Sustainable Development and the Future of the Mekong

DECEMBER 2020

OUTCOME REPORT

SUSTAINABLE DEVELOPMENT AND THE FUTURE OF THE MEKONG

26-27 October 2020
Phnom Penh, Cambodia

ACKNOWLEDGEMENTS

Despite the prevailing views on the less significance of the Mekong River in comparison to the South China Sea that pervasively conjure up within scholastic and academic orbits, the mighty river continues to gain emphasis from the development partners, such as the U.S., which does play a significant role in shaping development dynamic in the subregion. Expanding on over a decade of cooperation between the U.S. and the Mekong riparian countries under the Lower Mekong Initiative (LMI), the launch of the new Mekong-U.S. Partnership during the First Mekong-U.S. Partnership Ministerial Meeting on September 11th serves as a novel strategic forum for deepening cooperation and enabling flexibility in addressing existential as well as emerging challenges through narrowing the development gap in the region with the adherence to strengthening transparency and good governance, connectivity, economic growth and regional integration, as well as inclusive and sustainable developments.

While the Mekong-U.S. Partnership has been regarded as the manifestation of the continual U.S. engagement in the Mekong Subregion, the upgraded Partnership is widely welcome as it is elevated at the time when the subregion is confronting incremental challenges – such as ongoing water shortages, pollution, diminishing fish population, and the like – all of which are deemed as the consequences of unsustainable development practices and mismanagement of water resources that prompt comprehensive and effective responses thereto. Moreover, the alleged complementary role of the Mekong-U.S. Partnership is also highly anticipated amid the desperate calls for a more substantial role to be played by ASEAN and other regional mechanisms such as ACMECS and the MLC in coordinating development dynamics in the region.

Amid the increasing debates and deliberations with regards to the implications of the newly upgraded Mekong-U.S. Partnership on the sustainable development and sound prospect of the Mekong subregion, our Institute, the Cambodian Institute for Cooperation and Peace (CICP), is profoundly pleased to receive the generous support from the U.S. Department of States to organize this Webinar. We believe that this important virtual conference provide a unique platform to dive into insightful assessments and open up the frank discussions on challenges and opportunities for cooperation under the Mekong-U.S. Partnership from the CLMTV perspectives and that of the U.S.

All of us at CICP would like to express our utmost appreciation to U.S. government's kind support and to all eminent role players, distinguished guests, and participants, whose perceptive views remarkably contribute to the composition of this Outcome Report. We hold an unwavering conviction that the distinct perspectives and ideas embedded in this publication will serve as the prerequisite to stimulate more substantial deliberations among policy, scholarly, academic, and relevant communities so as to shed lights on prudent consideration of future policies in order to safeguard the sustainable prospect of this mighty river.

Ambassador Pou Sothirak
Executive Director
Cambodian Institute for Cooperation and Peace (CICP)


សិក្ខាសាលាស្តីពី
Virtual Conference on
ការអភិវឌ្ឍប្រកបដោយចីរភាព
និងអនាគតនៃអនុតំបន់មេគង្គ
សហការរៀបចំដោយ
វិទ្យាស្ថានខ្មែរ សំរាប់សហប្រតិបត្តិការ និងសន្តិភាព
ក្រសួងការបរទេសសហរដ្ឋអាមេរិក
ថ្ងៃចន្ទ-អង្គារ ទី២៦-២៧ ខែតុលា ឆ្នាំ២០២០
សណ្ឋាគារ រ៉ាហ្វិលឡឺរ៉ូយ៉ាល់ រាជធានីភ្នំពេញ
តាមរយៈប្រព័ន្ធទំនាក់ទំនង ZOOM
SUSTAINABLE DEVELOPMENT AND
THE FUTURE OF THE MEKONG
In cooperation between
Cambodian Institute for Cooperation and Peace (CICP)
U.S. Department of State
26-27 October 2020
Raffles Hotel Le Royal, Phnom Penh
Via : ZOOM

CONTENTS

CONTEXT AND OVERVIEW

The Cambodian Institute for Cooperation and Peace (CICP) organized a two-day conference to examine the future of the Mekong River and the diverse challenges that confront the Greater Mekong Subregion as a whole, paying particular attention to environmental questions and the broader topic of sustainable development.

The Mekong River Basin finds itself at a development crossroads. The river itself, and the unique dynamics thereof, supports the livelihood of about 70 million people and more than a million living on the Tonle Sap, which is the largest freshwater lake in Southeast Asia. In the last few years, the shifting geopolitical dynamics have begun to pose major new challenges. We have seen the growth of debt dependency; disproportionate control over dozens of upstream dams by China; plans to blast, dredge riverbeds and the erosion of existing river governance. This year, the unusual shortage of rain fall casts severe dry spell making the water level on the Mekong at record low. All of these trends pose distinct risks to economic independence, and water, energy, and food security across the Mekong subregion.

These virtual meetings included four separate panels over the course of two days. Recognizing the realities of "Zoom Fatigue" since the beginning of the current Covid-19 pandemic, each panel lasted two hours, with four speakers and one "instigator" serving as chair. Two panels were conducted on October 26th (with a two-hour break between each) and a further two panels on October 27th.

This virtual meeting model gave each speaker ten to fifteen minutes to present the highlights of their paper followed by a question and answer session moderated by the instigator with the assistance of CICP staff. In order to ensure greater impact and noting the challenges presented by an all online format – each panelist was asked to present a detailed PowerPoint, in order to avoid two full hours of "face time" and to facilitate greater audience interest.

The panels themselves took place at Raffles Hotel Le Royal in Phnom Penh – such that embassy staff and selected local experts can participate in the discussion and to provide an opportunity for informal discussions during the lunch break. In light of the Covid-related gathering restrictions, around 20 individuals were attended in person (including the panelists) during each session while key partners of CICP were invited as participants via ZOOM link (and having chance to interact online during Q&A Session). It was also simultaneously livestreaming on Facebook for public audience, reaching approximately 4 thousand views online.

VIRTUAL CONFERENCE
SUSTAINABLE DEVELOPMENT AND THE FUTURE OF THE MEKONG

26-27 OCTOBER 2020 | LIVE FROM PHNOM PENH, CAMBODIA

THE MEKONG RIVER BASIN FINDS ITSELF AT A DEVELOPMENT CROSSROADS. THE RIVER SUPPORTS THE LIVELIHOOD OF 70 MILLION PEOPLE AND MORE THAN A MILLION LIVING ON THE TONLE SAP, THE LARGEST FRESHWATER LAKE IN SOUTHEAST ASIA. SHIFTING GEO-POLITICAL DYNAMICS POSE MAJOR NEW CHALLENGES: THE GROWTH OF DEBT DEPENDENCY, DISPROPORTIONATE CONTROL OF UPSTREAM DAMS, AND THE EROSION OF EXISTING RIVER GOVERNANCE. THIS CICP-ORGANIZED CONFERENCE HAS FOUR, SEPARATE PANELS AIMING TO EXAMINE THE FUTURE OF THE MEKONG RIVER AND THE DIVERSE CHALLENGES THAT CONFRONT THE SUBREGION, PAYING PARTICULAR ATTENTION TO ENVIRONMENTAL QUESTIONS AND THE BROADER TOPIC OF SUSTAINABLE DEVELOPMENT.

WELCOME REMARKS BY
H.E. AMB. POU SOTHIRAK
EXECUTIVE DIRECTOR, CICP

SPECIAL REMARKS BY
H.E. AMB. W. PATRICK MURPHY
U.S. AMBASSADOR TO CAMBODIA

26 OCTOBER 2020 | 9:30 – 9:50AM (CAMBODIA TIME)

LIVE

REGISTRATION:
http://bit.ly/FutureMekong

FOR FURTHER INFORMATION:
EMAIL: CICP01@ONLINE.COM.KH
RAKSMEYHIM2@GMAIL.COM
TEL: 092 631 727

VIRTUAL CONFERENCE
SUSTAINABLE DEVELOPMENT AND THE FUTURE OF THE MEKONG

26 OCTOBER 2020 | 9:50AM – 12:00PM (CAMBODIA TIME)

PANEL I: THE MEKONG – US PARTNERSHIP IN THE CONTESTED INSTITUTIONAL SPACE

- HOW TO LEVERAGE COMPETING INTERESTS IN THE MEKONG SUBREGION?
- HOW TO FACILITATE SUCCESSFUL COLLABORATION AND POSITIVE DEVELOPMENTAL OUTCOMES IN LIGHT OF THIS REALITY?

AREND ZWARTJES
PUBLIC AFFAIRS OFFICER
U.S. EMBASSY PHNOM PENH

KAVI CHONGKITTAVORN
COLUMNIST & VETERAN JOURNALIST
ON REGIONAL AFFAIRS

INSTIGATOR:

GWEN ROBINSON
VISITING SENIOR FELLOW
CICP

DR. FREDRICK KLIEM
VISITING FELLOW
S. RAJARATNAM SCHOOL OF
INTERNATIONAL STUDIES, SINGAPORE

DR. LENG THEARITH
DIRECTOR OF THE MEKONG
CENTRE FOR STRATEGIC STUDIES
ASIAN VISION INSTITUTE

LIVE

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VIRTUAL CONFERENCE
SUSTAINABLE DEVELOPMENT AND THE FUTURE OF THE MEKONG

26 OCTOBER 2020 | 1:30 – 3:30PM (CAMBODIA TIME)
PANEL II: THE MEKONG – US PARTNERSHIP IN THE CONTEXT OF SUSTAINABLE DEVELOPMENT

H.E. MR. WATT BOTKOSAL
DEPUTY SECRETARY GENERAL
CAMBODIAN NATIONAL MEKONG COMMITTEE

DR. ANOULAK KITTIKOUN
CHIEF STRATEGY AND PARTNERSHIP
MRC SECRETARIAT

- HOW CAN THE MEKONG – US PARTNERSHIP BEST SUPPORT SUSTAINABLE DEVELOPMENT IN THE SUBREGION IN THE CONTEXT OF INTER-GOVERNMENTAL INITIATIVES AND TRANSBOUNDARY WATER RESOURCES?

DR. APISOM INTRALAWAN
SPECIALIST
INSTITUTE OF THE NATURAL RESOURCES AND ENVIRONMENTAL MANAGEMENT

SUN KIM
LECTURER
PAÑÑĀSĀSTRA UNIVERSITY OF CAMBODIA

INSTIGATOR:

PICH CHARADINE
DEPUTY EXECUTIVE DIRECTOR
CICP

LIVE zoom

REGISTRATION:
http://bit.ly/FutureMekong

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VIRTUAL CONFERENCE
SUSTAINABLE DEVELOPMENT AND THE FUTURE OF THE MEKONG

27 OCTOBER 2020 | 9:00 – 11:30AM (CAMBODIA TIME)
PANEL III: THE FUTURE OF THE MEKONG

INSTIGATOR:

DR. BRADLEY J. MURG
SENIOR ADVISOR AND
DISTINGUISHED SENIOR FELLOW, CICP

DR. NGUYEN MINH QUANG
LECTURER, CAN THO UNIVERSITY
MANAGING DIRECTOR,
MEKONG ENVIRONMENT FORUM

BRIAN EYLER
SENIOR FELLOW AND DIRECTOR
SOUTHEAST ASIA PROGRAM, STIMSON CENTER

DR. TEK VANNARA
EXECUTIVE DIRECTOR
NGO FORUM CAMBODIA

DR. WATCHARAS LEELAWATH
INDEPENDENT CONSULTANT

- HOW TO MITIGATE DAMAGE CAUSED BY HYDROPOWER DAMS EXPANSION?
- IS IT TOO LATE TO SAVE THE MEKONG AND WHAT ACTIONS IN NEAR AND MEDIUM TERMS TO ENSURE ITS LONG-TERM SUSTAINABILITY?

LIVE zoom

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SUSTAINABLE DEVELOPMENT AND THE FUTURE OF THE MEKONG

27 OCTOBER 2020 | 1:30 – 3:30PM (CAMBODIA TIME)

PANEL IV: HUMAN SECURITY ISSUES IN THE MEKONG CONTEXT: AGRICULTURE, ENERGY, WATER AND ENVIRONMENT

INSTIGATOR:

H.E. AMB. POU SOTHIRAK
EXECUTIVE DIRECTOR, CICP

DR. MAK SITHIRITH
WATER GOVERNANCE SPECIALIST
SENIOR FELLOW, CICP

MR. LÊ TRUNG KIÊN
SENIOR RESEARCHER
INSTITUTE FOR FOREIGN POLICY AND STRATEGIC STUDIES, DAV

DR. HAN PHOUMIN
SENIOR ENERGY ECONOMIST
ECONOMIC RESEARCH INSTITUTE FOR ASEAN AND EAST ASIA (ERIA)

- WHAT POLICY FRAMEWORKS CAN BE DEVELOPED IN ORDER TO AVOID HUMANITARIAN AND DEVELOPMENTAL CRISES IN THE SUBREGION IN TERMS OF RISING ENERGY DEMAND, FOOD AND WATER SECURITY AND ENVIRONMENT?

LIM SOLINN
COUNTRY DIRECTOR
OXFAM CAMBODIA

DR. CARL MIDDLETON
DEPUTY DIRECTOR
CENTER FOR SOCIAL DEVELOPMENT STUDIES
CHULALONGKORN UNIVERSITY

LIVE

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H.E. Amb. Pou Sothirak
Executive Director, CICP

Amb. Pou Sothirak has been CICP Executive Director since 2013. He also serves as Advisor to the Royal Government of Cambodia.

He was appointed as Secretary of State of the Ministry of Foreign Affairs and International Cooperation of Cambodia from September 2013 to January 2014. He was a Visiting Senior Research Fellow at the Institute of Southeast Asian Studies (ISEAS) in Singapore from January 2009 to December 2012. He also served as Cambodian Ambassador to Japan from April 2005 to November 2008. He was elected Cambodian Member of Parliaments twice during the national general election in 1993 and 2003. He was appointed as Minister of Industry Mines and Energy of the Royal Government of Cambodia from 1993 to 1998.

He graduated from Oregon State University in the U.S. in March 1981 with a Bachelor Degree in Electrical and Computer Engineering and worked as an engineer at the Boeing Company in Seattle, Washington from 1981-1985.

He has written extensively on various issues concerning the development of Cambodia and the region.

H.E. Amb. W. Patrick Murphy
U.S. Ambassador to Cambodia

W. Patrick Murphy was appointed as Ambassador to Cambodia on August 8, 2019. A career member of the Senior Foreign Service, he led the U.S. Department of State's Bureau of East Asian and Pacific Affairs from 2018-2019 as Senior Bureau Official (Acting Assistant Secretary of State). He was Deputy Assistant Secretary of State for Southeast Asia from 2016-2018.

Ambassador Murphy served as Deputy Chief of Mission and Chargé d'affaires in the Kingdoms of Thailand (2013-2016) and Lesotho (2006-2008).

Since joining the Foreign Service in 1992, he has also completed diplomatic assignments abroad in Burma (Myanmar), China, Iraq, Guinea, and Mali. His prior Washington service at the Department of State includes Special Representative for Burma (Acting), Director and Deputy Director of the Office for Mainland Southeast Asia, political advisor for the Haiti Working Group, and desk officer for Burma and Laos.

Ambassador Murphy was a Peace Corps volunteer in Cameroon. He received an M.A. from The Johns Hopkins University (SAIS), an M.S. from the National War College (distinguished

graduate), and a B.A. from the University of Vermont. He also studied at the Institut Européen des Hautes Études Internationales in Nice, France.

Prior to joining the Foreign Service, Ambassador Murphy was a resource economist for the World Wildlife Fund and a policy analyst for the Overseas Development Council. His foreign languages include French, Burmese, Cantonese, and Spanish. He and his wife Kathleen have a son and two daughters.

Arend Zwartjes

Public Affairs Officer, U.S. Embassy Phnom Penh

Arend Zwartjes arrived in Cambodia in 2017 as the Public Affairs Officer.

He joined the United States Department of State in January 2003 and served as a Consular Officer in Guangzhou, China, for his first assignment. In Bridgetown, Barbados, Arend served as both a Consular Officer and also as a Political-Economic Officer responsible for all reporting for the countries of St. Kitts and Nevis, and St. Vincent and the Grenadines. He then served as an Assistant Cultural Affairs Officer (ACAO) in Jakarta, Indonesia, from 2009-2012, assisting in the launch of the one-of-a-kind @america (American Center) there. While in Jakarta, he worked on multiple Presidential and Secretary of State visits, including the 2011 East Asia Summit in Bali, where he also arranged round-robin television interviews for Secretary Clinton with the major U.S. networks.

Mr. Zwartjes served as the Cultural Affairs Officer (CAO) in Kuala Lumpur, Malaysia, from 2013- 2016. There, he worked on several high level visits, and oversaw the first ever Young Southeast Asian Leaders Initiative (YSEALI) Summit, including a town hall with President Obama, in November 2015.

He received his B.A. in Humanities from the University of Texas at San Antonio, where he met his wife Melany. They have three children, Esmay, Ava, and Chace. Before joining the Foreign Service, Arend worked at various art institutions and in educational publishing, while also writing free-lance art reviews for national publications. Arend speaks Mandarin, Indonesian, Malay and Khmer.

Gwen Robinson

Visiting Senior Fellow, CICP

Gwen Robinson: Editor-at-large, Nikkei Asian Review; Senior Fellow, Institute of Security and International Studies, Chulalongkorn University, Bangkok; and Visiting Senior Fellow, CICP, where she focuses on regional economic and security issues. She was previously a senior correspondent and editor with the Financial Times in Europe, Asia and the US (1995-2013), most recently as Bangkok bureau chief covering Southeast Asia (2011-14).

Kavi Chongkittavorn

Senior Fellow of ISIS Thailand, and Columnist of Bangkok Post

Kavi Chongkittavorn is a senior fellow at Institute of Security and International Studies (ISIS) Thailand. He has been a journalist for more than three decades covering Thai and regional politics. He began his career as a reporter in 1983 and became the paper's foreign news editor in 1986. Then, he was asked to explore Indochina—first as Bureau Chief in Phnom Penh, Cambodia (1988-1990) and later on in Hanoi, Vietnam (1990-1992). After a year in Oxford University as Reuter Fellow in 1994, he went to Jakarta and served as Special Assistant to the Secretary General of ASEAN in Jakarta in 1995 before returning to journalism. He was name the Human Rights Journalist of 1998 to commemorate the 50th Anniversary of the Universal Declaration of Human Rights by Amnesty International. From 1999-2000, he was the President of Thai Journalists Association. From 2000-2001, he went to Harvard University as Nieman Fellow. He served as a member of jury and from 2005-2008 as its chair of Guillermo Cano World Press Freedom Prize organized by UNESCO.

Dr. Frederick Kliem

Visiting Fellow, Center for Multilateralism Studies
S. Rajaratnam School of International Studies (RSIS)

Frederick Kliem is a Fellow at the S. Rajaratnam School of International Studies (RSIS), Nanyang Technological University (NTU) in Singapore. Frederick's research interests include the geopolitics of the Indo-Pacific as well as regional integration and multilateralism in Asia and Europe. Specifically, he studies great power completion, ASEAN, Southeast Asia as well as the European Union and comparative regionalism. At RSIS, he teaches post-graduate courses on Asian Security.

In addition, Frederick is freelance Consultant and Key Expert on ASEAN-EU matters to EU consortia in Brussels. Frederick has published widely in peer-reviewed journals, books and volumes and as a commentator on current affairs. His most up to date projects are a forthcoming book publication with Routledge on ASEAN's role in the Indo Pacific and a peer-reviewed article on the Quad in the coming issue of Journal of Asian Security & International Affairs.

Dr. Leng Thearith

Director of the Mekong Centre for Strategic Studies
Asian Vision Institute (AVI)

Dr. Thearith Leng received his MA in International Peace Studies from International University of Japan, and PhD in Political and International Studies from the University of New South Wales Canberra (UNSW Canberra) in 2009 and 2018, respectively. Currently, he is the Director of the Mekong Centre of Strategic Studies of the Asian Vision Institute based in Phnom Penh. Dr. Thearith Leng is also a visiting fellow at the

Department of Political and Social Change of the Australian National University (ANU). Prior to these positions, he was a senior lecturer and an academic advisor to the Department of International Studies of the Royal University of Phnom Penh. His research interests include Cambodia's foreign relations with ASEAN and China, foreign policy of the Mekong countries, Asia-Europe Connectivity, and Cambodian diasporas.

H.E. Mr. Watt Botkosal

Deputy Secretary General, Cambodia National Mekong Committee

HE Mr. Watt Botkosal, MSc, MBA, PhD Candidate at RAC, Deputy Secretary General of Cambodia National Mekong Committee (CNMC), has over 20 years of experience within national and transboundary river basin governance and basin-level development planning and development under the frameworks of Mekong River Commission (MRC), Cambodia Water Partnership (CamboWP) and Global Water Partnership Southeast Asia (GWP-SEA). He has authored several thematic reports and conference papers on basin-level governance for national and international conferences and events hosted by MRC, IUCN, Conservation International, Chatham House (London) and Network of Asian River Basin Organizations (NARBO). Presently, he is serving as Project Manager for the Mekong Integrated Water Resources Management Project for Northeast Cambodia.

Pich Charadine

Deputy Executive Director, CICP

PICH Charadine is Deputy Executive Director of the Cambodian Institute for Cooperation and Peace (CICP) and Coordinator of the Global Center for Mekong Studies (GCMS-Cambodia Center, a Track Two think tank network of Lancang-Mekong Cooperation); she also serves as Advisor to the Ministry of Foreign Affairs and International Cooperation of the Kingdom of Cambodia.

Ms. Pich obtained her Bachelor of Arts in Political Science and International Relations with High Honors from Zaman University (Cambodia) and holds a Master of Arts in Dialogue Studies (concentrated on political dialogue) with Merit from Keele University (United Kingdom). She was nominated to the 2019 US Department of State International Visitor Leadership Program (IVLP) on ASEAN-Nations of the South China Sea – Sovereignty and Rules-based Order. She was also the Visiting Fellow at the China Institute for International Studies (CIIS) in 2018 and Visiting Scholar at China Foreign Affairs University (CFAU) in 2019.

She has written on various issues concerning Cambodia's political development and its subsequent foreign policy implications. Her focus is on Sino-Cambodia relations (particularly political economy dilemma, foreign aid policy, and economic statecraft), ASEAN studies, Cambodia's politics and foreign relations, and Mekong sub-regional cooperation.

Dr. Anoulak Kittikhoun

Chief Strategy and Partnership, Mekong River Commission

Dr. Anoulak Kittikhoun is the Chief Strategy and Partnership Officer and Chief of the Office of CEO of the Mekong River Commission (MRC) Secretariat, where he leads the organization's work on strategic planning, international cooperation and partnership, communication and stakeholder engagement, monitoring and evaluation, decentralization, gender, and organizational development.

Before MRC, he was an international staff of the United Nations (UN) Secretariat in New York, a researcher at the Ralph Bunch Institute for International Studies (RBIIS), an adjunct professor of international relations at Brooklyn College, and an advisor at the Permanent Mission of Laos to the United Nations. A Lao national, he received his bachelor's degree in arts and commerce from the Australian National University (ANU) and his Master and Doctor of Philosophy in political science from the Graduate Center of the City University of New York. He has published on topics including the United Nations, conflict management, Laos, political geography, the Mekong and MRC.

Dr. Apisom Intralawan

Specialist in Ecosystem Services, Land Uses, and Ecological Economics at the Institute for the Study of Natural Resources and Environmental Management, Mae Fah Luang University

Apisom Intralawan is an interdisciplinary researcher and a lecturer of Ecological Economics at School of Management, Mae Fah Luang University, Chiang Rai, Thailand. He specializes his studies and research in natural resources, environmental management, and ecosystem service assessment. He has published several academic papers regarding to equitable and sustainable development and been involved in many capacity building projects to improve community resilience and adaptation in the Mekong river area. He received both PhD and master's degree from United States, PhD on Natural Resources from the University of Vermont, master's degree on Ecological Economics from the Rensselaer Polytechnic Institute.

Dr. Nguyen Minh Quang

Geopolitics Lecturer, Can Tho University, and Managing Director of the Mekong Environment Forum

Nguyen Minh Quang is a geopolitics scholar-practitioner working at Can Tho University and currently a PhD researcher at the International Institute of Social Studies (Netherlands). His research interests include politics, climate policy, and dispute management in Southeast Asia. He has published a number of book chapters and articles in peer-reviewed journals and international magazines, including The Diplomat and East Asia Forum. He's also a co-founder of the Mekong Environment Forum.

Sun Kim

Research Fellow of CICP and
Lecturer at Paññāsāstra University of Cambodia (PUC)

Mr. Sun Kim is currently a research fellow for Cambodian Institute for Cooperation and Peace (CICP) in Phnom Penh, Cambodia, and an adjunct researcher for Center for Asia Pacific, Tallinn University of Technology (TUT) in Tallinn, Estonia. Additionally, Kim is also a lecturer for the Faculty of Social Sciences and International Relations (SSIR), Paññāsāstra University of Cambodia (PUC), and a visiting lecturer for the Philipps-University of Marburg, Marburg in Germany. Kim's research areas are great power competitions including US-China relations in Indo-Pacific region, especially in Southeast Asia; Cambodia-US relations; Cambodia-China relations; Cambodia-Vietnam relations, and ASEAN affairs included Mekong issues. Kim earned his BA in international relations at PUC and joint MA programs between PUC in Cambodia, Osaka University in Japan, and Tallinn University of Technology in Estonia.

Dr. Bradley J. Murg

Distinguished Senior Fellow and Senior Advisor, CICP

Dr. Bradley J. Murg is Associate Professor of Political Science and Dean of the Faculty of Economics and Administrative Sciences at Paragon International University. Additionally, Dr. Murg holds positions as Distinguished Fellow and Senior Advisor at CICP; Senior Research Advisor at Future Forum; and Distinguished Fellow at the Royal University of Law and Economics. His work, supported by grants from the Social Science Research Council and the International Research and Exchanges Board, focuses on contemporary international relations in Southeast Asia; the political economy of foreign aid; and the Greater Mekong Subregion as a whole. Dr. Murg graduated Phi Beta Kappa from Emory University with a B.A./M.A. in philosophy, received an MSc. in economic history from the London School of Economics, and his M.A. and Ph.D. in political science from the University of Washington.

Dr. Mak Sithirith

Water Governance Specialist

Dr. Mak Sithirith received his PhD in geography in 2011 from Department of Geography, National University of Singapore and Post-doc in transboundary water governance in the context of climate change in 2014.

A strong advocate for resource governances in the Tonle Sap Lake and the Mekong, he involves his students and colleagues in activities that support communities in the Tonle Sap Lake and the Mekong. His professional interests focus on research in the Tonle Sap Lake and the Mekong, particularly the resources and water governance. He has produced number of publications on the Tonle Sap and Mekong in the well-known and recognized publishers. In the future, he will publish more papers for his career.

Brian Eyler

Director, Southeast Asia Program, Stimson Center

Brian Eyler is a Senior Fellow and Director of the Southeast Asia program at the Stimson Center in Washington D.C. He is an expert on transboundary water-food-energy nexus issues in the Mekong region and specializes in China's outbound investment in Southeast Asia. He has spent more than 15 years living and working in China and over the last ten years has conducted extensive research with stakeholders in the Mekong region, leading numerous study tours through China and mainland Southeast Asia. Before coming to the Stimson Center, he served as the Director of the IES Kunming Center at Yunnan University and as a consultant to the UNDP Lancang-Mekong Economic Cooperation program in Kunming, Yunnan province. He holds a MA from the University of California, San Diego and a BA from Bucknell University. Mr. Eyler is the co-founder of the influential website EastBySoutheast.com. His first book, The Last Days of the Mighty Mekong was published by Zed Books in February 2019.

Dr. Tek Vannara

Executive Director, NGO Forum

Mr. Tek Vannara has almost 20-year experiences with non-governmental organizations in particular on environment, natural resources management, water governance and leadership. In addition, he has great experience of community development, eco-tourism, indigenous people, diplomacy and network with NGOs, the governmental ministries, development partners, private sector and CBOs. Since 2014 until to present, he holds the position Executive Director of the NGO FORUM on Cambodia, it is a membership organization that have 96 national and international organizations as member and 450 national and international organizations in Cambodia as network members. Since 2007 to August 2012, Vannara was playing very active as part time lecturer for the master program at Royal University of Agriculture on the subjects of natural resource management and eco-tourism and he has supervised and advised to at least 45 master students who written their thesis on the field of natural resource management and environment. From 2007 to 2009, Vannara became a Chairperson of board of director of Cambodia Community Based Eco-Tourism Network that coverage 35 members (35 NGOs, academies, private companies and government institutes), representative of CSO in Asia Pacific and South East Asia to the UNREDD executive board. Till now, Vannara have been published 16 books related to hydropower, renewable energy, fishery resource management, river basin management, forestry management, indigenous people and watershed. It was published by national, regional and international. In 2012, Vannara got an excellence award on environment and peace in Asia from Eco-Peace Leadership Center and UNEP at The Kangwon National University, South Korea.

Dr. Watcharas Leelawath
Independent Consultant

Dr. Watcharas Leelawath is a former Executive Director of Mekong Institute (MI), where he served for six years. He has just completed his second term in August 2020.

Prior to joining MI, he was the Deputy Executive Director of the International Institute for Trade and Development (ITD) in-charge of planning, supervising and conducting research projects, training programs and various capacity building activities. Before coming back to Thailand, he worked as Assistant Professor of Economics at the University of Minnesota, Morris, USA where he taught International Economics and Mathematics for Economists.

He is a trade economist with a strong interest in trade and development cooperation issues under GMS and ASEAN frameworks. He has extensive research experience in the fields of International Labor Migration, Regional Economic Integration. He has written several papers for presentation in local and international conferences, has published several articles on trade-related topics and has co-authored a book entitled Economics and Trade in Goods: An Introduction. He provided his expertise in a number of capacity building activities organized by ITD, ITC, ADB, UNESCAP, WTO and Thailand International Cooperation Agency (TICA).

Dr. Leelawath earned his undergraduate degree from Chulalongkorn University. He finished his M.A. and Ph.D. in Economics from the University of Kansas, USA.

Lê Trung Kiên
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Mr. Le Trung Kien is a senior research fellow at the Institute for Foreign Policy and Strategic Studies, Diplomatic Academy of Viet Nam (DAV). His research covers multilateral cooperation in the Mekong subregion, water security, US-China relations and international economy. He has served 14 years at the Ministry of Foreign Affairs and was a Director of International Economic Cooperation Frameworks and Fora Division, Department of Economic Affairs, that is the focal point of Viet Nam's participation in Mekong cooperation mechanisms. As the result, he is faminilar with the Mekong issues and has been working with partners from Mekong countries, U.S., China, Japan, ROK. Kien is also the coordinator of the Mekong Center of the DAV. He holds a Bachelor of Arts in International Relations from the DAV in 2006, Master of Public Policy from Australian National Unviersity in 2010 and is a PhD candidate at the DAV.

Dr. Han Phoumin

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Han Phoumin has about 18 years of experience working at various international and inter-governmental organizations and multi-disciplinary research consortiums related to energy market and technologies, environment, integrated water resource management, governance, and economic development in the region of ASEAN and EAST ASIA. He specialized in economic development and policy and applied econometrics. Much of his career in the past 10 years involved with power sectors, especially with sustainable hydropower development, renewable energy research, energy efficiency, clean coal technology, energy security, and energy demand and supply forecasting.

Solinn Lim

Country Director, Oxfam Cambodia

Solinn brings a wealth of 20+ years of hands-on experience in countries across Asia, Europe and United States, in building community economic resilience, natural resources management, humanitarian relief and preparedness, civic engagement and governance, social protection, and campaigns and policy. In 2017, Solinn led the first Oxfam's Blockchain platform experimentation for social impacts in the agriculture value chain; the pilot was a great success and she is now mobilizing all like-minded partners and social impact investors from across sectors to co-invest for her 1 million farmers scaleup vision. She designed and led Oxfam's East Asia's Energy and Extractives programme portfolios in 2008 and have mobilized communities and stakeholders to advocate for more sustainable alternative energy options for Cambodia and the Mekong region. She is a member of Asia Society's Young Leaders, and holds a BA degree in Sociology, as well as an MSc. degree in Environmental Policy from Oxford University.

Dr. Carl Middleton

Director, Center for Social Development Studies
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Dr. Carl Middleton is an Assistant Professor and Director for Research on the Master of Arts in International Development Studies (MAIDS) Programme, and Director of the Center for Social Development Studies (CSDS) in the Faculty of Political Science of Chulalongkorn University, Thailand. Dr. Middleton's research interests orientate around the politics and policy of the environment in Southeast Asia, with an emphasis on nature-society relations, environmental justice, and the political ecology of water and energy. He has researched and published extensively on the Mekong River.

EXECUTIVE SUMMARY

Building upon 11 years of cooperation and progress through the Lower Mekong Initiative, the inauguration of the new Mekong-U.S. Partnership (MUSP) vividly underscores the elevation of U.S.'s commitment to strengthening cooperation with the Mekong countries in the pursuit of stability, peace, prosperity, and sustainable development of the Mekong Subregion. While the upgraded partnership is largely applauded, it triggers great concerns among experts and scholars regarding the concomitant geopolitical ramification of the increasing U.S. engagement which may transform the region to a novel arena for major power competition that adversely exacerbates existent challenges and further obscure the prospect of the mighty river.

In light of the growing interest among the major powers in the subregion and the detrimental risks resulted from unsustainable development practices along the Mekong River, the Cambodian Institute for Cooperation and Peace (CICP), with the support of the U.S. Department of State, organizing a Virtual Conference on 'Sustainable Development and the Future of the Mekong'. The conference served as a platform for scholars and experts from the Mekong countries and the U.S. to wield and deliberate insightful perspectives with regard to diverse impediments confronting the Mekong Subregion with the objective of constructively forging policy considerations for concerning authorities.

During the conference, ample evidence of diverse challenges confronting the subregion substantially intensified the sense of urgency to safeguard the mighty river. In this manner, there were consensus views on the strategic imperative to revitalize existing regional mechanisms such as ACMECS and MRC. This notion is even more compelling owing to the ascending complexity of great power engagements in the subregion. Moreover, the panel also consistently called for ASEAN to integrate the Mekong issues in its agenda. In company with comprehensive recommendations on water resources management and water governance, the significance of grass-root empowerment to influence decision-making at the national and regional level was granted salient emphasis by the panels.

Explicitly, the first panel session was centred around exploring feasible ways through which the Lower Mekong countries can best leverage amid increasing competing interests among great powers and facilitate successful collaboration and positive developmental outcomes for the subregion. The panel saw polarized views on the narrative pertaining to great power contestation in the subregion. That is, while the proponents referred the divergent interests and characteristics denoted in their respective cooperation frameworks as the structural inevitability for great power competition in the Mekong Subregion, the opponents, particularly delegates from the U.S. side, counterargued by constantly asserting the complementary role of the Mekong-U.S. Partnership in materializing the sustainable development and rules-based practices for the betterment of the Mekong citizens. Despite such polarization, the panel uniformly called for revitalization of indigenous institutions – such as ACMECS – to assume the coordinating role to preserve the autonomy and prevent duplications and fragmentations among diverse mechanisms in the course of operationalizing sustainable development in the subregion. Moreover, the panel shared a consistent view on the notion that the mighty River has yet acquired significant emphasis in contrast to the South

China Sea, and it is strategically compelling for ASEAN to prioritize the Mekong issues in its agenda so as to vindicate centrality of the association.

The second and third panel sessions broadly discussed the issues of how the Mekong-U.S. Partnership can best support the sustainable development of the subregion in light of promoting inter-governmental initiatives as well as the question of transboundary water resources in the region to ensure the long term sustainability of the mighty river. The discussion proceeded upon the broad recognition on the existential threats with respect to the ecological changes in the Mekong River as the result of rampant dam constructions. Amid such trend, panelists consistently emphasized on the joint commitment among regional frameworks with the participation from development partners on key areas such as: human resources capacity-building; the empowerment of community-based citizen science and grassroot engagement; the improvement of hydro-meteorological management and; transparent data sharing and data democratization. Despite holding congratulatory view on China's recent agreement on data sharing, the persistency and level of transparency of the data per se remained a suspicion among scholars and experts.

In the final panel, discussion broadly examined policy frameworks to address conceivable human security issues that encapsulate increasing energy demand, food and water as well as environmental challenges in the subregion. The panel attributed the pertinent challenges confronting the Mekong Subregion to hydropower dam constructions and the lack of effective responses thereto. There was a broad acceptance that trust-building is crucial to rendering existing mechanisms truly effective, and the course of building trust should stretch across regional, national, and subnational level. On energy spectrum, while stressing on the important role of innovative technology in promoting energy efficiency, there were uniform calls for energy diversification that primarily embodies the transition toward renewable energy sources in the face of growing energy demand and uncertainty of energy security.

At the outset of the conference, H.E. Ambassador Pou Sothirak, Executive Director of the Cambodian Institute for Cooperation and Peace (CICP), opened his welcoming remarks by precisely setting out the objective of the conference as to examine the nontraditional security issues as well as broader topics of the sustainable development that have confronted the Mekong Subregion. He also highlighted the very expectation of the conference to gain greater insights on the principles and strategic importance of the newly launched Mekong-U.S. Partnership, which has evolved into a new framework of subregional cooperation that covers new areas and supplements the existing cooperation area implemented under the Lower Mekong Initiative (LMI).

Subsequently, H.E. Ambassador Pou moved on to discuss the strategic importance of the Mekong River in which he stressed the nontraditional security issues and the shifting of the geopolitical dynamic that result in the potential devasting consequences over the CLMTV countries. He regarded these matters as equally important to the numerous longstanding issues – such as the management of the Mekong River, economic integration, and cross-border infrastructure development – confronted by the CLMTV countries. H.E. Ambassador Pou stated that the impacts of nontraditional security threats deserve proper attention as they represent the essential threat to economic independence, water, energy, food security, and biodiversity across the subregion. In face of these, he explicitly stated that not all Mekong countries have equal rights in receiving benefits and equal voice in the decisions that affect the mighty river upon which the livelihoods of 70 million inhabitants depend.

At the closing of his speech, while emphasizing the deep gratitude for the support of the U.S. State Department, H.E. Ambassador Pou noted that the conference vindicates the longstanding commitment of CICP in supporting pluralism and promoting candid and open discussions among stakeholders in pursuit of addressing the existing obstacles and challenges and safeguarding the future of the Mekong River in order for the Mekong countries to truly enjoy the benefits of the newly established Mekong-U.S. Partnership.

The opening session proceeded to the special remarks made by H.E. Ambassador W. Patrick Murphy, U.S. Ambassador to the Kingdom of Cambodia. Citing his constant travels to virtually every stretch of the Mekong River, H.E. Ambassador Patrick began by placing great concern on the future and the diverse challenges that are confronting the Great Mekong River which, in his words, is under siege given the existing of the upstream dams, sand dragging, pollution, unsustainable development practices, etc.. He further underscored that these trends pose essential threats to the Mekong River which is the irreplaceable resource for livelihood, nutrition, fishery, transportation, irrigation, energy, and the like. He then specifically pointed out the fact that the Tonle Sap phenomenal reversals are being increasingly constrained as the instance of his concern.

Amid this worrisome trend, H.E. Ambassador Patrick emphasized his desperate wish that this conference would profoundly address the challenges and thereby help all of the stakeholders, including the U.S. government, to identify further sustainable solutions to the problems faced

by the subregion. He then turned to discuss the context in which the conference and further cooperation and collaboration are put on display. That is, while the U.S. continually commits to strengthening its collaboration and partnership with Cambodia as this year marks the 70th anniversary of the establishment of the relationship between the two countries, the U.S. also strives to engage in broader regional cooperation which is vividly showcased by its participation in this conference.

On the Mekong-U.S. Partnership, H.E. Ambassador Patrick mentioned that it builds on the successful partnership achieved through its predecessor – the Lower Mekong Initiative. The LMI over the course of the last ten years, he continued, had realized the commitment of about USD 3.5 billion to the region and been remarkably successful in operating in areas such as environment, public health, infrastructure, and education. Rather than the traditional donor-recipient mechanism, He stressed that the LMI was the collection of equal partnership, and such essence continues to lie as the solid foundation for the elevated Mekong-U.S. Partnership. As part of this partnership, the U.S. has committed to USD 153 million in the new fund, and the U.S. will also expand the partnership to include nontraditional security. He then gave a specific example that the U.S. has contributed to the subregion with USD 52 million in support for the economic recovery from the COVID-19 pandemic.

He then moved on to mention that the Mekong-U.S. partnership respects domestic laws and regulations of all of the participating countries, and it also seeks to promote complementarity with other like-minded Mekong development partners and cooperation mechanisms. Citing from the Mekong-U.S. Partnership Joint statement, H.E. Ambassador Patrick stated that the partnership is guided by the values that are essentially convergent with those values enshrined in the ASEAN Outlook on the Indo-Pacific. In line with these, he also stressed the importance of the values of other regional mechanisms including the Mekong River Commission and ASEAN, stating that these values – namely equality, good governance, openness, transparency, economic growth, and respectful sovereignty – are compatible with that of the Mekong-U.S. Partnership.

H.E. Ambassador Patrick concluded his speech by praising the commitment of the conference to embrace these values as it will unfold the open and transparent discussions which will ultimately contribute to coping with the challenges that are confronting countries of the Lower Mekong.

Panel I: The Mekong-U.S. Partnership in a Contested Institutional Space

The session was chaired by Ms. Gwen Robinson, Visiting Senior Fellow, CICP. She began by noting the significant role of the external powers in bringing positive developmental achievements to the subregion. However, she contextualized the existing landscape as a contested institutional space which is manifested by competing interest and influence among the existing frameworks and mechanisms – including the Thai-led ACMECS and those led by external players such as Japan, China, and the U.S. She then moved on to pose a question to all panelists as whether this competition is becoming counterproductive and how to tackle these issues to benefit the region as well as all the external partners.

She then passed the floor to Mr. Arend Zwartjes, Public Affairs Officer, U.S. Embassy in Cambodia. Mr. Arend started his speech by reiterating that the U.S. government regards its role through the Mekong-U.S. Partnership as complementary to other existing mechanisms and institutions, and thus the U.S. does not see the notion of "contested space" as entailed in the theme of the panel. He then backed his argument by providing a specific example that the U.S. is supporting regional mechanisms like the Ayeyawady-Chao Phraya-Mekong Economic Cooperation Strategy (ACMECS) and other mechanisms led by Japan, South Korea, India, Australia, and the EU countries in materializing the sustainable development and global shared best practices for the Mekong Subregion. He then applauded Vietnam's effort as the Chair of ASEAN in raising the profile of the Mekong issues, stressing that the Mekong Subregion is as consequential to ASEAN centrality as the issue of the South China Sea (SCS). In this sense, he encouraged the ASEAN countries to consider the Mekong issues as important as the SCS for regional cooperation and cohesion.

He then reiterated the principles by which the new Mekong-U.S. Partnership is guided, and they include transparency, inclusivity, good governance, and respect for autonomy and international law. He also mentioned that the U.S. pledges to continually work under the Mekong Water Data Initiative (MWDI) to improve water data sharing and to exchange expertise and best practices through the Mekong and Mississippi River Commission (M2RC) and the U.S. Army Corps of Engineers as well as cooperation with regional counterparts to improve the safety of dam constructions. The U.S. will also maintain its partnership with the U.S. Department of Energy and the Mekong River Commission on Responsible Hydropower and Water Resources Management. In addition, Mr. Arend also noted that the U.S. will continue to cooperate with governments and NGOs to empower the essential skills and talents of the Mekong people.

Before ending his speech, Mr. Arend applauded the Mekong River Commission (MRC) in pushing China to share water data, and he urged China to persist in this commitment.

The floor was then given to Mr. Kavi Chongkittavorn, Columnist and a Veteran Journalist on Regional Affairs, Bangkok. He began his presentation by disagreeing with the notion of "contested space" and, instead, referring the Mekong Region as the "New Dancing Ground" where a lot of "dancers" are performing. In the second point of his presentation, Mr. Kavi asserted that among at least thirteen inter-governmental frameworks, both the U.S.-led Mekong-US Partnership and the China-led Lancang-Mekong Cooperation will become the key mechanisms owing to their sufficient funding and structure.

However, he stressed that the prominence of the two mechanisms should not lead to the omission of the revitalization of the indigenous framework – ACMECS – as it is essential that the Lower-Mekong countries should not be overdependent on external funding. He further noted that cooperation with and the support by external players would not be sufficient given the weak institutional structure among the ASEAN riparian countries, making the revitalization of ACMECS profoundly compelling as it will strengthen the cooperation among the riparian states in forging consensus voice and agenda. Strengthening ACMECS, he continued, would allow other external partners to realize better cooperation with the riparian countries in various areas among which health security represents great collaboration potential owing to the remarkable handlings of the COVID-19 pandemic by the riparian states. He then moved on to point out that the creation of the ACMECS fund in which Thailand has contributed USD 2 million together with contributions of other ACMECS states illustrates the aspiration of ACMECS countries to have indigenous ownership on their development projects, and such ownership should be embraced by external partners.

At the end of his presentation, Mr. Kavi reiterated that the strengthening of ACMECS would galvanize stronger collaborations and enable other frameworks led by other external partners to genuinely work for the benefits of the Mekong countries.

The floor was then passed to Dr. Frederick Kliem, Visiting Fellow, Centre for Multilateralism Studies, S. Rajaratnam School of International Studies (RSIS). He began his presentation by conceptualizing the terms "regionalism" and "geopolitics" which are his research interests and often misunderstood. For Dr. Frederick, regionalism should not be understood as forfeiting national sovereignty as such a notion barely exists in regional cooperation. While the term geopolitics is pervasively misused as a synonym of great power competitions, Dr. Frederick argued that geopolitics is the emphasis of nonchanging geographic constant on foreign policy making, and he referred to the Mekong Subregion as the superb example of geopolitics.

He moved on to share his observations on the topic under discussion. First, Dr. Frederick held a consistent view with previous panelists on the fact that the Mekong Subregion is often seen through the environmental scope rather than geopolitical one, and the Subregion, therefore, draws less attention in contrast to the South China Sea which is widely deemed as the main strategic filter of Asia. In this sense, he opined that the geopolitical relevance of the Mekong region is underappreciated. His second observation refers to the notion that as the attention on the Mekong Subregion lags behind that of the SCS, China can significantly expand its unilateral leverage over the Mekong region while at the same time building dams at the expense of Lower Mekong countries. On his final observation, Dr. Frederick pointed out that the U.S.'s decision to elevate its Lower Mekong Initiative to the Mekong-U.S. Partnership is the vivid testimony to

the changing of the aforementioned trend, and the momentum of this change is fueled by the fact that countries like the U.S. and Japan have realized that in contrast to the strategic equilibrium on the SCS, the geopolitics of the Mekong Subregion is unquestionably and asymmetrically lies in China's favor.

On how ASEAN could possibly navigate through this evolving trend, Dr. Frederick stated that ASEAN should manage it the same way as the region did on the great power competition in the Indo-Pacific by adhering to the Indo-pacific Equilibrium which relies on two pillars, namely the military "hard" balancing and the institutional pillar. He moved on to stress that the multilateral architecture must not be separated, but it should be inclusive so as to enable adequate communication and negotiating red line among stakeholders to identify areas of cooperation.

He further discussed the difference between the existing Mekong multilateral regional architecture and that of Southeast Asia and the Asia Pacific. He pointed out that the Mekong multilateral architecture entails great-power-led mechanisms whereas the Southeast Asian multilateral mechanisms are led by ASEAN, and the notion that the Mekong mechanisms are led by great power is the extension of great power competition. He then further explained that great power competition is taking place as the U.S. and China with their respective mechanisms are operating from the opposite end. That is, while the China-led LMC emphasizes the increase in investment in infrastructure that renders the Mekong countries increasingly dependent on China, the Mekong-U.S. Partnership aims to assist and develop individual Mekong country so as to advance regional development. In light of these, Dr. Frederick stressed the need for inclusive multilateralism and thus agreed with Mr. Kavi regarding the need for a neutral mechanism that is ASEAN-led and essentially entails ASEAN centrality.

Prior to ending his presentation, Dr. Frederick reiterated that the split between the mainland and maritime ASEAN is artificial and unsustainable, and ASEAN should therefore weigh equal attention on both the Mekong and the South China Sea issues in a quid-pro-quo fashion in pursuit of strengthening ASEAN centrality.

The floor was then given to Dr. Leng Thearith, Director of the Mekong Centre for Strategic Studies, Asian Vision Institute (AVI). He kicked off his presentation by setting out the overview of the Mekong River upon which the livelihood of the 60 million people, and he also raised a specific example that the fishery sector alone generated about USD 17 billion in annual revenue which is equivalent to 2 percent of the combined GDP of Thailand, Cambodia, Laos, Myanmar, and Vietnam. He then moved on to point out various existing Mekong mechanisms among which have been upgraded to the summit level, and they include the Mekong-Japan Cooperation, Mekong-Lancang Cooperation, ACMECS, and the Mekong-Korea Cooperation.

He further pointed out three main reasons as to why there are lots of Mekong connectivity frameworks in the Mekong region. First, Dr. Leng stressed the need of the Mekong region regarding infrastructure development, citing from some scholars whose studies highlight that the Mekong region needs at least 5-13% of their combined GDP in order to improve the infrastructure in the region with the ultimate aim to increase the competitiveness of the region in FDI absorption and to narrow the development gap within the region. The second reason

refers to the competition among various powers who afraid of losing the region to their competitors. He then referred the last factor to the need of the Mekong countries in seeking their autonomy, and this notion is exemplified through the creation of various home-grown mechanisms such as ACMECS and the Mekong River Commission (MRC).

Given this setting, Dr. Leng moved on to discuss the pros and cons of the engagement of various Mekong frameworks for the Mekong countries in general and for Cambodia in particular. In terms of the advantages, he suggests that country like Cambodia is bound to benefit from the funding of various mechanisms in terms of infrastructure development and narrowing the development disparity among the Mekong countries. Secondly, he mentioned that the nature of competition also contributes to inducing the major powers to engage the region in a more constructive manner, citing from H.E. Ambassador's remark that the U.S. is committed to assisting the Mekong countries in combating the COVID-19 pandemic and in other areas such as energy infrastructure development. In this regard, he also applauded China's commitment to data sharing and releasing water at the time when the Lower Mekong countries were confronting drought. On the flip side, Dr. Leng stated that it may not be helpful regardless of the existence of initiatives given the insufficient and limited funds in comparison with tremendous demands. In addition to this, Dr. Leng also pointed out that the competitive nature among the great powers often trigger pressure on the recipient country like Cambodia as the Cambodian government is somehow perceived to fall into China's orbit, and this perception therefore greatly harms the image of the Kingdom.

In ways forward, Dr. Leng suggested that while supporting the existing external power-led mechanisms, Cambodia should join forces to place more support on the home-grown mechanism like ACMECS in addition to the existing support as illustrated by Cambodia's contribution of USD 7 million to the ACMECS fund. Furthermore, he also suggested the external partners work closely with the Cambodian government and other stakeholders to constructively address the needs to develop infrastructure and the other conceivable challenges faced by the Subregion.

Q&A Session of Panel I:

Ms. Gwen kicked off the Q&A Session by referring the question to Mr. Kavi and Dr. Frederick regarding the earlier-mentioned pressure on the Mekong countries to choose sides. The question was whether the newly updated Mekong-U.S. Partnership adds to that pressure and how the Mekong countries can offset and balance the competing interests among the major powers.

- Mr. Kavi responded by reiterating that there is indeed a lot of pressure on the region particularly from the U.S. who resorts to portraying themselves as a "better partner". Drawing from the pledge made by the U.S. Secretary of State Mike Pompeo to support ACMECS, Mr. Kavi urged the U.S. to turn that rhetoric into actual deeds. He also pointed out that the U.S. is often committed verbally but falls short of actions as opposed to China owing to the achievements achieved by the LMC in the last ten years. He further stressed the importance of strengthening the capacities of the lower riparian countries through the revitalization of the home-grown ACMECS which will crucially

prevent those countries from falling into the trap of power competition in the contested Mekong region.

- Mr. Arend then assumed the floor and challenged the remark made by Mr. Kavi by referring the narrative that the U.S. pressures the Mekong countries to choose sides as unrealistic. He then stressed that the challenges confronting the Mekong countries are compatible with the challenges facing the U.S.'s relations with China, and those challenges converge on the same issue of lacking transparency. Instead of asking the Mekong countries to choose sides, Mr. Arend continued, the U.S. is committed to advocating a type of partnership that encapsulates the principle of transparency and the like, but China has yet demonstrated the commitment in this respect. Nevertheless, he shared the same view on the importance of strengthening grassroot initiatives like ACMECS.

- Dr. Frederick illustrated his agreement with both Mr. Kavi and Arend. He pointed out that agency is far less important than structure, and it is the structural inevitability that the Mekong countries are to choose sides. This notion is attributed to several structural facts including the geographical fact of China, the dependence of the Mekong countries on China, and the involvement of the U.S. in the region. With this, Dr. Frederick suggests that strengthening the structure of the indigenous mechanism like ACMECS can make the structural inevitability less inevitable.

- Dr. Leng reiterated that competition will generate pressure on the Mekong countries, and he suggested that the U.S. and China should conduct their competition in a healthy manner by referring to the model of China-Japan competition in which both China and Japan recognize each other's presence and influence in the region and thus do not seek to extrude each other out from the region.

H.E. Ambassador Pou Sothirak, CICP Executive Director, posed a question to Dr. Leng Thearith as to whether and how Cambodia can navigate through the power rivalry between the eagle and dragon in the water security contest.

- Dr. Leng stated that it depends on the global context and Cambodia itself. With regard to the global context, he referred to the degree to which the U.S. and China accept each other's presence and influence. In addition, he mentioned that it also depends on whether Cambodia is adequately resilient to emphasize its neutrality toward the major powers.

Ms. Gwen asked Mr. Kavi as to how the Mekong countries navigate through the power competition given the slow-moving pace of ACMECS and other indigenous mechanisms.

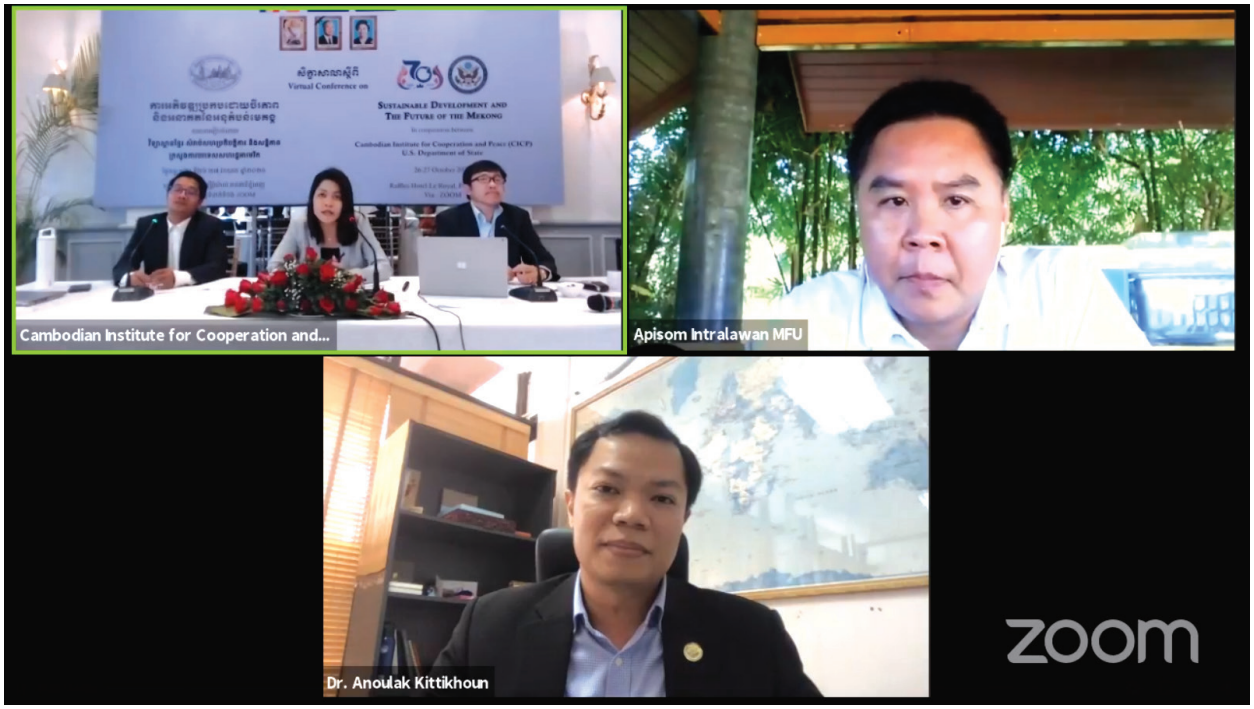
- Mr. Kavi stated that each country in ASEAN knows how to balance its tie with the superpowers for the past seventy years. He then referred to Thailand as an instance in which he mentioned that Thailand has been a member of the U.S. alliance and a commercial partner with China. As the equation of competition evolves, he agreed with Dr. Leng regarding both powers' acceptance of each other's role.

H.E. Ambassador Pou commented that there is no unified view about the notion that Mekong issues should be ASEAN's priority at the moment. He then posed a question to Mr. Arend regarding the rationales behind the elevation from the Lower-Mekong Initiative into the Mekong-U.S. Partnership and does it represent the full swing of Indo-Pacific Strategy which aims to contain China. He also asked Mr. Arend as to what would be the best mechanism for coordinating all existing initiatives including the ones led by other powers.

- Mr. Arend reaffirmed that the upgrading of the Lower-Mekong Initiative to the Mekong-U.S. Partnership represents the national extension of the Indo-Pacific Strategy that seeks to incorporate essential principles and values in the engagement with the Mekong region. He also placed a strong emphasis on ASEAN centrality in assuming the coordinating role.

Panel II: The Mekong-US Partnership in the Context of Sustainable Development

The session was chaired by Ms. Pich Charadine, Deputy Executive Director, CICP. After a brief welcome remark, she handed the floor to H.E. Watt Botkosal, Deputy Secretary General, Cambodia National Mekong Committee. Under the topic of "Transboundary Water Governance in the Mekong Basin and Effective Support from Development Partners", H.E. Watt began by providing an overview on the Se San and Sre Pok River Basin and the hydropower plants thereof. He then moved on to pointed out the emerging concerns with regard to natural disasters including flash floods, drought, bank erosion, and forest fires.



Despite these concerns, he moved on to discuss the opportunities in which the Mekong countries and development partners can cooperate and fulfill. Those opportunities include: the improvement of revenue generation, cost recovery, and benefit-sharing among riparian countries; irrigation development that entails infrastructure expansion, rehabilitation of existing

schemes, and community-based operation and maintenance (O&M); integrating new cultivation technologies and modalities to improve revenues and provide an extent of drought resilience; the development of predictable, transparent, multi-purpose reservoir operation; rehabilitation of degraded headwater areas; aquaculture; sustainable community-based forestry; promotion of transboundary eco-tourism and cultural tourism; joint knowledge base development; awareness-building (or 'social marketing') of good practices for water and power utilization, and sewage and solid waste generation; Improved and accessible extension services and quality certification; promoting safe water and sanitation in the rural areas; human resources development and institutional capacity-building.

He then moved on to discuss the existing support from development partners in Cambodia by raising trade facilitation mechanisms including the WTO, the ASEAN Free Trade Area (AFTA), the U.S. Generalized System of Preferences (GSP) programme, and other bilateral or multilateral free trade agreements. He then proceeded to discuss the support from development partners in the areas of Human Resources capacity-building, strengthening the organizational capacity, the improvement of the hydro-meteorological monitoring network and data sharing, and research and development.

The floor was then passed to Dr. Anoulak Khittikhoun, Chief Strategy and Partnership, MRC Secretariat, Laos PDR. He kicked off his presentation by setting out the priority issues as well as the needs of the Mekong countries. On priority issues, Dr. Anoulak emphasized great concern on the changes of the water flow regime; decline the sediment transport; loss of wetlands; decline in fish; extreme floods and droughts and other emergencies; and poverty. He then highlighted the priority needs that include the needs for proactive regional planning; coordination of the entire basin management operations; data & information management; and cooperation mechanisms that embody new regional actors.

On the strategy forward, Dr. Anoulak discussed the Basin Development Strategy (BDS) which is the Integrated Water Resources Management (IWRM)-based strategy that sets out how water and related resources of the Mekong River Basin should be utilized, managed, and conserved over the period 2021-2030. The BDS, he continued to point out, is a basin-wide strategy whose main purpose is to guide all actors involved in Mekong water-related issues toward achieving improvements in the environmental, social, and economic state of the Mekong River Basin, all of which are periodically recorded in the State of Basin Report (SOBR).

To implement the BDS, Dr. Anoulak stressed the integral role of regional organizations and frameworks among other stakeholders such as national governments, private sector, civil society organizations (CSOs), research organizations, media, etc.. Before ending his presentation, Dr. Anoulak emphasized the significance and importance of the U.S. support to the Mekong counties, and he also suggested that the U.S. should provide a direct grant to the Mekong River Commission (MRC) in support of the new MRC Strategic Plan 2021-2025.

The next speaker of the session was Dr. Apisom Intralawan, Specialist in Ecosystem Services, Land Use, and Ecological Economics at the Institute for the Study of Natural Resources and Environmental Management, Mae Fah Luang University, Thailand. He began his presentation by pointing out the contemporary challenges for sustainable Mekong River basin management among which he stressed that the Mekong issue should be elevated to a global issue.

Furthermore, he also pointed out other existential challenges including the data sharing gap; financial, capacity technology gap; divergent or competing interests and water usages; and closed decision making. Dr. Apisom went on to set out three important aspects on which the future of the Mekong and more effective water governance rely, and they include greater accountability that entails robust sharing, monitoring, coordinating water use data and management; broad participation by non-state actors; and better transparency.

Dr. Apisom pointed out five key areas that the Mekong-US Partnership can best support sustainable development, including filling the data gap, financial, capacity, technology, and knowledge gap; promoting citizen science and data democratization; promoting global citizenships values that entail responsible global citizens, living in harmony with nature, compassion, empathy, justice, and equality; strengthening economic and investment linkages and relationship with the region through various programs such as USAID sustainable infrastructure development, etc.; embracing the win-win strategy and balanced engagement with partners so that the Mekong countries can maintain their independence.

Dr. Apisom concluded his presentation by stressing the importance and significance of the renewable energy sources characterized by lower cost, greater flexibility, less pollution, and better distributed system in comparison to coal and hydropower sources, making the renewable energy sources the compelling alternative for the Mekong countries.

The floor was then passed to Mr. Kim Sun, Lecturer, Paññāsāstra University of Cambodia. Mr. Kim kicked off his presentation by stating that he intended to ignite the sense of hopefulness despite the concerns on the current issues faced by the Mekong region as mentioned by the proceeding parts of the conference. Under the topic "Is the Mekong-US Partnership a New Hope for the Mighty River?", Mr. Kim provided comprehensive data illustrating the interplay between dams and their concomitant crisis such as water shortage, declining fish population, etc.. In the face of these unfavorable trends, Mr. Kim went on to optimistically deemed the newly updated Mekong-U.S. Partnership as a "hope" for the Mekong region.

Mr. Kim outlined three policy recommendations that encapsulate the short, medium, and long-term responses:

- The urgent and short-term response: an ad-hoc body should be created to study damages of the current crisis including the water shortages and flooding, and this should be accompanied by the creation of special package of fund to help the victims.
- The medium-term response: promoting the awareness of the water crisis and other issues among the people whose survivals depend on the Mekong for their future preparations.
- The long-term response: continue to support the MRC, ACMECS, and other stakeholders such as green projects and preparations for any future crisis. This can be materialized through increasing trade cooperation between the U.S. and the Lower Mekong countries as well as promoting people-to-people connectivity at state, group, and individual levels.

Echoing the suspicious views on the motives behind the US engagement in the region – whether the U.S. intends to assist the Mekong countries or it is driven by the attempt to engage

in power competition – Mr. Kim concluded his presentation by casting a question – does the US genuinely possess real commitment toward the Mekong region?

Q&A Session of Panel II:

Recalling the presentation of H.E. Watt Botkosal, Ms. Charadine referred a question to H.E. Watt in seeking his perspective on the anticipated challenges of implementing the perceived opportunities mentioned in his preceding presentation.

- H.E. Watt responded by highlighting two major challenges. The first one concerns the better understanding of water governance at both national and subnational levels, regional and international level, and the Mekong basin level, all of which requires robust mechanisms and operational frameworks to strengthen water resources management. The second challenge refers to the transboundary water cooperation which embodies a better understanding of the impacts of upstream development on the downstream countries.

Ms. Charadine then referred an extended question to H.E. Watt regarding the expectation on the prospect of the Mekong-U.S. Partnership and what Cambodia can expectedly benefit from the partnership.

- H.E. Watt set out firm expectations on the budget source provided by the Mekong-U.S. Partnership as it will serve as a promising opportunity for the Cambodia National Mekong Committee and think tank like CICP to conduct soft projects (e.g. research and case study on the issues regarding transboundary water management) and to implement the hard projects including establishing tangible mechanisms on flood management.

Ms. Charadine then posed a specific question to Dr. Anoulak in seeking elaboration on the implications of the U.S.'s pledge to grant USD 1.8 to the MRC.

- Dr. Anoulak then mentioned that he acknowledged that the USD 1.8 would be distributed to assist the collaboration between the MRC and various agencies such as the Mississippi River Commission, U.S. Army Corps of Engineers, Arizona State University, and other associated US partners in the region. While these U.S. agencies work to support MRC, Dr. Anoulak expressed his wish that the U.S. would provide a direct grant to the MRC.

H.E. Ambassador Pou then assumed the floor and asked Dr. Anoulak how to harmonize the various agencies that assist in developing the region and whether the MRC is to take a coordinating role in this particular matter.

- Dr. Anoulak responded by jokingly referring the question as the "billion-dollar question", and he stressed that the primary purpose of coordination is to prevent duplication from one another given the distinct interests and emphasis, and the Expert

Group on Strategy and Partnership of MRC is within its capacity to assume such a responsibility.

Mr. Kim Sun, Lecturer, Paññāsāstra University of Cambodia, posed a question to Dr. Anoulak in seeking his perspective on the proposal of the Sanakham Dam construction by the Lao government to the MRC given the fact that the existing Xayaburi Dam has contributed to water shortage.

- Dr. Anoulak responded by first suggesting that the MRC has no clear evidence on the negative impacts caused by the Xayaburi Dam, and he also stated that the water shortage is attributed to the lack of rain and it may be exacerbated by the mainstream operation. With regard to the Sanakham Dam, the proposal is in the consultation stage at which relevant countries and stakeholders can share their views.

A student from the Paññāsāstra University of Cambodia asked Mr. Kim Sun how we can better utilize dam construction while taking into account the impacts thereof.

- Mr. Kim said that the issue is complicated in the sense that not only does it concern the natural disaster or climate change, but it also encompasses the matter of state sovereignty and selfishness. He continued that teaching people to adjust to various alternative ways of survival is crucial given the complication of the matter.

- H.E. Watt added that dams are not bad provided their three main functions – electricity generation, flood control, and environmental security – are better managed.

- Dr. Apisom agreed with preceding panelists on sustainable management of dams, but he also stressed the significance of shifting toward renewable energy sources given their lower cost and high flexibility.

On the view shared by an online participant that water management is not so much a technical problem but an issue of people coming to a collective consensus, H.E. Ambassador Pou said that it is both the technical and perception issues. He then raised his suspicion on the ability of the Mekong countries to make China committed to open and transparent data sharing. He further opined that the MRC is not so effective when it comes to mitigating the unilateral use of water by certain countries without considering the concomitant consequences.

A participant asked what practical demands other than data sharing that the Lower Mekong countries can press China to make concessions with regard to water resource management of the Mekong River.

- H.E. Ambassador Pou stepped in to stress the importance of the question owing to the fact that the Mekong is the new battleground between major powers, and this may have spill-over effects on the region provided the competition is escalated to a full-swing confrontation between China and the U.S.. In this sense, H.E. Ambassador Pou suggested that the Lower Mekong countries should strive to engage China in rendering

the Lancang-Mekong Cooperation harmonious and complementary with the U.S.-led Mekong-U.S. Partnership and vice versa.

Panel III: The Future of the Mekong River

The session was chaired by Dr. Bradley J. Murg, Senior Advisor and Distinguished Senior Fellow, CICP. After a brief introduction, he handed the floor to Mr. Brian Eyler, Stimson Center, USA. Through his presentation, "Mekong Trends 2020", Mr. Brian laid out positive trends, negative trends, and a number of uncertain trends regarding the Mekong River. On the positive trends, he first pointed out that despite the COVID-19 pandemic, the region has seen the continuation of stakeholder engagement to produce positive impacts on the Mekong region. He then raised a specific example that the Lancang-Mekong Navigation Channel Improvement Project was called off due to the protest by Thai Mekong communities and civil society groups aided by environmentalists. Another positive point concerns the Cambodian Government's decision on the postponement of Sambor and Stung Treng dams given the better understanding of dam risks. Mr. Brian then referred the proliferation of solar power in all Mekong countries, including Laos, as the positive tendency for the Mekong River.

Touching upon the negative trends that are persistent in the Mekong region, Mr. Brian raised stark concern on the absence of the Tonle Sap reversal for the second year in a row. In acknowledging that this worrisome trend is partly attributed to the lack of rain, Mr. Brian also mentioned that dams also contribute to exacerbating weaken the mighty pulse of the Mekong River. Another unfavorable trend refers to the fact that the Mekong River has turned blue owing to the lack of sediment as the result of dam constructions. By referring the extreme flooding event as another negative trend, Mr. Brian warned that this should not serve as the plausible pretext for building more dams in the upstream Mekong on the premise of controlling the flood.

Mr. Brian turned to discuss the uncertain trends including the pending four Lao-proposed mainstream dams that are under the Procedures for Notification, Prior Consultation and

Agreement (PNPCA) process of the MRC. Another interesting trend refers to the fact that Vietnam has signs MOU for power purchase from Laos. Mr. Brian speculated that as the country that encounters more apparent impacts of the upstream dams, Vietnam can push Laos to commit to building renewable energy sources. He also stressed that the commitment of China to increasing transparency remains to be seen.

The floor was then passed to Dr. Watcharas Leelawath, Independent Consultant. Based upon the Three-C Strategy which denotes coordination, cooperation, and communication, his presentation raised three points: (i) existing cooperation frameworks on the Mekong Region; (ii) mechanisms for regional cooperation under Lancang-Mekong Water Resources Cooperation Center (LMWRCC); and (iii) how to transform the Mekong into another economic corridor.

On the first point, Dr. Watcharas stated that he desires to see those existing cooperation frameworks as the platforms for cooperation among the Mekong countries and the external powers rather than the instruments for power competition. He also noted that all of those cooperation frameworks entail common priority areas – such as environment, health, agriculture, human resources, connectivity – which are in convergence with the priority needs of each Mekong countries. He also stressed the importance of data sharing on development projects as it is crucial for the Mekong countries and development partners to better design and implement the projects without encountering unfavorable fragmentation and duplication. Besides data sharing, he also encouraged all stakeholders to share the success as the lesson-learned that contributes to the implementation of the future project. Seeing ACMECS as a neutral entity, Dr. Watcharas urged ACMECS to assume the role in coordinating those cooperation frameworks.

On the Lancang-Mekong Water Resources Cooperation Center (LMWRCC), Dr. Watcharas encouraged prompt data sharing among the Mekong countries as it is greatly favorable for the downstream Mekong countries to undertake preventive measures. Moreover, he also suggested setting up an advisory group which is crucial for conducting the joint-need assessment, monitoring, and evaluation. He also urged the Lanchang-Mekong Cooperation to scale up its cooperation with the MRC.

Dr. Watcharas then turned to discuss promoting the Mekong region to become another economic corridor by stressing the importance to balance the interplay between economic development and its concomitant environmental ramifications. He also mentioned that this notion is even more essential as the to-be-signed Regional Comprehensive Economic Partnership (RCEP) entails vigorous transportation demand which inevitably requires the strengthening of the in-land transportation system. To achieve this, Dr. Watcharas noted that there are some problems needed to be addressed. He further elaborated that there is a need for the capacity building on human resources with regard to the custom operation and management (e.g. cross-border transport regulation, navigation licensing system, etc.), and the port's name and facilities should be standardized in the pursuit of greater custom operation.

The floor was then passed to Dr. Nguyen Minh Quang, Geopolitics Lecturer at Can Tho University and Managing Director of the Mekong Environment Forum, Vietnam. He opened his presentation by emphasized that millions of people inhabiting along the Mekong River are

enduring transboundary impacts and environmental insecurity that are resulted from mismanagement of dam construction. He then pointed out that the institutions derived from the 1995 Mekong Agreement fall short in effectively advancing cooperation and political dialogue on managing the Mekong River resources. He further stated that improving Mekong hydropower politics demands institutionalized cooperation, project transparency, and a rule-based water management regime.

He then turned to discuss the significant role of the grassroots movement in Mekong hydropower politics. In this regard, he observed that Thailand's recent termination of the China-led navigation project on the Mekong River is a vivid manifestation of the emergence of grassroots-run politics. He then conceptualized the movement as the participatory culture through which the views of the citizen scientists are translated to actions that affect policy change in the Lower Mekong subregion. He then referred the key to the success of grassroots-run politics to the collaborative role of multi-stakeholders including scientists, experts, journalists, government officers, students, NGOs' representatives, civil society organizations, private corporations, and farmer communities. In addition, the internet and information and commination technologies also contribute to the empowerment of research and development at the grassroots level.

He concluded his presentation by stating that the emergence of citizen science is crucial for the prospect of the Mekong as it can bring about changes in government's decision making in favor of the local needs and ecological demand.

The last speaker of the panel was Dr. Tek Vannara, Executive Director, NGO Forum, Phnom Penh. He set out three points to ensure the sustainability of the Mekong River: (i) the intergovernmental development partners should be committed to promoting public participation from the Mekong people who benefit from the mighty river in both direct and indirect ways; (ii) ensure equal access to the information among developers and the communities should be upheld so as to promote the mutual understandings on the current development and conservation of the Mekong River; (iii) strengthening monitoring mechanism ensure the sustainability of water infrastructure and water development.

Dr. Tek then stressed on the importance of the common master plan among the Mekong countries which entails the agreement of the equal and free utilization of the river resources that contribute to peace and security of the Mekong region. He further mentioned that the directly-affected Mekong citizens should be prioritized to ripe the benefit from the infrastructure water development, the effective channel that bridged the local citizens and the developers shall be established.

Q&A Session of Panel III:

H.E. Ambassador Pou referred a question to Mr. Brian as to what precautionary measures should the riparian countries take in order to effectively address the persisting issues related to the dam construction.

- Mr. Brian stated that system-scale planning is crucial for optimizing tradeoffs between economic development and environmental impacts thereof, and he also noted that not a

single country in the Mekong region has such a blueprint for hydropower production, let alone at the regional level.

Dr. Bradley then asked whether the cargo trade is feasible and how we should look at its practicality with regard to future development.

- Dr. Brian stated that the development of cargo trade appears to be slower than rail-way and highway trades given the physical geographical barriers of the Mekong River. As these barriers require substantial inputs to overcome, he held a pessimistic view on the development of cargo trade.

Dr. Bradley inquired the panelists for their perspectives on transparent data sharing.

- Dr. Watcharas mentioned that it is important for countries to alter their mindset and illustrate their sincerity which is translated to the willingness to commit to transparent data sharing.

- Dr. Brian noted the importance of data transparency as it can prevent false and deceptive statements made by certain states in the pursuit of their interest. He also mentioned that data sharing should not merely be applicable on the state level, but the data sharing should be democratized by incorporating the reports and data provided by the local communities into consideration in the decision-making process.

A participant posed a question on the issue of trust in the data sharing and the sources thereof.

- Dr. Watcharas responded that the issue can be overcome as the satellite images can be utilized to verify the statistical data.

- Mr. Brian added that he did not see it as a trust deficit issue, and he further suggested focusing on the methodological domain by examining the objectivity of the data collection and data analysis.

H.E. Watt Botkosal asked about the feasibility of the national and regional water security plan and whether the water accounting could be applied to the Mekong Region. In addition, a participant also asked about the regulatory structure on overfishing. Another participant also posed a question as to what are the best-case scenarios that the Mekong is saved.

- On the best-case scenarios that the Mekong is saved, Dr. Tek stated a common master plan should be in place for all six countries to discuss how to promote the equity of the utilization of water resources. Moreover, the six Mekong countries should agree upon the importance of consultation with the Mekong people and equal benefit sharing among the Mekong countries.

- Dr. Watcharas added stronger collaboration and coordination between Lancang-Mekong Water Resources Cooperation Center (LMWRCC) and the MRC is essential to address the issues beyond the framework of the MRC.

- On the question regarding overfishing, Mr. Brian mentioned that to some extent, regulation can help mitigating overfishing, and people on the upstream should strictly be the subject of the regulation. On how the Mekong can be saved, he pointed out that the preservation of Mekong water flow is crucial to the matter.

- Dr. Nguyen mentioned that the intensive use of renewable energy in the replacement of hydropower dams can contribute to saving the Mekong River. He further stressed the characteristics of the best-case scenario for the Mekong river: (i) adequate and equal cooperation among all stakeholders to promote environmental protection and sovereignty; (ii) responsible and transparent transboundary water management.

H.E. Ambassador Pou posed the last question to the panel as to what would be the best way for the riparian countries to prevent the spillover effects of the major power competition in the region.

- Dr. Nguyen addressed the question by stating that the Lower-Mekong countries should embrace the self-help strategy in order to minimize the dependency on the external powers. He also stressed that the rise of the grassroot democracy and grassroot environmental politics can also contribute to balancing great power influence.

- Dr. Brian suggested that the Mekong issues should be a priority in the agenda of ASEAN, and the local mechanism like the MRC should play a central role in coordinating various development partners. He also reaffirmed his agreement on Mr. Kavi's "dancing floor" narrative and suggested the Mekong countries draw the benefits from great power engagement to their advantages.

- Dr. Watcharas also touched upon the "dancing floor" metaphor and suggested that the floor where many partners are harmoniously dancing is favorable for the subregion, and trust-building is the challenge in this course.

- Dr. Tek responded by emphasizing on the establishment of the master plan which is important for the sustainable development of the river.

Panel IV – Human Security Issues in the Mekong Context: Agriculture, Energy, Water and Environment

The session was chaired by H.E. Ambassador Pou Sothirak, CICP Executive Director. After a brief introduction, the floor was yielded to Dr. Mak Sithirith, Water Governance Specialist. Dr. Mak began his presentation – Water Security in Cambodia: Too Much and Too Little – by showing some data indicating that Cambodia has abundant freshwater resources that contribute to the development of the Kingdom. While this is favorable for the country, Dr. Mak then turned to point out that climate change has been an existential issue for the Mekong region. He continued to mention that Cambodia is vulnerable to climate change as it will induce long drought in the dry season and heavy rains and floods in the wet season. He further highlighted that this tendency has disrupted Cambodia's development, especially in the agricultural sector. He then provided specific examples as floods are respectively accounted for 70% of rice production losses between 1998 to 2002 while droughts are accounted for 20% of losses of crops during the same four-year period.

Drawing from his studies, he set out key findings: (i) Hydropower dam building in the Mekong contribute to hydraulic change to water regime in Cambodia; (ii) six mainstream dams in Laos will threaten water security in Cambodia; (iii) Vietnam's shifting position from opposing the Xayaburi dam to supporting the Luong Prabang dam in Laos undermines the cooperation over sharing the Mekong water; (iv) as these cause the big threats to Cambodia, Cambodia responds by building the Lower Sesan 2 Dam and filling up lakes, ponds, and rivers. However, these will actually exacerbate the threats to Cambodia; (v) the current water governance practice is suffering from a weak governance system, partly due to the centralized management; (vi) large-scale irrigation schemes dominate the water management, but such schemes are expensive, and they suffer from a shortage of water during the dry season and poor maintenance; (vii) the government agencies place less concern on the macro level inefficient; (viii) Farmer Water User Communities (FWUC) is still centralized and suffers from lacks of resources, capacity and coordination; (ix) the me-tuk system is the best practice for water management that is operated by local communities, but they suffer from lack of recognition and technical supports.

To move forward, Dr. Mak laid out five recommendations:

(i) continue to engage in the dialogue at the regional level to share water resources and to protect Cambodia.
(ii) Reservoirs are needed to be built in order to store water for the dry season.
(iii) Promote small-scale irrigation that could be managed by local communities at a low price.
(iv) FWUCs should have ownership and decision-making power as the decentralization should truly take place.
(v) the me-tuk system should also be explored to manage water resources for communities.

Dr. Mak concluded his presentation by stressing on the need to promote water democracy in the Mekong region.

The floor was then handed to Mr. Lê Trung Kiên, Senior Researcher, Institute for Foreign Policy and Strategic Studies, Diplomatic Academy of Vietnam. He began his presentation by underlining the increasingly exacerbating natural disaster by providing a specific example of Vietnam unprecedentedly suffering five powerful storms in one month. He also pointed out that having an effective mechanism is different, it requires building trust which entails transparent and reliable data sharing. The course of trust-building, he continued, is characterized by two major approaches: top-down and bottom-up approach. On the top-down approach, Mr. Lê stressed on the role of the government of the riparian countries in conducting dialogue and setting the rule for water management, and these can be channeled through MRC. He then referred the bottom-up approach as the cooperation among the water specialist, scientists, and academics.

Subsequently, he then turned to discuss the role of technology in helping the Mekong countries to advance their leverage in an effort to ensure water security along the Mekong River. He mentioned that technology helps to facilitate transparent information by providing science-based solutions. He further noted that new drivers – such as innovation and creativity – should be embraced by the Mekong countries since the low-skill labors will be diminished as the countries brace for the 4th industrial revolution, and this process can be aided by development partners through their cooperation frameworks on the Mekong region.

He further noted that the advancement of technology is even more compelling in strengthening cooperation in the Mekong region in this COVID-19 context in terms of implementing health security measures and economic recovery. He also mentioned that there should be compatibility among technological systems used by the Mekong countries. For the Mekong countries to reduce their vulnerability in the face of future shocks, Mr. Lê stressed the need to design and implement the risk-informed social protection system.

Mr. Lê concluded by stating that technology plays a crucial role in the process of implementing shock-responsive protection plans in the economic, social, and environmental spectrum.

The floor was then yielded to Dr. Han Phoumin, Senior Energy Economist, Economic Research Institute for ASEAN and East Asia, Jakarta. He began his presentation – Energy Security in

Mainland Southeast Asia: The Policy Implications – by providing graphs indicating the energy landscape of mainland Southeast Asia (discussed in detail in the attached appendix). He then moved on to discuss the Energy Security Perspectives by noting that at the regional and national level, energy security mainly focuses on the supply side, fuels dependency and import sources and diversification, and strategic oil reserve. He further pointed out that Energy Import dependency is high in Cambodia, Thailand, and Vietnam while Myanmar and Lao PDR are net export of energy. He also mentioned that oil price is the key to supporting daily economic activities in mainland Southeast Asian countries since they largely rely on the import of fossil fuels. On the institutional body in dealing with energy emergency response in CLMVT, Dr. Han stressed that Thailand and Vietnam have robust institutional bodies responsible for energy emergency response under the Oil Supply Emergency Preparedness in the APEC region.

Dr. Han set out a number of policy implications:

(i) The mainland SEA faces paramount challenges in matching its energy demand with sustainable energy supply given the fact that the whole region relies heavily on fossil fuel consumption.
(ii) Energy security of many developing countries in mainland Southeast Asia is affected by the current pandemic, natural disaster, and economic downturn.
(iii) The energy security in SEA will need to be reviewed based on the current energy system, energy infrastructure, and current policy for fuel diversification and domestic fuel resources including renewable ones.
(iv) Energy efficiency is attributed to innovative technology such as Highly Efficient and Low Emission (HELE) technology.
(v) The holistic approaches to energy security should be taken into account in transitioning toward clean-fuel and renewable energy sources.

The floor was then passed to Ms. Solinn Lim, Country Director, Oxfam Cambodia. She began by stressing that her presentation would be dedicated to the less-concerned topics of women, land, agriculture & food security in the Mekong Basin. She soon moved on to frame the Mekong basin as a dynamic region that has enjoyed remarkable economic growth in decades, and this dynamic landscape requires the Mekong region to focus on improving agricultural water and land productivity. She continued that pollution, floods & droughts, saline intrusion, and non-sustainable development activities will have severe impacts on key sectors defining food security in the Mekong region. She also mentioned that the absence of land titles among the millions of farmers in the Lower Mekong, and smallholders often faced push and pulled factors that force them to migrate for economic opportunities. She also pointed out that women, who make up 42.5% of farmers, own only 13 percent of land and face cultural barriers such as inheritance and divorce practices.

To promote sustainable and inclusive businesses in agriculture, Ms. Solinn suggested that we should: incentivize stallholders to stay on their land and increase productivities; promote the public-private-and-producer partnership through which smallholders led by women have become more successful in transitioning from being farmers to agri-entrepreneurs; and promote sustainable agriculture and food productions and improve local and regional value chains. In the course of achieving these, she also placed the great emphasis on the importance of MSMEs

as they are a critical driving force in Mekong economies, and this is indicated by the fact that MSMEs contributed an average of 41 percent of each Mekong country's GDP from 2010 to 2019.

She then turned to discuss the difficulties stemming from the COVID-19 outbreak and exacerbated by floods. She pointed out that despite a period of global and regional trade and agriculture value chain disruption, the agricultural sector remains relatively strong across the Mekong. However, the region's poor and other vulnerable groups still encounter challenges regarding the difficulties to access adequate nutritious food which are subject to be worsen given the going climate challenges and indebtedness. Moreover, millions of migrant workers across the region lost jobs and livelihoods without compensation. She further noted that that MSMEs are particularly affected and are overcrowded by big businesses, thereby placing small business holders at risk of selling their lands.

Subsequently, she set out four major policy recommendations: (i) build fairer and more resilient and sustainable food systems by investing in small-scale and agro-ecological food production and ensure that the producers earn a living income by establishing minimum producer prices and other support mechanisms; (ii) Ensure women's leadership and decision making on how to make the market works for themselves; (iii) invest in Social Protection System for all citizens and MSMEs; and (iv) promote sustainable land use development that takes into account ecological outcome and protection of smallholders.

Before she ended her presentation, Ms. Solinn drew the attention of the panel to a farmer by the name of Sophoan who promises not to migrate to Thailand again given the holistic approach and support that she received.

The last speaker of the panel was Dr. Carl Middleton, Director, Center for Social Development Studies, Chulalongkorn University, Thailand. Dr. Carl started his presentation by stating that despite the fact that the Mekong-Lancang is deemed as a contested arena, he would like the region to be the space where partial-cooperation and competition take place. He also emphasized his concerns on the existing challenges that are confronted by the Mekong countries and exacerbated by climate change.

He then turned to discuss the "Reciprocity" in hydro politics of cooperation and competition which involves whereas aspects including sustaining healthy/unhealthy hydrological systems and river-based non-human life; direct benefits/harms to humans from the river; collective action gained through trusted political-social relations *over* the river or the contrary; and collective action gains through trusted political-social relations *beyond* the river or the contrary. He also mentioned that reciprocity takes place in various areas that include reciprocity between the ecosystems and between people and institutions that directly benefit from the river. He then pointed out that while reciprocity can positively yield collective benefits among the stakeholders, reciprocity can trigger negative effects given the negative manner of cooperation held by certain partners. He also praised the agreement made by China on year-round data sharing which, according to Dr. Carl, is the beginning step toward a new act in reciprocated relations among China and other Mekong countries.

He then moved on to present the role of research in knowledge generation and trust-building by pointing out that the recent scientific studies have catalyzed significant regional and global public debate as those studies are geopoliticized. He further noted that all existing studies have been conducted in the context of incomplete data due to lack of access to existing data. With regard to this issue, he provided a few suggestions for research to better inform public debate: connect regional-global networks of researchers in order to reduce perceptions of national-interest aligned research; credible peer review processes and research conferences ensuring rigorousness; multiple research groups for "plural" science; effective communication of complex analysis; and accountability to public needs/priorities.

Touching upon the water data democratization, Dr. Carl stressed that state-to-state water data sharing is the initial step toward strengthening transboundary water governance, and this could be undertaken through drawing on good practices in other river basins and adapting them to Mekong-Lancang socio-political context. Dr. Carl then outlined the basis of "water data democratization":

1. **Institution:** clear rules-based regime between states should be established based upon the UN Watercourses Convention. The established institutions should be trusted, inclusive, and accountable to non-state actors, and they should commit to building close connections with sectoral line agencies and "hybrid governance" approaches.
2. **Infrastructure:** make use of user-friendly online platforms – such as website and social media – and other means of communication.
3. **Accessible data:** the data should be reliable, timely, and trusted and be shared and communicated in a usable form.
4. **Actionable data:** the data should catalyze transdisciplinary research. The data is to inform participatory decision-making processes, including via tools such as Strategic Impact Assessments.

Q&A Session of Panel IV:

H.E. Ambassador Pou, the instigator of the panel, kicked off by posing a question on how we can prioritize sectoral bodies of nontraditional security.

- Mr. Lê responded by stating that while the effort to minimizing the negative impacts faced by the Mekong region is prevailing, we should also place prime emphasis on increase the adaptation to the existing impacts. While issuing a code of conduct on the Mekong region is compelling, he stressed that the lessons and experiences of other basins can hardly be applicable in the Mekong basin. He finally reiterated that Vietnam remains committed to prioritizing the Mekong issue under the ASEAN framework.

H.E. Watt Botkosal asked Dr. Han what constitutes the quality infrastructure embedded in the Sustainable Hydropower Development which had been raised in his presentation.

- Dr. Han answered by referring the high-quality infrastructure to the utilization of clean and environmentally friendly power generation systems including the clean-coal

technology or Advanced Ultra-Supercritical (AUSC) Technology which can bring about socio-economic benefits with minimal environmental impacts.

A participant from the Austrian Embassy in Cambodia posed a question to the panel in seeking the views on the role of civil society engagement in influencing the water governance and how this role can be translated to the engagements from external partners in the region.

- Dr. Carl responded by stating that the role of the civil society engagement in the matter is barely translated to the international engagement. Instead, the dynamic changes in China with regard to recognizing environmental issues are the key factors that should be internalized into its relationship with the Mekong countries.

A participant asked what are the effective ways and mechanisms to coordinate various frameworks and compel the major powers to engage in the Mekong region in a supplementary manner instead of a competitive one.

- Ms. Solinn responded stressing that while numbers of initiatives under the ASEAN framework can assume this very role, ACMECS can also play a leading role in coordinating among various frameworks on various socio-economic aspects and promoting data sharing that greatly contributes to the precautionary as well as adaptation approaches among riparian countries.

- Dr. Mak stressed on the need to empower the grassroot communities and create effective networks and platforms through which they can convey their needs and challenges.

- Dr. Carl shared an identical view with Dr. Mak with regard to the establishment of cross-border networks which are inducive for promoting communications and understanding among the riparian countries in the pursuit of their shared benefits.

- Dr. Han highlighted the importance of high-quality infrastructure. In addition to the bottom-up approach raised by Dr. Mak and Dr. Carl, he put emphasis on the top-down approach by stressing that the mindset of leaders should be changed and shifted toward the alternative energy production options.

- Dr. Lê opined that it is difficult to coordinate over fifteen existing frameworks. He concluded by stating that the five Lower Mekong countries should hold a common stance and speak a common voice in working with external partners to dealing with existing pressing issues.

Closing Remarks

By praising the conference for achieving its objective, H.E. Ambassador Pou Sothirak resorted to stress the significance of the Mekong River which has been continually recognized by development partners, including the U.S. This notion, he continued, is vividly manifested by the elevation of the Mekong-US Partnership from the Lower Mekong Initiative during the Ministerial Meeting during the first Mekong-US Partnership Ministerial Meeting on September

11, 2020. H.E. Ambassador urged the region to be mindful in ensuring that the short-term benefits gained from the engagement of external partners do not supersede long-term national interests in the environment, food security, and energy spectrums.

ANNEX

OPENING REMARKS

H.E. Ambassador Pou Sothirak
Executive Director of the Cambodian Institute for Cooperation and Peace

On behalf to HRH Samdech Norodom Sirivudh, Chairman and Founder of the Cambodian Institute for Cooperation and Peace, I would like to extend a warm welcome to all of our local and external viewers to this ***virtual conference on Sustainable Development and the Future of the Mekong***, a topic I am sure will stimulate those of you who are keen observers of the Mekong River and the diverse challenges that the sub-region has endured.

CICP is indeed privilege to be able to join with the U.S. Embassy in Cambodia to co-host this important online conference to examine the impact of non-traditional security issues and the broader topic of sustainable development that have confronted the Greater Mekong Sub-region.

I would like to thank all of our viewers and participants very much, especially role players who are national and regional experts for their keen support. In particular, I would also like to thank Mr. Arend Zwartjes, Public Affairs Officer and other friends at the Embassy for their kind assistances in organizing this conference.

More importantly, I wish to extend my sincere appreciation to our guest of honor, H.E. Patrick Murphy, US Ambassador to Cambodia, for joining me via online during the opening of this conference. He will deliver keynote address right after my welcome remarks.

All the participants of this virtual conference will be pleased to hear from Ambassador Murphy how the US-led Lower Mekong Initiative's concrete achievements over the past 11 years have built the solid partnership between countries of the Mekong sub-region and the United States. In addition, we can expect to learn more how the newly launched Mekong-US Partnership initiative on 11 September, 2020 at the First Mekong-U.S. Partnership Ministerial Meeting held via videoconference has evolved into a new frameworks of sub-regional cooperation that covers new areas and supplements the existing cooperation areas implemented under LMI, and to reflect a desire to make that framework more strategic, focused, and effective.

Distinguished Participants, Ladies and Gentlemen,

Before I describe this conference, please allow me to say a few words about the strategic important of the Mekong River where the Lower Mekong Basin countries have been confronted with a multitude of persisting non-traditional concerns.

Known as the River of life, the Mekong is one of the most important river systems in the Southeast Asia, politically, economically, and environmentally where several countries – China, Myanmar, Laos, Thailand, Cambodia, and Vietnam – have huge stakes in its use and management. However, not everyone has equal right in receiving benefits or equal voice in the decisions that affect the mighty river where livelihood of 70 million inhabitants depend on, as well as upset more than a million population where their survival depend on the ever declining fish stock in Tonle Sap great lake.

In the last few years, the shifting geo-political dynamics and the non-traditional security nature of the sub-region have potentially devastating consequences over CLMVT countries with the strategic competition between the United States and China and the unusual shortage of rain fall casting severe dry spell making the water level on the Mekong at record low with growing trends that might inflict overwhelmed risks to the economic independence, water, energy, food security, and bio-diversity across the Mekong sub-region.

From the sub-region perspective, the CLMVT countries continue to be confronted with numerous long-standing issues such as management of the Mekong River, economic integration, and cross-border infrastructure development. Today these topics are accompanied by new and equally important questions such as the impacts of non-traditional security threats where lack of proper attentions and insufficient debates in the existing literature on the region despite how often they are raised in various sub-regional forums, e.g. LMC, GMS, and LMI.

Distinguished Participants, Ladies and Gentlemen,

For the benefits of all participants, I would like to provide some details information on how the conference is conducted and what we should expect from this meeting for today and tomorrow.

This virtual conference has four separate panels over the course of two days. Each panel will last two hours, with four speakers and one instigator serving as chair, the last panel has five speakers. Two panels will be conducted on 26th October and a further two panels will be conducted on 27th October. Each speaker will speak for ten to fifteen minutes followed by a

question and answer session moderated by the instigator. Speakers are required to submit papers covering their presentations to be published as an outcome reports with concrete policy recommendations in the near future.

The sub-theme of today's morning panel one session is ***the Mekong-US Partnership in a Contested Institutional Space.*** This panel discusses how best to leverage the competing interests and institutions among the major powers in the sub-region and how successful collaboration and positive development can be formulated.

In the afternoon panel two, we will discusses ***the Mekong-U.S. Partnership in the Context of Sustainable Development.*** This is an opportune time for all of us to deepen our understanding of the strategic significant of the newest US initiative Mekong-U.S. Partnership designed to assist lower Mekong countries to achieve sustainable development while promoting inter-governmental initiatives and addressing the question of trans-boundary water resources in the region in the context of global best practices.

Tomorrow, we will have panel three session in the morning which covers another interesting sub-theme of ***the Future of the Mekong River*** where panelists will examine the question of how to mitigate the damage that has occurred due to the expansion of hydroelectric dam construction and ultimately explore the question as to whether it is too late to save the Mekong river and what actions need to be taken in the near and medium terms in order to ensure its long term sustainability.

Tomorrow afternoon, the last panel of this conference will deals with the thematic issues ***of Human Security in the Mekong Context: Agriculture, Energy, Water and Environment.*** Our expert panelists will share their perspectives on how the increasing energy demand, food and water security as well as environment interact directly at present and in future with the sustainability of the Mekong. Panelists from the Lower Mekong states, drawing on their particular areas of expertise, will address one or more of these human security issues and examine what policy frameworks can be developed in order to avoid humanitarian and development crises in the sub-region.

Distinguished Participants, Ladies and Gentlemen,

CICP firmly believes that this conference will further enhance our institution's long-standing commitment to pluralism and support our belief in the deep importance of open discussion among policy analysts, scholars, government officials, and representatives of civil society on the issues of utmost concerns related to the Greater Mekong Sub-region and Mighty Mekong River where challenges and obstacles remain real and must be addressed effectively, if the Mekong region is to enjoy the benefits of the newly established initiative Mekong-US Partnership among others.

I am thankful of the kind supports made available to CICP by the US Department of State through its esteemed Embassy in Cambodia to enable this important and timely conference to convene seizing opportunities offered by the new US-led initiative and to discuss prospects to safeguard the future of the Mekong as well as to address challenges that hinder further development for riparian countries in the region.

CICP is gratified with the firm and valuable supports from our national and regional experts who assume the role of speakers and instigators. As such, I would like to extend my deep appreciation for their valuable contributions in enriching our conference with their well-endowed knowledge covering relevant subjects of their presentations.

Although this is not the first time that our institute engage with this online discussion amidst the outbreak of the Coronavirus, I must apologize in advance should there be any mishaps during this virtual meeting.

Lastly, I would like to thank all the viewers and participants very much for joining this conference online. I fervently hope that those of you who joint us locally and from abroad will find the discussions interesting and stimulating.

Thank you for your attention!

SPECIAL REMARKS

Ambassador Patrick Murphy, U.S. Ambassador to Cambodia

Monday, October 26, 2020
Phnom Penh, Cambodia

Thank you, Ambassador Sothirak and thank you to the Cambodian Institute for Cooperation and Peace (CICP) for the invitation to come and speak to you today. I would like to acknowledge the panelists and participants of this conference, some here in Phnom Penh and others joining virtually from Australia, Cambodia, Laos, Singapore, Thailand, the United States, and Vietnam.

I am glad to see representatives from government and regional institutions as well as leading members of civil society from NGOs, academic institutions, and think-tanks. I would especially like to congratulate the CICP for working with us to host this forum.

It is now more important than ever to examine the future of the Mekong River and the diverse challenges confronting the sub-region. I have been up and down the Mekong over the past year, my first year as Ambassador here in Cambodia, and I will sail another portion of it next month. The Mekong is clearly under siege: upstream dams, sand dredging, pollution, unsustainable development practices, and climate change are all negatively impacting this great river.

The Mekong nonetheless remains a vital, irreplaceable source for livelihoods, nutrition, fisheries, transportation, irrigation, and energy. In Cambodia, the Mekong also feeds the Tonle Sap river and lake upon which millions depend for their lives and livelihoods. This conference will examine these challenges -- and hopefully help regional stakeholders and partners, including the USG, identify further sustainable solutions.

Throughout 2020, the U.S. Embassy is marking its 70th anniversary of the establishment of U.S.-Cambodia diplomatic relations by celebrating monthly themes that focus on areas collaboration and partnership with the Cambodian government and people. These themes highlight the full range of our relationship and cooperation.

November is the Embassy's "ASEAN and Regional Cooperation" month and follows the East Asia Summit and US-ASEAN Summits held in September. The Embassy will build off these important high-level meetings in a series of events over the next month that will highlight areas of U.S.-Cambodia partnership in the context of the broader region. This conference is our first event in the series of regional cooperation. November is also the beginning of our engagement with Cambodian stakeholders in preparation for the 2022 chairmanship of ASEAN.

On September 11, the United States and Mekong partner countries launched the Mekong-U.S. Partnership (MUSP), expanding United States Government support to Cambodia, Laos, Myanmar, Thailand, and Vietnam -- our five partner countries in the Mekong region. This Partnership builds on success of the U.S.-sponsored Lower Mekong Initiative, which saw a U.S. commitment of $3.5 billion to the region from 2009-2019. Like the Lower Mekong Initiative, our expanded partnership will focus on the environment, health, education, infrastructure, and regional security.

Since September, the U.S. has already committed $153 million in new funds to the MUSP. The Partnership will expand to include areas of cooperation in non-traditional security. To this end, for instance, the United States has committed $52 million to support COVID-19 economic recovery. Though Cambodia has thankfully been spared some of the higher COVID-19 infection rates seen elsewhere, we know it has not been able to escape the economic impact wrought by the disease. Our expanded support under the MUSP aims to assist in Cambodia's – and the region's – economic recovery.

I want to stress that the Mekong-U.S. Partnership respects domestic laws and regulations of participating countries. Similarly, it seeks to promote complementarity with other likeminded Mekong development partners and cooperation mechanisms. We understand that we are all equal partners in this initiative and in confronting the challenges facing the Mekong River.

As put forward in the joint statement at the launch, the Mekong-U.S. Partnership is guided by the values enshrined in the ASEAN Outlook on the Indo-Pacific, the U.S. Indo-Pacific vision, the Mekong River Commission, and ASEAN itself, including equality, good governance, openness, transparency, economic growth, and respect for sovereignty.

I am pleased that today's panels will focus on important aspects of the Mekong-U.S. Partnership. I hope you will explore how upholding these values can address challenges confronting the subregion. I am proud that the U.S. Department of State and the Embassy are supporting this conference. I firmly believe that open discussion and transparency are essential for solving the challenges facing the countries of the Lower Mekong.

I hope the ideas discussed at this conference will influence and inspire policy makers. Thanks again to CICP for holding this event, and to all of you for taking part.

PANEL 1: THE MEKONG-U.S. PARTNERSHIP IN THE CONTESTED INSTITUTIONAL SPACE

Arend Zwartjes
Public Affairs Officer, U.S. Embassy in Cambodia

The Mekong-U.S. Partnership

It is fortunate that we can come together even if we are not able to meet in person, as the Mekong River is important to us all.

The U.S. partnership with Cambodia, Laos, Myanmar, Thailand, and Vietnam has grown considerably since we started the Lower Mekong Initiative in 2009. Over those 11 years, the United States government has committed almost $3.5 billion in foreign assistance to the Mekong region, joined by billions of dollars in U.S. government official financing and U.S. private sector investment.

This year marks an even further expansion with the launch just last month of the Mekong-U.S. Partnership. Our collaboration is now broader, deeper, more strategic, and better resourced, reflecting the importance of the Mekong region and our commitment to our Mekong partners.
The Mekong-U.S. Partnership puts cooperation on transboundary river governance front and center, and it comes at a crucial time. Challenges facing the region's shared water resources have only grown since Secretary Pompeo announced our intent to host this conference in 2019. Back then, the Secretary shared our mounting concerns over these troubling trends. Now, we face a crisis.

The Drought's Human Toll

The communities and ecosystems that have relied for generations on the Mekong River's natural flood pulse are suffering from record droughts that affect over 60 million people and have dramatic consequences for food security, economic development, and national sovereignty across the Mekong.

Now, I realize I am talking to civil society and water governance experts. You see these consequences first-hand. Let me highlight some of them.

- Water shortages have damaged nearly 100,000 hectares of rice fields across the region. These shortages have reduced crop yields from other harvests across Laos, Cambodia, and Vietnam by 50 percent. And they have also cut the available fish catch in Cambodia by as much as 90 percent.
- This drought is causing harmful sediment-free waters and shorter flood seasons, leading to underground aquifers not being replenished and the ground in the delta sinking faster than anticipated.

- In Vietnam's An Giang province, for example, fishermen have seen their daily fish catch reduced by more than half. We read about fisherman in other parts of Vietnam who used to catch 200 kilos of fish a day now bring in fewer than 10 kilos per day.
- These water shortages have exacerbated saltwater intrusion into the delta, up to 90 kilometers inland. These are the highest levels ever recorded, and they imperil agriculture and rice crops that are the livelihoods of tens of millions of Southeast Asians.

China's Upstream Dams

A growing body of evidence shows that these downstream problems are made worse by the construction and operations of upstream dams in China. China's unilateral manipulation of your shared river disrupts the natural flood pulse that replenishes bodies of water like Cambodia's Tonle Sap Lake, revitalizes the fishing and agricultural industry, and restores freshwater aquifers across the Mekong basin.

Beijing argues that its dam operations benefit downstream nations by increasing water flows in the dry season. Yet by Beijing's own admission, these dry-season water releases are done to maximize profit for China's electricity producers.

Transparency and Water Data

As with so many challenges involving Beijing, non-transparency is a major part of the problem. Beijing has not shared sufficient information on its dam operations or upstream river conditions, limiting Mekong government's ability to prepare for or mitigate the damage caused by dam operations. China's dam operators have also released water unannounced, damaging downstream crops when the river rises unexpectedly.

Beijing has recently acknowledged its role in manipulating natural river flows and has given new assurances to share more water data. But the Chinese Communist Party has a history of empty promises. Just look at the South China Sea.

We commend the countries of the Mekong region and the Mekong River Commission for their persistence in lobbying Beijing to provide more water data. We encourage you to hold China accountable to sharing year-round, real-time flow and dam operations' data. And we urge Beijing to coordinate closely with the MRC and use existing tools and protocols.

Regional Concerns, Regional Response

The United States supports regional organizations like ACMECS and the efforts of partners like Japan, South Korea, Australia, India, and countries in the European Union to support sustainable development and share global best practices in the Mekong region.

We also applaud ASEAN efforts, led by Vietnam as chair this year, to raise the profile of Mekong issues. The Mekong region is as consequential to ASEAN centrality as the South China

Sea. We encourage ASEAN member states to consider the issues in the Mekong region as important to regional cooperation and cohesion as the sea.

How the United States is Helping

The United States has supported the Mekong River Commission for decades and will continue to do so. We will work through the Mekong-U.S. Partnership, guided by principles of transparency, inclusivity, good governance, and respect for autonomy and international law. We are committed to working with you, for our mutual interests.

We will continue our work under the Mekong Water Data Initiative to improve water data sharing.

We will continue to exchange expertise and best practices, such as those between the Mekong and Mississippi River Commissions and the U.S. Army Corps of Engineers and regional counterparts to improve safety in dam construction and maintenance.

We will maintain our partnership between the U.S. Department of Energy and the MRC on responsible hydropower and water resources management.

We will empower the skill and talent of the Mekong people — through the new Young Southeast Asian Leaders Initiative Academy at Fulbright University Vietnam, which we announced just last month, and also through forums like this, through our Young Scientists Program, and many others.

Finally, we will always partner with governments and NGOs who share our transparent, inclusive approach. Transboundary water governance challenges are not unique to the Mekong, of course. Our shared experiences from across the Indo-Pacific in managing risks from floods and droughts and mitigating the impacts of predatory infrastructure development make it all the more important to examine these issues cooperatively and develop shared solutions.

As we do so, we recognize the hard work of local media reporting on the value of the river and the effects of unsustainable practices. We applaud the tireless efforts of civil society advocates that strive for transparency, sustainability, and accountability.

There is a lot riding on our efforts. As you all know well, river governance and water security in the Mekong are not just technical issues. They affect the lives and livelihoods of tens of millions.

Let me end by saying that the United States is committed to supporting the countries of the Mekong Region to ensure the river remains healthy and vibrant, sustaining generations far into the future.

IMAGINING MEKONG-CENTRIC NORMS AND GOVERNANCE

Kavi Chongkittavorn
Senior Fellow of ISIS Thailand and Columnist of Bangkok Post

After more than five decades of negligence, the sleepy Mekong subregion has been awakened as a popular platform eyed by major powers as a strategic foothold. This has been partly prompted by the changing security environment in the region in the past several years and the region's growing potential. Furthermore, during the Covid-19 pandemic, the lower Mekong riparian countries have also hit global news headlines and earned a reputation for protecting their citizens' lives and mitigating the coronavirus, much to the chagrin of developed countries. They have demonstrated that their national and collective resilience is an enabling factor and that they can manage their own future. The new-found enthusiasm has installed a new confidence and heralded a new era of cooperation among the lower riparian countries of Cambodia, Laos, Myanmar, Vietnam, Thailand (CLMVT). They want to take charge of their common destiny.

Before 2015, the various Mekong-related cooperative frameworks were operating according to their own preferences and plans of action without any haste. However, when China decided to join in the wealth of international cooperation with its Lancang-Mekong Cooperation (LMC) five years ago, the dynamics of interaction among the riparian countries and their donors swiftly changed. Today, there are a total of 13 separate cooperative frameworks* covering the whole gamut of development and assistance to the resource-rich and one of the world's most bio-diversified regions. Obviously, their preferences and patterns of cooperation both bilaterally and multilaterally are different and can be quite troublesome for closer collaboration due to overlapping programmes and activities.

On closer scrutiny, most of these frameworks need to be updated to fit the current environment, rather than focus on the Mekong River alone. Therefore, it was welcome news that in September 2020, the US decided to upgrade the 10-year-old Lower Mekong Initiative to the Mekong-US Partnership (MUSP), which would serve as a strategic forum for cooperation between the US and five riparian countries. The First Partnership Ministerial Meeting was held on September 11, 2020. The new framework, which has built on 11 years of cooperation, expands existing areas of cooperation and addresses transboundary challenges including water security, smart hydropower, energy and infrastructure planning. Similar to the LMI, the MUSP continues to focus on the non-traditional security sector and comprises collaboration on emerging threats such as health security capacity building and pandemic response, countering transnational crime, cyber security, and countering trafficking in persons, illicit drugs and wildlife. To prove that the US is putting its money where its mouth is, Washington pledges to provide US$153 million for these Mekong-related projects.[1]

[1] Nguyen, Phoung. "U.S. To Give $153 Million to Mekong Countries for Collaborative Projects." Reuters, https://www.reuters.com/article/uk-asean-summit-mekong-usa-idUKKBN26221M.

Obviously, the MUSP cooperation is aimed at strengthening the riparian countries' capacity to manage their own region as well as the much-valued water resource. It is also clear that Washington is paying more attention to the Mekong subregion now than ever before as an area of contestation among major powers, especially under the Trump Administration. Indeed, President Donald Trump himself wanted to highlight the Mekong initiative in March 2020 during the planned special summit with the ASEAN leaders at Las Vegas. He planned to highlight the US renewed funding and cooperation with the Mekong countries. But the summit was led off due to the Covid crisis.

The existing US-China trade war has now proliferated and caused ripples on other spheres of cooperation in this part of the world including the Mekong subregion. The US and its allies and friends want to embed themselves into the overall schemes of development in this area. More than their officials would like to admit, the noble objective has been to counter the rise of China. They also hope that their frameworks provide "options" for the Mekong riparian countries.

With the world's two superpowers pitching their diplomatic and creditability in the Mekong subregion, the onus is on the CLMVT to engage them and those paramount frameworks without discrimination or choosing sides. As such, it has necessitated the CLMVT to recalibrate their own cooperative schemes. Obviously, the Ayeyawaddy-Chao Phraya-Mekong-Economic Cooperation Strategy (ACMECS) comes to mind given its longstanding existence. This was set up in 2003 for the CLMVT to work together to build their Mekong future by bridging development gaps and promoting sustainable development among themselves. The overall progress has been slow as each member has been focusing on domestic domains to ensure economic progress and social stability.

However, the new strategic environment in recent years caused by the heightening of rivalry between the US and China has now reached the Mekong basin. To avoid any collateral damage in the future, the CLMVT decided to rejuvenate the ACMECS framework so that it would serve as an umbrella for all cooperative frameworks in the region. That helps explain why at the ACMECS summit in 2018 in Bangkok, the CLMVT leaders agreed to move forward the ACMECS with five new objectives: 1) To achieve a seamless region; 2). To set synchronized rules and regulations for trade and investment facilitation; 3) To provide job opportunities and narrow development gaps; 4) To achieve a modern and inclusive subregion that is attractive to the international community; 5) To establish a people-centred subregion that leaves no one behind. The ACMECS leaders hope that these objectives are comprehensive enough to woo donor countries to form partnership.

Also, at the ACMECS summit, the ACMECS Development Fund worth about US$500 million was set up. Its members have already contributed to the seed funding. For example. Thailand has put in US$200 million followed by Cambodia with US$7 million. Other ACMECS members are in the process of getting their funds together while development partners including the US, China, Japan, Korea, New Zealand, and Australia also have already contributed. China, Japan and Korea have each contributed US$1 million each to the fund.

Due to its unique geostrategic location between India and China, the Mekong subregion can also serve as a bridge for the world's two most populous countries and their rapid economic

growth. For the time being, the ACMECS leaders are strongly focusing on connectivity and infrastructure development hoping that it will facilitate trade, investment and people-to-people exchanges within the region.

Indeed, the time has come for the ACMECS to broaden its appeal and set forth a clear direction for future cooperation with new partners by instituting norms and principles. This Mekong-centric standard, which would encompass common values and governances enshrined in different collaborative frameworks, would also be the riparian members' indigenous contribution to the regional rules-based order

There could be five key norms and principles under the Mekong-centric codes of conduct. First, it will respect sovereignty and independence of all nations. Second, it will adhere to international rules of law. Third, it will be based on free and open trade. Fourth, it will be inclusive. Fifth, it will practice transparency and good governance.

It is hoped that such codes of conduct will allow the ACMECS members to have leverage with all outside powers which have projects invested in the Mekong subregion. In the future, the ACMECS can also realign ongoing or future projects to fit the region's priorities or projects identified in the action plans.

It remains to be seen how the revitalized ACMECS will play out in the future especially in the Covid-19 era. Suffice it to say that, given the growing strategic imperatives of Mekong subregion, any indigenous ideas and actions would eventually strengthen the ACMECS structure to sustain pressure from the outside powers.

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*Mekong River Commission (MRC); Ayeyawady-Chao Phraya-Mekong Economic Cooperation Strategy (ACMECS); Cambodia-Lao PDR-Vietnam Development Triangle Area (CLV-DTA); Lancang-Mekong Cooperation (LMC); Greater Mekong Subregion Economic Cooperation Program (GMS), Lower Mekong Initiative; The Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC); Mekong-Ganga Cooperation (MGC): Asean Mekong Basin Development Cooperation (AMBOC); Mekong-Japan Cooperation (MJC); Mekong-US Partnership, Mekong-Korea Cooperation (MKC); Cambodia-Lao-Myanmar-Vietnam Cooperation (CLMV).

THE GEOPOLITICS OF THE MEKONG

Frederick Kliem
Visiting Fellow, RSIS Singapore

Originating in the Tibetan Highlands the Mekong is a fundamental lifeline for regional wetlands and wildlife as well as for millions river dwellers, and all riparian countries have a significant stake in the river's functionality. Increasingly, such issues as upstream dam construction and riverbed manipulation, partly within the framework of China's Belt and Road Initiative (BRI), have complicated river management and brought about new challenges for riparian countries. Such challenges put the river itself at risks, threaten human security of millions and increase China's power-differential. Yet, it is surprising how little attention the Mekong region received until lately, in particular as compared to the SCS.

To segway into this paper's proposal, it is worth briefly revisiting two thoughts on geopolitics and regionalism. Geopolitical thinkers are intrigued by the impact and relevance of geography for foreign policy making, particularly helpful in the current strategic environment in the Indo-Pacific region. Second, regionalism is sometimes misunderstood as forfeiting national sovereignty, a curtailment of the national prerogative. However, in Southeast Asia, regionalism has never meant sacrificing sovereignty. In ASEAN, regional resilience was always supposed to enhance national resilience, not to erode it. ASEAN's founding fathers realised that in one of the world's most vulnerable strategic hotspot – such is Southeast Asia – there is no such thing as absolute sovereignty. They knew that small state agency depended on the resilience, well-being and trust of your regional community.[1] In a strategically vital region consisting of small states, the regional good is almost as relevant as the domestic good.

With this in mind we can appreciate the Mekong basins as superb examples of geopolitics, and, as a result, their management requires astute multilateral diplomacy. For too long, Mekong management was primarily seen as an environmental concern, and while the environmental degradation of the Mekong is worrying, the environmental matters less than the geopolitical in terms of political priorities. This is a fallacy.

Most would agree that oceanic Southeast Asia is Asia's main strategic theatre. While undoubtedly crucial, at least the SCS is at a strategic impasse. Everything that can be said, written and deliberated about the SCS has been done so many times over. In contrast, especially the vulnerable lower Mekong Basin is rarely discussed outside of a small expert circle, and neither ASEAN nor the relevant external players are giving the Mekong sufficient strategic attention. However, the geopolitical risks in the Mekong region are substantial. Geography and strategic investments coupled with political intent translate into substantial unilateral Chinese influence over the lower Mekong basin, especially Vietnam.

[1] For a great overview of how great power competition and astute leadership made ASEAN possible, see e.g. Marty Natalegawa (2017) Does ASEAN Matter? A View from Within, ISEAS Publishing, Singapore, Chapter 2; And on how this impacted ASEAN norm evolution, see Amitav Acharya (2014) Constructing a Security Community in Southeast Asia. ASEAN and the problem of regional order. Routledge, London, Chapter 2; See also Kishore Mahbubani and Jeffrey Sng (2017) *The ASEAN Miracle. A Catalyst for Peace*. Ridge Books, Singapore, Chapter 2.

There is an unquestionable development potential in hydro-energy and dam construction, especially for landlocked developing countries. But it is well-documented that the completed upstream dams have already caused changes in downstream water levels, including reduced flows of sediment and salination of the Mekong Delta.[2] This has substantial ecological consequences, yet to be fully understood. Likewise, a number of studies claim that over the course of several years Chinese dams held back water upstream, thereby exacerbating droughts in downstream countries dependent on the Mekong's freshwater supply.[3] China disputes this, but whether the accusation is accurate or not is secondary to the realisation that this may indeed become a possibility, leaving the lower Mekong countries exposed.

The Mekong has not been neglected entirely, of course, and in recent years, many great and regional powers, including the US, China, South Korea, Japan and others, have extended development aid, investments and multilateral support towards Mekong management, including the Lancang-Mekong Cooperation (LMC), the Mekong River Commission (MRC), and the US-Mekong Partnership (USMP) by the US – a 2020 expansion of the previous Lower Mekong Initiative (LMI).[4] The plethora of autonomous and virtually unconnected Mekong management mechanisms of various capacity that have emerged in recent years create an almost unparalleled density of multilateral plurality.

Particularly the recent LMI upgrade suggests that there is a realisation in Washington that the Mekong is of relevance to the broader Free and Open Indo-Pacific (FOIP) vision – by and large a reaction to increasing Chinese assertiveness in the Indo-Pacific region. USMP is another, albeit belated, FOIP instrument to compete with China, slowly turning the Mekong into yet another space for US–China competition.

Greater institutional plurality in the Mekong region gives riparian countries the convenient ability to benefit from competing investment and aid schemes. This diversifies investment and aid sources, thereby increasing flexibility, bargaining potential and the absolute sum of money available to the Mekong region. But such institutional plurality is not sustainable and short-sighted. Not only will increasing institutional competition grow the potential for conflict in the Mekong sub-region. It also decreases regional interdependence and joint ownership by creating competing self-sustained spaces. This erodes the main constituents of Southeast Asian regionalism and regional stability.

The traditional Asia-Pacific multilateral architecture consists of ASEAN-led mechanisms that make up the traditional Asia-Pacific's multilateral architecture; this is the essence of ASEAN's centrality that keeps the region engaged despite occasional conflict and stress. Existing Mekong multilateralism is very different because it is great power-, not ASEAN-led, and, thus, not mechanisms to manage the Mekong but, in fact, a symptom of an existing conflict.

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[2] Chantha, O., Ty, S. (2020) Assessing changes in flow and water quality emerging from hydropower development and operation in the Sesan River Basin of the Lower Mekong Region. *Sustainable Water Resource Management,* Vol. 6:27.

[3] Brian Eyler (2020) Science Shows Chinese Dams Are Devastating the Mekong. New data demonstrates a devastating effect on downstream water supplies that feed millions of people. *Foreign Policy*, 22 April.

[4] Chheang Vannarith (2019) Water Resource Security in Mainland Southeast Asia. In: Frederick Kliem (ed.) *ASEAN Security Connectivity*. KAS, Singapore, pp. 63-83.

It behoves the smaller resident countries to think about the politics that emerge from the geographical facts of the Mekong region, the geopolitical relevance of the Mekong; and, in consequence, about sustainable multilateral river management. A strategy for Mekong management should mirror a great power conflict management strategy for the Indo-Pacific in general. Establishing inclusive dialogue and increasing interdependence and cooperation instead of bloc formation is the key to a successful Indo-Pacific equilibrium just as much as to successful Mekong management. Necessary is an inclusive space for neutral diplomatic, economic and information instruments that can keep the region engaged and interdependent. Such channels intent to allow states to communicate and to negotiate mutual red lines, but also to identify areas of cooperation where interests align; ecologically sustainable river management for example. Such multilateralism should be facilitated by ASEAN, which has the necessary mechanisms and preconditions in place.

Being aware of ASEAN's disadvantages and limitations, there simply is no other actor capable of hosting multilateralism in the region, no other actor with the capacity for necessary neutrality. Fortunately, great power competition not only creates space for riparian countries, it also creates room for collective ASEAN agency, room to manoeuvre and regain ownership of regional multilateralism. Regrettably, none of the existing Mekong mechanisms have meaningful ASEAN relevance, and genuine ASEAN buy-in is lacking, too. Unfortunately, the Mekong is not a strategic priority, not even of direct interest to maritime Southeast Asia; just the same way the SCS is not of sufficient interest to some of the mainland states. As a result, national leaders are hesitant to make the necessary compromises for regionalism to function effectively. Secondly, the question beckons why external actors would be enticed to forfeit their respective efforts at exclusive multilateralism and instead pay attention to inclusive ASEAN-led multilateralism if even half of ASEAN does not?

It is, thus, of utmost necessity to first establish ASEAN consensus. ASEAN leaders and elites would be well advised to appreciate the founding leitmotif of ASEAN: in order to safeguard national agency, national elites must maintain regional agency, for without regional agency, small countries located in such a strategic hotspot will succumb to great power unilateralism. In other words, in Southeast Asia, the regional good is almost as relevant as the domestic and it is a sine qua non to invest and risk political and diplomatic capital, internally or with third parties, even if the issue is only of indirect national relevance.

Beyond this general appreciation of regionalism's value and cost, systemic adjustment is needed. The separation of mainland and maritime Southeast Asia is artificial and unsustainable. The main reason the various FOIP visions could take off as they did is the simple fact that it makes imminent sense to think, view, and treat the Indian Ocean region and the Western Pacific as equally relevant and one strategic space. ASEAN consist almost equally of both mainland and maritime states and it makes imminent sense to treat all of Southeast Asia, maritime and mainland, just the same way, as one strategic space. ASEAN should reflect this equality in its strategic priorities and convince all its stakeholders to regard the Mekong as just as relevant for Indo-Pacific geopolitics as the SCS and treat it accordingly.

This should translate into an all of ASEAN instead of a mini-lateral river management mechanism. This ASEAN-10 river management mechanism can be opened up to all interested ASEAN Dialogue partners, most importantly China and the US. Further, ASEAN should also work towards inclusion of Mekong sub-regional matters, including all geopolitical and human security implications, into all relevant ASEAN mechanisms, including the East Asia Summit (EAS) and ASEAN Defence Ministers' Meeting (ADMM) and its plus extension (ADMM-Plus), just like the SCS regularly makes it into these forums. This combination allows ASEAN to establish an internal Mekong management platform. But it also signals ASEAN's resolve and encourages its Dialogue Partners to equally view and treat the Mekong and the SCS as part of one strategic Southeast Asian space. The external donors must be encouraged to share their multilateral efforts and continue to invest in the Mekong region. Indeed, great power support is absolutely necessary, but it should be administered within inclusive indigenously led multilateralism, not external competing multilateralism.

The fundamental problem, of course, is that this requires internal ASEAN leadership to establish consensus this matter. Although somewhat elusive currently, contrary to eternal ASEAN pessimists' assertions, ASEAN leadership can be obtained. In this case, Vietnam is the pivot country and should assume the leadership role and lobby in favour of ASEAN consensus on both the ASEAN-10 mechanism and the inclusion of Mekong matters in all its regional multilateral instruments. Vietnam the only member that has a vital stake in both hotspots – as SCS claimant and home to the Mekong Delta – and is uniquely well-placed to connect both matters. Hanoi's increasing diplomatic clout and its exemplary handling of the COVID-19 pandemic give its diplomats additional weight and influence.

If ASEAN fails at this and continues to be idle as US-China competition moves beyond a possible equilibrium, a point of no return for Southeast Asia, it watches over its own demise. This applies to the Mekong just as much as to the wider Indo-Pacific. ASEAN's raison d'être has always been and remains today to maintain autonomy. With unbalanced great power competition in the Mekong, ASEAN will become divided and its centrality becomes extinct. It is self-evident that small countries should hold a common line, devise mechanisms for inclusive multilateralism and to leverage their agency further by involving external powers on a united ticket. To some extent this is already the case in the SCS. Applying the same logic and resolve to the Mekong will once again give ASEAN its historic role of brokering and manoeuvring within regional multipolarity. The fundamental reason behind and essence of ASEAN centrality.

MULTIPLICITY OF MEKONG CONNECTIVITY INITIATIVES: RATIONALES AND IMPLICATIONS FOR THE REGION

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Introduction

To date, at least six regional connectivity initiatives have been operational in the Mekong region: the Mekong River Commission (MRC), the Greater Mekong Subregion (GMS), the Lower Mekong Initiative (LMI), Belt and Road Initiative (BRI), the Lancang Mekong Cooperation (LMC) and Free and Open Indo Pacific strategy (IPS). These mechanisms have played an important role in enhancing the overarching efforts towards peace and development in the region through their connectivity tools.

Those connectivity initiatives cover a wide range of areas such as infrastructure, the management of the river basin, water usage, fisheries, food security, agricultural development and climate change. In other words, those mechanisms aimed at connecting hard infrastructure, policies and peoples within the Mekong region. Why are there several mechanisms have been proposed? Do they complement or compete each other? What are implications of those initiatives on the Mekong countries, especially Cambodia? These are important questions to be addressed in this paper.

Overview of Mekong Connectivity Initiatives

The Mekong River Commission (MRC), whose antecedent is the Mekong Committee, is an inter-governmental organisation established in 1995. The MRC member states comprise Cambodia, Laos, Thailand and Vietnam, while China and Myanmar are dialogue partners.[1] Its main mission is to ensure mutual and efficient development of the Mekong River while mitigating the negative impacts on the peoples and environment in the Lower Mekong Basin.[2] The MRC also plays an important role as a regional knowledge hub on water resources management.

The Greater Mekong Subregion (GMS) was founded in 1992 with the main aim of implementing high-priority projects in the six Mekong nations under the support of the Asian Development Bank (ADB). The member countries include Cambodia, China, Laos, Myanmar, Thailand and Vietnam. The thrust of the GMS programme has been mainly concentrated on promoting and facilitating economic and infrastructure development by integrating the countries in the sub-region with a system of transport and several other economic networks and corridors, energy grids and power interconnections, and facilitating inter-state movement

[1] Mekong River Commission, "About the Mekong River Commission," Mekong River Commission, http://www.mrcmekong.org/about-mrc/.

[2] Ibid.

of goods and people as well as telecommunications link-ups.[3]

The Lower Mekong Initiative (LMI), officially proposed in 2009, is a multinational partnership between the US and the five Mekong countries, namely Cambodia, Laos, Myanmar, Thailand and Vietnam. The LMI predominantly serves as a platform to address transnational development and policy challenges in the Lower Mekong region. Under American sponsor ship, the LMI aims to promote trade, entrepreneurship, and innovation so as to promote physical, institutional and people-to-people links.

The Lancang-Mekong Cooperation (LMC) came into being after the first LMC Foreign Ministers' meeting in China in November 2015, with six participating member countries, namely China, Cambodia, Laos, Thailand, Myanmar and Vietnam. The main aims of the LMC are to enhance the well-being of peoples, to narrow development gaps between regional countries, and to build a community with a shared future. This initiative, predominantly sponsored by China, seeks to complement the existing connectivity mechanisms such as the Belt and Road Initiative (BRI) and ASEAN Master Plan of Connectivity 2025. It is worth noting that ASEAN countries, in 2010, acknowledged the significance of building a stronger ASEAN community by mainly focusing on the enhancement of physical connectivity. Later on, broader connectivity spectrums such as institutions [trade, investment, and services liberalisation] and people-to-people linkages [education, culture and tourism] have been subsequently added and become the crucial elements that need to be realised by 2025 as enshrined in the ASEAN Master Plan of Connectivity 2025.

In addition to these four regional initiatives, other related connectivity projects also need to be taken into account. China's well-known Belt and Road Initiative, sometimes referred to One Belt One Road (OBOR), was first proposed by Chinese President Xi Jinping in 2013, aiming to economically link China with other coastal states in Southeast Asia, South Asia, Africa, and Europe through building physical infrastructures (such as ports, roads, railways, and airways), and facilitating investment and trade between China and the other coastal states. Beijing also claimed that the BRI is aimed at promoting industrial connectivity between China and other coastal countries.

The Free and Open Indo-Pacific Strategy (IPS) was first introduced by Japan in 2016 with the main aim of connecting the Asian and African continents, as well as the Indian and Pacific Oceans. This initiative is aimed at maintaining and strengthening a rules-based and open maritime in order to prevent instability and conflict in the Indo-Pacific region. To date, the US has further developed this initiative by introducing two concrete components — governance and economy.[4]

Apparently, connectivity initiatives abound in this region, covering a wide range of areas such as infrastructure, the management of the river basin, water usage, fisheries, food security, agricultural development and climate change. In other words, these mechanisms are aimed at interlinking hard infrastructure, policies and peoples within the Mekong region.

[3] Greater Mekong Subregion, "Projects of the Greater Mekong Subregion," Greater Mekong Subregion,, https://greatermekong.org/gms-latest-projects.

[4] Newbill Michael and Douglas Walter, "Remarks by Charge D'affairs and Deputy Assistant Secretary" (paper presented at the Future Prospects of Mekong Region, Phnom Penh, 13 June 2019).

Why are there Multiple Connectivity Mechanisms in Place?

Even though there are many mechanisms being implemented to promote connectivity among the Mekong countries, as well as between the Mekong region and others, there is still a significant shortage of investment in these connectivity projects. As the economies of the ASEAN region become robust, it is estimated that countries in this region need to invest between 5 to 13 per cent of their respective GDPs in infrastructure development annually.[5] Therefore, continuous investment in connectivity infrastructure is always needed in order to ensure robust economic growth in this region, despite the existence of multiple connectivity mechanisms.

Furthermore, the Mekong countries *per se* want to maintain their autonomy in relations with the major powers involved in the region by proposing their own initiatives. The MRC, launched by Cambodia, Laos, Thailand and Vietnam, can be seen as an example of this. Maintaining autonomy in relations with major powers is a significant factor influencing the Mekong countries' decision to opt for a variety of connectivity mechanisms. The majority of the Mekong countries went through bitter colonial experiences; therefore, they highly value their independence and do not want to become ensnared in geopolitical rivalries between the great powers as has happened in the past. Cambodia, Laos and Vietnam in particular endured much sufferings arising from French colonialism in the 19th and 20th centuries, as well as from the tragic war inflicted by the great powers from the 1960s to the 1980s.

Another reason for the existence of the various connectivity initiatives mentioned above is linked to the competition of the regional powers involved and the lower Mekong countries' intention maintain their autonomies in relations to the regional powers. Regional powers such as China, the US and Japan want to exert their respective influences through their own proposed mechanisms, and, to a certain degree, to undermine the influence of their rival powers. For example, the American-led LMI is apparently aimed at driving China's influence out of the Mekong sub-region, while the Lancang Mekong Cooperation (LMC) seeks to erode the influence of the US and its allies in the region.

Multiplicity of the Regional Initiatives: A Boon for the Region?

An advantage of having several connectivity mechanisms is that the Mekong countries have more opportunities to access various sources of funding for their infrastructure development. As a senior Cambodian official at the foreign ministry said at a regional workshop on "The Future Prospects of the Mekong River" in June 2019: "Countries in the region should seek diversified sources of funding from the Mekong frameworks, as one or a few frameworks may offer very little funds or sometimes none."[6]

More importantly, those funds given to the Mekong countries are mainly in the form of loans, so they could entrap the Mekong countries in a bad debt situation. When the funding sources

[5] Alicia G. Herrero and Jianwei Xu, "Why Do Asia and Europe Need More Connectivity?: Some Ideas from European and Asean Experience," in *Asia Europe Connectivity Vision 2025: Challenges and Opportunities*, ed. Prakash Anita (Indonesia: Economic Research Institute for ASEAN and East Asia, 2016).

[6] Cambodian Foreign Ministry Official, "Mapping Mekong Cooperation Complementarities and Policy Implications," in *Future Prospects of the Mekong River* (Phnom Penh, 2019).

are diversified, there are possibilities that the Mekong countries may receive more grant aid rather than loans from regional stakeholders such as China, the US and Japan. In other words, the regional powers who wish to wield their influence over the Mekong region need to find more subtle ways to engage with the recipient states through the provision of grant aid rather than loans.

Moreover, the complementarity between those initiatives is another factor that encourages the blossoming of the various regional connectivity initiatives. Some regional initiatives may complement each other or other existing regional integration initiatives. For example, the MRC is apparently the best water data powerhouse, while the GMS is the best bridge linking across-the-board economic cooperation between the Mekong countries, including in the areas of trade, investment, tourism, energy and health. Furthermore, the Lancang-Mekong Cooperation helps to accelerate ASEAN integration in two ways. First, it gives a boost to the ASEAN Master Plan of Connectivity through its focus on infrastructure development and institution coordination.[7] The LMC also seeks to narrow development gaps among the Mekong countries, and is thus aligned to the primary goal of the Initiative for ASEAN Integration (IAI).[8]

Lastly, another opportunity that the Mekong countries could exploit from the existence of multiple connectivity projects in the region is the possibility of obtaining some concessions from the competing powers who wish to exert their leverages in the Mekong region. For example, in order to win the hearts and minds of the Mekong countries, China, in 2016, released more water from its Jinghong hydropower station in Yunnan province into the Mekong River three times in order to address the extreme drought faced by the Mekong countries.[9] As a result, the Mekong countries very much appreciated this Chinese deed. From the Chinese perspective, doing so reflects China's goodwill towards the region, thus demonstrating its soft power vis-à-vis Japan and the US.

Notwithstanding the above advantages, the fallout of having too many initiatives can never be underestimated. There seems to be a lack of a coherent mechanism to ensure complementarities between the proposed initiatives. The continuous emergence of various initiatives within this small region does not totally ensure the effective settlement of problems or risks faced by the Mekong countries. Some mechanisms have apparently weakened other mechanisms, as they have been designed and managed by competing donors.

[7] Chheang Vannarith, "Lancang-Mekong Cooperation: A Cambodian Perspective," ed. Institute of Southeast Asian Studies (Singapore, 2018).

[8] The IAI was proposed in 2000 with an aim to enable new ASEAN members such as Cambodia, Laos, Myanmar and Vietnam to well integrate into ASEAN through special preferential treatments granted by more developed ASEAN member states. In other words, those preferential treatments are aimed at narrowing development gap between the new and old ASEAN members.

[9] Cambodian official, "Mekong-Lancang Cooperation," (Phnom Penh, 2019).

Do Geopolitical Rivalries of the Great Powers Affect the Mekong Countries?

When there is moderate competition between the great powers, the Mekong countries may benefit from it. On the contrary, when the competition turns into a rivalry or when a great power seeks to totally eliminate another power's influence in the region, the regional countries would be in danger. There is an old saying: "When elephants fight, the grass will be devastated." The same logic also applies to the Mekong region. As the US-China rivalry has become intensified in almost every field, the Mekong countries have been pressed to take sides. These countries do not want to side with any particular power. Instead, they want to be friends with all great powers in order to maximise the fulfilment of their national interests.

Nevertheless, as the US-China rivalry has escalated, they have, at times, been put in an awkward position. For example, Cambodia has been accused by the US of allegedly succumbing to Chinese pressure to serve its interests, particularly the hosting of China's navy, despite the lack of credible evidence proving those claims. This has damaged the kingdom's reputation within ASEAN and on the international stage. It is noteworthy that Cambodia staunchly supported China's Belt and Road Initiative and Lancang-Mekong Cooperation. Such staunch support may lead to the US's resentment of Cambodia.

Conclusion

Many regional connectivity projects have flourished in the Mekong region since the early 1990s, some of which were home-grown – the MRC and the GMS. Others such as the LMI, LMC, BRI and IPS were mainly initiated and dominated by the great powers, the US and China in particular. The reasons for the existence of several connectivity initiatives are linked to ASEAN's robust economic growth, which requires continuous investment in physical infrastructure. The Mekong countries intrinsically want to maintain their independence in relations with the regional powers, which, in the past, threatened their peace and independence. The power competition between the great powers has, moreover, sparked creation of new initiatives.

The presence of several connectivity mechanisms is beneficial for the Mekong countries in the sense that it will create more opportunities for them to access different funding sources. More importantly, these countries will have more opportunities to receive more grant aid rather than loans in the future. Some initiatives, regardless of their funding sources, may complement one another, giving a boost to the economic development in the region. The Mekong countries, furthermore, may be able to extract some concessions from the regional powers who wish to wield their soft power in the Mekong region.

Despite the mentioned benefits, the drawbacks of having multiple connectivity projects in place are substantial. Some connectivity mechanisms are managed by competing donors, which do not necessarily address the actual concerns of the Mekong countries themselves. Last but not least, the Mekong countries, especially Cambodia are likely to suffer more if tensions between the great powers, especially the US and China, escalate.

ENHANCING THE CLIMATE CHANGE RESILIENCE IN CAMBODIA: THE CASE OF THE 3S RIVER BASIN

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Introduction

The present paper provides a stock-taking of challenges and opportunities for improved climate change resilience and disaster risk reduction in Cambodia, illustrated by the transboundary 3S Basin, shared between Cambodia, Lao PDR and Viet Nam.

It builds on preceding related studies conducted by Mekong River Commission (MRC) and Cambodia National Mekong Committee (CNMC), collaborating with the national Mekong committees in the upstream riparian countries, as well as consultations with institutional stakeholders and resource persons conducted in 2019-2020 under the Mekong Integrated Water Resources Management Project Phase 3 (M-IWRMP3), implemented by CNMC.

The 3S Basin

The Mekong Basin is shared between Cambodia, China, Myanmar, Lao PDR, Thailand and Viet Nam. Its area is 795,000 km², of which 155,000 km² (19 percent) is in Cambodia. Hereby, the Mekong Basin covers 86 percent of the area of Cambodia.

The 3S Basin (79,300 km²) is formed by three Mekong tributaries: The Se San, the Sre Pok and the Se Kong. The Se San and the Sre Pok are shared with Viet Nam, with 45 percent of the 47,100 km² area in Cambodia, and the Se Kong is shared with Lao PDR and Viet Nam, with 17 percent of the 32,200 km² area in Cambodia. The three rivers merge before discharging into the Mekong mainstream at Stung Treng provincial Town, Cambodia. Large storage facilities have been built in the upstream (Laotian and Vietnamese) parts. The upper Sekong basin has the 154 MW Houay Ho Dam, commissioned in 1998, and 17 additional dams planned or under construction. The upper Se San River has seven hydropower dams (one under construction), including the Yali Falls dam, with a total capacity of 1,866 MW. The upper Srepok River has seven hydropower dams, with a total capacity of 787 MW. There are two hydropower plants (and 6 planned) in Cambodia, including the 400 MW Lower Sesan 2 hydropower plant – Cambodia's largest, with a 75 km² and 1.8 million m³ reservoir. It began operation in 2017.

Governance framework

Water-related governance is covered by the Agreement on the Cooperation for the Sustainable Development of the Mekong River Basin signed in April 1995 by Cambodia, Lao PDR, Thailand and Viet Nam. The Agreement establishes the Mekong River Commission (MRC) and supports a broad (and multi-sector) governance perspective, including basin-level hydrometeorological monitoring and data-sharing, operational flood forecasting, and climate change adaptation. Cambodia's interaction with MRC is facilitated by Cambodia National Mekong Committee (CNMC).

Cambodia ratified the United Nations Framework Convention on Climate Change (UNFCCC) on December 18, 1995 and acceded to the Kyoto Protocol on July 2, 2002.

The Mekong-Lancang Cooperation (MLC) was entered in 2015 between China, the MRC member countries and Myanmar. On 10 January 2018, the countries signed the Mekong-Lancang Cooperation (MLC), a 5-years framework agreement on collaboration about the governance of the Mekong Basin. Cambodia's interaction with MLC is facilitated by the National Secretariat of Cambodia for Lancang-Mekong Cooperation, established in October 2017 at the Ministry of Foreing Affaires and International Cooperation.

Cambodia's Law on Water Resources Management (Water Law), promulgated on 29 June 2007, notes that (Article 1) the general purpose of this law is to foster the effective and sustainable management of the water resources of the Kingdom of Cambodia to attain socio-economic development and the welfare of the people.

The 2015 Sub-decree on River Basin Management aims to regulate the management, conservation and development of the river basins in an effective and sustainable manner as stated in the Water Law, setting out procedures for the establishment and implementation of plans for the management, conservation and development of the river basin and sub-river basins, including groundwater aquifers.

In its National Strategic Development Plan 2019-2023, the Royal Government of Cambodia supports minimizing environmental impacts, enhancing the capacity to adapt to climate change, and contributing to reducing global climate change to ensure sustainable development.

A Joint Transboundary Action Plan for Cambodia and Viet Nam[1] aims at a transboundary cooperation mechanism to:

- Minimize the impacts of flood or drought on economic development and rural livelihoods,
- Improve water security, both the availability and quality of water supply, to all water users, especially those people living and working within these regions to support rural development, food security and protection of the environment, and

[1] Mekong River Commission and World Bank. *Joint Transboundary Action Plan - the Sesan and Srepok River Basin and the Mekong Delta of Cambodia and Viet Nam.* 2019.

- Improve access to good quality water resources data and information to support a wide range of decision-making processes, and improve understanding of the current state of the water resources within these regions.

Challenges

As described in recent studies, the 3S Basin (like other parts of Cambodia) is exposed to a range of pressures – some of which severe - that affect public health, income generation and the environment. The pressures are evolving in the course of time, for example the ones related to global climate change. Also, the vulnerabilities are evolving, for various reasons that include changed land use and expansion of vulnerable infrastructure.

Many of the pressures are directly related to human activities, while others are indirectly so. Two major pressures, climate change and land degradation, can exacerbate each other. More frequent and more extreme drought events increase the risk of forest fires; and, between them, they increase the flood risk. Higher temperatures can cause new and unfamiliar kinds of insect attacks; and higher rainfall intensities increase the topsoil erosion and the risk of landslides.

Imminent concerns include flash flood exposures; drought; river bank erosion; and degradation of headwater areas, including forest fires. These pressures are exacerbated by the ongoing global climate change and the related escalation of the frequency and severity of erratic weather events.

Floods in Cambodia are caused by the seasonal monsoon system, by the occasional ENSO (El Niño Southern Oscillation) events (related to large-scale current reversals in the South Pacific), and by extreme tropical depressions (or typhoons, or cyclones). There are four kinds of floods (which can interact):

- Mekong River floods, seasonal (monsoon-related) and fairly predictable,
- Flash floods on the tributaries,
- Urban flooding, caused by local rainfall exacerbated by inadequate stormwater drainage capacity,
- Failure of structures during heavy storms, such as older levees and storages that were under-designed.

Recent extreme floods affected Cambodia in 1978, 1991, 1994, 1996, 2000, 2001, 2002, 2011 and 2013. In 2013, Cambodia lost some 355 million USD in a flood that killed 168 people, and the flooding in 2011 killed 255 people and cost the country around 630 million USD. In October 2020, while the Mekong mainstream was below its normal stage, Cambodia was hit by several typhoons, affecting around 240,000 households in 20 provinces, including Phnom Penh, causing at least 44 casualties, and substantial damage to schools, as well as roads and other infrastructure.

An analysis of transboundary water resources management issues in the Se San and Sre Pok River Basins[2] identifies 6 specific challenges:

[2] Mekong River Commission. *Sesan and Srepok Water Issues - Collaboration between Cambodia and Viet Nam. Iwrm Brief.* Mekong River Commission 2017.

1 Monitoring and assessment of river flow. Both countries need to strengthen water resources monitoring and assessment processes to support decision-making and long-term sustainable development of the basins,

2 Flood forecasting and warning mechanisms. Both countries issue flood forecasting and early warning within their territories, and they exchange information on flood and hydropower dam operations at the governmental level. However, this information hardly reaches the concerned local authorities and communities for cross-border flood forecasting and warning. Both countries need an effective flood forecasting system and data exchange mechanism for early warning, and timely dissemination to the communities,

3 Communication and information sharing mechanisms. Cambodia and Viet Nam have attempted to develop cross-border early warning systems that provide notification of water releases from hydropower dams, but sofar they've proven ineffective in providing timely and relevant information to the affected communities. With the development of the cascade of hydropower plants on the Se San-Sre Pok rivers, they need to set-up an effective flood forecasting system and a sufficient data exchange mechanism to enable warning, and the timely dissemination of respective information locally,

4 Mitigation measures to address impacts of hydro-development. Previous hydropower projects, intensive agriculture, and other activities in the Se San-Sre Pok basins were implemented without adequately considering the social and environmental transboundary impacts such as reduction in fisheries productivity, access to safe and clean water, and riverbank erosion. Both countries need to create the tools to identify effective measures to minimize these impacts,

5 Institutional capacity for transboundary coordination. Both countries need to build their staff's capacities in data collection and analysis, modeling, forecasting, impact assessment, and disaster risk management, and

6 Stakeholder engagement and awareness on water management. The development of upper dams has demonstrated limited engagement of communities, NGOs, civil society organizations and academia, which left downstream residents unaware of likely effects such as flash flooding, pollution and degradation of water quality. It is important to raise awareness and ensure constructive involvement of upstream and downstream stakeholders in the decision-making process (planning and management).

Opportunities

Climate-related development opportunities will typically support the *'triple bottom line'* of

- social benefits: Public health, food security, flood & drought management, disaster risk reduction;
- economic benefits: Sustainable livelihoods and household incomes; and
- environmental benefits: Healthy habitats and ecosystems, supported by pollution control and orderly waste generation and disposal.

Mekong River Commission. *Transboundary Water Resources Management Issues in the Sesan and Srepok River Basins of Cambodia and Viet Nam.* Mekong River Commission, 2017.

Control of the causes of climate change is an international challenge that reaches far beyond Cambodia. Never the less, some measures are clearly beneficial also at the national level, and in the short or medium term, because they serve other good purposes in addition to climate mitigation:

- Saving fuel in general and electricity in particular;
- Improved over-all efficiencies of cultivation and industrial production systems
- Recycling of chemical waste, including from refrigerators and aircons; and
- Tree planting, reforestation, and sustainable commercial forestry.

Poverty reduces the climate resilience; and improved climate resilience will support poverty reduction. A positive interaction can be achieved by

- access to sustainable livelihoods, including resource-based livelihoods;
- resource conservation: water, energy, habitats and ecosystems (inland, coastal and marine);
- risk reduction and contingency planning (floods, drought, etc.); and
- broad education and awareness-building.

Efficient production systems - in agriculture as well as industries - will improve their competitiveness as well as their climate resilience. This comprises the water and fuel efficiency - ton output per m^3 of water or kWh or unit of fuel - as well as the economic efficiency - value generated per m^3 of water or kWh or unit of fuel.

Efficiency improvement of cultivation systems serves several good purposes. It will improve the income of the farmers, in an increasingly competitive environment, while, at the same time, producing more food with less water, and maintaining food prices that are affordable to everyone.

Efficiency improvements of industries and transport systems will reduce their unit costs and generate less sewage and solid waste, while improving the air quality.

Particular water-related development opportunities include

- structural development initiatives, such as piped water supplies, irrigation infrastructure, increased storage capacity, and hydropower development; and
- as well as non-structural development initiatives, such as awareness-building about good practices for water and energy utilization, use of fertilizers and pesticides, and generation and disposal of solid waste and sewage from households as well as companies. This includes promotion of improved water and energy efficiencies across households, cultivation and manufacturing.

There is a clear scope for support to water-efficient dry season cultivation.

Institutional capacity-building at the national and sub-national level is seen as an important over-all opportunity. According to CNMC[3], this may, from case to case, involve elements like the following:

[3] Cambodia National Mekong Committee. *Organizational Capacity Needs and Options Assessment, Prepared under the Mekong Integrated Water Resources Management Project, Phase Iii, Component 2.* Cambodia National Mekong Committee, 2020.

- A gradual adjustment of mandates and tasks, responding to the ever-emerging needs and opportunities,
- Technical capacity: Tools, skills (*'life-long learning'*) (including computer skills and language skills),
- Establishment, maintenance and expansion of a readily accessible knowledge base, with good maps (collaborating with MRC),
- Good leadership, maintaining a healthy corporate culture with skilled and motivated staff,
- '*Capacity-mining*' - activating and disseminating the acquired skills, in support of improved extension services,
- Active participation in related MRC programmes,
- Higher visibility, including publication of '*success stories*', and dual-language websites,
- Professional liaison and knowledge-sharing , reaching out to the academic community, private sector operators, NGOs/CSOs, and existing and emerging knowledge hubs and *'centres of excellence'* in Cambodia and abroad (such as for example the National Committee for Disaster Management (NCDM); Cambodia Development Resource Institute (CDRI); Institute of Technology (Cambodia) (ITC); and Asian Disaster Preparedness Centre (ADPC) (Bangkok), and
- Financial sustainability supported by cost recovery where appropriate.

With some exceptions, a substantial progress can be achieved within quite modest resource allocations.

Evaluation of candidate development initiatives

A targeted evaluation of identified candidate development initiatives will support the best use of the allocated human and financial resources.

Overruling feasibility and benefit criteria include the following:

1 Support from the implementing agency; consistency with policies and planning,
2 Support from the province level and from the (positively or adversely) affected communities,
3 Manageable risks,
4 Technical complexity/ feasibility; cost implications, including (community-based?) operation and maintenance, and
5 Social & environmental impacts well understood and acceptable.

Other criteria comprise, as relevant from case to case:

6 General climate change adaptation (CCA) benefits: infrastructure, production systems, households,
7 General disaster risk reduction (DRR)-related benefits: infrastructure, production systems, households,
8 Benefits to public health, including safe water & sanitation,
9 Benefits to livelihoods and income generation,
10 Benefits to gender mainstreaming, including maternal health,
11 Benefits to ecosystems,

12 Benefits to tourism,
13 Benefits to cultural heritage,
14 Benefits to urban planning,
15 Benefits to improved knowledge base and/or improved extension services,
16 Benefits to services & utilities: water, electricity, solid waste disposal, stormwater drainage,
17 Contribution to public awareness of good practices: water & power utilization, sewage and solid waste generation and disposal, and
18 Support to a healthy investment climate.

Discussion

Opportunities for enhancing the climate change resilience at tansboundary areas are abundant:

- Capacity-building of tools, skills and modalities at the national and sub-national administrative levels,
- Predictable, transparent, multi-purpose reservoir operation – including the transboundary basins with large upstream reservoirs,
- Rehabilitation of degraded headwater areas,
- Safe water and sanitation expanded to remote rural areas: Community ponds, community wells, water jars, latrines ... supported by related awareness-building,
- Introduction of innovative technologies with improved resilience and revenue generation (agriculture, manufacturing, services), possibly including sustainable (community-based) forestry; aquaculture; and fish breeding in reservoirs,
- Improved and accessible extension services and quality certification (for extended benefits and revenue generation within agriculture and manufacturing),
- Joint (thematics) such as in eco-tourism promotion,
- Joint knowledge base development (with MRC),
- Joint human resources development and institutional capacity-building, *'learning from each other'*,
- Awareness-building (*'social marketing'*) of good practices for water and power utilization, and sewage and solid waste generation – across households, manufacturing and cultivation ... and public health, and
- Joint research activities; thematic seminars; visiting fellowships; secondments; scholarships ...

In many cases, there will be a substantial added value of combining structural interventions with non-structural schemes (such as awareness-building or *'social marketing'* of good practices, and/or capacity-building related to (community-based) operation and maintenance).

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How can the United States support Mekong countries and the Mekong River Commission?

Anoulak Kittikhoun and An Pich Hatda[1]
Mekong River Commission (MRC)

The United States and the Mekong have a long history of interactions. Parts of these interactions are for the history books, but other parts are worth to recall as they could provide motivations for a type of cooperation that would help the Mekong countries realize their interests and potentials. Not unlike the past, the Mekong today is made up of countries that are interested in different aspects of developing and managing the water and related resources. But unlike in the past, there are different challenges to overcome, and opportunities to capture, that require a higher level of cooperation, in the midst of a more complex landscape, as identified in the new Mekong Basin Development Strategy 2021-2030 facilitated by the Mekong River Commission and endorsed by its member states. It is best the United States support this new strategy in general and contribute resources to specific outputs and activities that it has comparative advantage and good expertise, such as the field of data and information collection and management using satellite technology in support of more proactive planning, better management and decision making by the Mekong countries.

The United States – An Early Champion of Mekong Development Cooperation

Lest we forget, promoting Mekong development was once a particularly American creed. American President Lyndon Johnson once espoused that the US wanted a Mekong River program that would "dwarf" its own Tennessee Valley Authority – its 48 dams for flood control and hydropower generation had transformed the Tennessee Valley under the New Deal.[2] Soon enough, the US Government put its most distinguished water agencies, from the US Bureau of Reclamation to the US Army Corps of Engineers, to aid the Lower Mekong riparian countries in investigating and planning water resources development. The US Bureau of Reclamation in its seminal 1956 "reconnaissance report" pushed for further data gathering and studies for developing the river.[3] Two years later, the Corps, led by its former Chief of Engineers General Raymond Wheeler, confirmed that "this majestic river" had "great potential… to the riparian countries in the fields of navigation, hydropower generation, irrigation and other related water uses".[4] The distinguished American environmental geographer Gilbert White, in a 1962 report, concluded that the river had "a great potential for transforming the life of peoples of the basin".[5] The first chief executive – called "Executive

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[2] Quoted in Mekong River Commission Secretariat, *The BDP Story* (Vientiane: Mekong River Commission Secretariat, 2013): vi.

[3] US Bureau of Reclamation, *Reconnaissance Report – Lower Mekong River Basin* (Washington DC: US Department of Interior, 1956).

[4] Mekong River Commission Secretariat, *The BDP Story*, 20.

[5] Gilbert F. White, Egbert De Vries, Harold B. Dunkerley and John V. Krutilla, *Economic and Social Aspects of Lower Mekong Development* (Bangkok: Mekong Committee, 1962).

Agent" – of the Mekong Committee was the American C. Hart Schaff, who believed the Mekong was a "sleeping giant" that needed to be awaken to bring "power production, irrigation, navigation and flood control."[6]

The studies by the Americans, among others, formed the basis for basin plans of the Mekong Committee in the 1960s to the 1980s. The question back then, as it is now, was how best to develop the river. The interests of each country at that time were not so much different then now, although there were some nuances. For Lao PDR, hydropower was the main interest – for export of electricity and foreign exchange so that could have the resources to develop other things such as irrigated agriculture, forestry and agro-industry. Cambodia and Thailand both wanted water for irrigation, and Vietnam wanted more flows during the dry season to raise food production in the Delta, act as a freshwater wall against sea water intrusion, and less flows in the wet season to combat flooding.[7]

Unlike today, these interests were seen not as sharply competing but wholly complimentary. A series of storage dams and projects on the mainstream and tributaries were recommended from a basin-wide point of view. For example, a flagship project was to be one above Vientiane striding Laos' Mekong left bank and Thailand's right bank, with benefits of power and irrigation for these two countries but also augment the energy installed capacities of two other storages in Cambodia. The cascade would add dry season flows and bring fresh water for Delta irrigation while reducing salinity and controlling flood in Vietnam.[8] While some of the projects planned in the past may not be feasible today, in terms of environment and social costs, the point is the conversation back then was not the typical upstream development impacting downstream use that we hear in contemporary time.

Regional instabilities, conflicts and wars in mainland Southeast Asia made sure that active cooperation on mainstream development could not take place despite USD 60 million in 12 years of investigations and planning that resulted in the United Nations-supported Mekong Committee's Indicative Basin Plan 1970[9] and some USD 18 million over 8 years just for studying one multipurpose storage project, including by American agencies.[10] In the meantime, the United States completed about 80,000 dams, of which about 8,000 are large dams.[11]

Back to the Mekong, with mainstream development implementation impossible during the Interim Mekong Committee (Cambodia was not a member), the tributaries became the focus, especially for the Thai and Vietnamese parts of the basin, where for example Pak Mun Dam and Yali Falls Dam were built respectively. Soon enough, countries began to not only think

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[6] Quoted in the Mekong Secretariat, *The Mekong Committee: A Historical Account* (Bangkok: Mekong Secretariat, 1989): 9.

[7] Mekong Secretariat, *The Mekong Committee*, 9, 81.

[8] Mekong Secretariat, *The Mekong Committee*, 32, 58.

[9] Mekong River Commission Secretariat, *The BDP Story*, iv.

[10] Mekong Secretariat, *The Mekong Committee*, 56.

[11] Mekong River Commission Secretariat, *The BDP Story*, vi; Anoulak Kittikhoun and Denise Michele Staubli, "Water Diplomacy and Conflict Management in the Mekong: From Rivalries to Cooperation," *Journal of Hydrology* 567 (2018): 657.

about tributaries but to have their own *individual national* plans for water utilization, including water diversion schemes and mainstream hydropower projects. Some of these projects came from the 1994 study and plan by the Interim Mekong Committee, supported by the French Compagnie National du Rhône, which completely revised the earlier Indictive Basin Plan with a series of run of river projects.

As peace was returning to the region, the possibility for four country cooperation on the Mekong opened up again in the early 1990s. One of the sticking points was what kind of cooperation was to be on the mainstream – the 1975 Joint Declaration under the Mekong Committee gave each riparian a veto over each other's plan. This 1975 document is sometimes misread as an instrument that blocked development. Actually, it had the opposite intention – it was to make sure that all riparians plan and cooperate together on mainstream projects from a basin-wide view. When the countries negotiated and agreed to the new Mekong Agreement in 1995 that created the Mekong River Commission, this veto right was replaced it with "*no unilateral right to develop nor veto right on another's development*". It may be puzzling, or disappointing, to some, but it was the best kind of compromise for the new Mekong cooperative regime, in order to accommodate individual national plans.

The United States – Disengagement and Gradual Return

The United States disengaged from the early days of the MRC, a void filled by European countries especially the Scandinavians. The 1994 plan was supposed to be taken up, further studied and implemented by the MRC, but was not. Instead, the new body focused on monitoring, data collection, model development, technical exchanges and knowledge acquisition, and small projects. Meanwhile, member countries, especially the late developers Lao PDR and Cambodia, began to actively secure investments from foreign and domestic sources to develop their national projects. This was also in the context of China starting to develop the Upper Mekong. The United States only returned to support Mekong cooperation through the MRC in the 2000s, including a grant of USD 1.25 million to support flood forecasting and early warning system development from 2002-2008 and a further quarter million dollars for other flood programme activities from 2005-2010.

A significant challenge then hit the Mekong water cooperation when the Xayaburi hydropower project, the first on the Lower Mekong mainstream, was submitted to the MRC's Prior Consultation (PC) process in 2010. Unlike in the past, there were clear differences of views among member countries as well as partners and stakeholders on the project and its potential adverse impacts. While there would be benefits in terms of economic growth and contribution to regional energy trading, there were concerns expressed about impact on fish migration, sediment transport, and water level fluctuations, and the inadequacy of studies and effectiveness of mitigation measures.[12] In the end, the countries could not reach agreement on the project, with the proposing country stating it had fulfilled its obligation while the notified countries calling for more consultations and more studies. The project went on to be built. The MRC had failed, some stakeholders charged.

[12] Mekong River Commission Secretariat, *Prior Consultation Project Review Report of the Proposed Xaiyaburi Dam Project* (Vientiane: MRC Secretariat, 2011).

As Xayaburi was the first PC case, the MRC acknowledged some shortcomings, but it did succeed on many fronts, given the mandate it has. First, despite their differences and tensions, the MRC countries should be commended for staying the course in terms of cooperation – never walking out on any meetings, continuing to discuss and try to understand one another, and agreeing to conduct a major study on impacts of water infrastructure projects. Second, the MRC Secretariat did its professional duty in supporting the countries with objective science in the Technical Review Report of the proposed project, made key recommendations, kept technical engagement with the proposing country and its developer, provided facilitation, and suggested ways out. The proposing country then made additional investments in studies and impact mitigation improvements that, while some gaps remain, could be considered as international standards in terms of design – fish passage, navigation locks, sediment sluices, and dam safety.[13] Finally, from the Xayaburi experience, the MRC learned and improved the process for subsequent consultations for other proposed projects with better information sharing, wider stakeholder consultations, and for the first time, brokered agreements with countries on Joint Statements on measures to avoid, minimize and mitigate adverse impacts, and Joint Action Plans for further engagement and joint monitoring of the impacts.

The MRC was able to perform its "water diplomacy" role due to the clear legal framework (Mekong Agreement and its Procedures) it operates under; the legitimate institutional mechanisms and processes (Council, Joint Committee, Secretariat, working groups, stakeholder forums, etc.) that bring countries together, that engage partners and stakeholders, and that facilitate agreements; the strategic basin vision and strategy (Basin Development Strategy) that looks beyond national interests; and finally the technical guidelines (Preliminary Design Guidance on Mainstream Dams) based on science. As the new book *River Basin Organizations in Water Diplomacy* by Anoulak Kittikhoun and Susanne Schmeier demonstrates, the Mekong, unlike some other basins, is lucky to have the MRC with relative strengths in these four areas which enable it to manage differences and disputes among the riparians.[14]

Member countries and their development partners contributed to the development of the MRC's technical and water diplomacy capacity. This includes the United States in the past, which gave USD 2 million to the fisheries programme during 2012-2015 and half a million to contribute to the USD 5 million Study on Sustainable Development and Management of the Mekong River Basin in 2015.

A New Mekong Strategy and Potential Area of US Support

Today, the Mekong River Basin is a highly dynamic region with a vast endowment of natural resources, a young and increasingly well-connected population with multiple avenues of growth and opportunity ahead. Over recent decades, rapid economic gains with steep reductions in fertility rates and increasing urbanisation have contributed to higher incomes, reduced poverty, improved food security and greater access to improved water sources,

[13] Mekong River Commission Secretariat, *Review of Design Changes Made for the Xayaburi Hydropower Project* (Vientiane, MRC Secretariat, 2019).

[14] Anoulak Kittikhoun and Susanne Schmeier, *River Basin Organizations in Water Diplomacy* (New York: Routledge, 2020).

sanitation, and electricity. But as stated in the Commission's State of Basin Report 2018, the Mekong has experienced an apparent permanent modification of mainstream flow regime, the substantial reduction in sediment flows due to sediment trapping, the continuing loss of wetlands, the deterioration of riverine habitats, the growing pressures on capture fisheries, and the limited information sharing on current water development facilities and water use.

Pressed with the urgency to address these issues, the MRC Secretariat worked extensively with member countries, partners and stakeholders to develop a new strategy for the basin from 2016-2020. With the goal of improving the state of the basin and contribute to the relevant Sustainable Development Goals in the Mekong, the new IWRM-based Basin Development Strategy 2021-2030 prescribes strategic priorities and outputs in the environmental, social, economic, climate and cooperation dimensions.

These include maintenance of acceptable flows and water quality that cover tackling plastic waste, putting in place a basin-wide sediment management plan, and ensuring there are effective fish passes. They include improved flood and drought forecasting and communication with the public, and cooperation and coordination mechanisms for data and information sharing on water infrastructure and related water emergencies. Measures to address gender and vulnerability issues, and proposals for joint investment projects that consider more storage in the basin, assess alternative energy/water system integration options, and develop core river monitoring networks and compatible decision support systems are also in the strategy. The strategy notes that its effective and successful execution will hinge upon involvement by all relevant actors and partners to plan and act together for a common interest of the basin.

The United States, in line with its commitment to "support the Mekong River Commission and its goals to strengthen and expand access to water data for science-based policy planning" in the launching of the Mekong-US Partnership on 11 September 2020, can provide financial grant and technical support to the MRC in the areas of data and information management in support of sustainable development and management. This would continue the long history of support from the US, not only the inspirational work of the past but also the present support through the exchanges with Mississippi River Commission, the US Army Corps of Engineers and several other American agencies and universities.

SUSTAINABLE DEVELOPMENT AND THE FUTURE OF THE MEKONG: A PERSPECTIVE OF REGIONAL POWER DEVELOPMENT PLANS

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The Mekong River Basin is the twelfth largest in the world and the second most biodiverse. The basin currently faces challenges that require collective review, analysis and then joint action. Especially with respect to the currently planned hydropower developments, tradeoffs between water-energy-food will be required and the need for full cost accounting, not just in market prices. With forecast population and economic growth along with increasing urbanization, the national power development plans for the Lower Mekong Basin Countries (Lao PDR, Cambodia, Thailand, and Vietnam) project that electricity generation capacity will double by 2030 from about 114 GW to 220 GW. Under current plans, the supply of additional capacity would mainly be provided by coal, natural gas, hydropower and some renewable energy.

Increased hydropower projects would bring benefits primarily for increased electricity generation capacity, water availability for domestic use and irrigation in the dry season, improved navigation, and reduced flood and drought disaster. However, the proposed hydropower projects on the both mainstream Mekong River and its tributaries would substantially change the natural flows, block fish migration routes, alter flood areas, curtail sediment/nutrient flows and drastically reduce capture fisheries.

Until recently, studies to analyze these costs did not fully internalize these impacts or underestimated the external costs. Using an approach of ecosystem services valuation that incorporates some non-market goods and service values provided by the riverine ecosystems, it can be shown that the cost of environmental and social impacts is greater than the benefits from electricity generation, improved irrigation and flood control. A conservative estimate (Net Present Value) for the total external cost of eleven mainstream hydropower projects planned in the Lower Mekong Basin amounts to $ 18 billion[1]. For example, the amount of suspended sediments in the Mekong, currently estimated at 160-165 million tons/year provides an equivalent of 26 million tons/year of phosphate to the soils throughout the Vietnam Delta. This sediment load and its nutrient value has already been reduced by half due to the impacts of the Upper Mekong Basin projects in China and was recently reported to be about 80 million tons/year. Another recent study concluded that, with full construction of all planned dams, the cumulative sediment reduction will reach 96%.[2] The Mekong River will thus experience a huge change to its core ecology.

[1] Intralawan, Apisom, David Wood, Richard Frankel, Robert Costanza, and Ida Kubiszewski. "Tradeoff analysis between electricity generation and ecosystem services in the Lower Mekong Basin." *Ecosystem Services* 30 (2018): 27-35.

[2] Kondolf, G. M., Z. K. Rubin, and J. T. Minear. "Dams on the Mekong: Cumulative sediment starvation." *Water Resources Research* 50, no. 6 (2014): 5158-5169.

Another study estimated the loss in value related to wetlands in the Mekong basin. A study showed that about 25% of the LMB land is identified as wetland area[3]. This consists of forests, marshes, and grasslands which all flooded during the rainy season. The wetland brings tremendous benefits to humans and a value was estimated at $1300/ha/yr. This estimate is based on a Thailand study of 780 local households reside nearby Bung Khong Long, a willingness to pay for the protection of the largest freshwater lake in the Northeast of Thailand[4]. These figures are conservative when compared to studies elsewhere in the world. One study found that total economic value of the main ecosystem services provided by wetlands ranged from approximately $3,300/ha/year to about $25,680/ha/year[5].

Furthermore, the hydropower costs and benefits are not distributed equitably between the Lower Mekong Basin countries. The assumption that the main beneficiaries would be the countries where the planned dams would be built is debatable; for example, large hydropower projects in Lao PDR are financed by other countries who receive the bulk of the benefits. At the moment, the choice among balancing hydropower development, biodiversity protection and sustainable livelihoods remains a challenge due to different national interests. Moreover, all the major scientific studies of hydropower impacts on the Mekong indicate huge losses of food security and further impoverishment millions of people[6]. From an economic standpoint, the tradeoffs due to hydropower development in the region would be substantial.

For the planned coal power stations, research suggests that it would cause major public health liabilities due to particulate matter emissions[7]. Studies agree that toxic air emissions cause significant and chronic lung problems and premature deaths. In China, there are roughly 366,000 premature deaths per year attributed to 3.7 billion tons per year coal burned[8,9]. Likewise, premature deaths in Vietnam from coal burning and related air pollution are projected to rise from 4,800 deaths in 2016 to 12,100 in 2025, assuming commensurate coal consumption rises from 48 million tons to 121 million tons.[10] Furthermore, the planned increased in coal power stations will add to greenhouse gas emissions which may exacerbate climate change, sea level rise, and saltwater intrusion problems.

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[3] McCartney, Matthew P., Lisa-Maria Rebelo, and Sonali Senaratna Sellamuttu. "Wetlands, livelihoods and human health." In *Wetlands and human health*, pp. 123-148. Springer, Dordrecht, 2015.

[4] Chaikumbung, Mayula, Hristos Doucouliagos, and Helen Scarborough. "The economic value of wetlands in developing countries: A meta-regression analysis." *Ecological Economics* 124 (2016): 164-174.

[5] De Groot, Rudolf, Mishka Stuip, Max Finlayson, and Nick Davidson. *Valuing wetlands: guidance for valuing the benefits derived from wetland ecosystem services*. No. H039735. International Water Management Institute, 2006.

[6] Intralawan, Apisom, Alex Smajgl, William McConnell, Daniel B. Ahlquist, John Ward, and Daniel B. Kramer. "Reviewing benefits and costs of hydropower development evidence from the Lower Mekong River Basin." *Wiley Interdisciplinary Reviews: Water* 6, no. 4 (2019): e1347.

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[8] GBD MAPS Working Group, HEI Special Report 20: Burden of Disease Attributable to Coal-Burning and Other Major Sources of Air Pollution in China. (2016)

[9] Finkelman, Robert B., and Linwei Tian. "The health impacts of coal use in China." *International Geology Review* 60, no. 5-6 (2018): 579-589.

[10] Koplitz, S.N., et al., *Burden of disease from rising coal-fired power plant emissions in Southeast Asia*. Environmental science & technology, 2017. **51**(3): p. 1467-1476.

Lignite, coal and oil also have greater external costs relative to renewable energy sources[11]. To keep climate change under two degrees Centigrade, greenhouse gas emissions have to be reduced by more than 70% by 2040[12]. In the context of the Lower Mekong Basin Countries, a World Health Organization study estimated 60,000 premature excess deaths in Vietnam due to air pollution in the year 2016 alone[13].

From an economic standpoint, both coal and hydropower development are fast being overtaken by emerging renewable technologies such as solar and wind. New investment option in coal and hydropower is already uncompetitive due to the lower electricity price of solar and other renewable sources of energy.

Lower Mekong Basin power development is now at a crossroads. The previous national power development plan was not sustainable. A forthcoming paper by a team of which I am a part recommends that an integrated LMB power plan should be developed in order to move in a regional sustainable direction. With solar electricity already experiencing rapid cost declines in the region, an opportunity now exist to build solar panel facility and employing transmission system upgrades and energy conservation measures. Advances in storage technology further provide for the integration of solar collector plants into the grid. An LMB generation plan based on low-cost solar investments would provide both environmental and economic benefits. The cost of solar is now estimated at $ 0.04/kWh and is forecast to be $ 0.03/kWh by 2025. Although transmission constraints are one of the current barriers to regional power exchange and grid connectivity, there have been several investigations that demonstrate the benefits of comprehensive cross-border ASEAN power grid. Limitation in forecasting systems and unintegrated electricity market also hinder renewable energy trading in the region. Yet increased grid flexibility offers a pathway to significantly reduce carbon dioxide emissions and lower overall system costs, while integrating shares of renewable electricity above thirty or forty percent.[14]

This paper favors an alternative plan that takes into account greater economic, social and environmental efficiencies of disruptive renewable energy technologies, and increased investment in solar power and energy storage. A comparative benefit -cost study quantifying the nexus trade-offs of various technologies suggest less reliance on coal and hydropower than has been previously proposed, and updated forecasts for LMB power demands and technology developments. This will result in improved energy efficiencies and renewable energy. This is true even now especially solar which is competitive with hydropower and should be incorporated in plans to guide energy development and inform decision makers, relating to water development policies. Balancing the water food energy nexus, while sharing and integrating benefits among countries maintaining small scale renewable energy and food production should be promoted to support local economies and strengthen local food sovereignty.

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[11] Karkour, S., et al., *External-Cost Estimation of Electricity Generation in G20 Countries: Case Study Using a Global Life-Cycle Impact-Assessment Method.* Sustainability, 2020. **12**(5): p. 2002.

[12] Bódis, K., et al., *Solar photovoltaic electricity generation: a lifeline for the european coal regions in transition.* Ibid.2019. **11**(13): p. 3703.

[13] Tran Thi Loan, *More than 60 000 deaths in Viet Nam each year linked to air pollution*. 2018.

[14] Huang, Y.W., N. Kittner, and D.M. Kammen, *ASEAN grid flexibility: Preparedness for grid integration of renewable energy.* Energy policy, 2019. **128**: p. 711-726.

The main assumptions of this proposal involves not building new coal power stations, no new Mekong hydropower projects, and no nuclear power stations. Increased investment in solar collector facilities instead of coal and hydropower will reduce investment and external costs. An improved electricity grid with energy storage and cross-country links promises to improve regional energy security. It is clear that in the final analysis, a new regional alternative energy program relying upon renewable energy will have many benefits - reduced electricity generation costs through optimal grid management which will facilitate more efficient use of low cost energy sources and lower transmission/distribution expenses. A regional grid can also improve supply reliability and ensure a reduction in generation capacity reserve margin. Most importantly the proposed alternative suggested here will save lives, alleviate climate change, and protect the integrity of the entire Mekong River Basin for all countries cooperatively.

THE MEKONG-U.S. PARTNERSHIP AS A NEW HOPE FOR THE MIGHTY RIVER

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As the 12th longest on earth[1] and 7th in Asia[2], the Mekong River, known as the 'Mighty River', originates in the Qinghai-Tibetan Plateau, flows through Yunnan Province in China and then falls into the Mekong subregion countries included Myanmar, Lao PDR, Thailand, Cambodia, and Vietnam.[3] With a length of 2,700 miles (4,350 km) long[4], the Mekong is a transboundary river shared with six countries, started in China and ended in the South China Sea. It shares 16% with China, 2% with Myanmar, 35% with Lao PDR, 18% with Thailand, 18% with Cambodia, and 11% with Vietnam.[5] Ironically, the Mekong Basin is a very comfortable shelter for 20,000 plant species, 430 mammals, 1,200 birds, and 800 reptiles and amphibians as well as an estimated 850 fish species. The Mekong is also an enormously warm home of the Irrawaddy Dolphin (freshwater dolphin) and the second largest inhabitants of bio diversities in the globe after the Amazon River.[6] Most importantly, the River plays as extremely necessary sources to supply daily survivals of more than 66 million people living along the Lower Mekong River.[7] In this regard, the Mekong River is called the "Mother of all Rivers."

Unfortunately, the Mother of all Rivers is in a serious danger. Several factors have put the River in acute risk, but one among those is a dam construction. Since China developed dam projects along the upstream part of the Mekong, the "Lancang River"[8] called by China, in 1990, the water level of the downstream part has not been stable. The Lower Mekong states have often faced droughts and floods. With 11 giant dams plus more than 100 reservoirs in the upstream, Beijing controls all Mekong's water. Remarkably, when Xiaowan dam, started constructing in 2002 and completed in 2010, and Nuozhadu dam, began to construct in 2004 and completed in 2012, put into full operations, the two have kept a very huge amount of the

[1] Chea, Sophearin. 2019. "Mekong River Commission as an Inter-Governmental Organization to Support Sustainable Management and Development of the Mekong River." *Outcome Report: The Future Prospects of the Mekong River.* Phnom Penh: Cambodian Institute for Cooperation and Peace (CICP). 1-207. P. 69.

[2] Han Bin and Huang Xiaodong. 2018. Reporter's Diary: Growing with the flow. *CGTN.* September 18. Accessed October 30, 2020. https://news.cgtn.com/news/3d3d414d7949444e7a457a6333566d54/index.html.

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[4] Kay, Johnson. 2020. China signs pact to share year-round water data with Mekong River Commission. *Reuters.* Edited by Ed Davies. October 22. Accessed October 30, 2020. https://www.reuters.com/article/mekong-river/china-signs-pact-to-share-year-round-water-data-with-mekong-river-commission-idUSL4N2HD2BL.

[5] Heather Cooley, Juliet Christian-Smith, Peter H. Gleick, Lucy Allen, and Michael Cohen. 2009. *UNDERSTANDING AND REDUCING THE RISKS OF CLIMATE CHANGE FOR TRANSBOUNDARY WATERS.* Researchgate, California: Pacific Institute in cooperation with the United Nations Environment Program. P. 20.

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[7] Brain, Eyler. 2019. *Last Days of the Mighty Rivery.* P. 6.

[8] Matthew P. Funaiole and Brian Hart. 2020. An Upswell of Solidarity: China's Mekong Dams Face Online Backlash. *Center for Strategic & International Studies (CSIS).* April 24. Accessed October 31, 2020. https://www.csis.org/analysis/upswell-solidarity-chinas-mekong-dams-face-online-backlash.

water not to flow into the downstream.[9] In that regard, water shortages in the lower riparian states become worse and worse. The 2019 severe droughts are crucial evidently addressed as follows. 17 provinces in the entire Mekong subregion declared an emergency because of the extreme water shortages.[10] The 100,000 hectares of rice fields across the subregion were damaged by the drought condition. The dreadful lack of water in 2019 reduced 50% of crop yields in Cambodia, Lao PDR, and Vietnam; declined fish catch in An Giang province in Vietnam from 200 kilos per day to less than 10 kilos a day; made the main stream of the Lower Mekong in Chiang Saen (northern part of Thailand border with Laos) dry from June to November; cut off 80%-90% fish catch in the Tonle Sap Lake, Cambodia's most important river.[11] According to the Eyes on Earth, the U.S. based climate consultant, the droughts were caused by China's 11 dams in the upstream. Beijing controls more than 100 reservoirs not to relieve water.[12] Meanwhile, the 13-page commentary of the Mekong River Commission (MRC), also mentioned that the lack of water in the downstream in 2019 was caused by water storage in China's dams in the upstream.[13] Another study by the Stimson Center, published on April 13, 2020, unveiled that if China did not turn off the tap of its dams to restrict water, the lower Mekong would receive water levels above average from April 2019 to March 2020.[14] From 1990 to 2019, the 11 dams in the upstream had held very large amounts of water. If China turns on the tap and relieves the water as normal during both dry and rainy seasons, the downstream part will not experience the water crisis. Alan Basist said that "the natural rhythm of the river was not any different in 2019 than in the other years. Yet the water received downstream was a small percentage of what it should have been," according to the study by the Eyes on Earth, published in April 2020.[15] Turning on and off the tap of more than 100 reservoirs based on Chinese leaders' decision. The life of the Mighty River is now in big risk. Daily breathes of nearly 70 million people in the downstream live on China's hands.

In responding to the 2019 desperate water shortages in the Lower Mekong, some promises have been spoken out by Chinese leaders. In February 2020, Wang Yi, state councilor and foreign minister of China, pledged that China sought to increase the water levels in order to

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[9] Milton, Osborne. 2019. "Why We Should be Worried about the Mekong River's Future: A Perspective on Forty Years of Great Change." *Perspective* (ISEAS-Yusof Ishak Institute) (105): 1-6. P. 2.

[10] Brian Eyler, Courtney Weatherby, and Regan Kwan. 2020. How China Turned Off the Tap on the Mekong River. *Stimson.* April 13. Accessed October 31, 2020. https://www.stimson.org/2020/new-evidence-how-china-turned-off-the-mekong-tap/.

[11] Remarks by David R. Stilwell, Assistant Secretary, Bureau of East Asian and Pacific Affairs, on the Indo-Pacific Conference on Strengthening Transboundary River Governance, via Video Conference. 2020. The Mekong River, Mekong Sovereignty, and the Future of Southeast Asia. *U.S. Department of State.* October 15. Accessed October 31, 2020. https://www.state.gov/remarks-at-indo-pacific-conference-on-strengthening-transboundary-river-governance/.

[12] Brian, Eyler. 2020. Science Shows Chinese Dams Are Devastating the Mekong. *Foreign Policy.* April 22. Accessed October 31, 2020. https://foreignpolicy.com/2020/04/22/science-shows-chinese-dams-devastating-mekong-river/#.

[13] Matthew P. Funaiole and Brian Hart. 2020.

[14] Brian Eyler, Courtney Weatherby, and Regan Kwan. 2020.

[15] Jack, Silvers. 2020. Water is China's Greatest Weapon and its Achilles Heel. *Harvard Political Review.* October 16. Accessed October 31, 2020. https://harvardpolitics.com/china-water-policy/.

relieve the burdens of the downstream riparian states from the severe droughts.[16] Furthermore, during the 3rd Lancang Mekong Cooperation Leaders' Meeting hosted by Lao PDR in August 2020, Chinese Premier Li Keqiang promised to share the hydropower-dam data in the Lancang River for a whole year with the lower riparian states.[17] Interestingly, on October 22, 2020, China signed an agreement with the Mekong River Commission (MRC), complying that Beijing will share a-year-round data of water flow and hydro-dam.[18] It seems like good news, but it is very hard to trust a giant communist state, China. It is too early for the Lower Mekong states to celebrate a party based on Beijing's promises. Let's wait and see "whether Beijing does what she said." At the same time, the Mekong subregion countries cannot wait for China, doing nothing. While participating in the 10th Lower Mekong Initiative (LMI) with the Mekong counterparts in 2019 in Bangkok, the Secretary of State Mike Pompeo said that the Mekong faced a crisis.[19] Truly, the Mighty River encounters the water crisis at this moment. If there are no effective measures taken places on time, the Mother of all Rivers will be dead in a very near future. What is the destiny of more than 66 million people and diverse ecosystem along the Basin?

On September 11, 2020, nevertheless, it might be a new hope for the Mekong because the U.S., the most super power on earth, transformed its relations with the Mekong subregion states from the LMI to the Mekong-U.S. Partnership (MUSP) with more reliable promises in terms of unfolding deeper and broader commitments and investing more strategies to cooperate with the Friends of Lower Mekong (Australia, India, Japan, South Korea, and New Zealand) plus donors: the European Union (EU), the Asian Development Bank (ADB), and the World Bank (WB), for the sake of stabilizing the Mekong transboundary water. Injected $3.5 billion from 2009 to 2020 plus U.S.'s new pledge of at least 153$ to support the Mekong is a clear example to emphasize Washington's strong commitment to develop the subregion.[20]-[21] To more further with hope, under the framework of the MUSP, short, medium and long-term response to manage equal fresh water-resource sharing among the six riparian states should be considered as follows:

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[16] Matthew P. Funaiole and Brian Hart. 2020. An Upswell of Solidarity: China's Mekong Dams Face Online Backlash. *Center for Strategic & International Studies (CSIS).* April 24. Accessed October 31, 2020. https://www.csis.org/analysis/upswell-solidarity-chinas-mekong-dams-face-online-backlash.

[17] Andrea, Haefner. 2020. Duelling diplomacy over Southeast Asia's most important river. *The Interpreter* . October 20. Accessed October 31, 2020. https://www.lowyinstitute.org/the-interpreter/duelling-diplomacy-over-southeast-asia-s-most-important-river.

[18] Reuters Staff. 2020. China signs pact to share year-round water data with Mekong River Commission. *Reuters.* October 22. Accessed October 31, 2020. https://www.reuters.com/article/mekong-river/china-signs-pact-to-share-year-round-water-data-with-mekong-river-commission-idUSL4N2HD2BL.

[19] Fact Sheet by the Office of the Spokesperson. 2019. Strengthening the U.S.-Mekong Partnership. *U.S. Mission to ASEAN.* August 2. Accessed October 31, 2020. https://asean.usmission.gov/strengthening-the-u-s-mekong-partnership/.

[20] Sebastian, Strangio. 2020. How Meaningful is the New US-Mekong Partnership? *The Diplomat*. September 11. Accessed October 31, 2020. https://thediplomat.com/2020/09/how-meaningful-is-the-new-us-mekong-partnership/?fbclid=IwAR0XlviUfEqjUcHQfBcjdKCMA5haOq-Z7VCWtnvOTqqEDGJG8qtrSK-p04A.

[21] Factsheet. 2020. Mekong-U.S. Partnership at a glance. *Mekong-U.S. Partnership*. September 29. Accessed October 31, 2020. https://mekonguspartnership.org/2020/09/29/mekong-u-s-partnership-at-a-glance/

For the short-term, it is an urgent response. The Lower Mekong states had experienced droughts in 2019 and the early 2020, and they are now facing floods. This crisis has already killed some peoples, destroyed several thousands of hectares of rice fields and crops, and made many people homeless across the subregion. In response, the U.S., the Friends Lower Mekong, and the donors should form an Ad hoc to study about damages caused by the droughts and floods and create a special package of funds to assist the downstream countries for recovering their economy and helping the victims who are in urgent needs. Since December-2019 until the present, the Mekong subregion has struggled with the double crisis (the Covid-19 outbreak and the water crisis). Therefore, the MUSP should work with the riparian states and the MRC to establish a special agency to study and prepare for any future crisis.

For the medium-term, making the downstream countries be confident in talking with China about the water shortages, relieving the subregion states' economic dependence from Beijing. By 2019, the trade volume between the Mekong countries and China was $260 billion[22] more than double the Mekong-U.S. trade exchange's $116 billion[23] in the same year. Due to this reason, the five countries are reluctant to negotiate with Beijing seriously. They do not want to upset China. As promised in the MUSP agreement, Washington, the Friends of Lower Mekong, and the donors should surge their trade cooperation with the downstream states including boosting bilateral trade volume, investments (foreign direct investment: FDI), and aid through development projects for the purpose of promoting the subregion such as physical and digital infrastructure development. If the U.S. and the Friends of Lower Mekong become the most important trade partners with the downstream riparian states, they are able to stand strongly and confidently to cope with China regarding the water crisis and other issues in the Mekong.

For the long-term, the ten is better than the five. The Mekong crisis should be the next South China Sea. Geographically, the Mekong subregion is located in Southeast Asia, home of ASEAN. Mekong business should be ASEAN business. However, making it possible is very difficult and needs support from the U.S., the Friends of Lower Mekong and donors under the MUSP framework. On the one hand, the downstream riparian states are hesitant to raise the Mekong issues to place on the table of annual ASEAN meetings. The five have not been united as one voice to deal with China over the water crisis. Generally, the Mekong subregion countries express their concerns about dams, but they all have their own dams. Additionally, the five still receive much benefit from China's development projects through the Lancang Mekong Cooperation (LMC). On the other hand, Brunei, Indonesia, Malaysia, and the Philippines might not agree to see any Mekong issues in ASEAN agendas, for all archipelagos have large profits with Beijing bilaterally and also multilaterally through ASEAN. In that regard, it is very necessary to have deep involvements from the U.S., the Friends of Lower

[22] The ASEAN Post Team. 2019. Lancang-Mekong Cooperation: Blessing or Curse? *The ASEAN Post.* April 3. Accessed October 31, 2020. https://theaseanpost.com/article/lancang-mekong-cooperation-blessing-or-curse.

[23] Brian Eyler and Courtney Weatherby. 2020. The Mekong Matters for America and America Matters for the Meiong. *Stimson.* April 28. Accessed October 31, 2020. https://www.stimson.org/2020/the-mekong-matters-for-america-and-america-matters-for-the-mekong/.

Mekong, and donors. Washington should play leading roles to lobby Australia, India, Japan, New Zealand, Republic of Korea, the ADB, and the WB to pay more attention to the Mighty River, cooperating with individual sub-regional states politically, economically, and socially. Doing this, the Mekong subregion will gradually become a key actor to stabilize Southeast Asia, especially in ASEAN. Meanwhile, The MUSP should promote ASEAN integration, narrowing down the economic gap between the old and new ASEAN with increasing trade cooperation. This scenario will encourage all ASEAN members to recognize the Mekong issues as ASEAN affairs.

In short, the fresh-water-resource sharing in the Mother of all Rivers is very complicated, involved in sovereignty matter: who conquers the water? Each riparian state uses its power of sovereignty to control and block the water; particularly, China has never ever consulted with the Lower Mekong states when she constructs dams and turns on and off the tap. The sovereign power and selfish of each the riparian states have gradually transformed the water in the Mekong to a "water politics", caused conflicts among the six transboundary states. Legally, water should be considered as "human rights" rather than "property rights" that everyone can receive it equally without any interferences or threats. Another concern is that talking about the Mekong, the actors are not only the U.S., the downstream riparian states, and the Friends of Lower Mekong but also China. Even though Washington has promised to invest deeper and broader, it is not believed that the U.S. uses dollars to compete with China in the Mekong. One of the most key objectives of U.S. foreign policy is "principal" including freedom, liberty, democracy, and human rights. Therefore, it is hard for Washington to shake hands with the Lower Mekong countries. Nevertheless, the Mekong subregion is one of the core interests of Beijing's charming foreign policy; Belt and Road Initiative (BRI) and (LMC) are good examples. China still continues to do whatever she can to spread its influence in the subregion, so the matter is "how much commitment Washington will invest to support the autonomous strategy of the Mekong and ASEAN." Frankly, the Lower Mekong riparian states should not wait for great powers to help, but they should focus more on the sub-regional affairs, developing "one-voice strategy" in order to tackle common challenges. They should also understand and dare to accept that the "Mekong is now a center of Washington-Beijing competition". Eventually, if she wants to build good relations with ASEAN, China should moderate its behavior toward the region. The South China Sea Disputes is already a big barrier to shake ASEAN-China ties. If China ignores and acts aggressively against the downstream riparian states, her charming strategy will become an ugly strategy before the Lower Mekong states.

2020 MEKONG REVIEW AND EMERGING TRENDS

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This article reviews a few categories of trends I've observed emerging over recent years in the Mekong. The organization of the article is as follows: first, a description of three positive trends playing out in the basin, then three negative trends, followed by a few trends that sit on a razor's edge and could fall into either category depending on how governments and stakeholders take action in the near term.

For many people around the world and in the region 2020 has been a horrible year because of the coronavirus, but 2020 did begin with a few positive signs for a more sustainable future of the Mekong River. In northern Thailand, local activists led by Niwat Roykaew and numerous community groups achieved a victory in their efforts to stop Chinese engineers from blasting rapids along the Thai-Lao border portions of the river. The activists have long noted rapids blasting would cause particular damage to the breeding grounds of important fish species like the Mekong Giant Catfish as well as deliver other negative social and environmental effects. Chinese commercial interests and some stakeholders in the downstream long wanted to develop the river for long-distance river trade deep into the Thai-Lao border, but rapids at a few parts of the Golden Triangle prevent this trade. The plans to blast the rapids were scrapped when China's Foreign Minister told Thailand's Foreign minister in January 2020 that China had listened to the will of the people, apparently in response to the actions of Niwat Roykaew. Earlier in 2019, Roykaew facilitated consultations with Chinese stakeholders to air grievances and concerns. Clearly with patience and effort stakeholder engagement can produce results; in this case it took more than two decades of persistence, but grassroots movements can indeed deliver positive results in the region.

A second trend shows that big hydropower projects are losing their fanbase among government stakeholders with the example of Cambodia's announcement to postpone its two planned major mainstream dams at Stung Treng and Sambor until 2030. This postponement likely should be read as a cancellation of the projects, because by 2030, big hydropower will be an obsolete form of power generation from a cost-basis alone. This decision by the Cambodian government was very decisive and it shows a recognition that risks to dams are rising in the Mekong region. Those risks are not just those related to ecological impacts to fisheries in Cambodia, but also note how dams are risky from an accounting perspective given the lack of water in to power turbines in Cambodia. Building a dam anywhere in Cambodia's portion of the Mekong Basin will deliver severe impacts to the migration of fish throughout Cambodia and the basin at large as well as to hydrological expansion and contraction of the Tonle Sap Lake. The changes to fish migration, which translate into reduced fish catches in Cambodia, are tangible in the kingdom with catches reduced around 70% per year for the last two years compared to normal catches. The recognition of this hydrological risk drove the decision to postpone the Stung Treng and Sambor dams. But at the same time, the Lower Sesan 2 Dam, which came online in late 2018 and was supposed to solve a many of Cambodia's power

supply problems just didn't deliver due to persistent droughts which are dropping the efficiency of dams in Cambodia. Dams just are not performing the way they are anticipated to under the new normal conditions of climate change and reduced rainfall in Cambodia.

A third positive trend is the emergence of solar power and other non-hydropower renewable options in the countries of the Mekong Basin. Today, Cambodia, Thailand, and Vietnam all are moving fast, at different paces to be sure, to incorporate solar power into their power sectors. Even Laos is finally making its turn toward solar. Perhaps Laos's perverse addiction to building hydropower dams, after all there are plans to build more than four hundred in Laos's part of the Mekong, has finally been satiated. And the turning point has come with a grand announcement: In February of 2020, the Lao Ministry of Energy and Mines announced that a Chinese company will build a 1200 MW floating solar project, the world's largest, on the Nam Ngum 1 reservoir.

Looking at data provided by my team's Mekong Infrastructure Tracker, solar has rapidly taken off in the past four years around the basin. Vietnam, a country which lagged behind Thailand for a number of years with solar development, now has plans for about 30 GW of solar projects making Vietnam one of the most ambitious developing countries in the world for solar power expansion. Cambodia now too has a few 100 MW scale solar plants in development and is ripe for rapid solar expansion. But in order to conserve the Mekong's mighty natural resource base, planners in these countries need to link the benefits of solar development to the benefits of river resource conservation. Solar photovoltaics and other forms of renewable energy provide a pathway to replace and reduce future investment in damaging hydropower projects and plan smartly for a more climate-forward future. If this linkage is missed, then countries in the Mekong could very well see an expansion of solar capacity but still build one or two dams in the most damaging stretches of the river, leading to a dire scenario for downstream stakeholders.

Moving on to negative trends, clearly the health of the Mekong Basin is now on life support after two consecutive years of abnormally dry wet seasons and the continual proliferation of dams. A first negative trend to point to is the failure for the Tonle Sap Lake to have a meaningful reversal and flood season for two years in a row. The Mekong is the world's most unique river system insofar as its largest lake which sits upstream in the system during the dry season, takes on water from the mainstream during the wet season as if it were downstream. This reversal is typically the result of a massive pulse of water that moves downstream during the wet season causing the Tonle Sap River, which flows into the Mekong mainstream at Phnom Penh, to reverse direction usually in early July of each year. That reversal sends 60 times more water into the lake during the wet season compared to its dry season volume and creates conditions for the world's largest freshwater fish catch. 20% of the world's freshwater fish catch comes out of the Mekong Basin and most of that comes out of the Tonle Sap or from fish that spend a portion of their lives in the lake. Persistent wet season droughts and the impacts of upstream river regulation by dams some in China and others in Laos and Cambodia have placed the beating heart of the Mekong on life-support.

A second negative trend also involves a health and anatomy related analogy. If this Tonle Sap is like the beating heart of the Mekong, then the mainstream and tributaries are like the

circulation system of the basin which sends nourishment throughout the "body" of the entire basin. Moving through those veins and arteries is sediment, a form of oxygen for the river that keeps it healthy. Sediment plays a critically important role in the food supply of the Mekong's might fish population and also drives major agricultural yields in Cambodia and Vietnam's floodplain. Dams block the flow of sediment and remove it from the river's circulation system, in a sense depriving the basin of its oxygen. 60% of the sediment in the Mekong Basin comes from China and China's 11 upstream dams block most of that sediment flow. And this year, the Mekong turned blue like an organism deprived of its oxygen. Soon Laos will have completed 120 dams with 287 more in its potential pipeline driving the river further toward an unhealthy peril. A blue Mekong is an unhealthy Mekong and the lack of water and the lack of sediment work together to reduce the river's fish population and natural resource provisions. As 2021 approaches, I wait with nervous anticipation to see whether the river once again turns blue.

A final negative trend is the repetition of extreme flooding events in the later months of 2019 and 2020's wet seasons. These extreme flooding events are caused by severe typhoons and intense easterly weather patterns originating in the South China Sea. Typically the eastern typhoons lose steam over the Annamite range and send steady but predictable levels of precipitation and water into the Mekong Basin via the 3S Basin in the border areas of Vietnam, Laos, and Cambodia. During the past two autumns, however, these storms, potentially intensified by climate change have violently passed over the Annamites and into Cambodia and northeast Thailand causing severe flash flooding. The frequency and intensity of these storms seem to be increasing just as the wet season is becoming abnormally dry, a somewhat freakish combination for the Mekong's wet season where rains are predictably welcomed. Despite the intensity and damage caused by these storms, policy makers and infrastructure planners should be forewarned about falsely-informed attempts at river regulation, that is using upstream dams to store water in the wet season as a way to reduce potential floods and mitigate risk. The Mekong River Commission has long promoted the benefits of flooding to the Mekong Basin and showed in a 2017 study that the benefits of the Mekong's natural flood pulse outweigh the costs of damage from flooding by a ten-fold margin. Certainly adaptation measures should be taken to mitigate risks for more extreme flooding events, if indeed these storms are part of a new normal set of climate change impacts. However, upstream dam regulation via large storage dams and reservoirs will do more harm than good to economic security in the basin. China's Lancang Mekong Cooperation Mechanism consistently promotes the false benefits of upstream river regulation and now erroneously claims that China's 11 upstream dams contribute to flood control and drought relief. To be clear, China has provided zero evidence to such benefits and no government stakeholders in the downstream have asked China to build these dams for river regulation purposes. Yet the LMC's discourse seems to be catching hold in the Mekong and extreme flooding events can driver more false-believers to their cause. Over-development of the river system to mitigate flood risk is a fast-tracked pathway to economic ruin in the Mekong.

Finally, I'd like to discuss a few trends that could fall into either the positive or negative bucket depending on how stakeholders in the basin act in the near term. Many of the previous trends discussed also could reverse direction, but the trends below sit now balanced on a see-saw. First is the future of Mekong mainstream dams in Laos. Four new mainstream dams have

gone through the MRC's Prior Notification Prior Consultation and Agreement protocol: Pak Beng, Luang Prabang, Pak Lay, and Sankham. Many have suggested these latest four dams are dominoes ready to fall in the direction of the completed Xayaburi Dam and Don Sahong Dam. Yet, the Pak Beng Dam, the first of the four dams in the above list of planned dams completed the PNPCA process in early 2017 and has yet to break ground. Thailand's Electricity Generation Authority and broader governance mechanisms have raised concerns about both the dam's impacts and the role of the dam in Thailand's energy future. To date, no power purchase agreement has been signed for the Pak Beng Dam and without a PPA, financing for the project cannot be finalized, leaving the project in limbo. The same goes for each of the remaining three dams. With the renewable energy revolution unfolding in Thailand, new options for power generation closer to home are becoming available, dampening Thailand's appetite for further purchase of power. Current ecological crises playing out in the Mekong make mainstream Mekong dams even less attractive. A window is opening in Thailand to a new discourse on regional power development, and one that could see no further dams built on the Mekong mainstream.

Next, in a somewhat reverse orientation to Thailand, Vietnam is showing more interest in buying power from Laos's battery of Southeast Asia. Vietnamese media have reported Hanoi's interest in purchasing as much as 14 GW from Laos through cross-border power trade agreements and investment in power generation infrastructure and transmission. I argue that this is an opportunity to keep Laos on the pathway of becoming a battery of Southeast Asia, but a better, greener batter. After all, Vietnam should act in its own self-interest to see that dams built in Laos are operated and sited in parts of Laos's portion of the basin which will deliver relatively lower impacts to Vietnam's Mekong Delta far downstream. And more importantly, Vietnam can take lessons learned from its rapid expansion of solar and wind to Laos to make Laos a champion of non-hydropower renewable expansion. This shift, if introduced by Vietnam to Laos, could see income streams from investment projects flow more robustly to Laos since payoff periods for solar and wind projects are much shorter than hydropower projects. Vietnam and development partners have a grand opportunity to foster Laos's shift toward solar and wind.

A final trend that lies on the razor's edge is the increasing availability of data and the promise of information transparency and data democratization in the region. To date, countries in the Mekong suffer from a severe trust deficit. Most governments in the Mekong loathe to share data about dam operations and reservoir conditions, although Thailand's EGAT and Laos's EDL-GEN have considerably improved online real-time reporting through their own platforms. China's LMC has increased its data sharing for two river gauges along the Mekong in China, but its dam operations still sit inside of a black box. But this hoarding of data which typically covers up alterations to the river's natural hydrological cycle is on a short lifeline. Today remote sensing and satellite imagery can be used by government and non-government stakeholders to significantly improve transparency of dam operations and water availability throughout the basin. Gradually, an increase of such transparency can reduce the trust deficit and mete out the accountability gap that has loomed over the basin for decades. If government stakeholders can embrace new tools as a way to promote cooperation and collaboration, then a bevy of positive outcomes can accrue throughout the basin. The Stimson Center and Eyes on Earth have partnered with the support of the Mekong-US Partnership to produce the Mekong

Dam Monitor, a new online platform that uses remote sensing and satellite imagery to provide a range of analysis on dam operations throughout the basin. This is a first attempt at the establishment of a basin-wide analysis of dam operations which will let stakeholder know specifically where water is being stored when water is needed. Tools like the Mekong Dam Monitor are popping up more frequently now that underlying technology and support applications is becoming more readily available and inexpensive. How the region considers the quick uptake of these platforms or delays such uptake could rescue the river from a point of no return or send it further down the road to peril.

SUSTAINABLE DEVELOPMENT AND THE FUTURE OF THE MEKONG RIVER

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The Mekong is one of the main rivers in Asia, providing a source of water to ensure the sustainability of human, animal, biodiversity, environment, fisheries, natural resources, agriculture, climate change and socio-culture in the region. About [1]65million people living in six countries, including Cambodia, Laos, Thailand, Myanmar, China and Vietnam, are directly benefiting, and 300million are indirectly benefiting from the flow of the Mekong. Local people have identified the water resources, fisheries and natural resources in the river basin as common resources, sustainable green banks, which are inexhaustible and invaluable to ensure sustainability for life, the livelihoods and socio-culture[2]. The people called the Mekong is the Mother River that providing natural resources for human and animal life in the whole region.

In the multicultural society of the region, the people belief that value of the Mekong River's natural water regime or natural flow is the sustainability of community economic development, socio-culture[3], environment and the livelihoods. For example, when Cambodians see the Mekong River flowing into the Tonle Sap, it has indicated that the rainy season has begun and farmers have to prepare agriculture activities for the rainy season, and when they see the Tonle Sap flowing back into the Mekong River, it has indicates that the low water season has begun, so fishermen have started fishing to collect fishery resources and prepare Prahok for consumption in the dry season and the upcoming rainy season. Therefore, the water regime in the sense of natural law tells farmers to produce food and harvest natural crops for food security each year. The measure of natural law by the river regime varies chronologically depending on the changing aspects of economic development in the Mekong region.

In fact, from the 1990s until now, large-scale development projects in the Mekong Basin have been developed, such as the plantation projects, which transforms the natural forest into millions of hectares of large-scale plantations, such as cassava, rubber, banana, durian and mango[4], etc. In this part, it has impacts on the groundwater and the quality of the soil, as well as watershed of the Mekong River. At the same time, water infrastructure development projects, including diversion dams, irrigation systems, small and large-scale hydropower dams on mainstream and tributaries of the Mekong has contributes to the change of the Mekong River water regime. Developers have considered on the valued economic and social development more than protecting the environment and natural resources, which contributes to a number of challenges that threaten the Mekong River's fisheries, biodiversity, environment and water quality. At the present, the development of hydropower dams on the

[1] The NGO FORUM on Cambodia Report on Mekong Study 2018
[2] Report of Mekong People Forum 2014
[3] Tek Vannara: Sustainable Mekong River, the case study of Osvay Community in Stung Treng Province, Cambodia. 2019.
[4] Study on impacts of Plantation in the Mekong Region 2018.

mainstream of the Mekong River[5] is an important topic that intergovernmental, people, multi-stakeholders are actively discussion to find appropriate solutions and mechanisms to guaranty Mekong River Sustainable Development that ensures a balance between economic, social and environmental protection.

For local people and civil society, to reduce the impacts of the expansion of hydropower development in the Mekong region are 1) All major development projects must place the people at the center, or the people is the core of sustainable development, respecting to people right, openness, disclose information, transparent and accountable, 2) The intergovernmental of the six countries (Cambodia, Laos, Thailand, Myanmar, China and Vietnam) that own of the Mekong Basin should establish a transparent and accountable dialogue mechanism to develop a common master plan for the development and conservation of the Mekong River, agree on the equitable use of the Mekong River Basin between the upstream and downstream countries, with mutual respect and equitable distribution of the benefits of all those developments according to the actual number and size of the Mekong River flowing through each country, 3)Promote participation in the protection of the Mekong River resources through local community mechanisms such as river basin organizations, fishery community, forestry community, ecotourism community, protected area community, water resources management community and indigenous people community, so that they have ability, resources and best practices to actively participate in community development and conservation, 4)Encourage more active community-based research so that communities have a better understanding of their local resources, especially current river basin changes, so that they can use those results to develop community development plans which can contribute to the real needs of the people, 5) Transboundary environmental and social impact assessment should be conducted in the whole region in order to accurately calculate the cost and benefits analysis of the projects, especially the value of environmental, biodiversity and cultural, so they have clear picture in comparison to economic and social development. Developers must ensure that their projects have sufficient resources and mechanisms to respond to the environmental management and restoration plan which has approved in the Environmental and Social Impact Assessment Report, 6) Ensure that all the projects, both development and conservation projects, have community representative in the mechanism of evaluation and monitoring of the implementation of environmental management and restoration plans, and all the voices of the people representative are respected and discussed in a transparent and accountable response, 7)The six intergovernmental should conduct a study of the common resources of the Mekong River Basin to obtain common information across the region for the Mekong River Basin Development Dialogue which ensuring economic progress, good social development and environmental sustainability, 8) Should be conduct more studies on the development of renewable energy in the region, rather than competing for the development of large scale dams. Renewable energy developers should consider discounts to boost demand across the Mekong region to reconsider between dam development and alternatives, 9) For exist hydropower dams, all dam owners, including intergovernmental organizations, should set up a common information system on water data, water flow and dam operation, and this information is provided on a regular basis in a system where the people in the Mekong region can access its at any times to contribute to the use of water resources and respond in a timely

[5] Report of Mekong People Forum 2020 which organized by NGOF in Stung Treng Province, Cambodia.

manner to reduce the risks that may eventually occur due to changes in water flow during the dry and rainy season, 10) Promote multistakeholder dialogue among existing mechanisms for the development of the Mekong River Basin, such as the Mekong River Commission (MRC), the Mekong-Langchang Forum (MLF), and the Lower Mekong Initiative (LMI) and more international mechanisms to ensure that common issues of the Mekong River Basin are discussed and addressed in a transparent and fair. In particular, in these existing mechanisms, a fair mechanism should be added, in case each party is unable to reach an agreement, they can go to an independent judge, which we call a third party or regional court[6] and 11) and all the mechanisms mentioned in point number 10 must be respect the fundamental rights of the people who are directly dependent on the Mekong River Basin resources, especially the right to access to information, public participation and decisions which is parts of global mechanisms set out in UN declarations such as FPIC, UNTRIP and UNDROP and the World Commission on Dam, etc.

Article above are contributions to answers of two main questions 1) How to mitigate damage caused by hydropower dam expansions? and 2) It is too late to save the Mekong and What Actions in near and medium terms to ensure its long-term sustainability? were asked in the conference on Sustainable Development and the Mekong in the Future which was organized by CICP on 26-27, October 2020 at Le Royal Hotel, Phnom Pen, Cambodia.

[6] Results of previous communities' consultations on PNPCA of Xayaburi, Donsahong and Pak Beng Hydropower Dam Development in 2014-2019.

TEARING APART THE MEKONG: IN-THE-MAKING SECURITY THREATS AND THE RISE OF CITIZEN SCIENCE[1]

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Decades of building hydropower dams have turned the mighty Mekong River into the world's most dam-dotted river. China dams in Mekong upstream reaches have brought irreversible changes in downstream wetlands and livelihoods that completely rely on the free Mekong water flows and resources. Current evidence reveals that the upstream dams are causing irreparable damage to the lower Mekong Delta, altering fragile ecosystems and wrecking the farmers' livelihoods. Since 2010, the Mekong Delta has witnessed the record repetition with devastating drought every four years, costing the local governments tens of trillion of U.S. dollars due to the heavy toll on agricultural production. The combination of drought and decreased flows from Mekong River also caused dire humanitarian and other economic impacts: almost half a million households lacked fresh drinking water and experienced food shortages and thousands of affected people had to migrate to urban areas in search of jobs.

While the local governments remain perplexed about the right way to respond to the repeated devastating droughts and sustain local ecosystems and livelihoods, the irreparable damages built up by the extreme weather conditions are deteriorating the Mekong Delta ecological wonders and profoundly changing local distinct cultures and lifestyles. For wetland RAMSAR reserves, decreased downstream flow of Mekong water in recent flood seasons means a lack of nutrient and sediment needed to feed the biodiversity and refill aquifers which is the main water supply in the dry season. The unpredictable floods, coupled with the depletion of natural fish resources destroys for the local people, their generations-long floating nomadic lifestyle, which was formed by the fusion of diverse cultures, ethnicities, food habits, and traditions as they travel to all corners of the delta on their houseboats.

A few experts deny that the fragile Mekong Delta appears most vulnerable to climate hazards. As climate change poses existential threats to fragile ecosystems such as the Vietnam's Mekong Delta, these systems can be resilient in their pristine state. However, the human-made interventions are so significant that marginalize the climate change effects.

Dr. Philip Minderhoud and Dr. Sepehr Eslami Arab from Utrecht University, research members of the Rise and Fall Project, presented their 6-year research findings at a Mekong Environment Forum online symposium on April 27, 2020. Their study confirmed that saltwater intrusion in the Mekong Delta is less than 5 percent due to climate change, but is primarily attributed to hydropower development (Mekong Environment Forum 2020). According to the two researchers, the fluvial sediment supply has dropped nearly 90 percent

[1] Part of this commentary was published in Nguyen Minh Quang and James Borton (2020), Ecocide on the Mekong: Downstream Impacts of Chinese Dams and the Growing Response from Citizen Science in the Lower Mekong Delta. Asian Perspective 44(4), 749-766. doi:10.1353/apr.2020.0032.

because of the upstream dams. Their studies and others highlight that upstream hydro-infrastructure developments impact bed and bank stability, biodiversity, basin flow regime biology, fish productivity, and sediment and nutrient transport. The depletion of sediment flow to riverbeds and banks are fast eroding far beyond climatic trends. When the dams regulate the flow of the Mekong and kill the flood pulse, the Tonle Sap Lake can no longer function as a historical flood retention reservoir and thus fails to supply needed water to the Mekong Delta.

Recent study from the Eyes on Earth reveals that from 1992 to 2019, satellite measurements of "surface wetness" in China's Yunnan Province suggests that the region actually had slightly above-average combined rainfall and snowmelt from May to October 2019. "When drought sets in, China effectively controls the flow of the river," claims Brian Eyler (Stimson's Southeast Asian Program Director).

The new data presents a damning picture of China's upstream unprecedented restriction of water flow from the Mekong's upper basin. The science study attests that China could have done much to alleviate drought and maintain an above-average river level. Stimson's research reveals a systematic pattern of Beijing's "run-of-the river policy" that translates simply: Water should never be shared without China using it first or unless someone downstream pays for it. This action is punctuated by the failure of China to sign any international treaties for its transboundary rivers. In a geopolitical showdown, the Chinese government believes that Mekong water is a sovereign resource rather than a shared resource, placing the downstream governments' need to secure free access to international water resources, biodiversity conservation and food security at risk.

China's irresponsible water management in the upstream Mekong reaches is likely to serve as more challenging geopolitical precedent inspiring other upstream countries if they require a political upper hand in bilateral relations with downstream neighbors. Senior Mekong experts and international NGOs, such as International Rivers, IUCN, and WWF, have repeatedly warned the Mekong countries of the Mekong damming's irreversible social and environmental impacts in the past years (see International Rivers 2014). But more dams are being built and many more have been planned in the Mekong Basin, making it the world's dam-dotted river basin. The hyperactivity construction of Mekong dams reflects the growth-at-all-cost policy of upstream countries. In disrupting material and energy flows along the Mekong, hydropower dams, compromise the health and functioning of these coupled human-natural systems.

The sustained pace of economic development of these riparian countries over the past several decades reveals the increased economic and political dependence on China's orbit. China sees the Mekong River Subregion as one of the most geo-strategically important regions in its Belt and Road Initiative. Huge economic and infrastructure investment flows from China could help it win friends in short-term, but the construction of hydropower dams in China's Yunnan Province has sharpened international disputes over the shared Mekong water resources, tarnished Beijing's image among downstream public and international communities.

Improving Mekong hydro-politics demands institutionalized cooperation, transparency on projects, rules-based water management regime, among others (Chellaney 2019). While it is

unlikely that China will ratify any legally-binding transboundary water management initiative and the progress in ASEAN-level negotiations of transnational resources management remain limited (Neusner 2016; Williams 2013), attention has shifted to the emergence of grassroots environmental movements, which have demonstrated success in some situations (Borton 2018; Inside Indonesia 2020; Quang and de Wit 2020; Thepgumpanat 2020).

Thailand's recent termination of a China-led navigation project on the Mekong River, following resistance by local farmers and conservationists, is a visible example of how grassroots green politics is growing in the region. Thai residents along the Mekong, led by the Rak Chiang Khong (or "Love Chiangkhong"), a community-based environmental group and the Network of Thai People in the eight Mekong Provinces, strongly opposed the project from the beginning on the grounds that the blasting would damage the environment, the ecological system in the river and fishery resources and that it would cause riverbank erosion and have an impact on the natural boundary line between Thailand and Laos.

The success of the years-long fierce opposition of the Rak Chiangkhong is among a few successful grassroots movements across the region that addressed the negative impact of hydropower dam development. It demonstrates the power of a participatory culture and is an excellent example of how engaged citizen scientists can translate their informed views into action and affect policy changes in the Lower Mekong Subregion where democracy and the voices of local people are often not heard by policy makers. The growth of grassroots participation in environmental issues, and in scientific research in general, is recently theorized as what may be called "citizen science." Here, we define citizen science as the collaborations between scientists and interested (local) citizens to broaden the scope of research and enhance the compiling of scientific data through community-based monitoring and internet-driven crowdsourcing strategies. The increasing prevalence of internet and smartphone usage throughout the Lower Mekong provides us an effective digital infrastructure for doing so.

What can be learned from the Mekong hydro-politics?

First, the Mekong transboundary water crisis calls for institutionalized cooperation and harmonious, rules-based transboundary water management regime, which however does not seem likely due to China's refusal to get on board. Without progress in transboundary water resources management, Mekong downstream communities stand to shoulder irreparable impacts posed by China dams.

Second, China's water policy in the Mekong is deepening the lower Mekong governments' dependence on its political orbit. This increases China's presence and influence in the region, followed by the new wages of Chinese immigrants and "neo-colonized enclaves" in geopolitically important areas across the Mekong Lower Subregion.

Third, somewhat related to the second, the increasing dominance of Chinese immigrants and infrastructure and FDI investors are marginalizing local communities, especially small-scale poor farmers, peasants and women, who have lost their lands and are not able to secure jobs in Chinese-backed development projects built in their home villages. This discrimination is

causing social fragmentation. As the Mekong River is no longer able to provide nutrients and resources, local peoples have no choice but to migrate to new places in search of new life and jobs, and thus social disorders and inter-ethnic clashes might be inevitable. Peoples of no nation, such as the Hmong in Laos, the Vietnamese Cambodians in Cambodia, etc. would be behind, and become the next "geopolitical agents" challenging the bilateral relations between the concerned nation-states.

Finally, while the Mekong hydro-politics seems getting murkier, the emergence of citizen science-led grassroots green politics offers promise in solving the challenges to the Mekong trans-boundary resources management from the ground up. The growing citizen science-led collective grassroots initiatives in the Lower Mekong provide opportunity for the downstream governments to broaden their response strategies. External players, including international NGOs, should pay attention to the local networks of citizen science in the Lower Mekong Subregion, especially in Cambodia and Mekong Delta of Vietnam. They are now acting as change agents, promoting grassroots democracy and green politics which appear to challenge the top-down environmental governance in these centralized regimes. Supports to increase the capacity of local NGOs/networks of citizen science would be a non-confrontational and impactful approach that helps local peoples and governments to reject non-sustainable development projects without political tensions or diplomatic dilemma.

FOSTERING COOPERATION, COORDINATION AND COMMUNICATION FOR THE FUTURE OF MEKONG

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The Mekong River is one of the most important rivers in Southeast Asia. Approximately, 326 million people live in the six countries in the Greater Mekong Sub-region (GMS). So far, tremendous efforts from Mekong countries, themselves, development partners and other stakeholders have been put to promote the socio-economic development within the region. However, much more cooperation, coordination and communication among those involved are very much needed so as to drive forward and speed up the development process for the better future of Mekong. Though socio-economic development of Mekong region is multifaceted, three keys aspects including reaping benefits from cooperation frameworks; sharing of water data and information; and promoting the alternative economic corridor are discussed here as follows:

Reaping full benefits from Cooperation Frameworks involving Mekong Countries

Nowadays, Mekong countries have been becoming more attractive as trade and investment destination for external partner countries. A number of Mekong plus one cooperation frameworks have been established. Such cooperation frameworks include Mekong-Korea Cooperation, Mekong—Japan Cooperation, Mekong-Lancang Cooperation, Mekong-Ganga Cooperation, Mekong-US Partnership and Ayeyawady-Chao Phraya-Mekong Economic Cooperation Strategy (ACMECS). Under the Development Cooperation Diplomacy approach, these cooperation frameworks were set up with the primary objective to provide technical and financial assistance to Mekong countries, especially, Cambodia, Lao PDR, Myanmar and Vietnam.

During the past years, the cooperation between Mekong countries and external development partners have been upgraded. For example, Mekong-Korea Cooperation Fund (MKCF) was set up in 2013; and the fund has been managed by Mekong Institute since then. In November 2019, the Mekong-Korea Cooperation has been upgraded from the Ministerial level to the Summit level after the launch of Korea's New Southern Policy. As for the cooperation with the US, Lower Mekong Initiative, which was created in 2009, was recently upgraded to Mekong-US Partnership (MUSP) in September 2020. This cooperation addresses transboundary challenges among Mekong countries and the US. With regard to Mekong-Lancang Cooperation (MLC), it was established in 2016. The operation is under the Five-year Plan of Action from 2018-2022. As far as Mekong-Japan Cooperation is concerned, the concept of a Green Mekong was proposed and adopted in 2009. Mekong region is regarded as a target for Japanese Official Development Assistance. In terms of Mekong-Ganga Cooperation, this is the Indian-led initiative in accordance of India's Act East Policy, which is an action-oriented diplomatic policy launched in 2014. One of important cooperation frameworks is ACMECS. It was initiated in 2003 and revigorated at ACMECS Summit in Bangkok in 2018. This

framework belongs to solely five countries in Mekong region. The primary objective is to bridge economic gap in the sustainable manner.

All these cooperation frameworks could be seen as the competition and the platform for power -balancing among Mekong's external partner countries. But on the positive side, Mekong region become the platform for cooperation and coordination among Mekong countries, themselves, and the external partner countries. It is the way to diversify partnership with different development partner countries so that the region will not rely too heavily on one individual superpower.

Under all of these cooperation frameworks, the priority areas of cooperation were identified in accordance with the development strategies of each individual countries in Mekong region. All have common priority areas to be addressed, namely agriculture and rural development, trade and investment, enhancing connectivity, green growth, digital and information technology and water resources management, just to name a few. Therefore, it is essential to strengthen cooperation and coordination among development partner countries and Mekong countries. The duplication and fragmentation of cooperative efforts have to be avoided so as to achieve the optimal allocation of resources in the region. The database on cooperative development projects within the region need to be formulated. Lessons learned and success stories must be shared. The development partners and Mekong countries will be aware of development projects that have been implemented and are being implemented in different locations in the region. This is to give ideas for project design and implementation to be coherent and built up from existing projects. A successful story in one location can be mimicked in other locations. More importantly, sharing lessons learned provides information on practices and factors that lead to unfavorable results of project design and implementation so that the same practices can be avoided.

Pushing forward for Water Data Sharing

The sharing of statistical data and information is extremely crucial for stakeholders along the Mekong River at the regional, national and community levels. Timely information on floods, droughts, water level situation and the flow of water are valuable inputs for decision-making process for relevant authorities. If the prompt and accurate data and information are widely shared, then suitable decisions will be made to harness the opportunities as well as to address the challenges effectively.

The coordination and communication mechanism between two leading regional organizations, which are Mekong River Commission (MRC) and Lancang-Mekong Water Resources Coordination Center (LMWRCC), need to be strengthened. LMWRCC was set up in 2017 to promote harmonized coordination on water management for stakeholders among six countries in the Lancang-Mekong River Basin. In December 2019, MRC and LMWRCC have signed the Memorandum of Understanding (MoU) for better management of the Mekong River. Both organizations agreed to exchange data and information, monitor river basins and conduct joint assessment of Mekong water resources and other related resources. Regarding research and studies, the future cooperative research works by MRC and LMWRCC will be extended and updated from existing MRC research that have been accumulated during the

past three decades. This is to avoid the repetition of the research works with the same focuses conducted separately by each of the two organizations.

According to the study on Enhancing data-sharing mechanism in the Mekong-Lancang River Basin: Opportunities and Challenges by Mekong Institute, it was recommended that an Expert Group should be established. This small group is represented by experts from relevant government agencies and academic from six countries in Mekong River Basin as well as experts from relevant intergovernmental and international organizations. Once the Expert Group is set up, the Joint Priority Needs Assessment should be conducted. Problems and solutions must be identified in the Joint Priority Needs Assessment. The output from this study will be inputs for the next moves in developing guidance or protocols for practical data sharing; formulating protocols for dam construction and operation; providing infrastructure and equipment; and designing capacity building programs for officials and local communities. Then the practical data and information sharing system will be developed to fit the real needs and available resources. Also, it was recommended that short-term and long-term plans of action as well as monitoring and evaluation system must be put in place to ensure sustainability and effective implementation. The strong determination for cooperation, coordination and communication between MRC and LMWRCC will speed up the livelihood improvement in the Mekong River Basin.

Mekong River as an Economic Corridor

Considering the road networks in the Mekong region, the main economic corridors include North-South Economic Corridor, East-West Economic Corridor and Southern Economic Corridors. These Economic Corridors link the important commercial areas in the region. They have been creating lots of opportunities for trade, investment and tourism for Mekong countries. However, road networks are necessary, but not sufficient. It is worthwhile to promote the inland waterways to become alternative economic corridors in the region. Therefore, as a principle international river running through six countries, the Mekong River is one of the alternative regional inland waterways.

A number of agreements aiming to strengthen connectivity in the region potentially have favorable impacts on cross-border trade, and in turn, raise the demand for transportation along the Mekong River. As a consequence of Regional Comprehensive Economic Partnership (RCEP) and ASEAN-China FTA, tariff barriers between China and ASEAN Member States have been reduced and will be reduced further. This creates high demand for transport in different modes including waterway transportation. Within ASEAN framework, the Master Plan of ASEAN Connectivity and ASEAN Customs Transit System (ACTS) as well as ASEAN Transport and Logistics Framework potentially enhance the efficiency of river transport, make customs transit easier and lead to the higher flows of cargo in the Mekong region.

However, to promote the Mekong River as an economic corridor, several actions need to be taken. The consistent flow of river must be ensured. Water level fluctuation must be minimized. Thus, the effective data sharing mechanism helps in these aspects. With regard to river-related infrastructure, the cooperative agreements and projects have significantly improved port facilities and navigation channels, especially in the upper Mekong section. The

major designated ports for international traffic include Simao and Guanlei ports in China, Wan Seng and Wan Pong ports in Myanmar, Chiang Saen and Chiang Kong ports in Thailand as well as Ban Houei Sai and Luang Prabang ports in Lao PDR, just to name a few.

Besides infrastructure improvements, the cooperation among Mekong countries, development partners and international organizations in enhancing the capacity of relevant human resources from government agencies, private sector and communities is very much crucial. Mekong Institute's study on Development Potential for International Shipping on Lancang-Mekong River suggested that there are needs in building capacity on a variety of issues, for instance, Cross-border transport regulations; Navigation regulations and laws; Navigation licensing system; Port operation and management; Radio navigation system through Global Positioning System (GPS); and Language used for waterborne/ maritime navigation.

In summary, the cooperation, coordination and communication among Mekong countries, development partners and relevant stakeholders need to be strengthened. This is to speed up the development process in Mekong region. With regard to cooperative frameworks with development partners, the database on project implementations, lessons learned and success stories should be formulated so as to avoid duplication and fragmentation of project implementations. As for the water management aspect, the coordination between MRC and LMWRCC is important to push forward the improvement of data sharing mechanism, formulation of the protocols for dam construction and operation, and capacity building on relevant topics in order to address the constraints on data sharing. Last but not least, the potential of the Mekong River as an economic corridor needs to be explored. Improvement of infrastructure and joint capacity buildings are essential to serve the higher demand of waterway transportation in the region.

WATER GOVERNANCE IN CAMBODIA: TOO MUCH AND TOO LITTLE

Mak Sithirith
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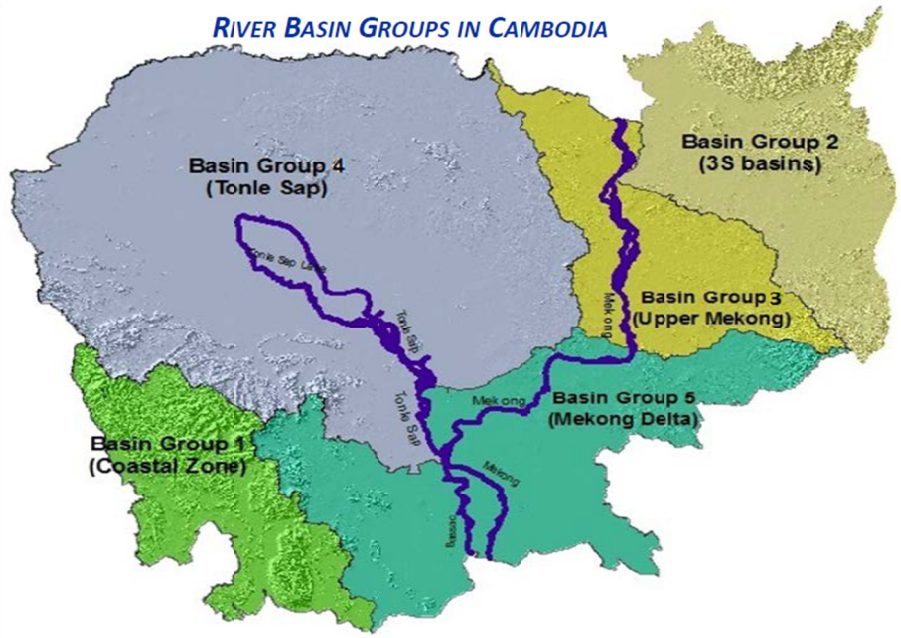
Introduction

Cambodia covers an area of 181,035 km². About 86% (156,000 km²) of Cambodian territory falls in the Mekong catchments. Geographically, Cambodia is a lowland and downstream country in the Mekong. Cambodia has 39 river basins, grouped into 5 river basin groups (RBG):

- the upper Mekong,
- the 3S River Basin,
- the Tonle Sap Basin,
- the Mekong Delta and
- the Coastal River Basin.

Cambodia has too-much water during the wet season, and too-little water remains in the dry season, which often turn into floods and droughts. Floods and droughts have occurred frequently and it has destroyed crops, properties, infrastructure and loss of life. These, in addition to wars and killing fields, have contributed to poverty and poor country in the world.



Map 1. Map of Cambodia and Key River Basins

Water Resources in Cambodia

Hence, Cambodia has abundant water resources. About 120.6 km³ of water come from within the Cambodia territory and another 355.5km³ flow from outside Cambodia, particularly via the Mekong River. The total renewable water resources (TRWR) in Cambodia is estimated at about 476 km³ annually. The TRWR per capita in Cambodia is estimated at about 30,352km³.

This suggests that Cambodia has abundant water resources (Table 1).

Only small proportion of water resources flowing through Cambodia is utilized. About 2 million m^3 of water is used in Cambodia each year, with agriculture the largest user, accounting for 94% of usage. Irrigation water withdrawal consumes an estimate of 1,928,000 m^3 annually. The rest of water is used for domestic uses and industry. The total amount of water withdrawal per capita is estimated about 159 m^3/year.

Table 1. Water resources availability and its uses in Cambodia

Water Resources	**Volume of water**
Internal Renewable Water Resources	120.6 Km^3/year
External renewable water resources	355.5 Km^3/year
Total renewable water resources (TRWR)	476.1 Km^3/year
TRWR per capita	30,352 m^3/year
Source: FAO Database, 2020; http://www.fao.org/nr/water/aquastat/data/query/results.html	

The internal water resources of Cambodia originate from five main river basins. These include: (1) the Tonle Sap river basin, (2) the Upper Mekong river basin; (3) the 3S river basin; (4) the Mekong Delta river basin; and (5) the Coastal river basin. The Tonle Sap river basin comprises of 16 sub-river basins; the Upper Mekong river basin of 5 sub-river basin; the 3S of 3 sub-river basin; the Mekong Delta of 8 sub-river basin and the coastal river basin of 8 sub-river basins. These rivers and sub-river basins are sources of freshwaters and make Cambodia abundant water resources. Mekong River is the source of external water flowing to Cambodia. It contributes a large volume of water flowing into Cambodia and then the South China Sea. Thus, it makes Cambodia abundant water resources.

Water Management in Cambodia

Cambodia has a diverse range of freshwater sources, including rivers, streams and lakes, and these contribute to an abundance of water, most of which is designated as state property. The effective management of such water is a key role of the Cambodian state. Water management in Cambodia has long been dominated by a centralized management system.[1] The centralized water management in Cambodia is devoted to the development and management of irrigation systems. In this regard, water management has been equated as irrigation development and management.

There are over 2,500 irrigation schemes in Cambodia, categorized into small (50 to 200 ha), medium (200 to 5,000 ha) and large scale (>5,000 ha). There are a total of 47 large, 1,243 medium, and 1,254 small-scale schemes.[2] In terms of irrigated area, this corresponds to an annual total irrigated area of some 498,200 ha for large, 931,900 ha for medium and 131,290 ha

[1] Ojendal, J. *Sharing the Good: Modes of Managing Water Resources in the Lower Mekong River Basin*. Göteborg University Department of Peace and Development Research, 2000.
Kummu, M. "Water Management in Angkor: Human Impacts on Hydrology and Sediment Transportation.". *Journal of Environmental Management* 90, no. 3 (2009): 1413-21.

[2] Ministry of Water Resources and Meteorology (MOWRAM) and Agence France Development (AFD). *Water Resources Management and Agro-Ecological Transition for Cambodia, Wat4cam Phase 1*. Program Feasibility Study: Final report, SCP in Collaboration with GRET, 2018.

for small-scale schemes, giving a total of over 1,561,390 ha. Of total schemes, about 1926 schemes are in potential for rehabilitation (MoWRAM, 2019).

Anyhow, irrigation in Cambodia could take annually only 1.928 km^3/year. This is a small proportion of water that irrigation schemes could take water from large volumes of total renewable water resources in the country (see Table 2). Thus, irrigation schemes are too small to deal with vast volume of water in the wet season. Nonetheless, many large-scale irrigation schemes do not operate in the dry season due to a shortage of water, while many small-scale irrigation systems, such as those suitable for small farmers, were not completely built. Hence, the efficient use and governance of water resources continue to be a challenge to Cambodian farmers (Chea, 2010).

Table 2: The irrigation water withdrawal versus the total water resources

No.	Water Withdrawal	
1.	Agriculture	2.053 Km^3/year
1.1	- Irrigation water withdrawal	-1.928 Km^3/year
2.	Municipal water uses	0.098 Km^3/year
3.	Industry	0.033 Km^3/year
4	Total water withdrawal	2.184 Km^3/year
Source: FAO Database, 2020; http://www.fao.org/nr/water/aquastat/data/query/results.html		

In a conclusion, water resources management policy has not been well or concisely developed. It has been tagged with the management of irrigation system. However, the irrigation management does not necessarily address the water issues neither for agriculture nor water management. As a consequent, agriculture remains vulnerable to water shortage or floods. Thus, the country would continue facing the situation of too-much water in the wet season and too-little water in the dry season in the long run if water resources management is not appropriately addressed in the implementable policy.

Hydropower and Embankment Developments

Hydropower development in the Mekong region has affected the external renewable water resources that flow into Cambodia, and so, water resources management. Indeed, between 1965 and 2005, 22 major dams were constructed in the four lower Mekong countries; with the active storage capacity of about 15,328 million cubic meters (mcm).[3] After the 1990s, more hydropower projects were built in different countries in the Mekong region. China has put into operation 65 water dams along the Lancang River and its tributaries. It has planned to build 23 dams in the Lancang River.[4] Among 23 planned dams, 11 mainstream dams were built between 1993 and 2020, with electricity generating capacity of 21310 MW and the storage capacity of 47,644 MCM (see Table 3). The total water storage capacity will reach 130 billion cubic meters (Qingsheng 2020).

[3] Mekong River Commission. "*Thematic Report on the Positive and Negative Impacts of Hydropower Development on the Social, Environmental, and Economic Conditions of the Lower Mekong River Basin*". The Council Study, MRC: Vientiane, 2017.

[4] Qingsheng, Meng. "Why China Built Dams Along the Lancang River." CGTN, https://news.cgtn.com/news/2020-07-23/Why-has-China-built-dams-along-the-Lancang-River-SmLDy7Yq08/index.html.

In the lower Mekong region, Laos has planned to build nine mainstream dams and Cambodia has planned two dams. Two mainstream dams in Laos were completely built and four more dams are under planning. In addition, some 132 hydropower projects are proposed, planned, and built on the tributaries in the lower Mekong river basin—25 dams are operational, 13 dams under construction, 23 dams licensed and 74 dams planned (MRC, 2017). In the 3S river basin, 42 dams are planned, of which, three major hydropower dams completely built on the Sekong, eight on the Sesan and seven on the Srepok and 23 dams are under the planning (Piman et al., 2013).

Table 3: Hydropower dams in the Mekong River Basin

Country	Mainstream Dam	Tributary Dam	Total	Total Capacity (MW)	Storage capacity (mcm)
Cam	2	19	21	5,073	20,555
Laos	9	91	100	20,907	57,477
Thailand	0	7	7	745	3.6
Vietnam	0	15	15	2,583	3,156
China	23	65[5]	88	21310	47,644
Total	34	197	231	50,618	128,836

Source: MRC, 2017

The Chinese dams, dams in the Lower Mekong Basin, and the 3S dams could have the storage capacity of 129 km^3. These dams release water downstream to generate electricity and water flow through Cambodia to Vietnam before entering the South China Sea. The storage and the lease of water from dam sites would cause the shortage and too much water throughout the year in the downstream, and the sources of water security.

Climate Change

There is climate change in the Mekong region. Cambodia is vulnerable to climate change. Climate change will induce more rains and long drought. Heavy rain would result in heavy floods. Climate change could cause abundant resources in the wet season, exceeding the uses, but flooding. Cambodia has experienced frequent floods and drought in past two decades. The heavy floods in 1996, 2000 and 2011 destroyed crops, livelihoods, houses, infrastructure and roads at thousands of dollars.[6] The floods in 2000 killed 350 people and caused US$ 150 million's worth of damage to crops and infrastructure.[7] In 2011, a heavy flood killed 247 people and damaged property worth US$ 521 million, with 220,000 ha of rice fields destroyed.[8] Not only floods, but also droughts occurred around the Tonle Sap. The most severe droughts to have occurred thus far were in 2002 and 2012, led to crop damages, a lack of food, and

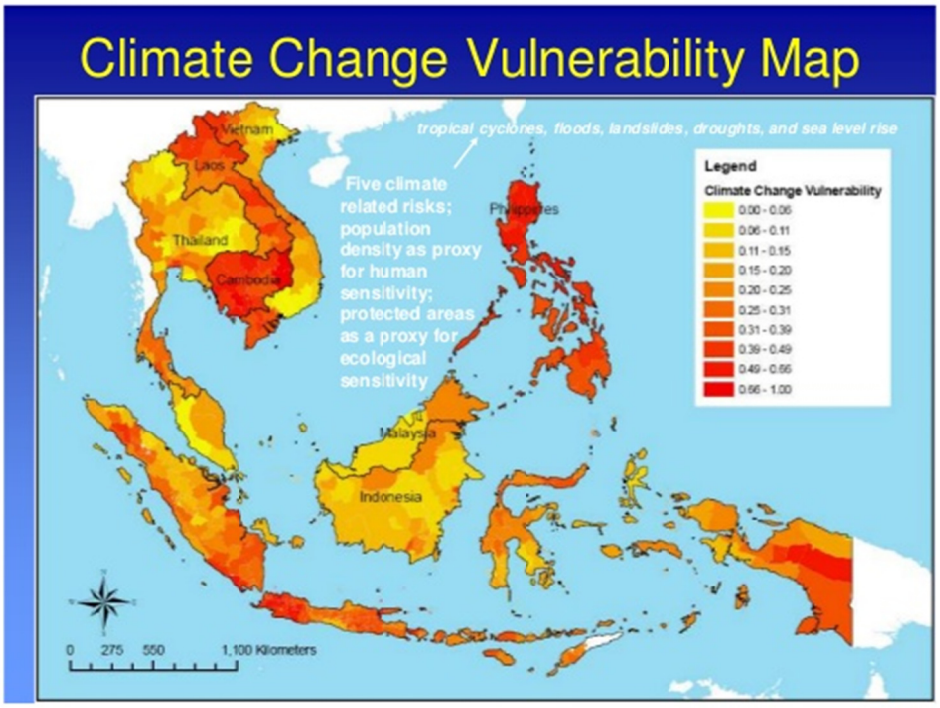
[5] This figure is cited from Qingsheng, Meng. (2020). *Why China built dams along the Lancang River*. CGTN, dated 25th August 2020.

[6] Mekong River Commission. "Flood Situation Report ". In *Mrc Technical Paper No. 36*: Mekong River Commission 2011.

[7] National Committee on Disaster Management. "*Disaster Management in Cambodia*". Phnom Penh 2002.

[8] See Footnote number 8.

disease.[9] The drought in 2002 affected more than two million people and destroyed more than 100,000 ha of paddy fields.[10] The drought in 2012 devastated 9,990 ha of paddy fields and affected 122,297 ha across the country. Floods accounted for 70% of rice production losses between 1998 and 2002, while droughts accounted for 20% of losses, induced significant food security.[11]



Map 2. Climate change vulnerability map

During the period of 2014-2015, Cambodia experienced a very drought. The drought in Cambodia continued in 2016, and the Royal Government of Cambodia declared a state emergency due to lack of water for human consumption and so, State took a response to distribute water to its populations across the country. In the Mekong Delta, more than 2 million Vietnamese and the majority of Vietnam's rice production area was impacted by low water levels and severe saline intrusion in 2016, resulting in over $670 million of losses. In March 2016, China released water from upstream dams to relieve a drought in Vietnam (Stimson, 2019).

The drought continues in 2019-2020. This reverse flow from the Mekong River to the Tonle Sap takes place from mid-May to mid-October. However, in 2019 and 2020, the main reverse flow into the Tonle Sap Lake started in August. In 2020, the reverse flow of the Tonle Sap started in August 04. The delay of the reverse flow was due to the low water levels on the Mekong

[9] The Phnom Penh Post. "Drought Hits Cambodian Rice Export ", 2012. https://www.phnompenhpost.com/business/drought-hits-cambodias-rice-exports.

[10] Nguyen, H., and R. Shaw. "Adaptation to Droughts in Cambodia." In *Droughts in Asian Monsoon Region (Community, Environment and Disaster Risk Management , Volume 8)*, edited by Rajib Shaw and Huy Nguyen, 49-66: Emerald Group Publishing Limited: UK, 2011.

[11] Royal Government of Cambodia. *National Adaptation Program of Action to Climate Change (Napa)*. Phnom Penh Royal Government of Cambodia, 2006.

mainstream (Figure 1).

Although the reverse flows have started since August 4, the water volume of the Lake up to this point has been considered critical as it is still lower than its minimum level. Figure 1 shows seasonal changes in monthly flow volume up to August 31 for the TSL compared with the volumes in 2018, 2019, and the fluctuating levels (1997-2019). It shows that in July and August water volume of the Lake were at a critical level, compared with last year (2019) figure and historical minimum levels at the same period. This reveals that the TSL is still affected by low inflows from the Mekong River and insufficient rainfall in the surrounding sub-catchments.

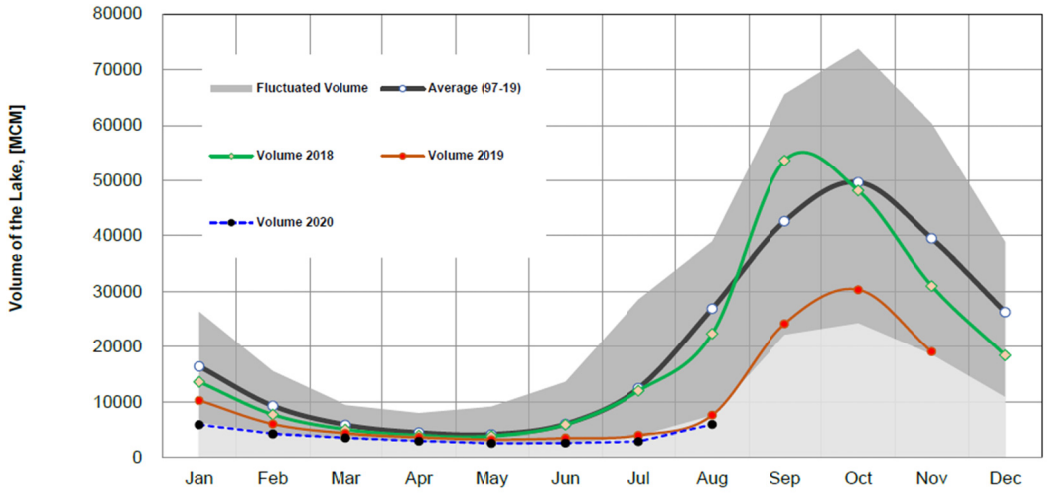


Figure 1. Monthly flow volume of the Tonle Sap (Source: MRC, 2020)

The successful management of water between the 'too much' and 'too little' scenarios is key to the future of Cambodia. The question is how to manage the 'too-much water' situation and bring it to a manageable level so that it can be utilized for the 'too-little water' period. Striking such a balance would enable the water to use more effectively for the development of Cambodia. Achieving such would require coordinated effort at all levels to manage the water – something that is both challenging and requires political will. Cambodian leadership in different periods took note of the importance of water management for the development of the state.

Conclusion

Cambodia has too-much water resources. The volume is too huge to deal with. Water infrastructure has been inadequate to cope with this volume. Water resource management through irrigation management has been too small to deal with the large volume of water. Thus, the large volume of water in the wet season become very destructive to livelihoods and infrastructures. Thus, Cambodia is only the channels that water flows through and when it stops, there is no water remained. Thus, irrigation cannot be equated as water management in Cambodia, and it should be replaced by large reservoirs and water diversion schemes. Rethinking water management should be highly considered, bringing together social, environmental and engineering approaches into holistic water management.

While irrigation system is too small to deal with the huge volume of water from the Mekong and inside the country; hydropower dams in China, in the lower Mekong river basin and the 3S rivers discharge large volumes of water to Cambodia. However, Vietnam in the Mekong Delta locks the Mekong rivers with rubber dams and dyke system in August each year to allow the paddy rice to be harvested, causing heavy floods in the Cambodia. The hydropower dams in the upper Mekong and the rubber dam the lower Mekong in Vietnam have made Cambodia a reservoir of the Mekong River Basin. Thus, Cambodia is risked to highly water insecurity.

Water resources management is key to Cambodia's future development, but it is at the verge of the mercy of riparian countries, both upstream and downstream. At the same time, Cambodia's water policy has been denoted as irrigation management, and agriculture suffers heavily due to shortage of water, while flooding damages crops and agriculture almost every years. This is big challenge for Cambodia that the future children have to deal with.

ENERGY SECURITY IN MAINLAND SOUTHEAST ASIA: THE POLICY IMPLICATIONS

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Introduction

Rapid economic development in the past decades has ascend the Mainland Southeast Asian region to the stage of preparation to join the international production network which allows more exports of manufacturing products, textiles, and other primary high quality value-added products into the international market. This is attributed to the foreign investments in this region due to favorable labor force, growth of connectivity and innovation, and regional political stability, all of which are driven by regional architectures brought by regional political stability and infrastructure investment platforms in the regional cooperation such as Belt and Road Initiative (BRI), Free and Open Indo Pacific (FOIP) initiative, Greater Mekong Sub-region Economic Cooperation, Lancang-Mekong Cooperation, Japan-Mekong Cooperation, Lower Mekong Initiatives and other initiatives.

Despite this remarkable trend, Mainland Southeast Asia is confronted by common energy challenges – such as maintaining economic growth and gaining energy security – while the region is simultaneously striving to curb climate change and reducing air pollution. At the intersection of these challenges is the corresponding need to rapidly develop and deploy inclusive and sustainable development practices such as energy efficiency and saving, low-emissions coal technology, and doubling the share of renewable to energy mix policy. The Mainland Southeast Asia's energy demand is expected to increase triple from 2017-2050, and thus it has brought along many opportunities and challenges including climate change as the result of rising energy consumption from fossil fuels in which its combined share of coal, oil, and natural gas in the supply mix is expected to rise from 75% in 2017 to 85% in 2050. Despite significant progress made in the last decades in terms of energy poverty alleviation, some countries such as Cambodia and Myanmar are struggling to provide energy access to their rural population. The policy acceleration of universal access to electricity and other necessarily clean energy to support the wellbeing of the people requires more energy supply security, accessibility, and affordability. Cambodia, Lao PDR, Myanmar are expected to achieve the universal 100% energy access by 2030 (IEA, 2015).

Thus, rising energy demand in the region is a real concern of the supply security as the region heavily relies on the import of fossil fuels. Further, oil price fluctuation, supply disruption, weak energy infrastructure, weak/absence of energy cooperation, and institutional mechanism are the real concern for energy security. The paper examines energy security by looking closely at the energy landscape of Mainland Southeast Asia (Cambodia, Lao PDR, Myanmar, Vietnam, and Thailand). Given the substantial reliance on fossil fuel consumption, there is a need for the Mainland Southeast Asia to acquire a system in place which renders the region ready in response to potential supply disruption that is resulted from uncertain sea-

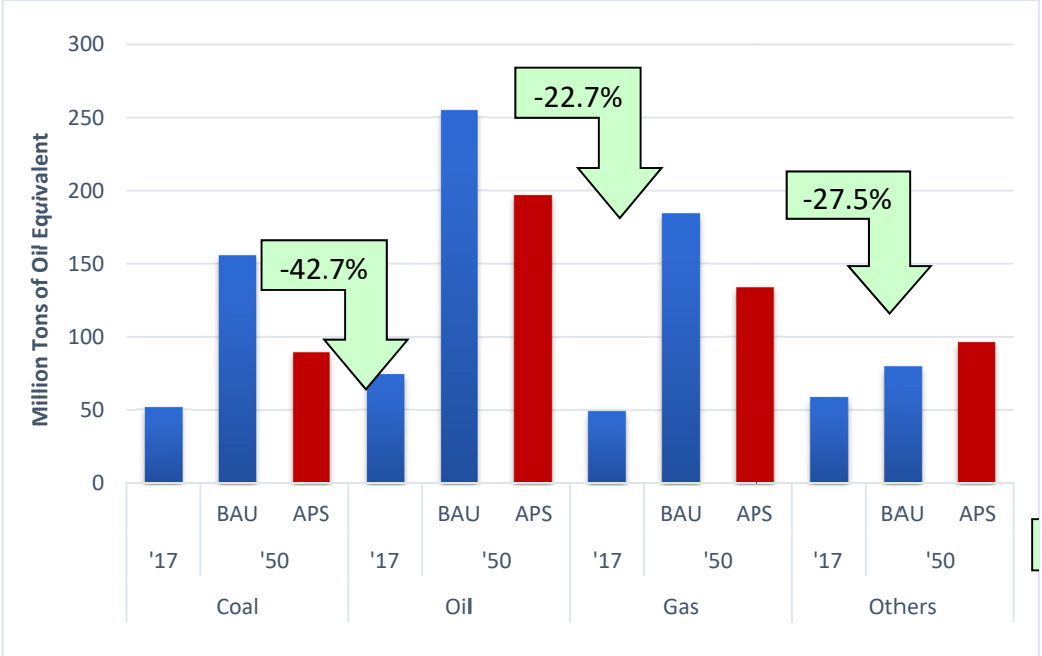
land security in the region where the shipment of oil come distant middle east. The paper also provides policy implications in terms of energy security in the region.

Energy Landscape of Mainland Southeast Asia

The Mainland SEA's heavy dependence on fossil fuel consumption is vindicated by various indicators. That is, the total primary energy supply (TPES) in Mainland SEA (Cambodia, Lao PDR, Myanmar, Thailand, and Vietnam) is predicted to increase by 189% in Business as Usual Scenario (BAU), and by 121% in Alternative Policy Scenario (APS) from 2017 to 2050. In actual amount, it will increase from 234 million tonnes of oil equivalent (Mtoe) in 2017 to 675 Mtoe in BAU, and to 516 Mtoe in APS by 2050. At the current baseline data in 2017, the fossil share in the energy supply is around 75% of the total energy supply of the region. It is further predicted that the Mekong Sub-region will see a growing dependence on fossil fuel use in the future. In this regard, the study result shows that by 2050, the fossil share in the energy supply will be 85% in BAU and 81% in APS scenario.

Energy efficiency is also known as the hidden fuel and can be translated to be an energy resource directly links to national energy security. The difference between the BAU and APS is the energy saving potential in the total energy supply. By energy, coal will see the largest energy saving with the potential energy saving of 42.7%, followed by 27.5% for natural gas and 22.7% for oil. This large energy saving is expected from the implementation of energy efficiency with improved thermal efficiency in thermal power plants and energy efficiency in end-use sectors such as transportation, industry, commercial, and residential sector. Among the energy saving, it is expected to see the increase of renewables in the primary energy supply in which Mainland Southeast Asia will be expected to see the increase of renewables in the energy supply mix by about 20.6% by 2050 (Figure 1).

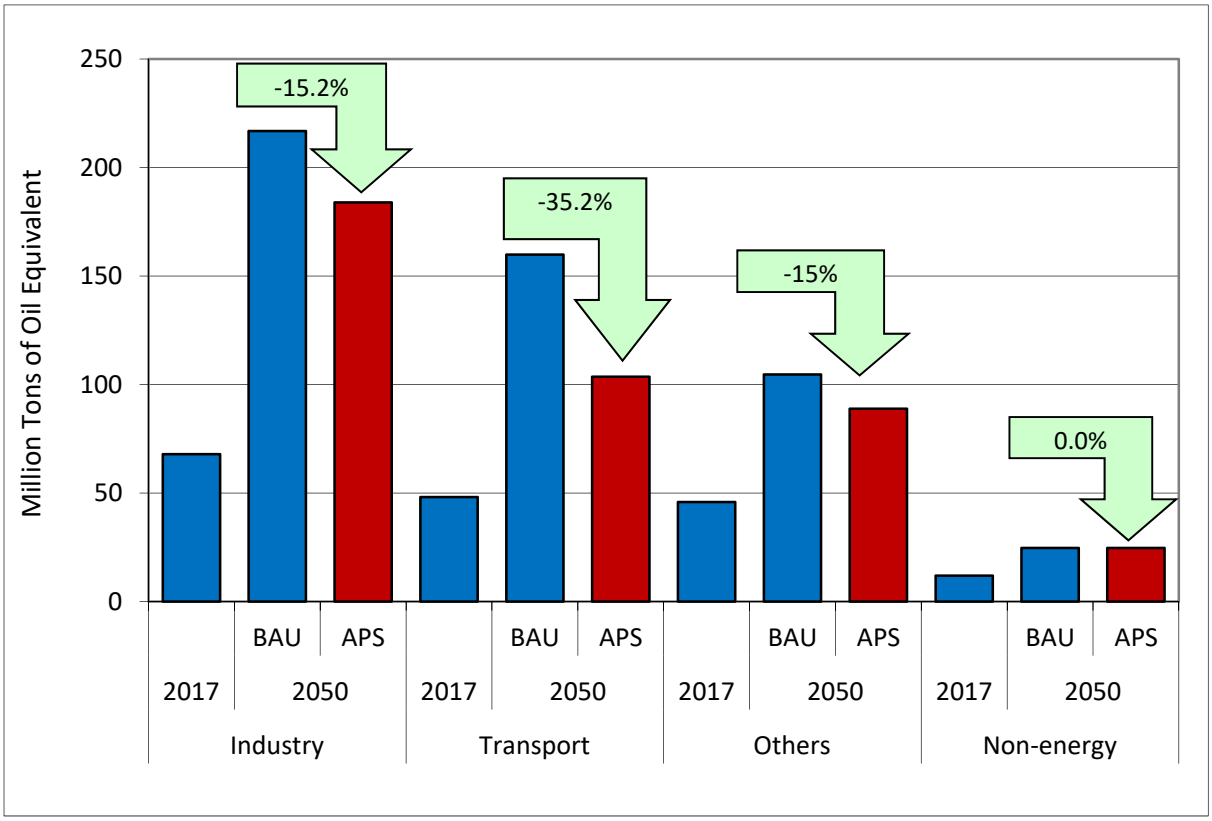
Figure 1: Total Primary Energy Supply (TPES) by Energy Source, BAU vs APS



BAU= Business as Usual Scenario; APS= Alternative Policy Scenario (APS)
Source: Authors' calculation

The energy saving is expected to be the highest 35.2% for the transportation sector, about 15.2% for the industry sector, and 15% for the commercial and residential sector (Figure 2). In other words, the reduction of energy consumption in the final energy sector will derive from the fuel efficiency in transportation, industry, commercial, and residential sector. The reduction of energy consumption in these sectors can be achieved through the introduction of more efficient heat and power and more fuel economy vehicles; shifting to the electric vehicle, hybrid and fuel cell vehicle; and the more efficient electric appliance and more efficient and energy saving building and design.

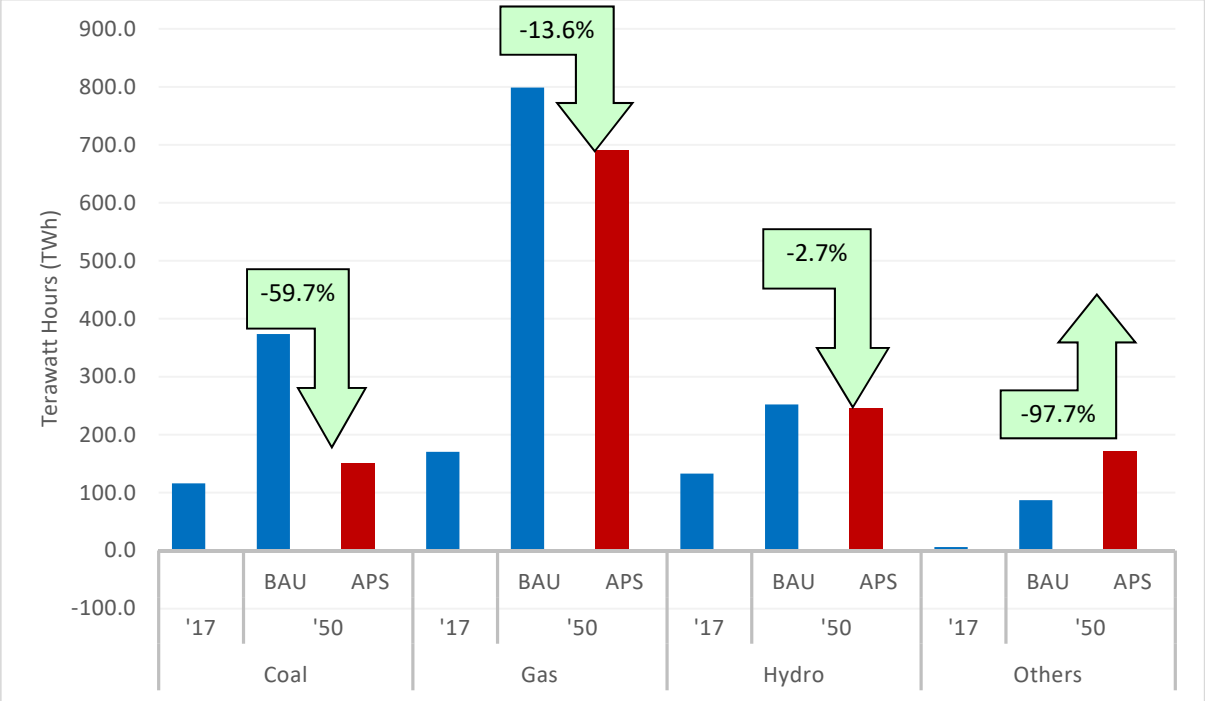
Figure 2: Total Final Energy Consumption (TFEC) by Sector, BAU vs APS



BAU= Business as Usual Scenario; APS= Alternative Policy Scenario (APS)
Source: Authors' calculation

In the power sector, remarkable progress has been made in Mainland SEA over the past two decades in terms of rural electrification access, rapid provision of large-scale and high-volume national grid systems, successful mobilization of indigenous resources, the adoption of new technologies, the gradual share of renewables into energy mix, and the beginnings of cross-country entry trade. However, the future energy landscape of the region depends on our present actions/policies and investment in changing the course towards a future cleaner energy system. With the current outlook of the power generation in which fossil fuel will continue to dominate in the power mix in Mainland Southeast Asia, supply security will need to be prepared to safeguard the supply disruption.

Figure 3: Total Power Generation (TFEC) by Energy Source, BAU vs APS

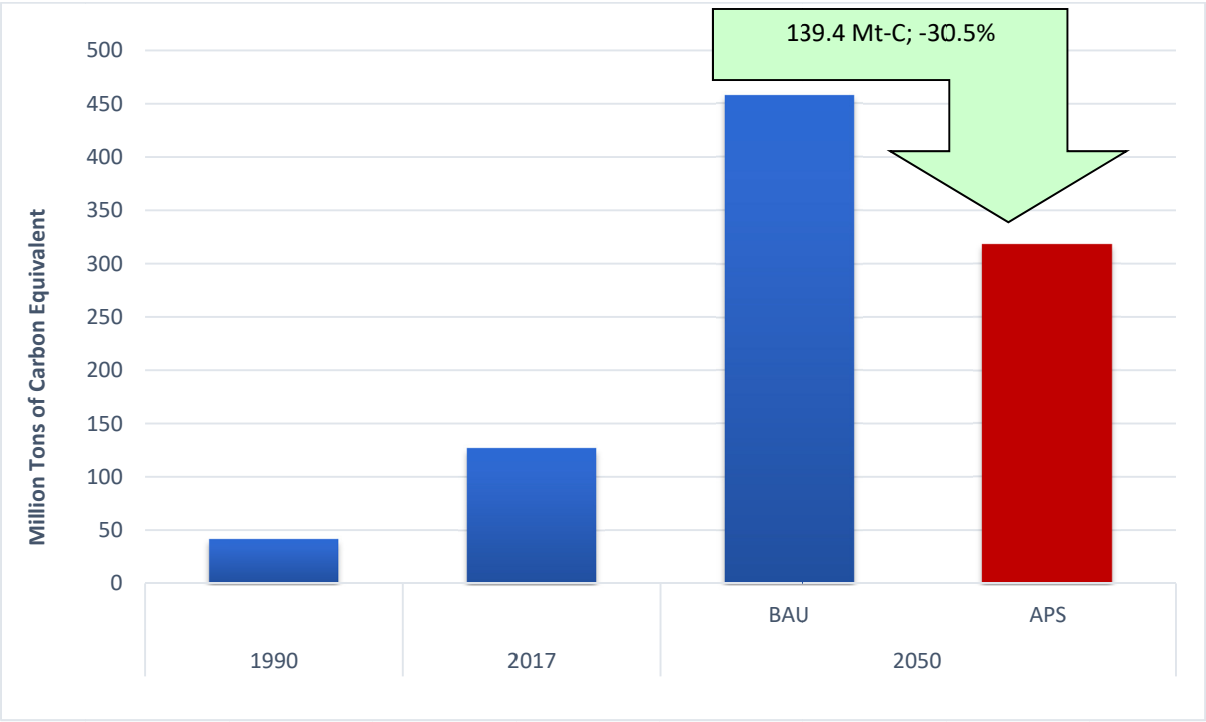


BAU= Business as Usual Scenario; APS= Alternative Policy Scenario (APS)
Source: Authors' calculation

Explicitly, fuel saving is profoundly essential within the realm of the energy security. In this analysis, the increased energy saving in the power generation are expected owing to the introduction of high thermal efficiency (Figure 3). Electricity from renewables such as biomass, wind, and solar is speculated to increase largely by 97.7% due to upscaling renewable policy in the power mix from in the APS scenario compared with the BAU scenario.

Given the high combined-share of fossil fuel (oil, coal, and natural gas) in the power generation mix of the Mekong sub-region which account for 67% in 2017 and predicted shared of 78% in BAU by 2050 as well as other high shares of fossil fuel use in the final energy consumption, the region is expectedly to continually rely on the fossil fuel consumption in the foreseeable future (Figure 4). The Carbon Dioxide (CO2) emission rose from 42 million tonnes of carbon equivalent (Mt-C) in 1990 to 127 Mt-C in 2017, and the CO2 emission is expected to rise to 457 Mt-C in BAU and to 318 Mt-C in APS by 2050.

Figure 4: CO2 Emission in the Mekong sub-region, BAU vs APS

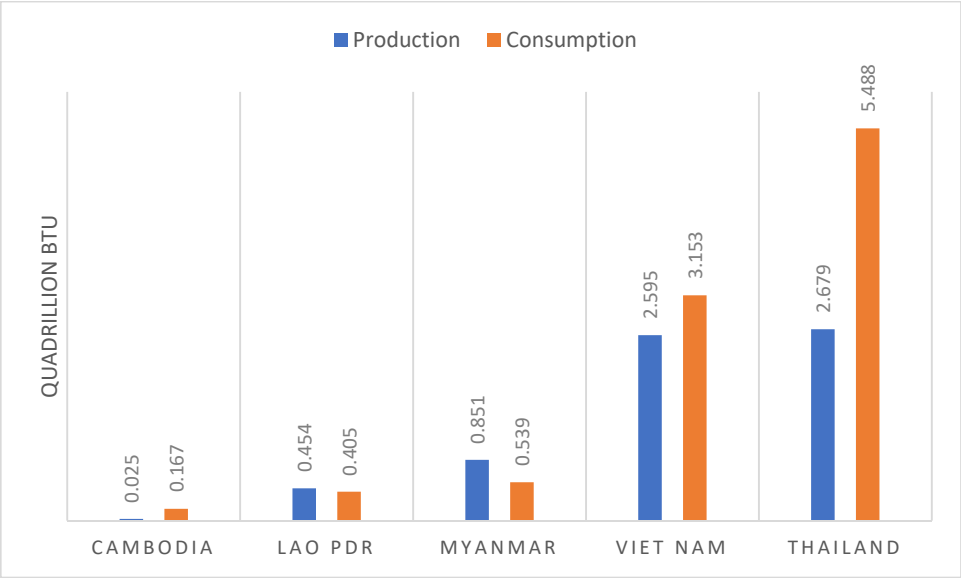


Thus, the clean use of fossil fuel through clean technologies deployment is indispensable in decarbonizing the Mekong sub-region's emission. Further, natural gas should be promoted as transitional fuel use in bridging towards more renewables in the future.

Energy Security Perspectives

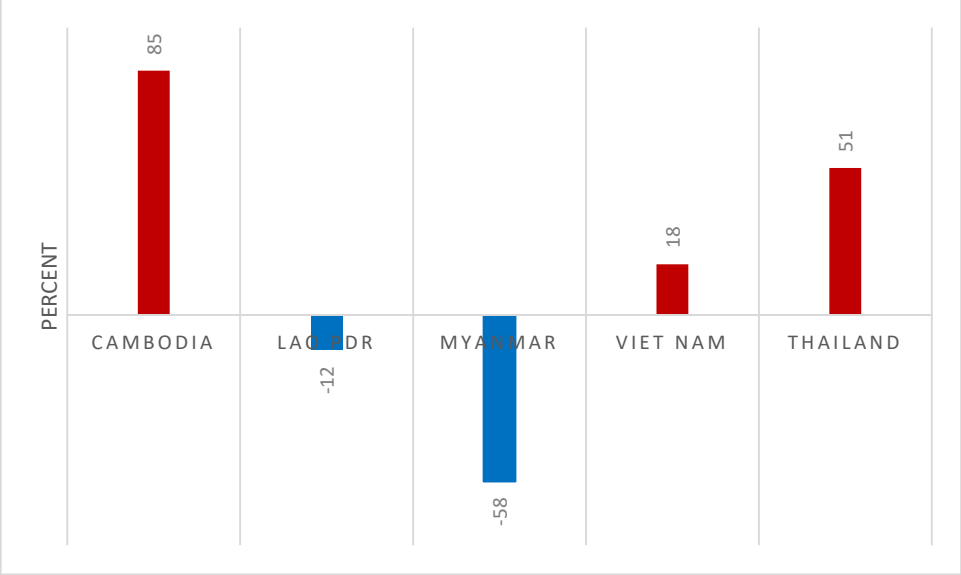
Mainland Southeast Asia (Cambodia, Lao PDR, Myanmar, Vietnam, and Thailand) has a very high import dependency in terms of petroleum products. However, looking into the whole energy system from energy production to consumption (Figure 5), the energy consumption in Cambodia, Thailand, and Vietnam exceeds the domestic production in 2017 with the exceptions of Lao PDR and Myanmar as the two countries are energy exporter. More explicitly, this implies that Cambodia, Thailand, and Vietnam will have a positive net import of energy while Lao PDR and Myanmar have a negative net import of energy. This particularly underscores the energy supply security in the region that import dependency is high for Cambodia, Vietnam, and Thailand (Figure 6).

Figure 5: Primary energy imports in 2017 (Quadrillion Btu)



Source: US EIA, 2020.

Figure 6: Primary energy imports dependency in 2017 (%)



Source: US EIA, 2020.

Since Mainland Southeast Asia is largely relying on import of fossil fuels, thus, the stability of oil price will be the key to supporting daily economic activities. Any changes in oil price will affect the consumer countries, in this case, CLMVT in terms of access and affordability (Figure 7). The current oversupply of energy and the impact of COVID-19 on energy demand are predicted to be temporary, and energy demand of oil, gas, and coal is expected to bounce back strongly after 2021. Oil production in the region has declined recently in SEA, and net oil imports share of demand is projected to be about 75% in SEA by 2025 (IEA, 2020). Taking these into account, there is no reason for complacency when it comes to the security of supply. Moreover, the long distance of Oil imports significantly increase voyage duration and further hinders the inherently limited flexibility when dealing with emergencies. Therefore, Asian countries will need to work individually and collectively to enhance oil supply security.

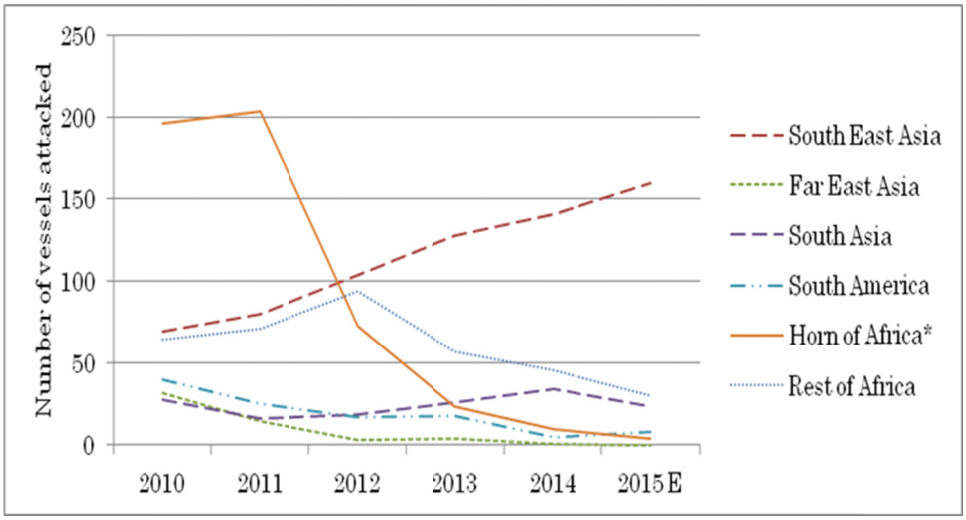
Figure 7: Europe Brent spot prices FOB (Dollars per Barrel)

Source: US EIA, 2020.

To fuel economic growth, the region will continue to increase the import of these fossil fuels, and this dynamic inevitably places pressure on energy security. The statistics (MME, 2016) showed that Cambodia's import dependency has increased from 50 percent to almost 60 percent from 2013-2016. The increase of energy demand in Cambodia put pressure on supply security, and it will also see the increase of CO2 emissions from combustion of fossil fuels. For Lao PDR, despite having positive net energy export, the country has imported 100% of petroleum products to meet domestic demand. Lao PDR has also seen the rise of gasoline and LPG imports increases by a double from 2000-2015 (ERIA, 2018). For diesel fuel oil (DO), Lao PDR increased the import by four folds increasing from 21,446 kilolitre (kl) in 2000 to 84,915 kl in 2015 (ERIA, 2018). Similarly, regardless of being the net energy exporter, Myanmar has also imported petroleum products to meet the demand. Myanmar's import of the petroleum products increased from 1, 617 kl in 2000 to 4.228 kl in 2015. Myanmar and Lao PDR are expected to see the rising import of petroleum products to meet future demand in 2050. Likewise, despite embracing domestic oil production, Thailand and Vietnam need to import in large amounts to meet the domestic requirement for the current and future demand in 2050.

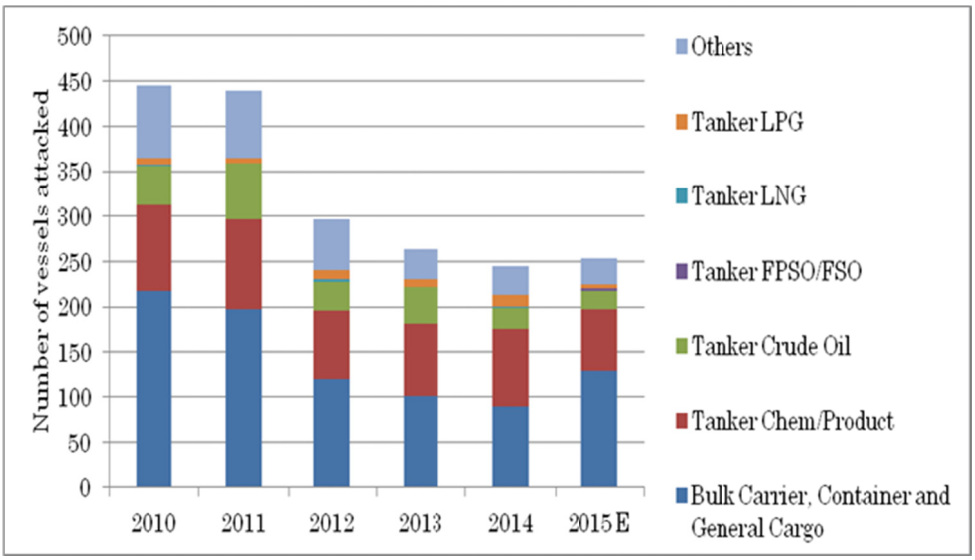
In respect of petroleum imports dependency, all Mainland Southeast Asian countries largely depend on the import from the Middle East in which the shipment routes are subject to maritime security, especially the rising of accident and piracy in the supply route of the Strait of Hormuz and Malacca. Piracy and armed robbery have played damaging roles in disrupting the free movement of vessels, causing delays, financial losses, and even loss of life. Data from the International Maritime Bureau (IMB) of the International Chamber of Commerce (ICC) reveals that globally, acts of piracy and robbery at sea have declined over the past 5 years; However, the piracy incidents in Southeast Asia and South Asia are either rising or continuing unabated (Figure 8&9).

Figure 8: Number of Vessels Attacked, by Region



Source: IMB, 2015

Figure 9: Number of Vessels Attacked, by type



Source: IMB, 2016

The increasing energy demand in Mainland Southeast Asia posts essential threats to supply security. Yet, oil stockpiling and other security measures are not well developed to cope with unexpected supply disruption as it may arrive from external factors such as the conflict in the Middle East, natural disasters, accidents, and terrorist attacks on oil supply cargo. Almost 80 percent of oil export from the Middle East is bound for Asia.

Besides oil supply security risks, the region is also affected by tropical weather, with plentiful rainfall which resulting in floods almost every year. Flood is the major natural disaster in the lower Mekong river basin which stretches across Mainland Southeast Asia. The significant probability of flood combined with relatively underdeveloped road system in some countries result in the risk of oil supply disruption, especially the supply transported by lorry. For the preventive measure, oil stockpiling has been imposed on oil import companies in Mainland Southeast Asian countries. For Cambodia, Lao PDR, and Myanmar, oil stock is held at inventory (operational) oil stock at the terminals for about 30 days. However, these oil

importing companies may hold operational oil stock of only about 15-20 days as the country may not have mechanisms in place to monitor petroleum product stock holdings of these companies. In contrast, Thailand and Vietnam are relatively well developed in terms of oil stock. Based on the amendment of the Fuel Trade Act of 2000 of Thailand, refineries are obligated to hold 6% of their yearly sales of crude oil and oil products; retailers and importers are obligated to hold 6% of crude oil and 10% of oil products; and their total levels must be at least 43 days of domestic consumption. For Vietnam, at least 90 days of net imports (or around 60 days of consumption) by 2015 based on the National Stockpile Master Plan.

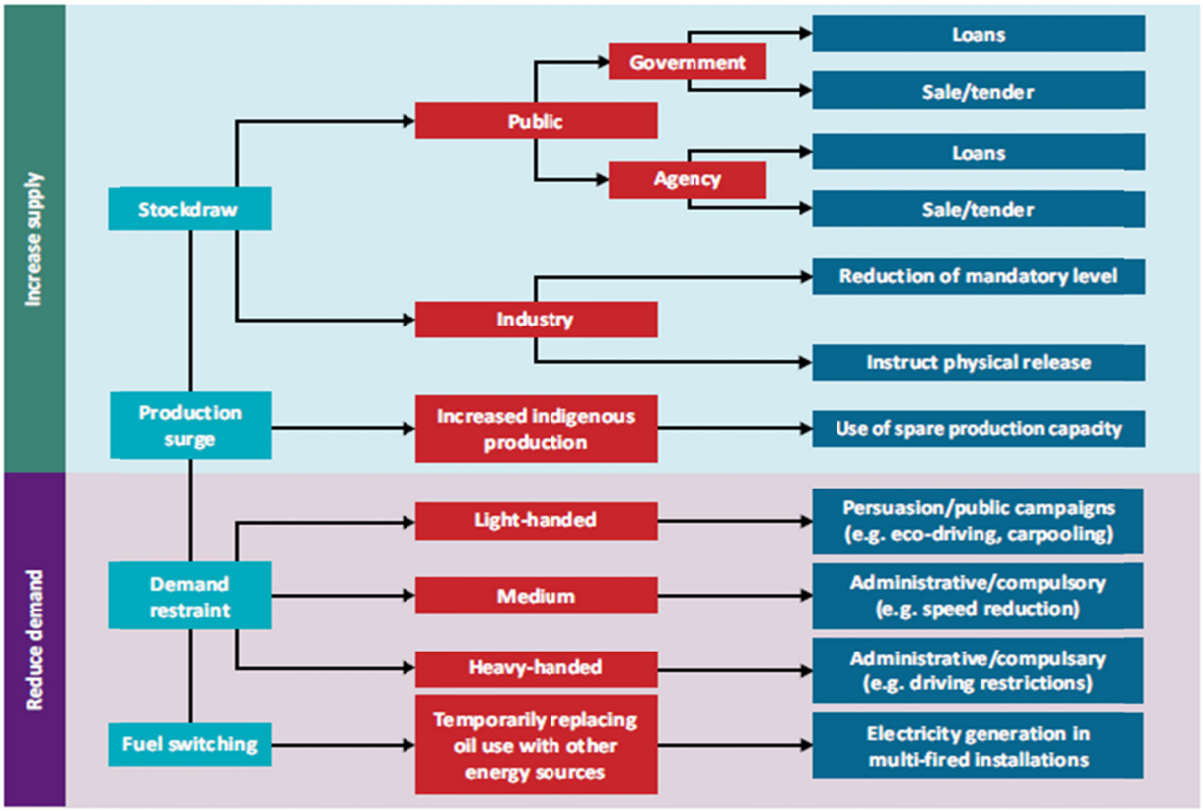
Energy Security Cooperation and Mechanism

In 1974, International Energy Agency (IEA) was founded in response to the 1973/74 Oil Crisis in order to help countries co-ordinate a collective response to major disruptions in the oil supply through the release of emergency oil stocks to the markets. In 1984, IEA reached an agreement on Co-ordinated Emergency Response Measures (CERM) according to which the member nations would cooperate and release their oil stockpiles in case of an emergency that would or might disrupt the oil supply. However, ASEAN also founded ASEAN Petroleum Security Agreement (APSA), but it is not operationalized. Therefore, CLMVT may look at the model of IEA.

If APSA is implemented and operationalised, the energy security of each ASEAN member state could be enhanced through having in place emergency response measures that allow countries to mitigate a severe disruption to their own domestic petroleum supplies when normal market operations are insufficient. In the APSA, each member state endeavors to establish short-term measures which make possible the reduction of normal petroleum consumption when facing a critical shortage of domestic petroleum supplies; and the supplying of petroleum to other ASEAN member states facing a critical shortage of its domestic petroleum supplies. The APSA mechanism also allows the ASEAN member states to request assistance from other member states when having experienced a 10% shortfall in normal petroleum consumption for a continuous period of at least 30 days and after having implemented short-term measures to reduce demand. In the APSA agreement, all ASEAN member states endeavor to supply petroleum to the member states in distress at the aggregate amount equal to 10% of the normal domestic consumption of the ASEAN member states in distress.

In general, the APSA is adopted from the Co-ordinated Emergency Response Measures (CERM) of the IEA members mainly the OECD. The general measures are applied during the disruption of the petroleum supply disruption. The measures are implemented to restraint the consumption at the demand side, and at the same time, in crease the reserve of the supply of the domestic production.

Figure 10: Measures during the petroleum supply disruption



Source: IEA, 2017

If the APSA is operationalize, Mainland Southeast Asia will benefit from this energy security cooperation. Thus, the region will need to find ways to create such energy cooperation to ensure that countries can depend on each other during the supply disruption.

Conclusion and Policy Implications

Mainland Southeast Asia faces paramount challenges in matching its energy demand with sustainable energy supply given the whole region relies heavily on fossil fuel consumption at present till the foreseeable future of 2050. Further, the current pandemic, natural disaster, and economic downturn could impact the priority of energy security in many developing courtiers including those of Mainland Southeast Asia. In light of this, the energy security in Mainland Southeast Asia will need to be reviewed based on the current energy system, energy infrastructure, and current policy for fuel diversification and domestic fuel resources including renewables.

The Mainland SEA's energy security cannot be separated from energy transition to a lower-carbon economy that will require the region to develop and deploy greener energy sources and clean use of fossil fuel through innovative technology such as Highly Efficient and Low Emission technology (HELE).

The holistic approaches to energy security will look at the whole energy system from supply to demand, and they will also examine the current system in place – such as soft and hard

infrastructure – as to whether they are working effectively to ensure the uninterrupted supply of energy during the emergency caused by natural and man-made disasters, terrorist or any technical failures. Regional energy cooperation in CLMVT has yet to be formulated, and it will be necessary to discuss about it. With this, key policy implications for energy security in the region include:

- Create favourable policy to support the acceleration of renewables, clean fuels, clean technology deployment into the energy mix in Mainland Southeast Asia. Such policies will need to address barriers/regulatory burdens for green technologies and renewable energy, and there is a need for appropriate financing mechanism to ensure low risks for investing in these clean technologies, clean fuels, and renewables.
- Sea lane supply security and choke points will be a key issue in the physical transportation of oil and gas to SEA, and any disruption will impact the fossil fuel supply to SEA. Thus, SEA will need to increase the level of regional cooperation in maritime transportation and security which are keys for energy supply security of the region.
- The quality energy infrastructure and resiliency will help respond electively to supply disruption and it can enhance national and regional energy security in the region of Mainland Southeast Asia. The physical oil & LNG stock are the most important parts for Mainland Southeast Asian countries in responding to disruption of oil & gas.
- Fuel diversification through more investment into domestic resources – such as solar, biomass, hydropower, and possibly wind – will render Mainland SEA more resilient to energy supply disruption. Further, the sub-regional power connectivity and trade will also enhance electricity supply security in the region.
- The energy efficiency and conservations (EECs) are the hidden fuel and could be achieved through serious policy commitment and deployment of highly efficient thermal plants, strong grid, technologies, and highly efficient appliances.
- Oil production and oil price needs to be more transparent to avoid speculation which leads to price shock that affects the economy and energy security.
- APSA is the possible framework, but AMS will need to investigate details of how to make this institution truly functional.

HOW CAN MEKONG COUNTRIES LEVERAGE TECHNOLOGY FOR HUMAN SECURITY IN THE GREATER MEKONG SUB-REGION

Le Trung Kien

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The Mekong sub-region comprising five countries of Cambodia, Laos, Myanmar, Thailand and Viet Nam stays the conjunction of the Indo – Pacific region. Overall, the Mekong sub-region has recently become an important link in the process of regional connectivity and economic integration. It is important foremost to locate the strategic values of Mekong sub-region in the region and the world. First, the Mekong sub-region is the intersection of inter-regional connections in Asia - Indian Ocean – Pacific Ocean, with a population of about 240 million people and a dynamic economy with GDP of nearly 700 billion USD[1]. Therefore, many countries and partners attach great importance to the strategic connection position of the Mekong region; Second, the infrastructure network of the Mekong region, although inadequate, is being developed. Once this network is fully developed, the seamless connectivity will add to the strategic value of the Mekong region. Third, most of the Mekong countries are integrating deeper and participated in most important economic and trade frameworks such as ASEAN Free Trade Agreements (FTAs) with partners, Comprehensive and Progressive Trans-Pacific Partnership (CPTPP), Regional Economic Partnership Agreement (RCEP), etc.

In the past years, the Mekong countries have put their efforts to promote domestic economic reform and international integration, therefore achieved remarkable achievements in socio-economic development. The Mekong region has become one of the fastest-growing regions in the world. The Mekong sub-region cooperation is an important channel to enhance connectivity, consolidate a peaceful and stable environment and promote integration and development in the Mekong river basin. On the other hand, the Mekong sub-region is facing multiple issues of human security, ranging from threats to lives, degradation of living standard due to flood and drought, to job loss due to technical revolution. This commentary argues that in face of this challenges, the Mekong countries can leverage technology to respond to such challenges, which is conducive to ensure the human security of their people.

First, water security has emerged as one of the most prominent threat to the livelihood of millions of people in the Mekong river basin. The level of impact and frequency of drought and floods to the people is becoming more and more severe. Living of millions of people, rice and agricultural production, fishing etc. depends on how we manage the Mekong River. Such increase in severity and frequency of natural disaster has multiple the impact to the livelihood of people in the Mekong basin. The cause of such situation is claimed for climate change and hydropower development. In particular, the development of dams along the mainstream of the Mekong River has long caused concerns. Although there are nearly 15 multilateral mechanisms in the Mekong sub-region, including the Mekong River Commission, there has

[1] Fon Mathuros, "Mekong Leaders Envision a Shared, Prosperous Future", *World Economic Forum*, 12/9/2018 https://www.weforum.org/press/2018/09/mekong-leaders-envision-a-shared-prosperous-future/

not yet mechanism for effective collaboration among riparian countries in the sustainable management and utilization of the Mekong River. In addition, the water security issue is entangled with geopolitical competition, especially between the U.S. and China.

One underlying reason for the lack of cooperation is the insufficient level of trust among upstream and mainstream countries. The pragmatic way to build trust is the transparency, reliable information of relevant data sharing. There are two main approaches for this purpose. The first approach is top-down, which involve governments of riparian countries to conduct dialogue and set out rules on the managing the river. As the Mekong River is the trans-boundary river, the state's role is indispensable. However, this should also be combined with the bottom-up approach that is the cooperation, discussion among water specialists and academics. Here, the trust can be built incrementally along the progress of cooperation at technical level and elevated later to the political trust among state actors. To ensure the human security prone to flood, drought and loss of agricultural production, multi-stakeholders approach is needed. We not only need coordination among public sectors but also integrated actions among a network of stakeholders to ensure lasting responses.

Against this backdrop, technology can play important role in providing a science-based solution that could facilitate more transparency of data and objective and scientific solution. In this progress, technical support and good will from all partners such as the U.S., Japan, China, Republic of Korea, Australia, some EU countries etc. should be all welcomed. From our part, Mekong countries should map out new policies to facilitate the introduction and application of new technologies has potential to resolve conflicts between economic development and environmental protection. For example, if high-capacity battery storage technologies with affordable price are introduced, it is possible to store power from existing hydroelectric plants in the sub-region for later use or distribution when needed. This could help reduce the pressure to build new hydropower plants on the Mekong River's mainstream. New approach such as the use of satellite to monitor river flow should be further explored and combined with other methods. The application of the Internet-of-things and big data has the potential to help forecast accurately and promptly the risks of drought, flood to allow timely response and limit the negative impacts. Professor Schwab mentioned, "potential of the Fourth Industrial Revolution dwarfs even the progress made during the three previous industrial revolutions combined". This will create new condition for promoting inclusive development policies. For Mekong subregion, we need technology for adaptation. The severity and frequency of natural disasters is increasing.

Second, there is a risk of widen gap of income and job loss for low-skill workers if the Mekong countries are ill prepared for the fourth Industrial Revolution 4.0 (4IR). The technological revolution can boost productivity, opening new economic sectors, but it also can further widen inequality, divide social gap and lead to new types of poverty. In the wake of 4IR, the strong development and application of science and technology is supposed to transform socio-economic systems such as healthcare, transport, telecommunications, production, distribution, energy, etc. Developed and developing countries with good preparedness will have great opportunities to elevate themselves to the high level in the new value and production chains that are forming. The accelerating application of new technologies also requires each country to restructure its economy with focus on the science and technology to avoid lagging behind.

For the Mekong region, the comparative advantage of low labour cost will diminish overtimes as new technologies allow production chain to be automatic and therefore placed near the consumer market instead of low-cost production countries. As the result, the Mekong countries cannot rely on low-cost labor and resources, but also on new drivers from innovation and creativity to catch up in the 4IR. According to the WEF's Readiness for the Future of Production, most of the Mekong countries all have relatively low indices (technology, innovation, human capital, global trade & investment, institutional framework, sustainable production, demand environment), mainly at the score of 4-6 points / 10 points. Several countries in the region such as Thailand and Viet Nam has map out plan for their digital transformation.

Against this backdrop, the Mekong sub-regional multilateral mechanisms can play a leading role in shaping the cooperation directions to catch up with the advantages of new scientific and technological applications brought about by 4IR and create new drivers for the socio-economic development of the Mekong countries. In particular, besides traditional cooperation areas such as removing trade barriers, increasing transport and energy links, etc., the hyperlinked environment in Industry 4.0 has created favorable conditions to promote digital economic linkages, digital economy in the Mekong sub-region. In the digital economy, all economic sectors, including micro, small and medium economic businesses can access the regional and global markets as well as cooperate with each other. At the same time, it is necessary to adjust in the direction of cooperation even in existing areas. For example, in human resource development, it is necessary to focus more on re-skill and up-skills and providing knowledge suitable to the new economic sectors of the 4IR. To ensure the human security, it is necessary to promote responses that are grounded in local realities and ensure that no one is left behind. In other words, Mekong countries must find our own solution that fit in situation of each community with diverse conditions and cultures. The new economic sectors and technologies can provide development opportunities for all if we can ensure that inclusive policies distribute opportunities fairly. This is also a new impetus for sub-region cooperation to narrow the regional development gap, ensuring that all walks of life benefit from technological revolutions. However, Mekong cooperation will have to find ways for policy coordination in the process of economic transformation towards innovation.

The Mekong sub-region is endowed with a relatively young, educated, intelligent work force. With a market of around 250 million consumers with growing incomes, the Mekong region has a huge potential for digital connectivity. The Mekong countries can take advantage of new technologies with right policies to encourage the creativity of the youth. The sub-region cooperation mechanisms can help promote the advantage of the Mekong sub-region as one market and let creativity become the key driver of the dynamic and inclusive development of the Mekong countries. As the latecomers, the Mekong countries have rooms to move straight into the digital economy and take advantage of the scientific and technological achievements. As most of the Mekong countries are still in the process of industrialization and modernization, the space for new economic sectors and "sand-box" for application of new technologies is still very large in the Mekong region.

In this context, to address the above issues, the strategic choice for Mekong countries is to uphold the collective approach. The Mekong countries should further promote the spirit of

cooperation and multilateralism. In particular, the Mekong countries should find a way to increase the coordination among 13 different cooperation mechanisms, especially the mechanisms with partners. Besides traditional cooperation areas (hard infrastructure, harmonization of policies, environmental protection, trade and investment promotion etc.), the Mekong multilateral mechanisms should expand the areas of cooperation under the Globalization 4.0 such as digital economy, e-commerce, e-finance, virtual currencies, cross-border data, cyber security etc. At the same time, it is necessary to adjust in the direction of cooperation even in existing areas. In addition, in order to have the best preparedness, the Mekong countries need to create coordinated policies to strengthen cooperation and use resources in the most reasonable way to improve the internal economic weakness in areas of hard and soft infrastructure as well as apply technology in the construction, management and operation of such infrastructure. For example, in human resource development, it is necessary to focus more on re-skill and up-skills and providing knowledge suitable to the new economic sectors of the 4IR. Moreover, the way of cooperation should be adjusted to adapt to new global governance structures on investment, trade, finance, etc. In particular, sub-region cooperation can promote further synergy with the global and regional institutions and initiatives such as ASEAN, the United Nations, China's Belt and Road Initiative, the Indo-Pacific Strategy of the US and Japan ... to mobilize more financial resources and technical assistance.

In the time of the rocky path of global multilateralism, swiftly-change of geopolitical landscape, fast-moving of technological advance, the outbreak of Covid-19 has demonstrated that although each country, each region may have own way to deal with crisis such as Covid-19, fragmented actions is no longer a feasible option. This also works for the application of technology to help address the challenges to the human security in the sub-region. We need to ensure the compatibility among different system of technology or technology stacks used by Mekong countries. In addition, as technology is not a cheap investment, closer coordination among Mekong countries and between Mekong countries with partners will help optimize the values of invested technology by bringing in best practices, experience sharing and integrated actions of all parties involved. In addition, to ensure our people’s human security in the uncertain world, one new key aspect that defines sustainability is the ability to respond timely and effectively to unforeseen shocks. How Mekong countries can become sustainable and less vulnerable to future shocks is the central question. Besides economic shock, it is also important for Mekong countries to cooperate closely in preventing social disruption and instability in the unprecedented times of Covid-19, by designing and implementing risk-informed and shock-responsive social protection systems to reduce the vulnerabilities of at-risk populations. We have to be better prepared for future shock, not only the next pandemic but also scenarios of societal and environmental shocks. We have entered an era where shock-responsive protection plans are needed in our economy, our society and our environment. And technology can play its role in supporting this effort.

PAVING THE WAY FOR A MORE SECURE AND RESILIENT MEKONG REGION THROUGH SUSTAINABLE AND INCLUSIVE AGRI-FOOD BUSINESS INVESTMENT BY 2030

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Stunning view of an island located in Kratie province, one of the Cambodian provinces along the Mekong. Photo: Oxfam

A mixed success in export-oriented agriculture and food production

Over the last decades, Mekong nations – Cambodia, Laos, Vietnam, Myanmar, Thailand, and China – have enjoyed stable economic growth and steady reduction in poverty. Despite fast-paced urbanization, almost 80% of the Mekong's 1.7 billion inhabitants live in rural areas and their main livelihoods rely on subsistence agriculture, fisheries and forest extractions. The agriculture sector alone contributes to 40% of the region's GDP and 75 % of employment[1] Nations are shifting rapidly from being agrarian countries to export-oriented commercial producers to protect food security domestically, and increase export market shares regionally and globally. To meet the growing population and consequent domestic food demand, which is expected to increase by 70% by 2050, arable land access will need to be expanded by 70 million hectares.[2]

[1] Singh, A.S. "*Policy Brief: Agriculture and Rural Development in the Greater Mekong Sub-Region, the Important Nexus*". CUTS Hanoi Resource Centre, 2007.

[2] Food and Agriculture Organization. "How to Feed the World in 2050", 2009. http://www.fao.org/fileadmin/templates/wsfs/docs/expert_paper/How_to_Feed_the_World_in_2050.pdf

The significant increase in export-oriented commercial crops has resulted in significant changes in cropping and diversity patterns, and to a degree, loss in diversity. While the Mekong region is investing more in sustainable agriculture with productive agroecology and efficient irrigation, primary forest reserves are shrinking, particularly in Cambodia, Laos, Myanmar, Vietnam and China, and are being replaced by large scale monocrop plantations. 5 crops alone—rubber, sugarcane, palm oil, cassava and maize — are now commanding at least 76% of agricultural concessions across the Mekong region.[3]

A cassava plantation in Ratanakiri province, located in the northeast part of Cambodia bordering Vietnam and Laos. Photo: Savann Oeurm/Oxfam

In the region, food safety has become a growing concern and has led to massive losses in export to Europe and North America for Vietnam, Thailand and China, which are among the top 5 rice exporters in the world. Simultaneously, these 3 successful exporters, have significantly increased their import of agricultural produce as a result of the growing domestic demand for safe food. However, leading sectors, enabling food security in the Mekong region, notably agriculture, fisheries, aquaculture and water resources, are highly dependent on climate variability and change in natural ecosystems, and significantly affected by any changes or shift in those systems. In recent years, unsustainable agriculture practices, coupled with large scale infrastructure projects such as hydroelectric dams across Mekong and her tributaries, and natural resource extractivities have drastically polluted the riverine system.

[3] Diepart, J-C., and M.L. Ingalls. "*State of Land in the Mekong Region*". Bern Open Publishing, 2018. https://www.mrlg.org/wp-content/uploads/2019/06/Mekong-State-of-Land-May2019-with-New-map-MQ.pdf

Climate and man-induced floods and droughts as well as saline intrusion due to unsustainable development activities are occurring more frequently and will have severe impacts on key sectors defining human and food security in the Mekong region.

A woman sells fish caught in the Mekong river at a local market in Kratie province Cambodia. Photo: Oxfam

Smallholders have experienced *push* (made landlessness and constrained by the lack of secure and viable economic options in their countries) and *pull* (towards cross-border economic opportunities) factors, which have led to mass-out-migration within the Mekong region and beyond. According a newly released migration report from the United Nations, Thailand is currently home to approximately 4.9 million non-Thai residents, most of them coming from neighboring Mekong countries (Cambodia, Laos, Myanmar and Vietnam), accounting for an estimated 3.9 million documented and undocumented migrant workers. Other major groups include an estimated 480,000 stateless persons, 110,000 skilled professionals and 100,000 refugees and asylum seekers.[4]

Thailand has been a preferred destination for migrant workers, notably from Cambodia, Laos, and Myanmar, given the higher wages that it offers for labour. The shrinking rural population in Thailand, due to urban migration, is furthermore increasing the demand for migrant workers from the Greater Mekong Sub-region in the agriculture sector. The number of regular migrant workers employed in the agricultural sector is estimated at 436,188 from Cambodia, Laos and Myanmar.[5] However, the actual number of individuals employed is believed to be substantially higher due to the large number of irregular migrants working in the sector.

[4] United Nations. "*Thailand Migration Report 2019*". United Nations Thematic Working Group on Migration in Thailand, 2019.

[5] Ministry of Labour. "*Statistics on Foreigners Obtaining Work Permits through Nv and Mou*". Ministry of Labour, 2018.

Findings from a recent study conducted by Oxfam's partner, the Mekong Migration Network, on agricultural migrant workers in Thailand show that more than half of the migrant agricultural workers surveyed were undocumented.[6] Factors that contribute to the relatively low rate of documented migrants are thought to be related to the high costs associated with formal registration, as well as other associated expenses such as transportation, time and costs to reach official departments for registration. The same report also found that migrant agricultural workers experience a wide range of work-related issues, from unsafe working conditions, occupational accidents, ill health caused by exposure to chemicals and lack of personal protective equipment, to verbal abuse, discrimination by employers based on their sex and nationality. Many agricultural migrant workers use pesticides and fertilizers without proper training and enough equipment to protect them. These hazardous environments have led to health issues and injuries. Additionally, labour regulations and standards of the working conditions of migrants employed in agriculture are still limited. Although year-round workers have some of the same labour rights protection as other workers, seasonal agricultural workers do not receive basic protection, including the minimum wage, overtime pay, rest time, annual leave, sick leave and social security. Thailand has made progress on providing migrant workers with access to public services through law revisions, however limitations exist in practice. Regular migrant workers are entitled to receive subsidized care from the public health system in Thailand and irregular migrants are able to enroll for health insurance coverage by paying an annual fee. However, utilization of public health services remains relatively low among migrants due to a number of social and financial barriers. An estimated 64% of regular migrants (1.97 million) are enrolled in a public health insurance scheme, but this percentage decreases to 51% if irregular migrants are also included.[7] Social security[8] is open to migrants employed in the formal sector who have entered Thailand through bilateral Memoranda of Understanding or have completed the national verification process, however, it does not cover seasonal agricultural migrant workers.

It has been observed that mass-out migration to Thailand has contributed to the feminization of the agriculture and food production sector workforce in Cambodia and Laos, and perhaps to a lesser extent in Myanmar and Vietnam, owing to these countries having a higher population. This has stimulated Cambodia and Laos to urgently reflect on how agriculture policies could be expanded to notably support women smallholders better. Women, who constitute between 40% to 70% of farmers in the Mekong, own only 13% of land and are challenged by cultural barriers such as inheritance and divorce practices.[9] Among the millions of farmers in the Lower Mekong region without a land title, ethnic minorities are heavily represented. Millions of farmers are landless due to rampant land grabs mainly in Cambodia, Laos, Myanmar and China[10], and the appropriation of arable land in Vietnam.[11] Although

[6] Mekong Migration Network. "Migrant Agricultural Workers in Thailand." Mekong Migration Network, 2020. http://www.mekongmigration.org/wp-content/uploads/2020/06/book_Migrant-in-Agriculture-Eng-1.pdf.

[7] See Footnote number 4.

[8] Benefits includes maternity leave, disability, child allowance, old-age pension, unemployment, death and survival benefits

[9] Food and Agriculture Organization. "The State of Food and Agriculture: Women in Agriculture, Closing the Gender Gap for Development." FAO, 2011. http://www.fao.org/3/a-i2050e.pdf.

[10] GRAIN. "Against the Grain. Asia's Agrarian Reform in Reverse: Laws Taking Land out of Small Farmers' Hands." GRAIN, 2015. https://data.opendevelopmentmekong.net/dataset/6dd150e8-0060-4446-a826-

there are diffierent legal frameworks on the recognition of customary tenure across Mekong nations, in many cases, it is poorly and irregularly recognized by authorities.[12]

In Cambodia, for example, as of June 2018, only 24 out of around 500 indigenous communities had been granted communal land titles. In Laos, communal land use is practiced by ethnic communities, whereas in Myanmar, despite the adoption of National Land Use Policy in 2016, which recognizes customary land rights, there is no accompanying legislation, and uncertainty regarding the definition of customary law and tenure evoked under this policy. In Thailand, under a large-scale land titling program, implemented between 1984 to 2004, more than 11.5 million land titles were issued. However, it is reported that all other land, apart from recognized private lands, is considered as being state-owned forest land, which as of 2017, covered 40% of all land.[13] Ethnic groups, residing in northern Thailand, are reported to abide by customary laws, governing land use and access. In Vietnam, the Land Law of 2013 recognizes certain forms of customary tenure, and legally, communities can engage in land transactions, however, this engagement is poorly practiced. Moreover, communities, using land are not permitted to exchange, transfer, lease or donate land use rights or mortgage, or contribute land use rights as capital. Women face the most challenges in accessing land, owing to patriarchal traditions.

Children living in an indigenous community join their parents to celebrate a cultural event, 'indigenous day' in their village. Photo: Oxfam

2658e8a74276/resource/e7c433f9-78ea-498e-b7f9-d05a95f3a7c5/download/grain-5195-asia-s-agrarian-reform-in-reverse-laws-taking-land-out-of-small-farmers-hands.pdf.

[11] Chau, L.M. " "Extremely Rightful" Resistance: Land Appropriation and Rural Agitation in Contemporary Vietnam." Taylor & Francis, 2018. https://www.tandfonline.com/doi/full/10.1080/00472336.2018.1517896?scroll=top&needAccess=true.

[12] Open Development Mekong. "Land." Open Development Mekong, 2019. https://opendevelopmentmekong.net/topics/land/?queried_post_type=topic.

[13] Open Development Thailand. "Land." Open Development Thailand, 2016. https://thailand.opendevelopmentmekong.net/topics/land/

Sustainable and inclusive agriculture and food production MSMEs

There are opportunities to address the multi-faceted socio-economic and ecological challenges faced by the region to ensure that a more sustainable approach would be adopted for agriculture and food production. There are successful projects across the Mekong region, piloted and implemented by Oxfam and other development actors, that governments could study and take to scale. The Cambodian Agriculture Cooperative Corporation (CACC) is an excellent example of a successful Public-Private-Producer Partnership (P4) in Cambodia, under which 36 agricultural cooperatives have a commercial stake in its trading - accounting for approximately 30% of shares in CACC - and are able to earn a fairer wage for their labour. Micro, small and medium enterprises (MSMEs) are a critical driving force behind Mekong economies, accounting for an average of 97% of all enterprises and 69% of the national labour force. From 2010 to 2019, they contributed to an average of 41% of each country's GDP. In Cambodia, Laos and Myanmar, MSMEs account for more than 80% of their GDP. The presence and contribution of women in Cambodia's economy and SME sector is notable. Women own 61% of businesses in Cambodia[14], and operating mainly within the commerce (66%) and services (61%) sectors (International Finance Corporation, 2019). While women ownership of businesses is at its highest in the microenterprise sector (62%), their ownership of SMEs is less substantial at 26%. Reports demonstrate that this is linked to the preference shown by women to own micro businesses that are close to their homes or are in fact "home businesses".[15] While some may argue that this is related to the social perceptions of women being less forthcoming, and lacking leadership skills and initiatives to manage a business, 90% of the SMEs led by women in Cambodia were profitable in 2018. This is despite only 3% of women SME entrepreneurs in Cambodia having access to formal credit, for which there is an estimated 4.2 billion USD unmet demand for women entrepreneurs.[16]

Smallholders are among the groups suffering the most, particularly from livelihood insecurities that are now exacerbated by the adverse effects of climate change and the C19 outbreak. Millions of migrant workers across the region have lost jobs and livelihoods with little to no compensation. Despite a period of disruptions to global and regional trade and agriculture value chains, the agricultural sector remains relatively strong in the Mekong region. However, the outbreak has nonetheless highlighted the food safety concerns of the region and serves as a reminder to policy makers that further investment in social and environmental initiatives are desperately needed to withstand future shocks. Of the other groups impacted by the C19 outbreak, women and children have been disproportionately affected. Difficulties to access adequate nutritious food are being confronted by poor women and children as well as other vulnerable groups, and these difficulties are compounded by the recent flash flooding caused by tropical storms across the lower Mekong region, which damaged millions of hectares of arable land. As a last resort, and heavily burdened by financial pressures, many smallholders have no choice, but to sell their lands. The C19

[14] International Finance Corporation. "Exploring the Opportunities for Women-Owned Smes in Cambodia." International Finance Corporation, 2019. https://www.ifc.org/wps/wcm/connect/9e469291-d3f5-43a5-bea2-2558313995ab/Market+Research+Report+on+Women_owned+SMEs+in+Cambodia.pdf?MOD=AJPERES&CVID=mOU6fpx.

[15] Ibid.

[16] Ibid.

pandemic and recent climate-induced disasters have driven micro and small business owners and producers further in debt, and the millions who had climbed out of poverty are at risk of falling back.

Towards a more secure and resilient Mekong nations

Governments have come to realize that domestically, it is imperative that more holistic incentives are adopted to assist low-skilled producers with becoming micro and small scale agri-entrepreneurs. This will not only improve their GDP, but also increase their market shares regionally and globally. Thailand has been highly successful in managing such a transition and supporting farmers with consolidating agricultural land and setting up small and medium enterprises. The country has also been able to absorb farming laborers from other countries in the Mekong region into its workforce, while supporting entrepreneurs with integrating into higher agriculture and food processing value chains. Thus, it should be in the interest of Thailand and its fellow Mekong countries such as Cambodia, Laos, Myanmar and Vietnam to promote stronger transboundary collaboration and safe and decent work for Mekong migrant workers.

As recommendations to close this paper, Mekong governments can create an enabling environment and transboundary coordination mechanism to promote sustainable and inclusive agriculture business development that will contribute to building a more secure and resilient region by:

1. Building fairer, more resilient and sustainable food systems, by investing in small-scale and agro-ecological food production and ensuring that producers earn a decent income by establishing minimum producer prices and other support mechanisms;
2. Promoting women's participation and leadership. Women must have the opportunity to participate and lead decisions on how to address broken food systems, and be supported by agriculture and extension policies that foster women's economic empowerment;
3. Investing in more inclusive social protection systems for all citizens, including those working in MSMEs to ensure income security and safety nets against shocks, such as economic crises and natural disasters. There is a clear need to incentivise smallholders to continue farming on their land and increase productivity by adopting holistic women economic empowerment approaches that consider gender-based household level characteristics and sustainable economic solutions tailored at improving individual household welfare;
4. Subsidizing more women smallholders in their transition from being wage earning farmers to agri-entrepreneurs through public-private-and-producer partnerships;
5. Promoting sustainable agriculture and food production that respect the ecological integrity of surrounding environments and improving local and regional value chains;
6. Supporting inclusive businesses in the Mekong region, which include MSMEs and social enterprises that are more inclusive in terms of fair in pricing, buying contracts, supporting women's economic empowerment in their supply chains and workplace;

7. Supporting global buyers and local exporters in the agri and aquaculture sectors that offer fair contracts to smallholders;
8. Improving food safety by using technologies such as blockchain to improve transparency.

By working towards these recommended strategies can Mekong nations strengthen their foundations for building social and economic prosperity, and offer a more secure and resilient society to its citizens.

WATER DATA DEMOCRATIZATION IN THE MEKONG-LANCANG BASIN

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In the Mekong-Lancang basin, there is simultaneously tension and cooperation between states across a wide range of issues related to transboundary water sharing, also with implications for the relationship with non-state actors including riparian communities, civil society, and the wider public. Tension and cooperation in part relates to divergent visions for the basin, ranging from the importance of healthy ecosystems and maintenance of common pool resources that are the foundation of local livelihoods including wild capture fisheries and small-scale agriculture, to plans for large-scale hydropower dams, irrigation schemes and navigation that emphasize the importance of national and regional economic growth.

Since the early 1990s, the Mekong-Lancang River has been transformed from a free-flowing river to one that is increasingly engineered by large hydropower dams. To date, in the lower basin, shared between Cambodia, Laos, Thailand and Vietnam, over seventy medium or large hydropower dams are in operation, with over thirty more under construction. Meanwhile, on the Lancang River upstream, China has constructed eleven large mainstream hydropower dams. Extensive hydropower construction is changing the river's hydrology and ecology. Despite the river's enclosure and degradation, millions of riparian community members continue to depend on the its natural resources.

Two key intergovernmental institutions structure transboundary water governance, namely the Mekong River Commission (MRC) and the Lancang-Mekong Cooperation (LMC) Framework. Foremost is the MRC, which is a treaty-based intergovernmental organization founded in 1995 between Cambodia, Laos, Thailand and Vietnam, with China and Myanmar as dialogue partners. The underpinning principles of the 1995 Mekong Agreement reflect those found in the UN Watercourses Convention, including 'equitable and reasonable utilization,' and the obligation 'not to cause significant harm,' 'to exchange data,' and 'to cooperate.' Article 1 of the Agreement states that the institution's mandate is "To cooperate in all fields of sustainable development, utilization, management and conservation of the water and related resources of the Mekong River Basin…". A particular challenge for the MRC has been that it has had relatively little influence within regional economic planning frameworks of which there are now over a dozen, such as the Greater Mekong Subregion Program, as well as national economic development planning. A related challenge has been the MRC's ability to ensure meaningful consultation between civil society and community-representatives with its member governments, especially in relation to large dam projects that reflect economic growth agendas. These challenges have led to the WWF recently publishing a frustrated opinion piece in late November 2020 titled "Mekong Commission meekly monitoring river's collapse" that calls on the MRC to more urgently promote the river's environmental health in the face of still expanding plans for hydropower.

The LMC was launched in March 2016 and includes all six states of the Mekong-Lancang basin, with a key role of China as co-chair and financier. This is significant given that another challenge for the MRC has been that China has remained a "dialogue partner", rather than a full signatory, particularly given the construction of Lancang dam cascade. The overarching goal of the LMC is to deepen economic, cultural and political ties between China and mainland Southeast Asia. One of five priority areas of the LMC is water resources management. Here, the Lancang-Mekong Water Resources Cooperation Center has been created, and identified areas of cooperation include: policy dialogue, water quality monitoring and information and data sharing, technical cooperation and exchanges, joint research, and capacity building. Regarding regional governance, to date the LMC primarily adopts a state-centric approach, which has afforded little opportunity for critical civil society and community participation in the downstream countries in transboundary water governance. A significant emphasis in the LMC's five-year plan is for deepening economic cooperation project between China and mainland Southeast Asia. Thus, the water resources management program is also directed towards these ends.

A severe drought in 2019 and 2020 has intensified tensions in the region, and also caused hardship for many people within the basin. It has been vigorously debated whether large dam infrastructure in the basin has exacerbated the impact of the drought, or could have been operated differently to better mitigate its impacts. A focus has been on the upstream dams in China, given that there has been a relative lack of transparency and accountability over the projects' operation and reservoir water storage status. Since early 2020, several regional and international research groups have published studies on the drought, low river flows and hydropower dam operation that have been influential in shaping regional government and public opinion. The issue of the availability of water data has emerged as a key policy concern. At the time of the drought, hydrological data sharing for flood and drought conditions only occurred all year round between the four MRC member states, while China shared hydrological data with the MRC during the flood season. There were growing calls from downstream states, civil society and communities towards China for improved data sharing, and significantly China announced year-round state-to-state water data sharing in October 2020.

In a recent paper published by Middleton and Devlaeminck (2020), the important role reciprocity plays in international water law has been highlighted, including regarding the principle of Equitable and Reasonable Utilization (ERU) that is the cornerstone of international water law. According to the Cambridge English Dictionary, reciprocity is defined as "behaviour in which two people or groups of people give each other help and advantages." In their research, they show how 'reciprocity in practice' in international watercourses emerges from the interconnected legal, social and political processes by which state and non-state actors negotiate Equitable and Reasonable Utilization, and distribute various types of benefits and harms. They provided an analysis of evolving legal regimes and issues of navigation, hydropower, flood and drought management, and economic regionalization in the Mekong-Lancang basin, focusing on relations between China and downstream states. They argue that one fundamental basis of working towards positive reciprocity both between states, and between state and non-state actors, is building trust, which in turn is based on being transparent and ultimately accountable to each other. Here, one key challenge in the Mekong-

Lancang basin has been incomplete water data sharing, which has led to mistrust and reduced the willingness to cooperate in positive reciprocity.

While China's October 2020 announcement provides an important foundation for improved cooperation, including given that China has deepened its cooperation with the MRC to share data rather than insist on sharing data via the LMC, state-to-state data sharing is only the first step. In terms of water data sharing there is more to be done to understand the situation upstream in China. In particular, the number of monitoring stations could be expanded to cover all eleven hydropower dams now in operation and to include data on upstream and downstream water levels and flows for each dam's reservoir as well as its operation schedule. It could also include tributary river water data, which is already extensively collected, while sharing historical data sets could help establish previous conditions in the basin.

It is also important to connect more comprehensive water data availability that can increase transparency to improved transboundary water governance that is participatory and accountable to riparian communities, civil society and the wider public. This applies in the lower basin, for example within the ongoing consultations on proposed mainstream dams, and also in relation to China's announcement to increase data sharing that is not yet explicitly connected to a commitment to improved accountability of the Lancang hydropower cascade to downstream countries and riverside communities. It must also be recognized that the type of scientific knowledge generated by the MRC and scientific researchers is only one form of knowledge necessary for inclusive and sustainable development. Situated community-knowledge such as 'Thai Bann' research, civil society-led research, as well as political and practical forms of knowledge, all matter for knowledge to be "actionable".[1]

Innovative solutions for improved water data sharing in the Mekong-Lancang basin are needed to inform regional research, public debates and democratized transboundary water decisions. Some directions for further research include:

- Learning from international best practice on data sharing in international law, including the 1997 UN Watercourses Convention, the 1992 UNECE Convention; and the EU Water Framework Directive, and from select major river basins around the world.
- Undertaking a critical assessment of current data sharing arrangements in the Mekong-Lancang basin, including via institutional platforms of the MRC and LMC, and other existing and emerging data portals. This includes how complete data sharing currently is, in terms of measurements on quantity and quality of water, and regularity of sampling
- Assessing the current means by which water data is shared with riparian communities and the public and its impact on decision-making. It should be evaluated whether data is communicated in a usable form that is reliable, timely and trusted
- Identify options for strengthening regional public water data sharing that could

[1] Kerkhoff, Lorrae van, and Louis Lebel. "Linking Knowledge and Action for Sustainable Development." *Annual Review of Environment and Resources* 31 (2006): 445-77.

facilitate: various forms of joint regional research (academic; civil society- and community-led; government-led); evidence-based public debates; improved quality of transboundary water governance and the institutions that facilitate it for genuine participation of civil society and communities in the river basin

Further reading

Middleton, C., and Devlaeminck, D.J. (2020) "Reciprocity in practice: the hydropolitics of equitable and reasonable utilization in the Lancang-Mekong basin." International Environmental Agreements. https://doi.org/10.1007/s10784-020-09511-6

Middleton, C. "Beyond Water Data Sharing, Mekong-Lancang River Needs Accountable Water Governance" Published by Heinrich Boll Stiftung, 27 November 2020. https://th.boell.org/en/2020/11/27/mekong-lancang-river-needs-accountable-water-governance

ANNEX II


Virtual Conference on
SUSTAINABLE DEVELOPMENT AND


Virtual Conference on
SUSTAINABLE DEVELOPMENT AND
THE FUTURE OF THE MEKONG


សិក្ខាសាលាស្តីពី
Virtual Conference on
ការអភិវឌ្ឍប្រកបដោយចីរភាព
និងអនាគតនៃអនុតំបន់មេគង្គ
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U.S. Department of State
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Via : ZOOM


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