BASIN CONDITIONS, TRENDS AND LONG-TERM OUTLOOK

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Basin Conditions, Trends and Long-Term Outlook

• Is Chapter 2 of the draft Basin Development Strategy
• Developed based on
  • The State of the Basin Report 2018
  • Scenario assessments of cumulative national plans
• Covers the whole Mekong Basin (including UMB and LMB)
• Supplements with additional data from international organisations, i.e. projections from the Asian Development Bank and the International Energy Agency
• PURPOSE: to provide a basis for the identification of strategic needs, development opportunities, risks and challenges in Chapter 3
Structure of Chapter Two

1. Water resources development and management
2. Economic, social, environment and climate change trends and long-term outlook
3. Regional cooperation and integration
4. Progress towards achieving relevant Sustainable Development Goals
Water Resources Development

• 446 million km$^3$ of runoff
• Amount of water ‘used’ is still relatively low
• Current levels of active storage are 14% of Mean Annual Runoff
→ Forecast to increase to ~ 22% by 2040
• Development started at different times in different countries

• The Basin is on a rapid dev’t trajectory
• Hydropower & agriculture are the main future uses of water
• Domestic & industrial use is low, but steep increase expected due to population growth & industrialisation
Water Resources Development Pathway

- Development commenced from the bottom-up
- Expanse agriculture, electricity, reduce salinity intrusion & mitigate floods
- Delayed due to political instability and uncertainty about needs and impacts
- Generation of additional knowledge on benefits/costs/trade-offs in recent years
- Emphasises need for further cooperation

**1950s-60s**
- Navigation and improved drainage in the Delta

**1960s-70s**
- Irrigation, barrages and weirs in north-eastern Thailand

**1990-2000s**
- Hydropower in Thailand, Viet Nam and China
- Delta aquaculture

**2010-2020s**
- Hydropower in Lao PDR
- Floodplain development around Tonle Sap

**2030s**
- Hydropower in Cambodia?
- Further Irrigation?
- Climate change adaptation?
Economic Trends and Outlook

- GDP growth has been strong (between 3.2% and 8.1%) over the last ten years
- Domestic demand and foreign direct investment are the key source of current growth
Agriculture Trends and Outlook

- Agricultural sector growing strongly, but a smaller share of the overall economy
- Manufacturing and services sectors growing much faster
- Global food demand and rising prices likely to continue to attract foreign investment
Hydropower Trends and Outlook

- Growing energy demand across the region (60% over 15 years)
- Strong growth in future demand expected (by two-thirds to 2040)
- NPV to increase by between USD 63 billion and USD 152 billion to 2040 in LMB
Fisheries and Aquaculture Trends and Outlook

- Amount of fish caught is increasing, but more effort to catch, less valuable species
- NPV of capture fisheries sector could decline by USD 17 billion to USD 23 billion to 2040 due to in-stream barriers, land-use change, and over-fishing
- Aquaculture production to continue growing strongly
Navigation Trends and Outlook

• Cargo volumes growing by more than 6.4% per year
• NPV to increase by between USD 10 billion and USD 69 billion to 2040
• Navigation Master Plan aims for 500 DWT ships from China to the sea
Social Trends and Outlook

- Population 72 million (whole Mekong Basin), projected to be 100 million by 2040
- Significant rural-urban migration driven by employment in manufacturing & services
- Poverty rates have fallen sharply
- However, relatively large numbers of poor, natural resource dependent communities exist
Livelihoods and Employment Trends and Outlook

- Share of employment in agriculture, fisheries and forestry is declining, but remains an important source of employment
- Disparities in gender equality exist, but data is scarce
- Gender equality expected to improve in line with development trajectories and national priorities, but a lack of gender disaggregated data will hamper progress
Living Conditions and Wellbeing Trends and Outlook

- Food security has improved over the last 20 years: all LMB countries meet more than 100% of dietary energy needs

- Access to improved water sources, sanitation and electricity has increased substantially since 2000, yet variations exist between countries; rural areas lag urban communities

![Graph showing share of urban and rural populations with access to at least basic drinking water]
Water Quality and Sediment Trends and Outlook

- Water quality generally good, but future pressures with urban & industrial development, fertilizer, low flow could bring new risks from algal blooms and low dissolved oxygen
- Sediment transport dropped dramatically from 85 MT/y to 10.8 MT/y at Chiang Saen between 1994 and 2013; & suspended sediment load could disappear at Kratie by 2040
Environmental Assets Trends and Outlook

- Wetlands are severely threatened and gradually being degraded or lost completely
- Total biomass of fish estimated to declined by around 50% over the last 100 years due to rice farming expansion, deforestation, intensive fishing, hydropower dev’t etc.
- Outlook for native fish is projected to decline by 25-80% by 2040 with some valuable migratory species extinct
- Non-native species likely to benefit

**CAUSES:** Potential impacts on food security & livelihoods

**NEEDS:** further consideration of optimal development pathways
Climate Change Trends and Extremes Trends and Outlook

• Average annual basin-wide temperatures increased over historical record, sea-level is rising

• Average temperatures will continue increasing and could be up to 3.4 degrees warmer by 2060

• Basin development will interact with climate change, in some cases mitigating the impacts, and some cases exacerbating them
Adaptation to Climate Change Trends and Outlook

• All countries have plans and strategies to adapt to climate change
• Flood damages are highly variable from year to year but could be 5 to 10 times higher by 2040
• Uncoordinated floodplain development will exacerbate impacts in the Delta

→ **Needs**: cooperative planning and development to preserve parts of the floodplain and protect floodways
Regional Cooperation and Integration

• Two key regional platforms – MRC and MLC

• MRC focused on Integrated Water Resources Management; treaty-based, cooperative procedures, protocols and tools; four LMB countries; knowledge hub and water-diplomacy platform

• MLC has a broader mandate; joint projects financed through a special fund; establishing data centres in each country; includes all six riparian states, but not treaty-based and without cooperative procedures and protocols
## Other Regional Cooperation Mechanisms

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| Members | Brunei, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand, Viet Nam; China = Dialogue Partner | Cambodia, Lao PDR, Myanmar, Thailand, Viet Nam | Cambodia, Lao PDR, Myanmar, Thailand, Viet Nam, China (Yunnan Province and Guangxi Zhuang Autonomous Region) | United States with Cambodia, Lao PDR, Myanmar, Thailand, Viet Nam | Japan with Cambodia, Lao PDR, Myanmar, Thailand, Viet Nam | Republic of Korea with Cambodia, Lao PDR, Myanmar, Thailand, Viet Nam |
Future Directions for Regional Cooperation and Integration

• Need for one ‘Lancang-Mekong’ system \(\rightarrow\) Increasing regulation and requirements for operational coordination, potential climate change impacts

• From ‘common interest’ to ‘complementary interest’ to support policy coherence at the *water-food-energy nexus*

• Deeper integration requires each organisation to clearly articulate its role and comparative advantage

• Continued improvements in PNPCA and early engagement in project design

• Enhanced cooperation between MRC and LMC platforms could facilitate proactive regional planning e.g. operational protocols of UMB dams will influence downstream development needs

• A deeper institutionalisation of the relationship between MRC and LMC?
  • e.g. Joint basin expert groups?
Progress Towards Achievement of the SDGs

• 2018 Mekong Summit, leaders commitment to “strengthen joint efforts and partnerships towards achievement of SDGs”

• President Xi Jinping’s focus of Belt and Road Initiative on “strengthening cooperation in ecological and environmental protection and building a sound ecosystem to help realise the SDGs”
Thank you