

UNESCO Chairs Webinar World Water Day



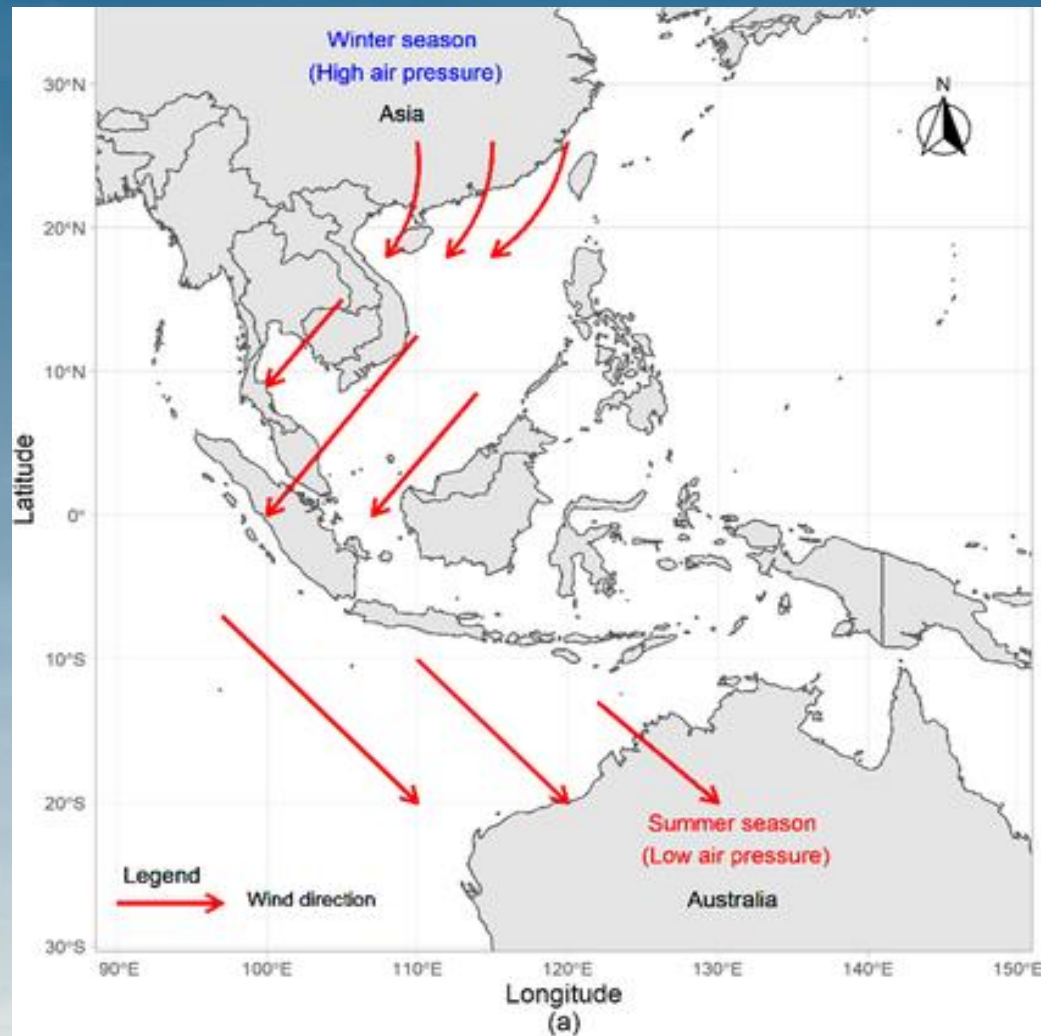
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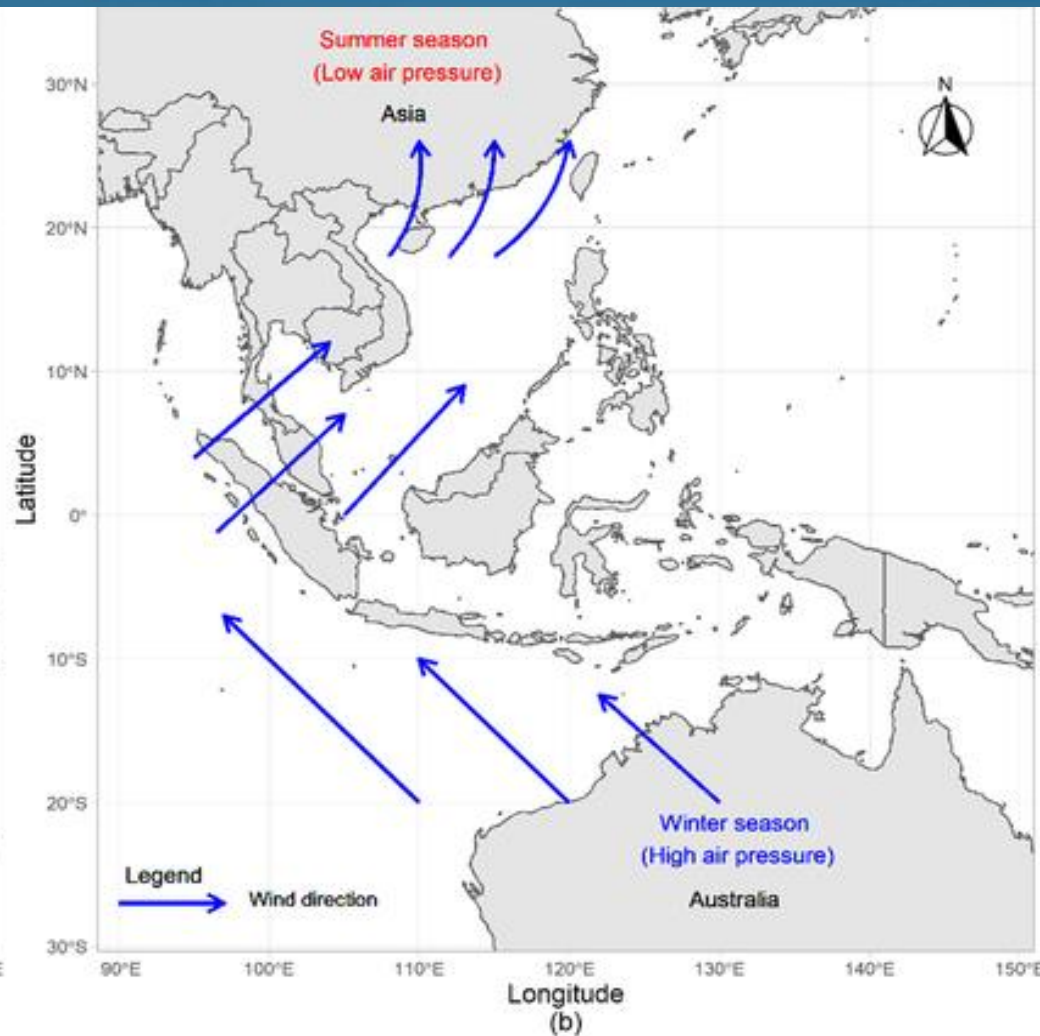
Water Resource Sustainability and Innovation in Malaysia



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North-East Monsoon (Nov-Feb)



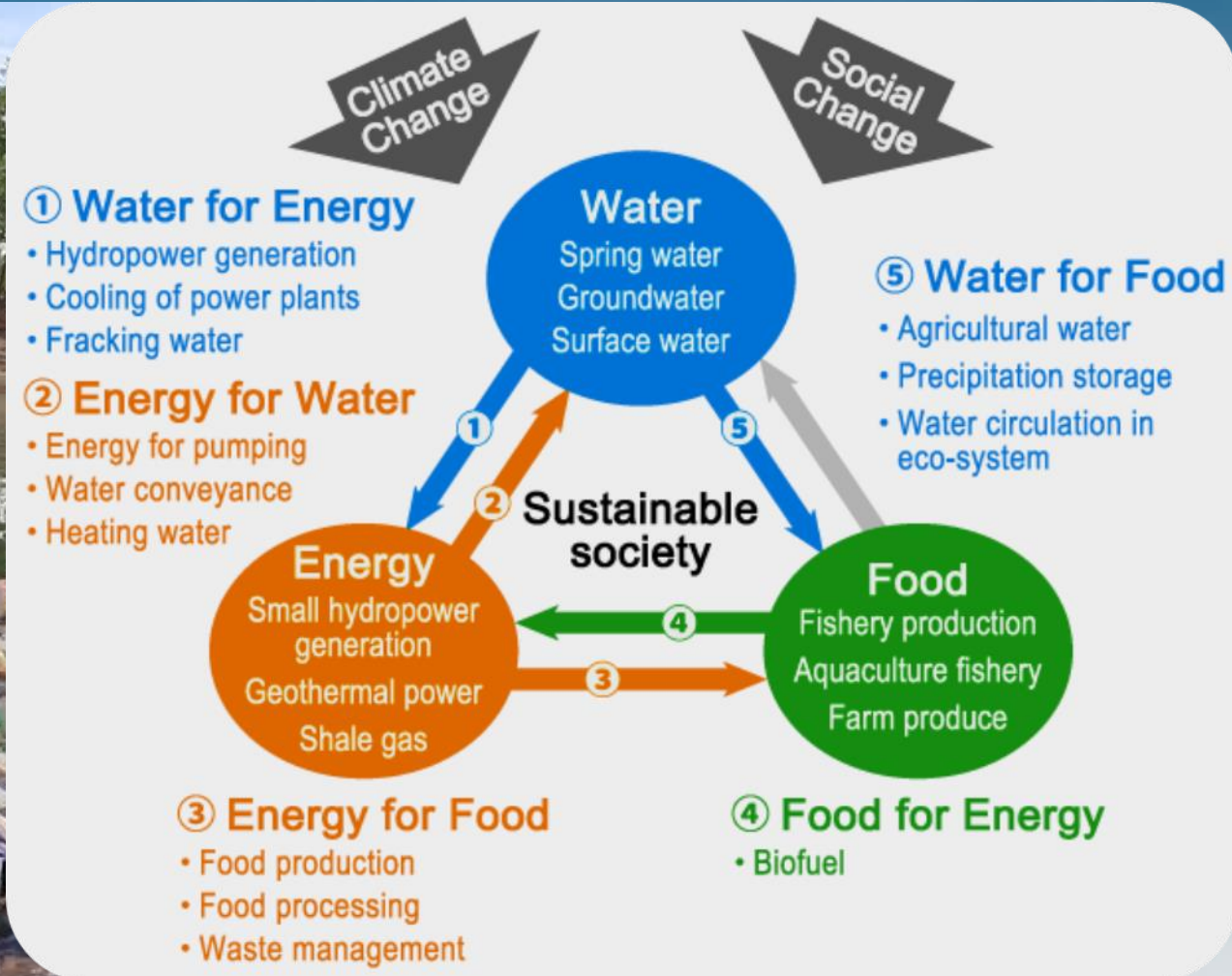
South-West Monsoon (May-Aug)

DOI:10.1007/s00704-022-03990-0



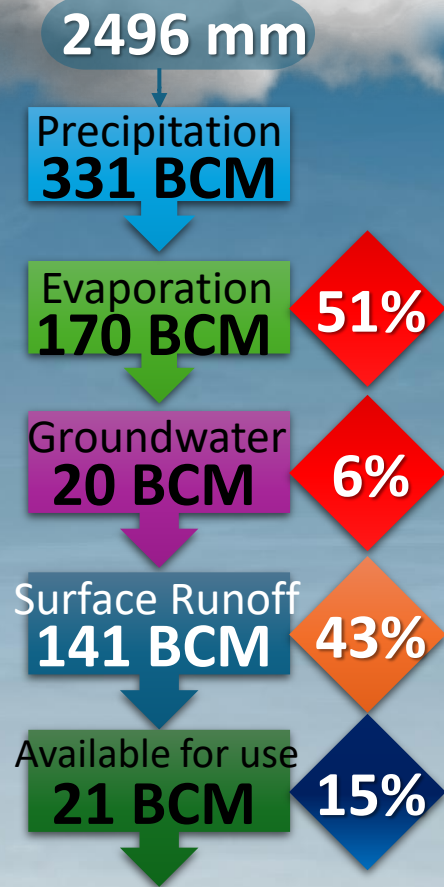
Photo: Reuters

Water for prosperity and peace

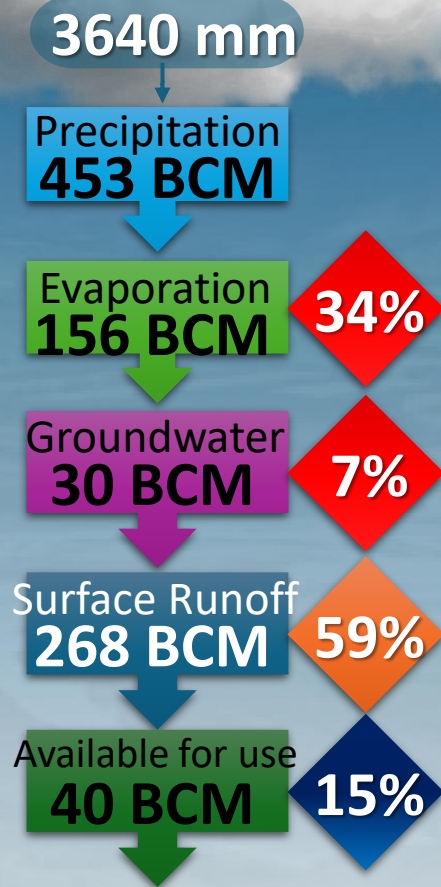


Water for prosperity and peace

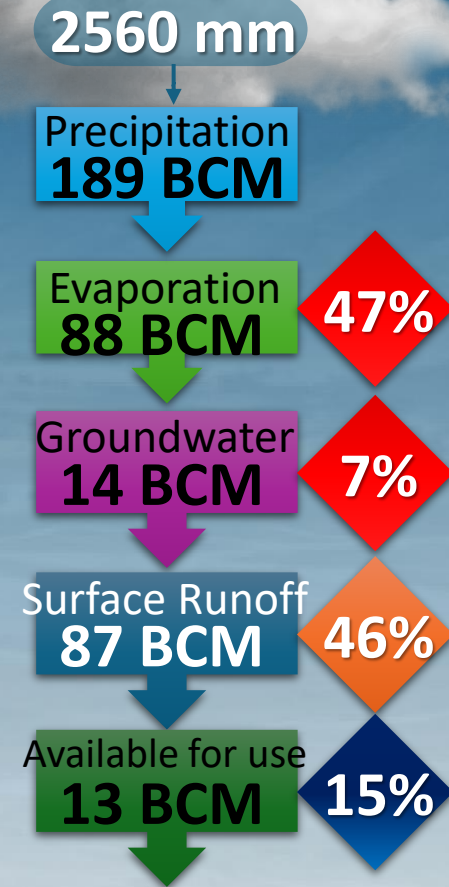
Peninsular Malaysia

**13.7 BCM**

Sarawak

**2.1 BCM**

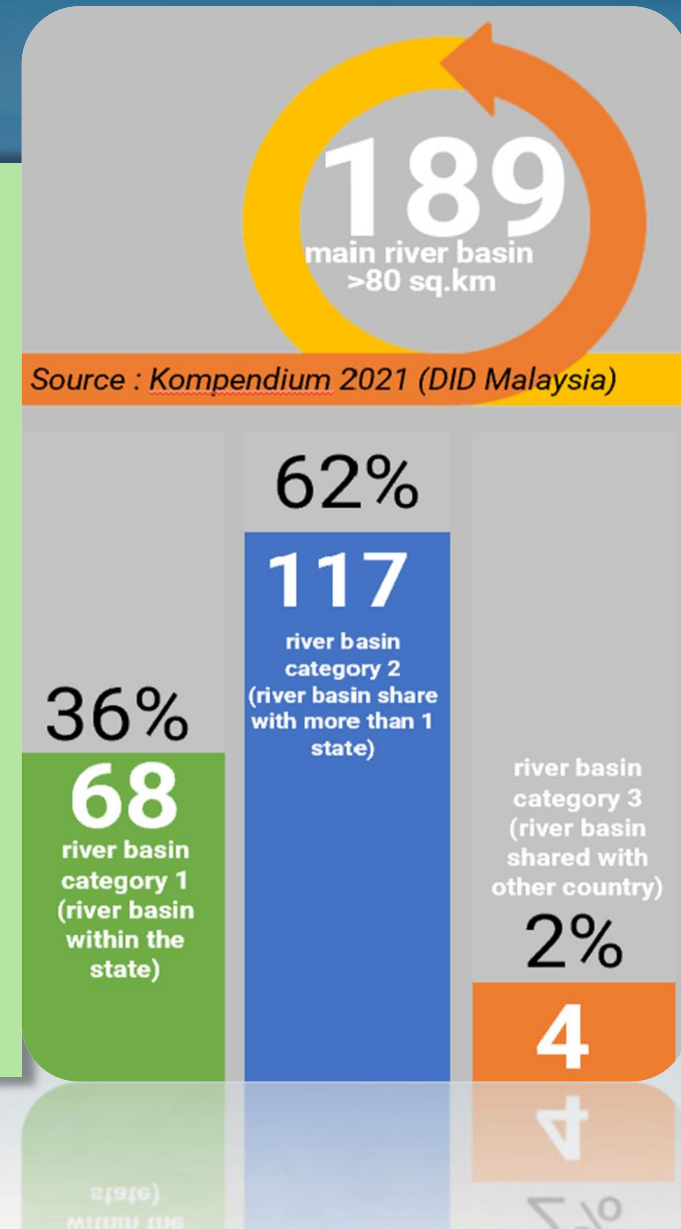
Sabah

**1.4 BCM**

Total Consumptive Water Demand in 2020

Source : NWRS 2010-2050

One of the key elements in managing water resources is to provide a comprehensive management instrument of multiple functions including the accounting for water resources, providing real-time online information on water availability, and a forecasting system on drought to assist in the decision-management process.





Tasik Chini, Pahang

HALA TUJU DASAR BAGI FOKUS UTAMA 3: PERKONGSIAN

Tadbir urus sumber air memerlukan tindakan semua pihak berkepentingan secara kolektif, bukan sahaja pihak kerajaan yang memegang mandat. Penerima pakaian pendekatan bersepadu seperti IWRM, IRBM, ISMP, ICZM, ILM dan IFM secara menyeluruh di Malaysia melalui pengintegrasian kaedah-kaedah tadbir urus sumber air perlu di beri keutamaan. Kesepaduan, kolaborasi dan perkongsian penting agar tadbir urus sumber air boleh di kongsi sama.

Tadbir urus yang berkesan memerlukan mekanisme, platform dan proses untuk memudahkan penglibatan dan penyertaan. Proses untuk menentukan penglibatan, penyertaan dan kolaborasi adalah penting

POLICY DIRECTIONS FOR CORE AREA 3: PARTNERSHIPS

Water resources governance requires the collective action of all stakeholders, which does not only include government mandate holders. The central idea here is to give effect to integrated approaches already adopted in Malaysia such as IWRM, IRBM, ISMP, ICZM, ILM and IFM. These integrated approaches must be adopted nationwide, and key to adoption is integrating governance measures. What is important to note here is that through collaboration and partnership, the task of governing water resources can be shared.

Effective governance requires structured mechanisms and platforms as well as processes to facilitate involvement and participation. The processes that provide the means to get involved, participate and collaborate are also important.

DASAR SUMBER AIR NEGARA

NATIONAL WATER RESOURCES POLICY

TRANSFORMING THE WATER SECTOR: NATIONAL INTEGRATED WATER RESOURCES MANAGEMENT PLAN STRATEGIES AND ROAD MAP



VOLUME 2 - APPENDICES

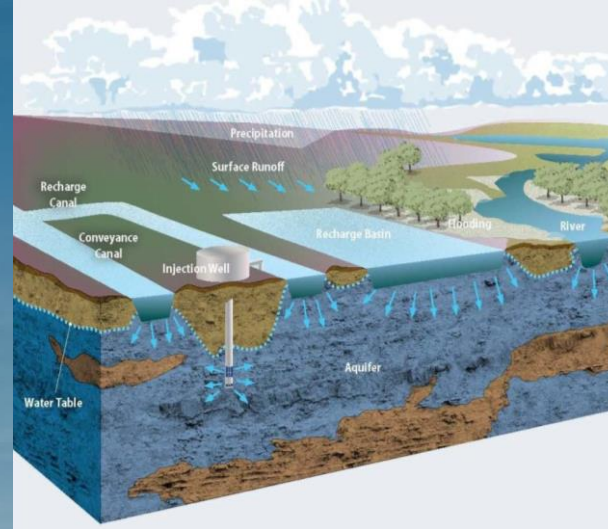
National Water Balance Management System

Objectives

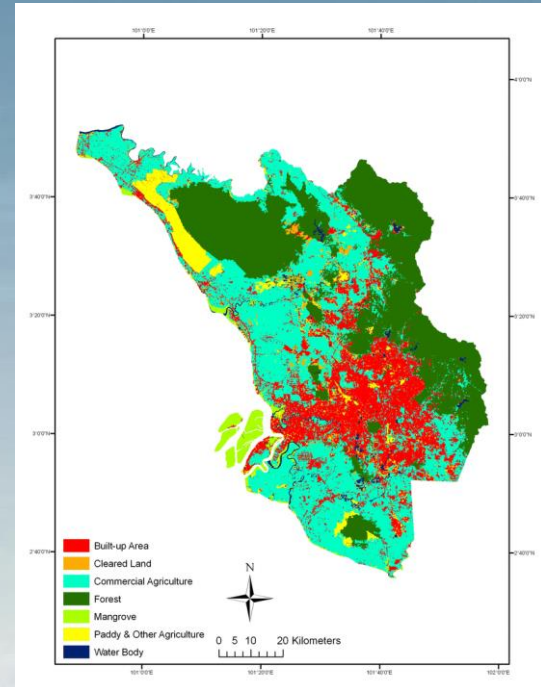
1. Water resource study Water Resources Balance Study, Demand Management Study, Water Resources Conservation Plan, Environmental Flow Study, WEF & Water Footprint Study
2. Development of Decision Management Support System

Outcome

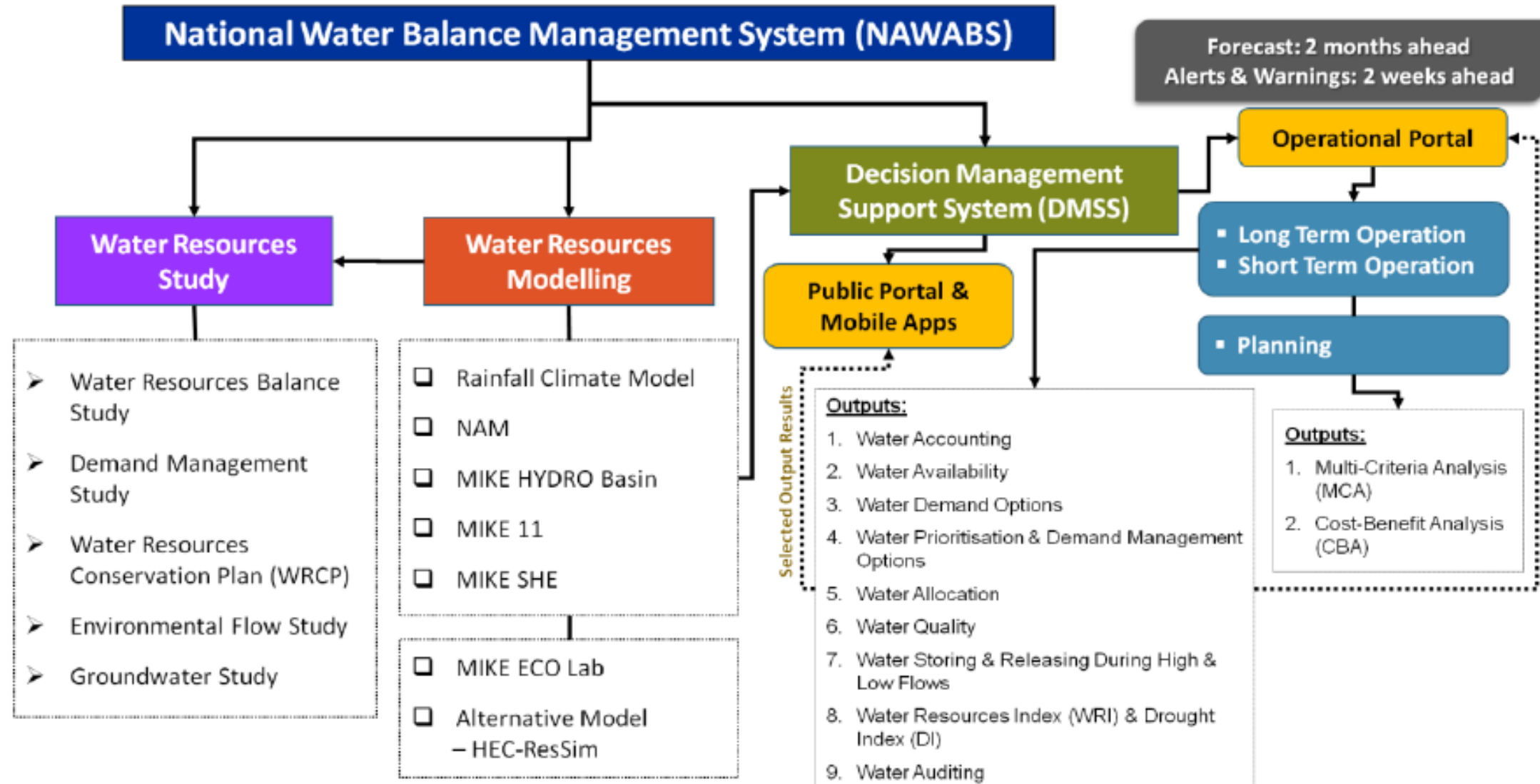
1. Predict imminent drought 2 months in advance
2. Issue warning 14 days in advance

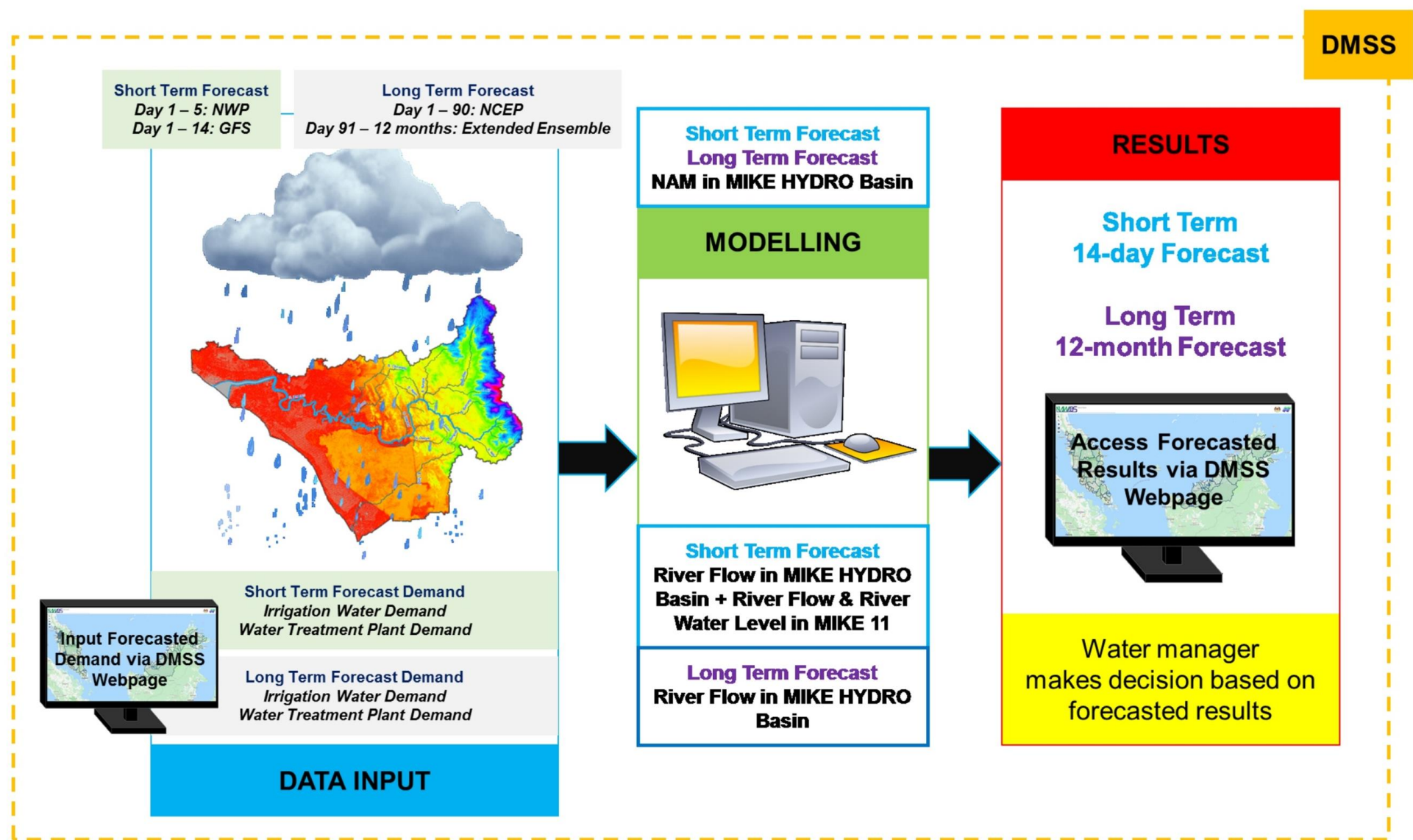


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THE OFFICIAL WEBSITE OF NATIONAL WATER BALANCE MANAGEMENT SYSTEM

DEPARTMENT OF IRRIGATION AND DRAINAGE, MINISTRY OF NATURAL RESOURCES, ENVIRONMENT AND CLIMATE CHANGE

Select Basin
Sungai Muda

Sungai Melaka

Sungai Kelantan

Sungai Kedah

Sungai Bernam

Sungai Muda

Sungai Similajau

Sungai Klang

MAP

CURRENT

NAWABS DASHBOARD

NAWABS PLANNING DMSS

ABOUT NAWABS

CONTACT

OTHER LINKS



Sungai Muda Basin

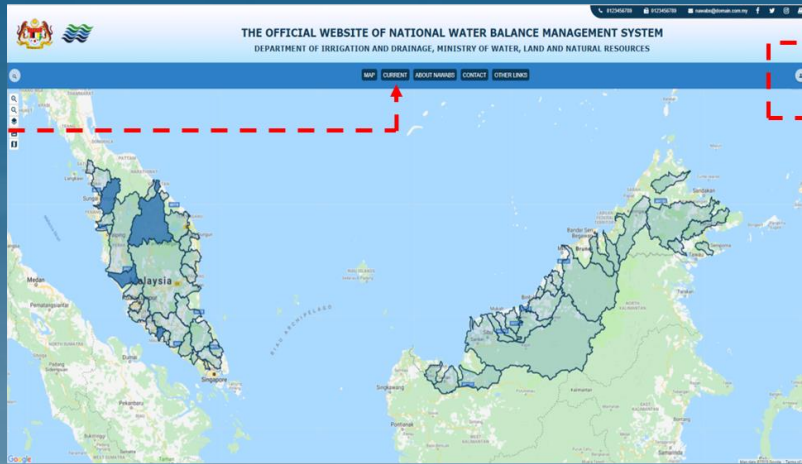
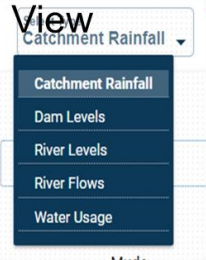
The Sg. Muda basin covers an area of 4210 square kilometres (sq. km.) primarily within the state of Kedah, but with the lower reaches also bordering Pulau Pinang. The basin is an important source of water for the towns and cities within the basin, including Sg. Petani, and is also a major water source for Pulau Pinang. The basin also supplies irrigation water for schemes in Pinang and Kedah, including the MADA irrigation scheme. The upper catchment rises to elevations of over 1800m and is mostly undeveloped virgin rainforest and includes the Ulu Muda forest reserve. The middle and lower river reaches are fed by three major tributaries – Sungai Ketil with an area of 868 sq. km., Sungai Sedim with an area of 626 sq. km., and Sungai Chepir having an area of 335 sq. km. The annual average rainfall over the basin is 2300mm. The heaviest rainfall occurs from September to November and April to May, while the driest months are typically January to February.

A number of dams and barrages have been constructed in order to ensure water availability year round, as the natural dry season river flows are not sufficient to supply the water demands, especially during the irrigation seasons. Muda Dam was constructed in 1969 and diverts nearly all of its captured inflows via the Saiong tunnel to Pedu Dam in Sg. Kedah Basin, where it is utilised to supply water to the MADA irrigation scheme. Beris Dam was constructed in 2004 to supply users in the Muda Basin.

Water for prosperity and peace

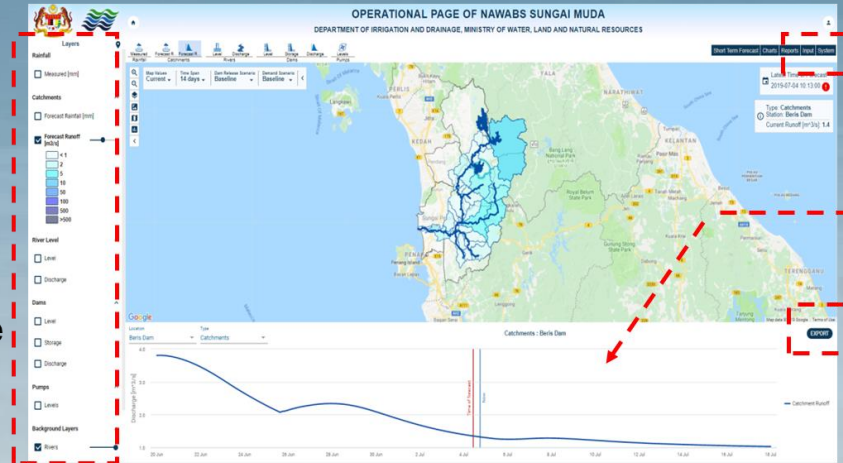
<https://nawabs.water.gov.my>

Summary



Login

Public Portal/Landing Page



9 output reports
Forecast
Performance

Graph View –
Observe &
Forecast
Export
Result

Operational Website

Observed
Rainfall
Forecast
Rainfall
Dam level
Dam
Storage/Volume
Dam
Inflow/Outflow
River Level
River Discharge
WTP
Irrigation Pump



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SYSTEM OUTPUTS

Output	Short Term output	Long term output
Water Availability	Historical + forecast	Historical + forecast
Water Storage	Historical + forecast	Historical + forecast
Water Demand and allocation	Historical + forecast	Historical + forecast
Water Priority	n/a	Static
Water Quality	n/a	Historical
Water Audits	n/a	Historical
Water Accounts	n/a	Historical
Water Resource Index	n/a	Historical + forecast

NAWABS system allows operators to assess the outcomes of various operation strategies utilising up to date hydro-meteorological data, short and long term forecasts and state-of-the-art hydrological and hydraulic river models. Additionally, NAWABS provides a status of the water availability and act as a central repository of all major water movements within the basin, allowing the derivation of overall water accounts and audits.

Water for prosperity and peace

National Water Balance Management System - 19 basins



Water for prosperity and peace

Water Accounting

All the water that enters / leaves / disappears in the river basin

Availability

Total quantity of water
& river water level

Request

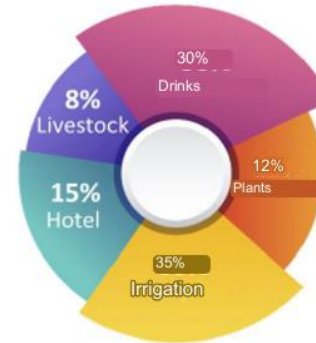
Total requests
from various
users



WATER RESOURCE STUDY

- ✓ Water Resources Balance Study
- ✓ Demand Management Study
- ✓ Water Resources Conservation Plan
- ✓ Environmental Flow Study
- ✓ WEF & Water Footprint Study

OUTPUT NAWABS



Water Priority

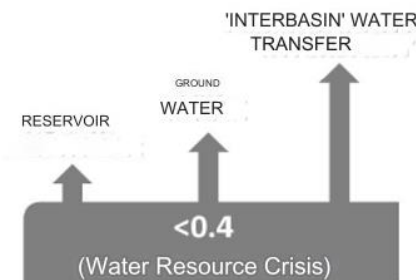
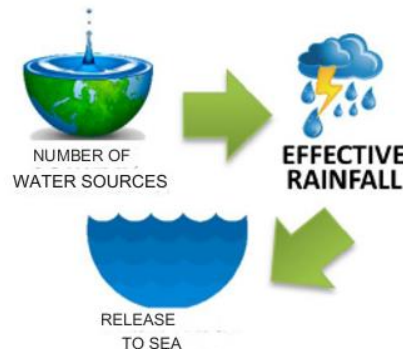
The decision of who gets water first is based on demand & availability

Water Appropriation

Decisions on how water is allocated are based on demand & priority

Water Quality

Determine water quality threshold limits, TMDLs and environmental flow compliance



Water Auditing

Conducting audits on all inflows of water sources, 'effective rainfall' and releases to the sea

Index WR & Drought

Determining the Water Resources Index (WRI)

Release & Storage Dam

Predicting septic tank inflows and deciding when and how much water to release





FULL NAME

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YOUTUBE

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