edge of the Rising Sea", <https://www.mrcmekong.org/news-and-events/articles-and-stories/living-on-the-edge-of-the-rising-sea/>, (Accessed 20 May 2023).

Both climate change and hydropower dams threaten natural flow patterns that sustain Mekong basin diversity and endanger the livelihoods and food security of the region. Particularly hard hit have been The Tonle Sap lake of Cambodia and downstream course from central Cambodia to Vietnam, where the Mekong River Delta meets the sea.

In the Upper Mekong River Basin (UMB), extensive hydropower development has occurred as part of China's national development strategy. China has constructed 11 hydropower dams, of which two are large storage dams, along the mainstream in the Upper Mekong Basin. Another 11 dams are being planned or constructed.⁴

Hydropower development in the Mekong began years ago in the tributary basins of Thailand and Vietnam, upstream of Cambodia. Over the last decade, hydropower development has expanded in the LMB, accompanied by increased private sector investment in power infrastructure. On the mainstream, 11 projects are planned, with seven in Lao PDR, two in Cambodia and 2 across the Lao-Thai border. Of these, Xaiyaburi and Don Sahong have become operational and four more have requested Prior Consultation Process from the Mekong River Commission (MRC).

Hydropower development in the LMB brings both positive and negative consequences. According to the MRC Council Study on the Sustainable Management and Development of the Mekong River Basin, which included Impacts of Mainstream Hydropower Projects, the LMB could see economic gains from full hydropower development of more than US\$160 billion by 2040. Development of hydropower brings synergies with other water related sectors as well, including expanding irrigation that is key to food security, provides access to electricity that is key to poverty reduction, contributes to navigation that enhances regional trade, and provides flood management and drought relief that is an important part of adapting to climate change.

But those benefits come with potential costs. The decline of fisheries could cost nearly US\$23 billion by 2040. The loss of forests, wetlands, and mangroves may cost up to

⁴ Mekong River Commission, "Hydropower", <https://www.mrcmekong.org/our-work/topics/hydropower/>, (Accessed 20 May 2023).

US\$145 billion. Moreover, further reduction of sediment due to dams and sand mining will severely curtail rice growth along the Mekong. Fish farms, irrigation schemes, and expanding agriculture could offset these losses, but with uneven results between countries.⁵

The climate change specialist at the Mekong River Commission, points out that without effective solutions, the sea level would increase by 0.8 to one metre by 2100, in which up to 38% of the Mekong delta could be submerged. As a result, around 30% of the population would be affected with many forced to migrate to less affected areas.⁶ Other observers argue that China holds back a significant amount of water for the sake of its own development, with knock-on implications and costs for downstream users.⁷ The 1995 Mekong Agreement provides a framework, which together with the regional approach to water diplomacy, puts the Mekong River Commission (MRC) in a unique position to promote equitable and sustainable development for all its member states.⁸

2. THE TRANSBOUNDARY WATER IMPACT ON TONLE SAP LAKE

Every year, the Mekong floods and forces the Tonle Sap river in Cambodia to reverse flow, creating the largest lake in Southeast Asia. With more than a million people living on the floodplain and in floating villages, including many stateless Vietnamese, Tonle Sap is one of the most productive inland fisheries on Earth. The lake expands 60% from its low water size to approximately 16,000 square kilometres, providing migrating fish with a crucial breeding ground. The lake's ecology relies on the natural flood patterns of the Mekong disrupted by development and hydropower on the mainstream of the river.

⁵ Mekong River Commission, "Hydropower", <https://www.mrcmekong.org/our-work/topics/hydropower/>, (Accessed 20 May 2023).

⁶ Mekong River Commission, "Living on the Edge of the Rising Sea", <https://www.mrcmekong.org/news-and-events/articles-and-stories/living-on-the-edge-of-the-rising-sea/>, (Accessed 20 May 2023).

⁷ Thong Anh Tran, "The Mekong delta's transboundary water problems", East Asia forum, 30 April 2022 <https://www.eastasiaforum.org/2022/04/30/the-mekong-deltas-transboundary-water-problems/>, (Accessed 20 May 2023).

⁸ CICP, Volume 01, Issue 01, June 2019, p.38, "Journal of the Great Mekong Studies", <https://cicp.org.kh/wp-content/uploads/2021/01/JGMS-First-Issue-June-2019.pdf>, (Accessed 21 May 2023).

In 2019, a combination of climate change, El Niño and dams on the Mekong resulted in the Tonle Sap river flowing backward for weeks rather than months, leaving the lake's water warm, shallow and oxygen-starved. That year, fish stocks in Tonle Sap were estimated to have declined by 80 to 90%. Low water levels in Tonle Sap lake have also caused difficulties for rice farmers, who depend on seasonal flooding. As flood levels become more uncertain, local communities have been forced to compete for irrigation resources, or leave to find work in cities.

Combined with destructive rice-cultivation practices that damage the surrounding scrubland and grassland, the breakdown of the ecology of the Tonle Sap lake endangers a number of bird species which breed in the area. In 2020, the Cambodian government suspended construction of dams on the mainstream of the Mekong until at least 2030, including the Sambor dam approximately 150 kilometres from Tonle Sap lake.⁹

3. THE MEKONG RIVER COMMISSION AND HYDROPOWER DAMS ON THE MEKONG

The Mekong River Commission (MRC), an entirely advisory body, was set up in 1995 between Cambodia, Laos, Thailand and Vietnam, and provides research, surveys and coordination of development on the management of water-related resources in the Lower Mekong Basin. Both China and Myanmar are only MRC Dialogue Partners, not full members of the body.

Most recently, the MRC has released a Basin Development Plan 2021-2030 and a Five-Year Strategic Plan detailing plans to better understand the development and climate change challenges facing the river. Primarily funded by western governments and the Washington based World Bank, the MRC has no authority to stop a dam from being built on the mainstream of the Mekong. However, the MRC allows external powers to functionally influence outcomes through its consultative role in a process called Procedures for Notification, Prior Consultation and Agreement (PNPCA). The months-long PNPCA process involves MRC members and funders reviewing the

⁹ Tyler Roney, "What are the impacts of dams on the Mekong River?", The Third Pole, July 1, 2021, <https://www.thethirdpole.net/en/energy/what-are-the-impacts-of-dams-on-the-mekong-river/> (Accessed 15 May 2023).

potential benefits and risks of mainstream Mekong projects against environmental, safety, development and other related concerns.

No country is bound to abide by the decisions of the MRC. Two hydropower dams, Xayaburi and Don Sahong, have completed the PNPCA and are operational. Four others have undergone the PNPCA process but have yet to officially begin construction (Pak Beng, Pak Lay, Luang Prabang and Sanakham). Laos, however, has been accused of ignoring the PNPCA approval process and proceeding with preliminary construction on at least two projects. The Sanakham dam project, only two kilometres from the Thai border, had its PNPCA approval process blocked when it was accused of plagiarising sections from a previous dam project submission; its status is currently pending.¹⁰

4. THE LANCANG-MEKONG COOPERATION MECHANISM

Originally proposed by China's Premier Li Keqiang, the Lancang-Mekong Cooperation (LMC) framework was launched in March 2016. Mekong-Lancang Cooperation focuses on three main pillars namely Political and Security Cooperation, Economic and Sustainable Development and Social, Cultural and People to People Exchanges, and key priority areas, namely connectivity, production capacity, cross-border economic cooperation, water resources and agriculture and poverty reduction. The LMC acts as China's development arm along the Mekong river, facilitating projects including the ambitious Laos-China Railway. While the LMC has not elevated hydropower generation as a focal point of its mission, hydropower plays an important role in China's overall development goals in the region.

In late 2020, the US government created a new framework for its own plans for the region. The Mekong-US Partnership focuses on economic connectivity, human capital development, transboundary water and natural resources management, and non-traditional security, including emerging threats such as health security, pandemic response, countering transnational crime, cyber security, and countering trafficking in people, drugs, and wildlife. The Mekong-US Partnership, which has pledged \$US153

¹⁰ Tyler Roney, "What are the impacts of dams on the Mekong River?", The Third Pole, July 1, 2021, <https://www.thethirdpole.net/en/energy/what-are-the-impacts-of-dams-on-the-mekong-river/> (Accessed 15 May 2023).

million to the Greater Mekong Subregion, and the U.S. State Department funded Stimson Center 1.5 Track process are both designed to increase and exert influence over regional riparian relations in an effort to counter China's growing regional economic clout.¹¹

5. CAMBODIA POLICIES ON MEKONG COOPERATION FOR SUSTAINABLE DEVELOPMENT

Hydropower development in the Mekong began years ago in tributary basins of Thailand and Viet Nam, upstream of Cambodia. Over the last decade, hydropower development has expanded in the LMB, accompanied by increased private sector investment in power infrastructure. On the mainstream, 11 projects are planned, with seven in Lao PDR, 2 in Cambodia and 2 across the Lao-Thai border.

Cambodia really need the power for developing her counties, so Cambodia will need investment of around \$9 billion through to 2040 to develop new power plants and expand the national grids, the Master Power Development Plan 2022-2040.

Of the amount, over \$2.5 billion is the investment that has been approved between 2022 and 2025. Another \$6.5 billion will be for renewable energy investment - hydropower dams (not project directly on the Mekong River), solar power projects, battery energy storage systems, natural gas-fired power plants, and biomass power plants, it added.

The Cambodian government has forecasted that the Kingdom's electricity demand will increase to 24 billion kilowatt hours by 2025, to 36 billion kilowatt hours by 2030, to 50 billion kilowatt hours (kWh) by 2035 and 66 billion kWh in 2040.¹²

Currently, the total power generation capacity increased from 3,990 MW by the end of 2021 to 4,495 MW by the end of 2022, while the amount of energy consumed from the

¹¹ Francis Savankham, "United States Commits \$153 million for Mekong Development", The Laotian Time, September 16, 2020, <https://laotiantimes.com/2020/09/16/united-states-commits-153-million-for-mekong-development/#:~:text=The%20U.S.%20State%20Department%20has,data%20sharing%2C%20and%20emergency%20relief>, (Accessed 16 May 2023).

¹² Chea Vanyuth, "Cambodia needs \$9 billion investment in power sector", Khmer Times <https://www.khmertimeskh.com/501263879/cambodia-needs-9-billion-investment-in-power-sector/#:~:text=Cambodia%20will%20need%20investment%20of,approved%20between%202022%20and%202025>. (Accessed 16 May 2023)

power source increased from 13,097 million kWh in 2021 to 15,455 million kWh in 2022.

Despite really need more power, but for sustainable development in the region Cambodia also never forget. In 2020 the Cambodian government suspended construction of dams on the mainstream of the Mekong until at least 2030, including the Sambor and Steung Treng dams not too far from Tonle Sap lake.¹³ This is a positive sign that downstream countries are recognising and responding to negative transboundary implications by Cambodian Government.

The waterway has a total length of about 180 kilometres connecting the Tonle Bassac to the seaport of Kampot province is the logistics project to link the Bassac River in Kandal province to a seaport in the Kep province. The waterway project will reduce heavy road transport as well as facilitate internal integration, and strengthen and expand regional and international connectivity through transportation. Cambodia's National Mekong Committee has been tasked with maintaining contact with Mekong River Commission (MRC) member countries to ensure that the project aligns with the 1995 Mekong Agreement.¹⁴

The Royal Government of Cambodia has taken significant steps to address climate change in both policies and institutional processes including the suspension of dam construction on the mainstream of the Mekong until at least 2030, such as the Sambor dam approximately 150 kilometres from Tonle Sap lake.¹⁵

A chronology of these efforts is presented below, showing significant markers that have shaped Cambodia's policy framework for climate change response.

- 1995: Cambodia ratified the United Nations Framework Convention on Climate Change (UNFCCC).

¹³ Leonie Kijewski, "Cambodia Halts Hydropower Construction on Mekong River Until 2030", VOA, April 01, 2020 6, https://www.voanews.com/a/east-asia-pacific_cambodia-halts-hydropower-construction-mekong-river-until-203/6186756.html, (Accessed 16 May 2023).

¹⁴ Ry Sochan, "Bassac-Kep waterway link named 'Funan Techo Canal'", PhnomPenh Post, 21 May 2023, <https://phnompenhpost.com/national/bassac-kep-waterway-link-named-funan-techo-canal> (Accessed 25 May 2023)

¹⁵ Leonie Kijewski, "Cambodia Halts Hydropower Construction on Mekong River Until 2030", VOA, April 01, 2020 6, https://www.voanews.com/a/east-asia-pacific_cambodia-halts-hydropower-construction-mekong-river-until-203/6186756.html, (Accessed 16 May 2023).

- 2002: Cambodia became the member of the Kyoto Protocol and submitted the Initial National Communication (INC) to the 8th Conference of the Party of the UNFCCC.
- 2003: Climate Change Office was established at the Ministry of Environment. Then it became Climate Change Department in 2010.
- 2006: The government established the National Climate Change Committee (NCCC)—high-level policy-making body, and developed the National Adaptation Programme of Action to Climate Change (NAPA) comprised of priority projects to be integrated into national or local planning. After that, the Climate Change Technical Team (CCTT) was established with the responsibility for technical activities and provision of advice to the NCCC.
- 2009: The National Strategic Development Plan (NSDP) update 2009-2013 integrated climate change for the first time. It emphasized that ‘to effectively deal with the implications of climate change, the capacity of RGC institutions needs to be strengthened to identify and develop a strategy to deal with the anticipated impact of the climate change, and strengthening disaster management capabilities’ and specifically requested the preparation of a national strategy and action plan for climate change.
- 2013: The Prime Minister of Cambodia approved the Cambodia Climate Change Strategic Plan 2014-2023, which required the development of necessary frameworks, i.e., monitoring and evaluation, finance, legislation, and information and knowledge management. In 2014-2015, 14-line ministries approved their respective Climate Change Action Plan and have started implementing its priority actions since then.
- 2014: Climate change was identified as a cross-cutting issue and integrated in the National Strategic Development Plan 2014-2018, while (some) ministries listed the climate change response measures in their priorities.
- 2015: New institutional arrangements for climate change resulted in a merger of four national council/committees to form the National Council for Sustainable Development with its General Secretariat consisting of Department of Climate Change. The government submitted the Second National Communication to the UNFCCC.

- 2016: Cambodia ratified the Paris Agreement on Climate Change. Before the Paris Agreement, Cambodia had submitted Cambodia's (I)NDC.
- 2017: The Ministry of Planning and Ministry of Interior issued technical guidelines for integrating climate change at sub-national planning processes. At the national level, the Climate Change Technical Working Group was established and has had regular meetings.
- 2018: Rectangular Strategy phase IV (2019-2023) has integrated climate change in its 4th pillar "Sustainable and Inclusive Development". This corresponds to the 4th angle "Ensuring Environmental Sustainability and Pre-emptive Response to Climate Change," serving as a policy framework for mainstreaming climate change responses into the NSDP 2019-2023.
- 2019: The localization of the SDG-13 was completed, resulting in five indicators on climate change. The MOP with support from DCC has put rigorous efforts to align the indicators on climate change in SDG 13 with those in the NSDP 2019-2023.
- 2019: The draft Environment and Natural Resource Code allocates a Title on climate change. Once ENR Code is approved, its Title on Climate Change will provide a solid legal framework for climate change work and for forthcoming climate change regulations.¹⁶

6. VIETNAM COOPERATION FOR SUSTAINABLE DEVELOPMENT IN THE MEKONG DELTA

Vietnam has played a critical role in promoting cooperation among the Mekong region countries and in initiating new plans for the development of the entire region, realising that only an integrated approach could deal holistically with the negative dimensions. Vietnam realises that water conflict management, regional collaboration and capacity building on trans-boundary water resources are vital to promote further regional cooperation.

In 2001, Vietnam along with other countries of the region signed a landmark cross-border agreement to facilitate the flow of people and goods by simplifying and

¹⁶ The National Council for Sustainable Development, "Climate Change Policies and Plans", <https://ncsd.moe.gov.kh/dcc/climate-change-policies-and-plans> (Accessed 16 May 2023).

harmonising legislation, regulations, and procedures relating to cross-border transport to facilitate speedy joint inspections. In 2009, Vietnam signed the Treaty on Waterway Transportation with Cambodia for freedom of navigation on Mekong waterways between the two countries. It covered the Mekong River, the Tonle Sap, Bassac and Vam Nao rivers, as well as several canals in Vietnam and applied to all kinds of vessels, including sea-going ships under foreign flags.

Vietnam has played an important role in all four MRC Summits. In 2010, the MRC met for the first time in Thailand, where Vietnam and other members reaffirmed their commitment to implement the 1995 Mekong Agreement. The second meeting took place in Vietnam and the highly pragmatic Ho Chi Minh declaration was issued. At the initiative of Vietnam, the MRC focused on the impact of climate change resulting in negative environmental and social developments in the region. It emphasised that mitigation of, and adaptation to, climate change and pollution were crucial, while stressing the need to cooperate and promote the sustainable development of the Mekong River Basin. The third MRC summit met in Cambodia in 2018, where Vietnam joined others in emphasising the development and management of water and related resources as critical for the achievement of the 2030 Sustainable Development Goals. Vietnam also called for a rules-based cross-border water resource management framework.

At the Fourth MRC Summit held at Vientiane in Laos on 2-5 April, 2023, Vietnam affirmed commitment to cooperation in building a prosperous, fair, and healthy Mekong River basin and emphasised the great challenges faced due to synergistic impacts of climate change, the pressure of economic development, and the rapid increase in water use, which was adversely affecting efforts to ensure water and food security for all countries in the basin.

The Mekong Delta, where flow from the Upper Mekong River has been severely reduced because of increased saline intrusion, often faces severe droughts. Thus, the Vietnamese Prime Minister made five important suggestions for the member countries:

First: effective implementation of the 1995 Mekong Agreement by strictly following the set of regulations for water use, particularly the fundamental principles of sovereign equality and territorial integrity.

Second: maintain fair and rational use of water resources and reasonable maintenance of flows on the mainstream.

Third: prevent and limit negative impacts, especially for downstream countries, by taking the necessary steps.

Fourth: ensure sustainable livelihoods, and protect the legitimate rights and interests of those living in the basin, by putting people at the centre.

Fifth: strengthen cooperation for the prevention of transnational crimes; strive to make the MRC an intelligence hub providing information, data and knowledge about the basin, and consulting services to help other sub-regional cooperation mechanisms.

Prime Minister Chinh's message and suggestions reflected Vietnam's commitment to play a proactive role in responding to challenges by strengthening solidarity and cooperation among the MRC membership. While Vietnam has always emphasised cooperation among the member countries with some success despite political differences, the problems pertaining to fisheries, protection of the environment and people's livelihoods, which are dependent on the river in the lower riparian countries. Other crucial problems included the impact of climate change, increasing pollution, and rehabilitation of people displaced because of dams, floods, and draughts, which demand much greater cooperation not only among the lower riparian countries, but also the involvement of upper riparian nations. Both Cambodian and Laotian dams have displaced thousands of people in the Mekong Delta.

However, a key concern for the lower riparian countries - Laos, Cambodia, Thailand, and Vietnam - emanates from the development of dams and dikes by the upper riparian country, China. While the Lancang-Mekong Cooperation sub-regional mechanism was formed in 2016 with China, also a dialogue partner of the MRC, concerns remain

about LMC and MRC data sharing and that Mekong river flow could be leveraged to perturb riparian relations among all Mekong countries.¹⁷

7. CAMBODIA-VIETNAM SUSTAINABLE DEVELOPMENT COLLABORATION IN THE MEKONG DELTA

The Mekong Delta extends from central Cambodia to Viet Nam, where the Mekong River empties into the sea. As the “rice bowl” of both countries, the delta is essential for their food security and income. But upstream hydropower development and the delta’s flood control infrastructure affect fisheries, floodplains, sediment movement, and water quality.

In 2009, Vietnam signed the Treaty on Waterway Transportation with Cambodia for freedom of navigation on Mekong waterways between the two countries. It covered the Mekong River, the Tonle Sap, Bassac and Vam Nao rivers, as well as several canals in Vietnam and applied to all kinds of vessels, including sea-going ships under foreign flags.¹⁸

Impacts of climate change, including severe floods and droughts and saltwater intrusion, also threaten the delta’s natural resources. To better manage the shared resources in the Mekong Delta, Cambodia and Viet Nam work together to develop joint planning and harmonised mechanisms for the management of water resources through a bilateral project supported by the LMC and MRC:

Flood and drought strategic planning: A lack of transboundary planning for sustainable development of delta resources has left the two countries to manage annual floods and droughts individually. This was mainly due to differing national interests and a single sector approach. A strategic transboundary water resources management plan could improve the understanding of hydrological requirements in the area and ensure the coordinated operation of upstream reservoirs and harmonised development

¹⁷ SD Pradhan in Chanakya Code, India, World, TOI, “The role of Vietnam in promoting cooperation in the Mekong Region”, The time of India, April 14, 2023, <https://www.eastasiaforum.org/2022/04/30/the-mekong-deltas-transboundary-water-problems/>, (Accessed 16 May 2023).

¹⁸ SD Pradhan in Chanakya Code, India, World, TOI, “The role of Vietnam in promoting cooperation in the Mekong Region”, The time of India, April 14, 2023, <https://www.eastasiaforum.org/2022/04/30/the-mekong-deltas-transboundary-water-problems/>, (Accessed 16 May 2023).

of irrigation infrastructure, which are essential to transboundary flood and drought control.

Infrastructure development and investment: The absence of joint planning and collaboration between border provinces has resulted in inappropriate infrastructure development in the Mekong Delta. Uncoordinated development of flood control and irrigation systems, such as dykes and embankments, could cause floods and drought in other areas of the floodplain and may result in water pollution and shortages, and less agricultural production. A coordinated infrastructure development planning is necessary to reduce such adverse impacts.

Coordination and communication mechanisms: Cambodia and Viet Nam lack efficient coordination and communication mechanisms to address transboundary water resources management issues, which results in overlapping actions, misunderstandings about the current status of water use at the border, and conflicts between related sectors. They need to develop harmonized data and information management systems to collect, process, analyse and share hydro-meteorological data and other relevant information to monitor transboundary water use.

Human and institutional capacity for transboundary cooperation: Limited capacity in water resources management on both sides of the border contributes to inaccurate impact assessment and weak application of the agreed procedural rules on the Mekong's water use. This can hinder the efforts to mitigate adverse impacts of water infrastructure development. Institutional and technical capacity needs to be developed for effective cooperation.

Environmental, social and economic impacts of development and climate change: A lack of understanding in the cumulative and immediate effects of upstream hydropower development and climate change would leave people living in the delta vulnerable to impacts such as, an increase in salinity intrusion, decrease in sedimentation and nutrients, infrequent fish migration, and change of flow regime. Information gaps on the flow regime, hydrological modelling, and other tools for impact assessment need to be filled immediately to minimize socioeconomic and environmental impacts of water infrastructure development and global warming.

Implementation of bilateral navigation agreement: The Mekong Delta's inland waterways play a key role for transportation of goods and services within and between the two countries. Both countries signed a bilateral agreement for inland navigation, but it has not been well implemented due to multiple reasons, including channel and flow conditions caused by floods and hydro-development, and operational and administrative shortcomings such as lack of policy exercise, safety standards, and immigration procedures. They should tackle these problems to reap the benefits of the agreement.

8. MEKONG WATER LEVEL DATA SHARING

The lack of data sharing between the LMC and MRC has proved to be a source of contention, particularly after the extreme droughts of 2019, which were exacerbated by continued investment in hydropower projects on both the Lancang and Mekong stretches of the river. A key advance was the round of LMC and MRC meetings, which enabled the creation of the Lancang-Mekong Water Resources Cooperation Information Sharing Platform in 2020. The new cooperative platform provides regular updates of hydrological data between the two bodies, thus ensuring more transparency from source to sea.

While the LMC and MRC agreed to share year-round data on the Lancang-Mekong, since then, other monitoring platforms using near real-time satellite data as well as on-the-ground water level stations have given a clearer picture of reporting transparency. The new data has suggested that occasional gaps exist in the timely notification for water releases and restrictions, and also elucidates the effects of hydropeaking, where peak power production hours can cause rapid raising and lowering of water levels downstream.

CONCLUSION AND SOLUTION

Climate change in the Mekong region is not only the cause of rising temperatures, reduced rainfall, and extreme weather events like El Niño in 2019, but also an important part of the operation of large-scale hydropower dams in the upper stretches of the river. As Mekong water flows recurrently decline, the process of saltwater intrusion accelerates in the Vietnamese Mekong delta. These transboundary

hydrological challenges have detrimental effects on millions of people living in the delta whose livelihoods depend on the Mekong.

In Cambodia, low water levels in Tonle Sap lake have also caused difficulties for rice farmers, who depend on seasonal flooding. As flood levels become more uncertain, local communities have been forced to compete for irrigation resources, or leave to find work in cities.

For sustainable development in the region, especially in Cambodia and Vietnam, which suffer most the adverse effects of reduced water flow, efforts to ensure water and food security at the local scale have inspired adoption of a mix of control and adaptive measures to deal with externalities. However, local efforts are insufficient to provide long-term solutions to emerging challenges. Rather, the strong determination of both governments is needed to push forward an agenda that will establish a Mekong-wide dialogue platform that can identify, diagnose and address the challenges of transboundary water management. Moreover, meaningful cooperation towards improving Mekong hydrological conditions must be facilitated, and benefits shared, between all six Lancang-Mekong countries.

At the regional scale, it is time for Mekong riparian countries and both the MRC and LMC to look beyond their business-as-usual practices. Instead of increasing reliance on hydropower projects that have caused detrimental transboundary consequences, development of alternative energy solutions must be accelerated. There is great potential to invest in solar power in both countries and wind projects. While these energy development pathways progress, the lives of millions of Mekong residents remain subject to the uncertainty characterised by the extent of cooperation between the LMC and MRC and all six Mekong countries and their vulnerability to short-term political solutions and external influence over the regions riparian relations.

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