

Regional Challenges for River Development and Water Scarcity Across Southeast Asia

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The Importance of Rivers in Southeast Asia

- Rivers like the **Mekong, Chao Phraya, and Ayeyarwady** sustain millions.
- Critical for food security, livelihoods, and economic growth.
- Increasing pressures from development, climate change, and overuse.



Key Water Challenges in the Region

- Competing water demands

 Agriculture, industry,
 hydropower, and
 urbanization
- Infrastructure development

 → Irrigation & dams alter
 water flow and ecosystems
- Climate change impacts → More droughts, erratic rainfall, rising temperatures
- Water governance challenges → Need for regional cooperation & datasharing



Water Scarcity in Asia Pacific



Majority of the Asia Pacific population lives under some kind of water scarcity



Water scarcity exhibits strong seasonality



Scarcity is worsening, driven mainly by population and economic growth



Climate change exacerbates scarcity but is not a key driver of it



Defining water scarcity

TOO LITTLE WATER

Low natural precipitation and runoff conditions which induce low per capita water availability and general water scarce conditions.

TOO VARIABLE WATER

Seasonal and inter-annual variability in precipitation produces highly variable water availability regimes and drives drought incidence.

OVER-UTILISATION

Utilisation of water resources for domestic and agricultural purposes exceeds water availability or causes water quality issues.

POOR QUALITY

Quality of water resource does not suit the required quality of water users and reduces effective availability of water for some or all uses, depending on degree of pollution.

Fisheries Under Threat



Inland fisheries provide **a major protein source and income** for millions.



Hydropower dams and irrigation projects block fish migration and disrupt breeding cycles.



Unsustainable fishing, habitat destruction, and pollution further stress stocks.



Need for **fish-friendly infrastructure**

The Synergies Between Water Management & Sustainable Fisheries

- Healthy water systems sustain productive fisheries
- Sustainable fisheries depend on sciencebased water governance
- Water allocation & infrastructure planning must consider fish migration
- Opportunity for **crosssector collaboration** on policies & solutions





The Transboundary Water Management Challenge

- Rivers cross national boundaries, requiring regional cooperation.
- Differing national priorities and governance structures create barriers.
- Data-sharing & joint decision-making is critical.
 - Mekong River Commission & ASEAN initiatives offer frameworks but need strengthening.



What is FAO doing to help?



Asia-Pacific Water Scarcity Programme

- With support from the Australian Water Partnership and Australia's Department
 of Foreign Affairs and Trave, the WSP works with national governments and
 regional organizations to develop science-based policies that balance water
 allocations for agriculture, fisheries, and environmental flows.
- The programme promotes **cross-sector coordination**, ensuring that fisheries considerations are included in national water management plans.
- Through piloting water accounting tools, WSP helps countries measure and monitor water use, enabling better planning for sustainable river management.
- These efforts contribute to ensuring that **water allocations include ecological flows**, supporting fish migration and aquatic biodiversity.





Australian Government

Department of Foreign Affairs and Trade

The Asia and Pacific region is more vulnerable to climate change risks than other regions of the world because of its dependence on the natural resources and agriculture sectors, densely populated coastal areas, weak institutions, and high poverty rates (ADB). This compounds the real challenges presented by urbanization, industrialization, and population growth.

The WSP will put into place the essential foundations of an adaptable and resilient water management system, ensuring that practitioners can make the evidence-based decisions regarding adaptation and mitigation that are urgently needed.



What is FAO doing to help?



Next Generation Irrigation and Water Management Programme

- With support from the Australian Water Partnership, FAO worked with CSU on two key projects in Cambodia and Indonesia:
 - Modernizing irrigated agriculture to protect and restore aquatic biodiversity and ecosystem services in the Indo-Pacific in Cambodia, Myanmar, and Indonesia
 - Integrate biodiversity & ecosystem services into irrigation rehabilitation & modernization
 - Tools & guidelines developed for sustainable irrigation investments across Southeast Asia
 - Supports multi million-dollar irrigation programs while enhancing ecosystem functions
 - Capacity development for spatial planning as a key component of water resources management in Indonesia
 - Limited river basin infrastructure data for fish-friendly intervention
 - Create a river infrastructure inventory for irrigation, fisheries & aquaculture.
 - Improves **decision-making** on river connectivity & biodiversity conservation.
 - Supports modernizing infrastructure & sustainable water management planning.



Gulbali Institute

Agriculture Water Environment



Key Solutions for Water & **Fisheries** Management



Stronger transboundary cooperation → Improve governance & data-sharing

Integrated Water Resource Management

(IWRM) → Balance across sectors



Sustainable infrastructure → Fish-friendly hydropower & irrigation solutions



Investing in Science and Technology → Support decision making.



Innovative financing mechanisms → Blended finance & ecosystem payments

The Path Forward



Water & fisheries challenges require urgent, collaborative action



Healthy rivers = food security, economic growth, and sustainability



Let's work together to secure a resilient future for our region's water & fisheries

Thank you

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