

Operation and Maintenance of Dams, Reservoirs in Mahaweli Cascade in Sri Lanka

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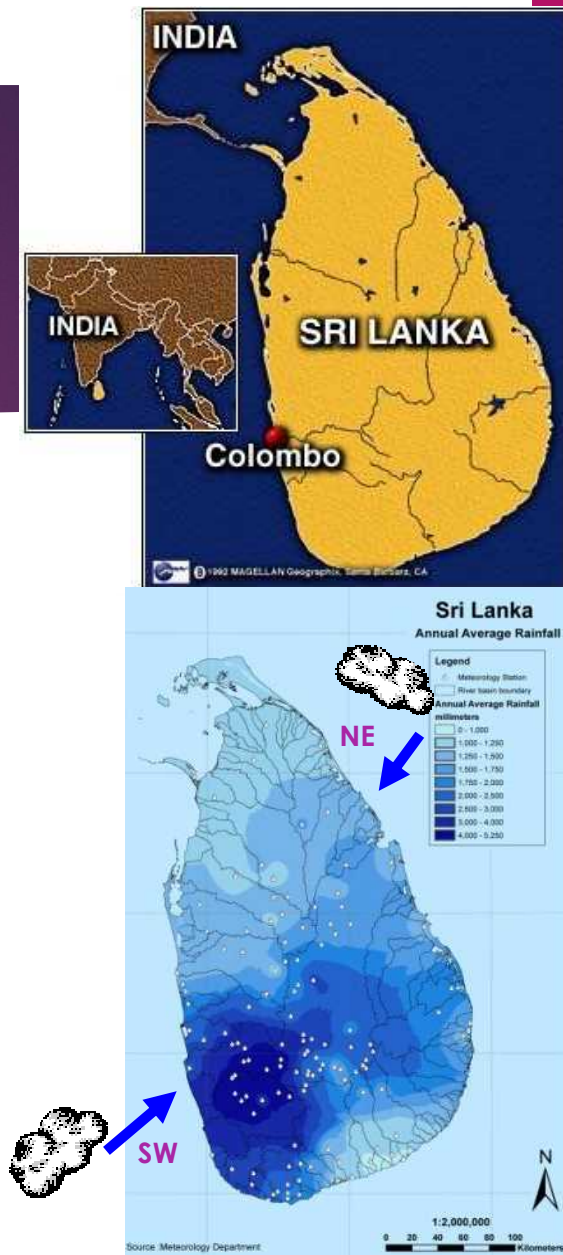
MAHAWELI AUTHORITY OF SRI LANKA

Outline

- ▶ Sri Lanka
- ▶ The Mahaweli River
- ▶ Mahaweli Authority of Sri Lanka
- ▶ Bowatenna reservoir
- ▶ Operation and Maintenance of Bowatenna Reservoir

Sri Lanka

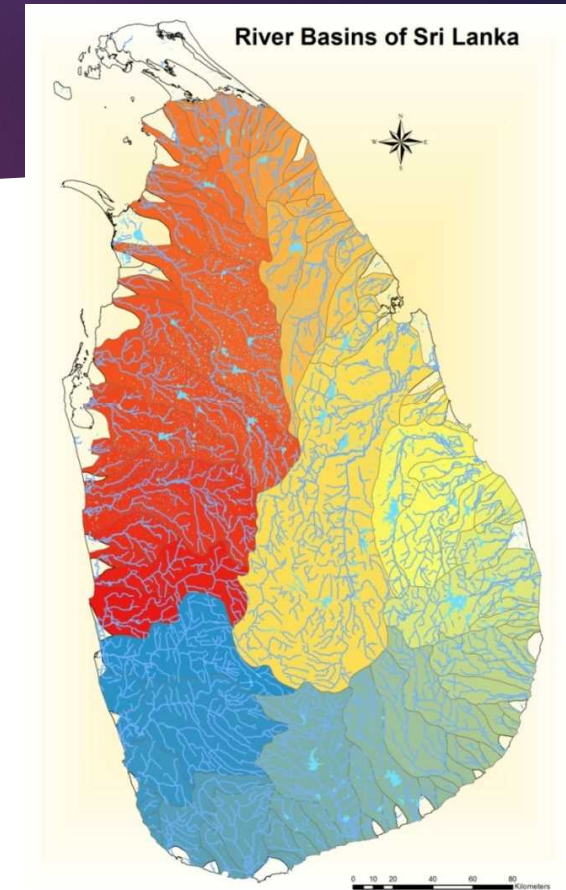
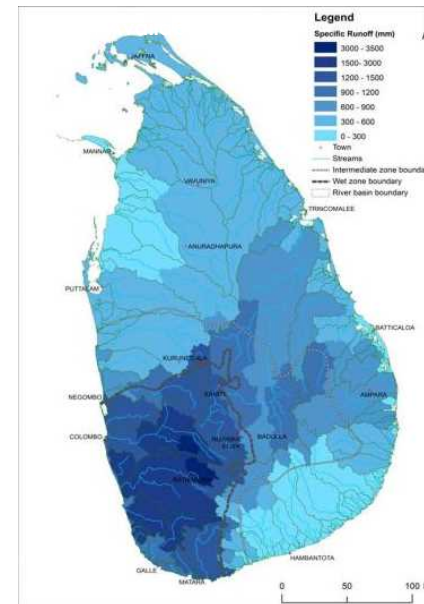
- ▶ Sri Lanka is an Island in the Indian Ocean
 - ▶ Extent = 65,525 sq km.
 - ▶ Tropical Country
- ▶ Climatically
 - ▶ Dry Zone
 - ▶ Intermediate Zone
 - ▶ Wet zone
- ▶ Received Monsoonal Rainfall
 - ▶ South -West Monsoon (December - February)
 - ▶ North -East Monsoon (May –September)
- ▶ Average Annual rainfall
 - ▶ 800mm (Dry Zone) to over 5000mm (Wet Zone)



Sri Lanka

► Rich country in Water Resources

- 103 River Basin
- 19 River Basin > 1000sqkm
- Mahaweli is the largest basin, Catchment Area - 10327 sqkm
- 350 Major/Medium Reservoirs
- Over 25,000 Small Tanks
- 12,980 Anicuts/Weirs



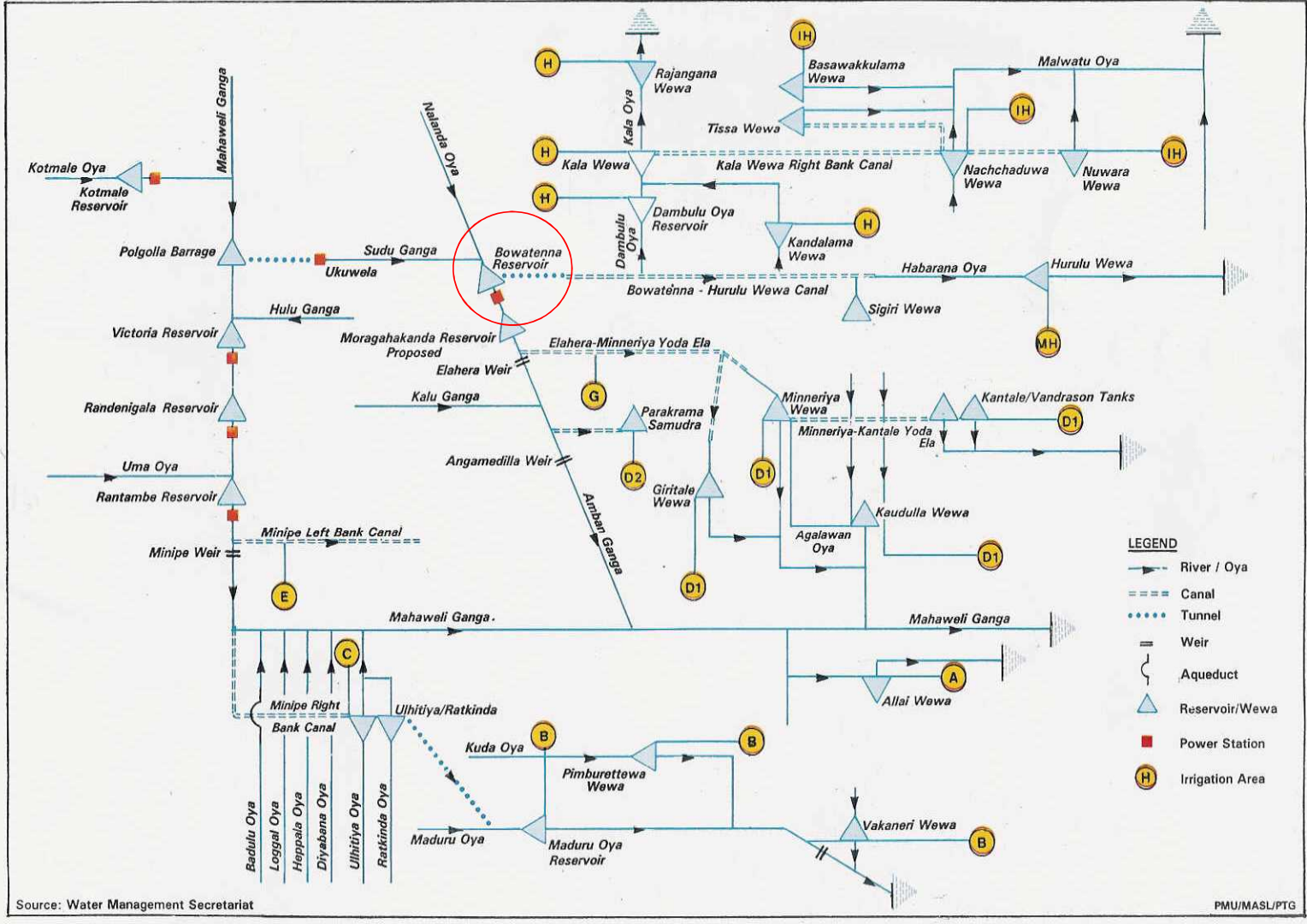
Mahaweli River



Longest River in Sri Lanka (331 km)
Mahaweli Ganga

Annual Outflow to Sea 11,016 MCM

- ▶ It originates from the Hatton Plane that is located on the Western side of the hill country and ends in eastern part in Trincomalee district.
- ▶ Basin area is 10327 sq km and it covers 40% of land area of the country

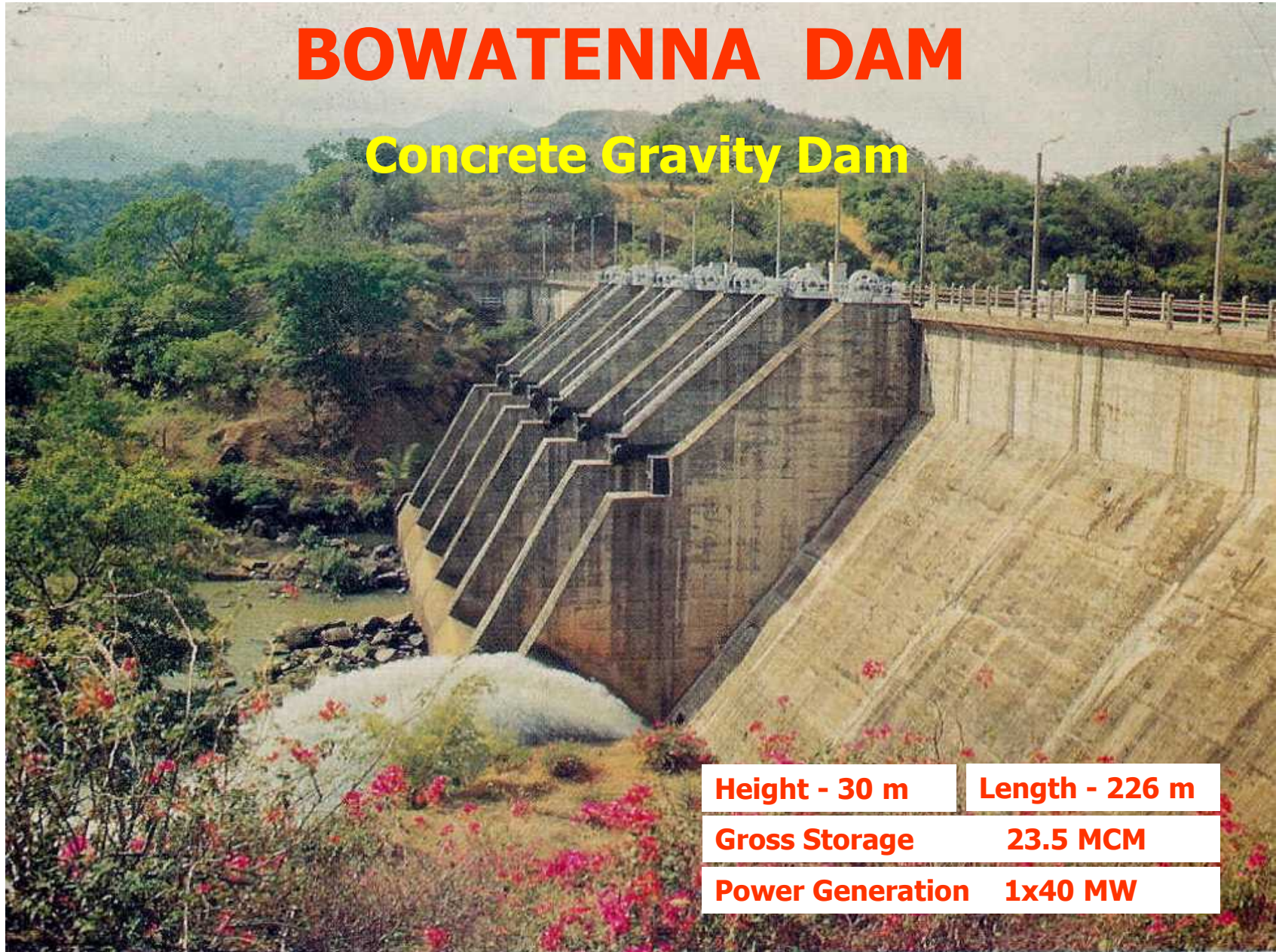


Schematic Representation of The Mahaweli System

BOWATENNA DAM

Concrete Gravity Dam

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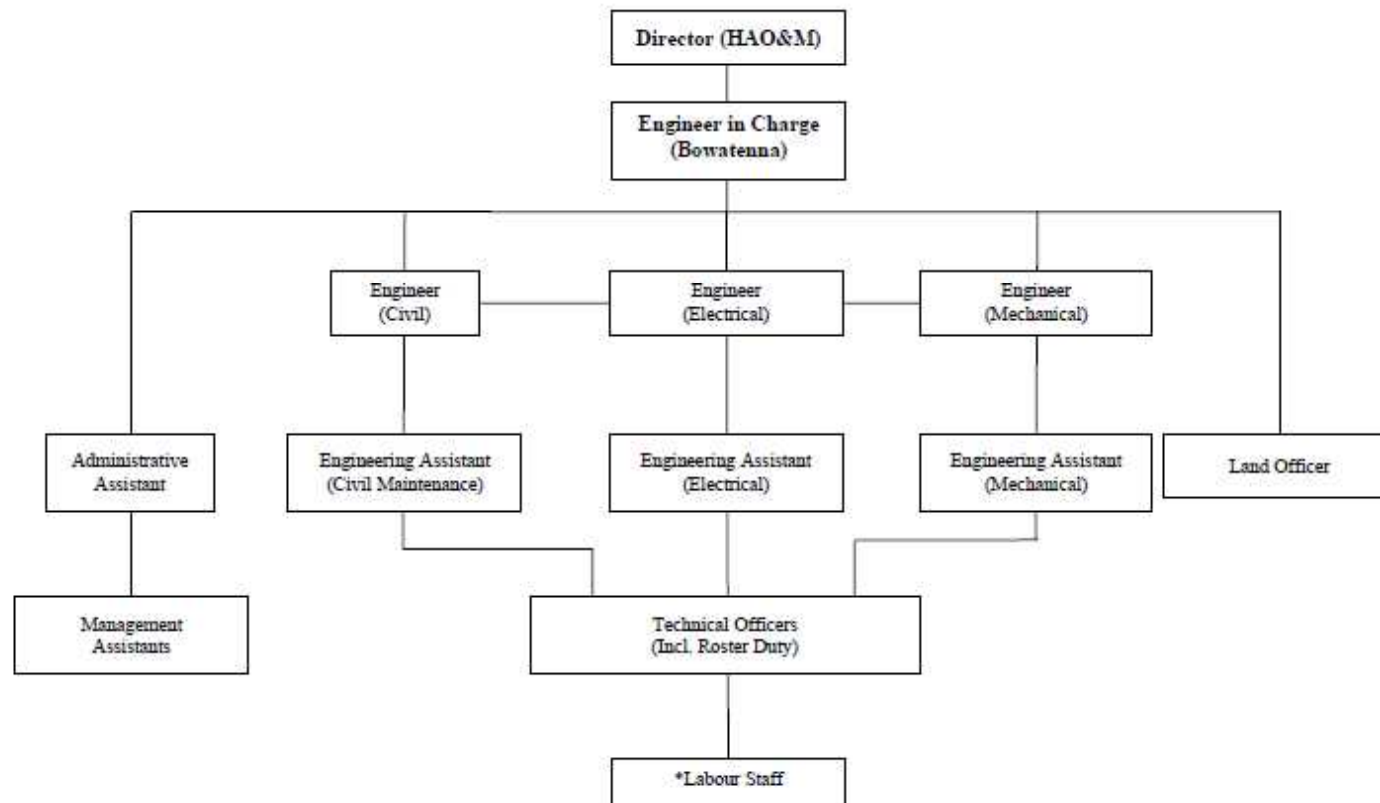


Height - 30 m	Length - 226 m
Gross Storage	23.5 MCM
Power Generation	1x40 MW

Bowatenna Reservoir

- ▶ Bowatenna Reservoir is one of the first Headworks projects constructed under the Mahaweli Ganga Development Scheme in the early 1970's.
- ▶ The Dam built across the Amban Ganga, a major tributary of Mahaweli Ganga forms a reservoir of 23.5 MCM.
- ▶ The Mahaweli water diverted at Polgolla flows into the Bowatenna Reservoir can either be diverted towards
 - ▶ Anuradhapura district through the Irrigation Tunnel .
 - ▶ Released downstream into Amban Ganga towards Elahera Anicut feeding downstream reservoirs and irrigation systems in the Polonnaruwa District
- ▶ Construction work commenced in 1973. The first water issue through the Irrigation Tunnel to Kalawewa was made in September 1976 and it has been in operation since then.

Organization Structure of EIC Office - Bowatenna



* Includes: Mechanic, Electrician, Welder, Boat operator, Driver, Tractor Operator, Mason, Carpenter and Unskilled labours

Concept of Dam Safety

TO MINIMIZE THE RISKS
ASSOCIATED WITH
STORAGE OF WATER
BEHIND THE DAM

Headworks Administration, Operation & Maintenance Division of MASL

▶ Our Vision

- 100% Reliability in Gate Operations

▶ Our Mission

- Timely Maintenance for Reliable Operations

▶ Our Targets

- 100% Reliability
- Safety (no fatal accidents)
- Timely & Standard Maintenance practice
- State of the Art Developments
- Emergency Action Plan

Importance of having O & M Guide Lines

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- ▶ To avoid any possible miss that may occur during the **inspection** check.
- ▶ To have a unique system applicable to all similar sites

