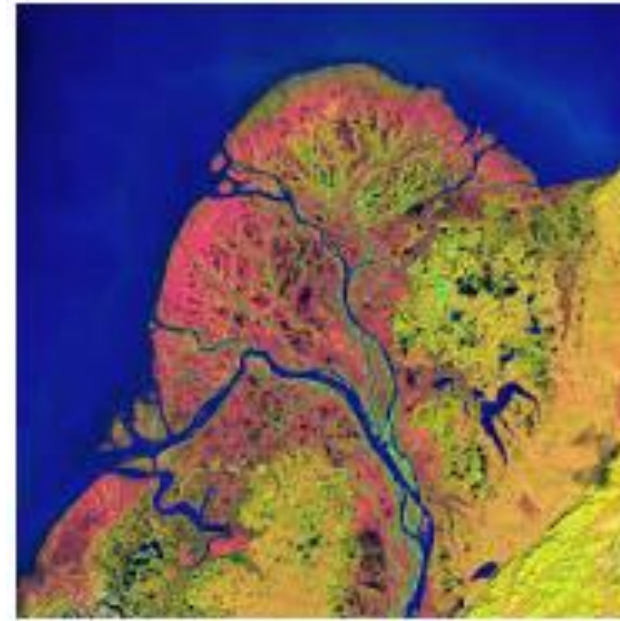


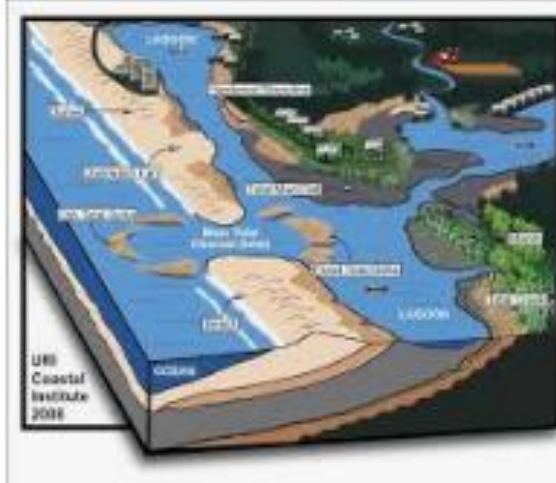
# DELTA RELATED INTERVENTIONS IN SRI LANKA



Caltech grows miniature "rive...  
dianacrowscience.com



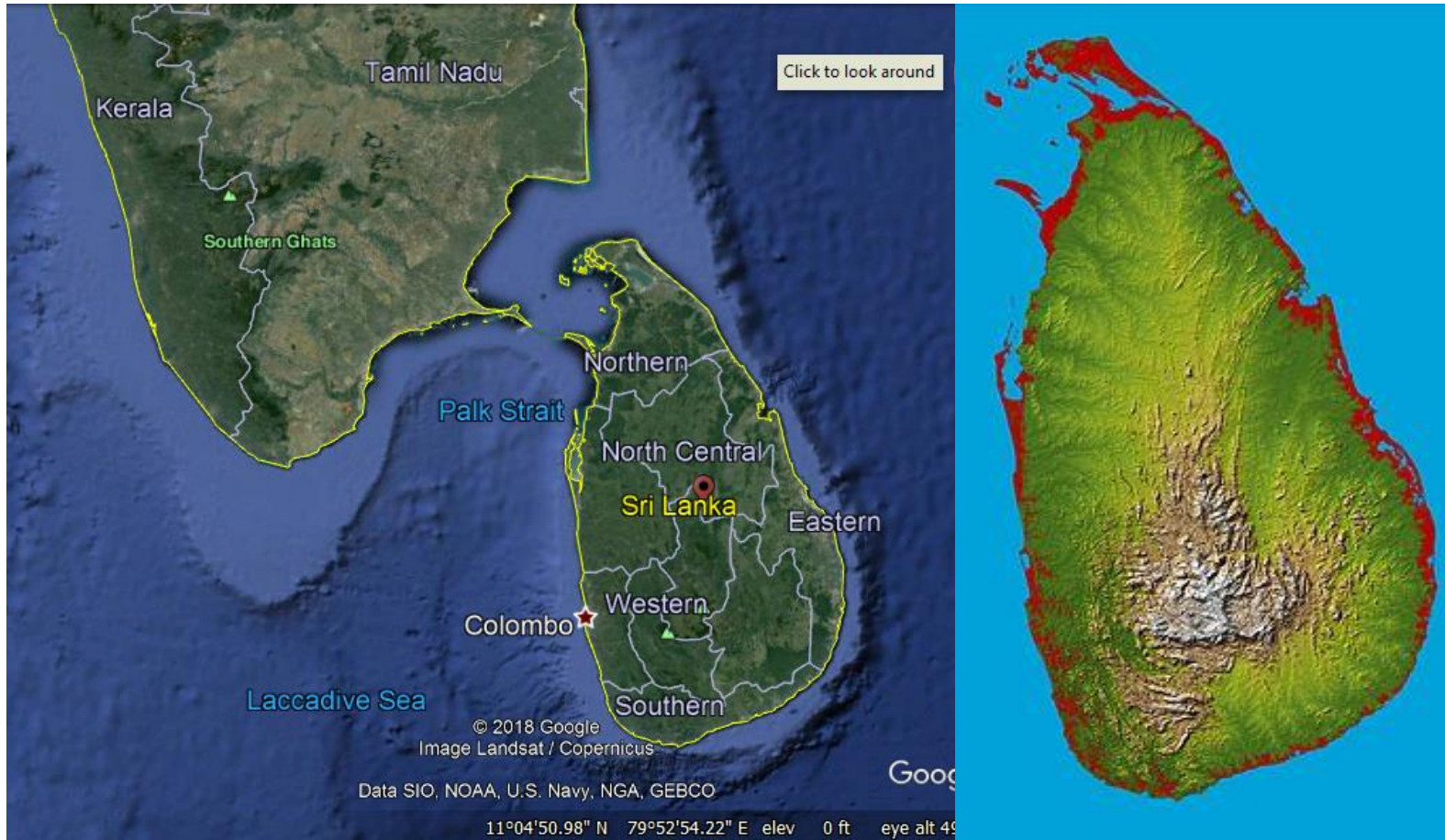
What Is A River Delta? - WorldAtlas.com  
worldatlas.com



Lagoons and Estuaries  
cmsdata.iucn.org

Eng. Medhani A. Jayakody  
Chief Engineer (Water Resources Planning)  
Irrigation Department  
SRI LANKA

# SRI LANKA -Pearl of the Indian Ocean



Locates between  
(5-10) N and (79 to 82) E

65610 km<sup>2</sup> in Area

Characterized by South Central  
Highlands

Mt. Pidurutalagala 2524 m

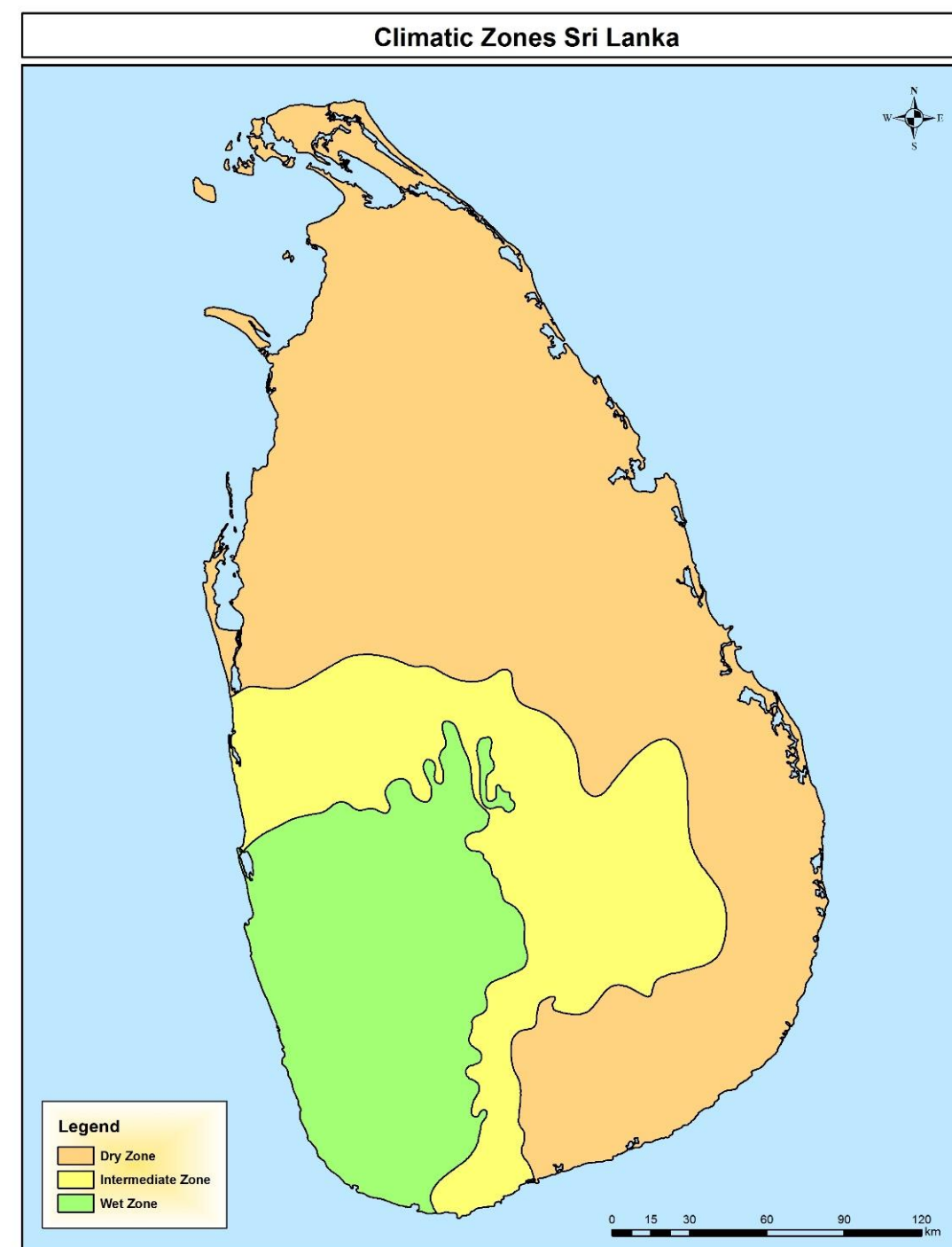
# CLIMATE

- ▶ Tropical & Monsoonal
- ▶ Heavily influenced by monsoons that bring rain throughout the year.
- ▶ Rainfall totals range from under 1,000 mm to over 5,000 mm.
- ▶ Four Climatological Seasons
  - ✓ North East Monsoon (December to February)
  - ✓ First Inter Monsoon (March & April)
  - ✓ South West Monsoon (May to September)
  - ✓ Second Inter Monsoon (October & November)

# CLIMATIC ZONES

## Three Climatic Zones

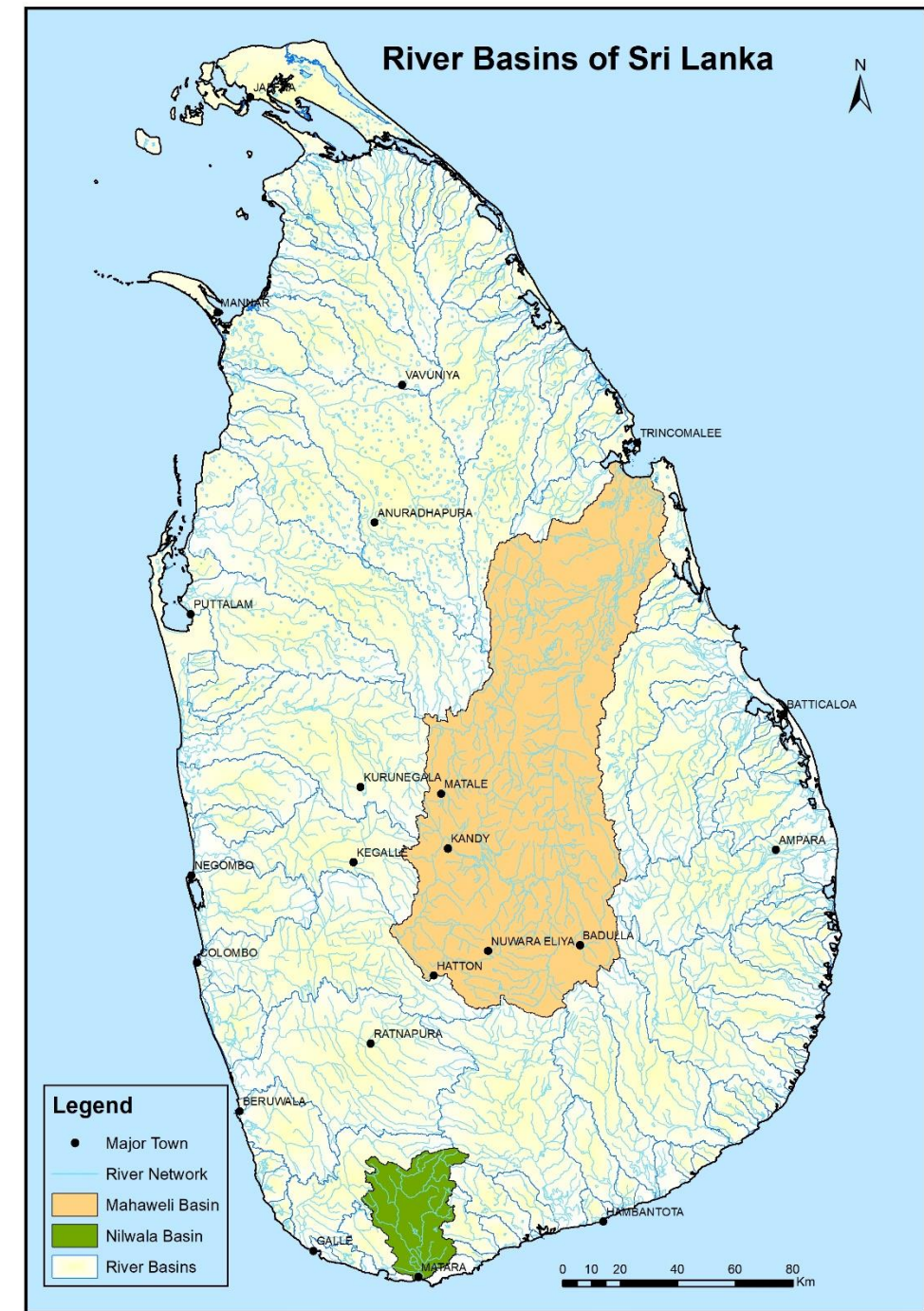
- ✓ Wet Zone (Average Annual RF > 2500 mm)
- ✓ Dry Zone (Average Annual RF < 1500 mm)
- ✓ Intermediate Zone (Average Annual RF > 1500 mm and < 2500 mm)





# RIVER BASINS IN SRI LANKA

- ▶ 103 river basins
- ▶ Most of them starting from central hills
- ▶ Radial draining system
- ▶ Settlements near river deltas/ estuaries from ancient civilization-usually Alluvial soils, good for agriculture



# DELTA RELATED SITUATION

- ▶ Deltas e.g. Kala Oya, Mahaweli river, Baticaloa (Mundeni Aru)
  - ✓ Some areas Economically developed, tourist attractive areas, some are Agricultural areas(Mavil Aru/ Allai/ Janaranjana Wewa Irrigation Schemes)
  - ✓ Due to meandering nature of river at the lower reaches
  - ✓ Very complex situation
  - ✓ Situation will more critical with Climate Change due to increased flooding and sea level rise, threats from two sides
- ▶ Nilwala Ganga closer to estuary-High Ferrous concentration in soil (Acid Sulphate soils), causing problems in agricultural areas, common for South Western Coastal Region
- ▶ Yan Oya - about 30 km to the sea-converted to a reservoir, lot of sand deposits, little people-less social issues, but siltation may be a problem





## Kala Oya sea mouth

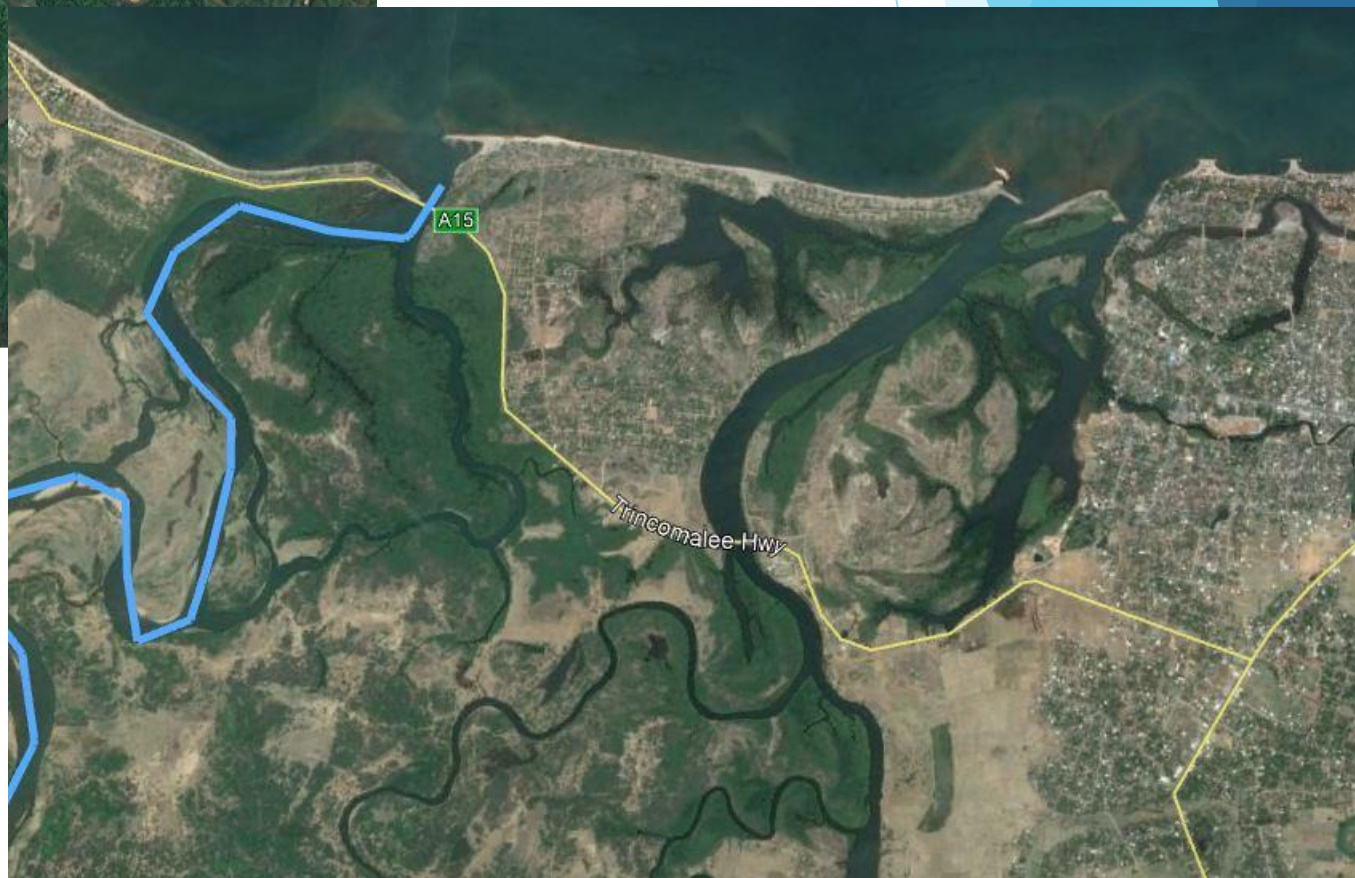
Write a description for your map.

### Legend

• Gangewadiya

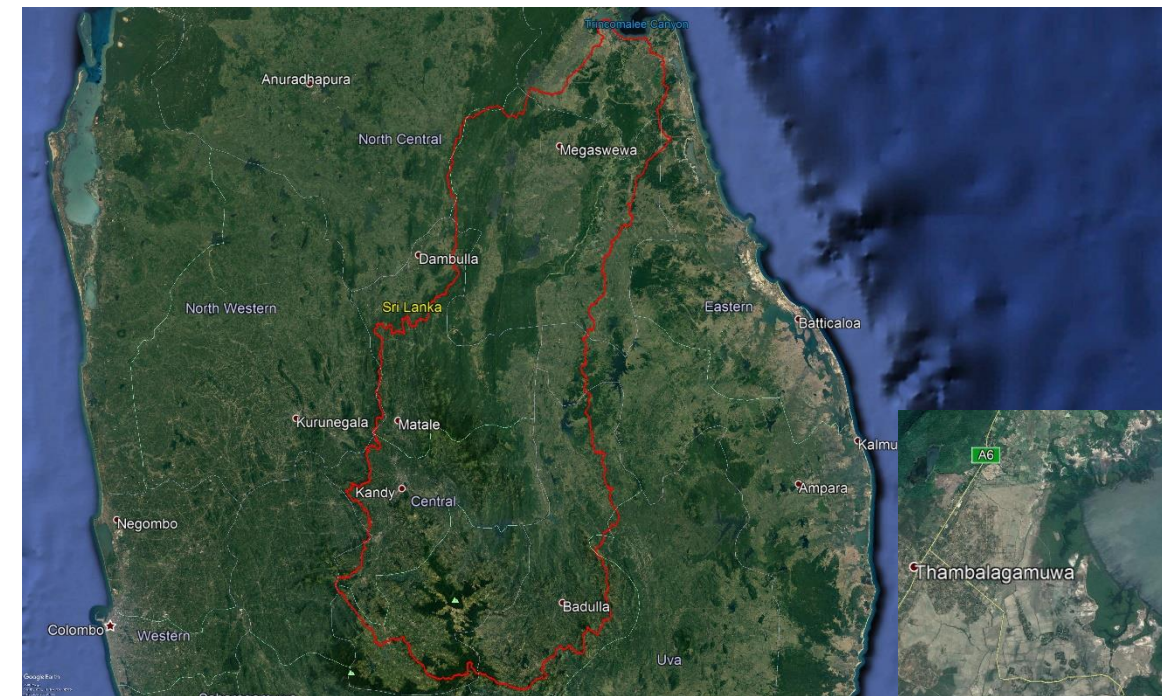
Mahaweli

Kala Oya





# MAHAWELI RIVER





# BASIN DESCRIPTION

Largest and Longest River Basin

Length of River : 335 km

Elevation from MSL : from 0m to 2500m

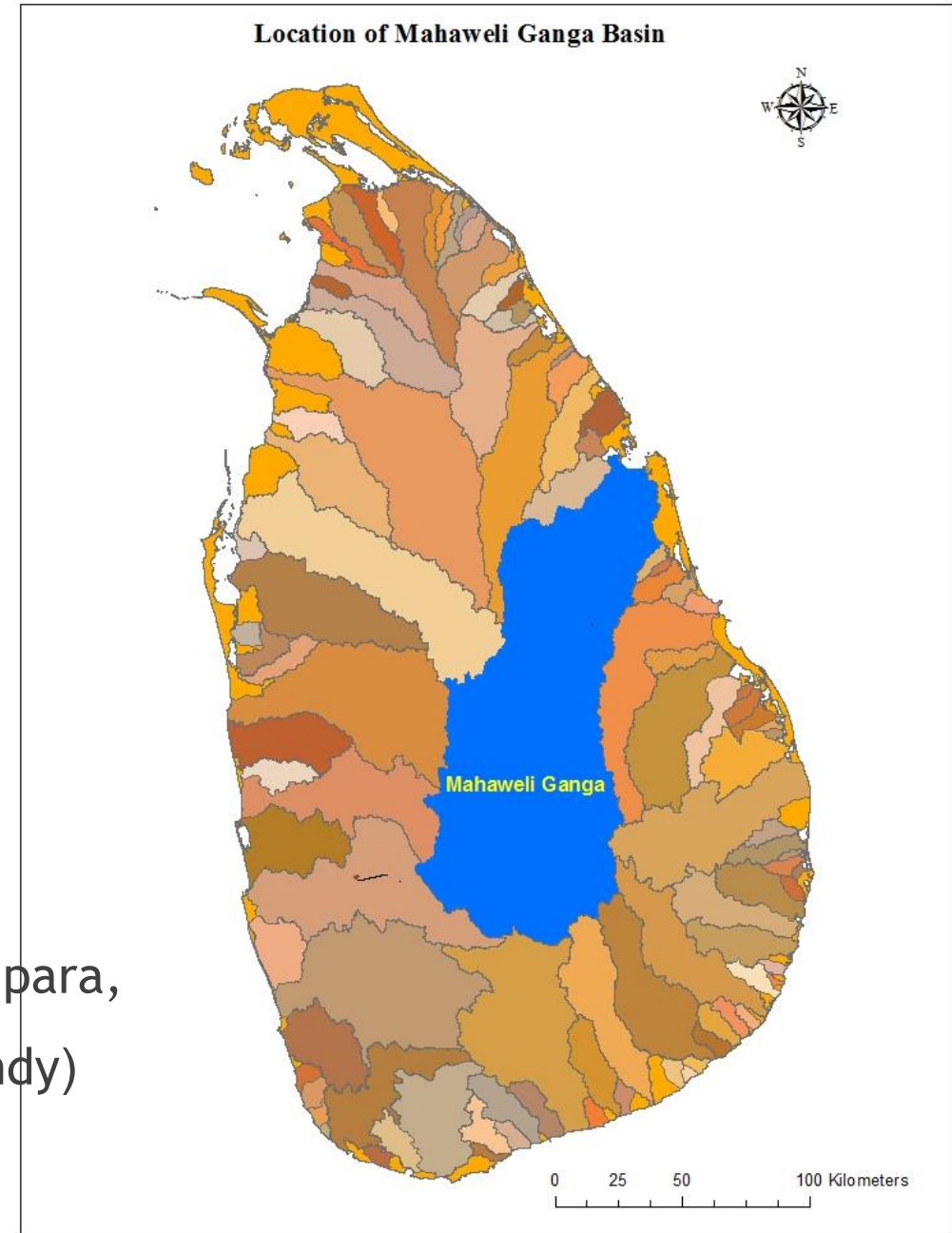
Catchment Area : 10,267 km<sup>2</sup>

Mean Annual Rainfall : 1650mm-5300mm

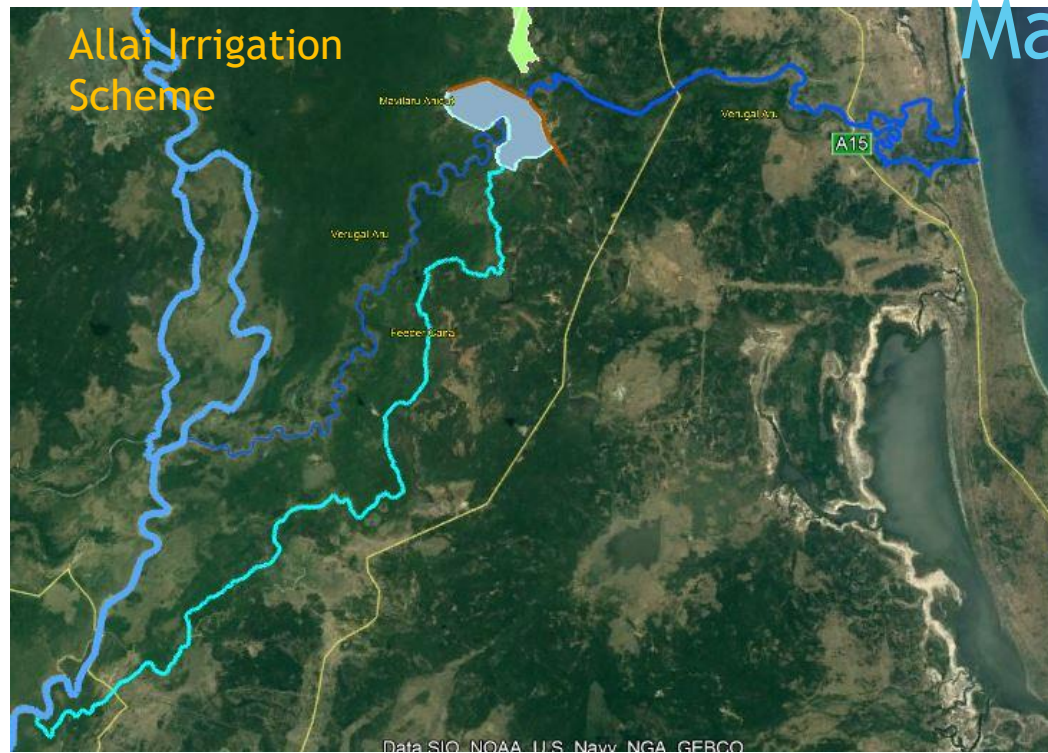
Average Annual Discharge : 11,016 MCM

(benefits from both SW & NE monsoons & hence water rich)

Administrative Districts : 9 (Badulla, Monaragala, Matale, Ampara, Polonnaruwa, Trincomalee, Anuradhapura, Nuwara Eliya, Kandy)



# Mavil Aru & Allai Scheme





# Mavil Aru





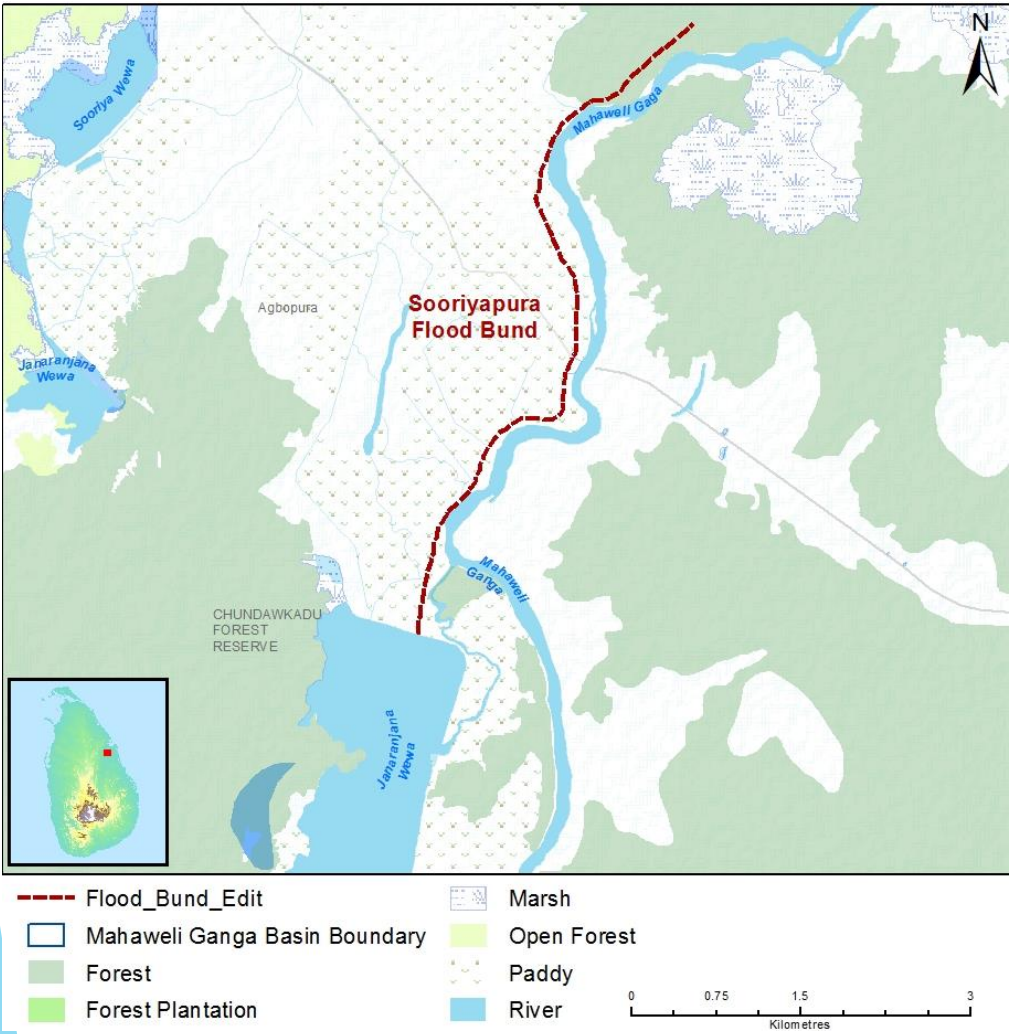


20.12.2012 13:36

28.12.2014 15:08



# Janaranjana Wewa



U/S of Sooriyapura Flood Bunds

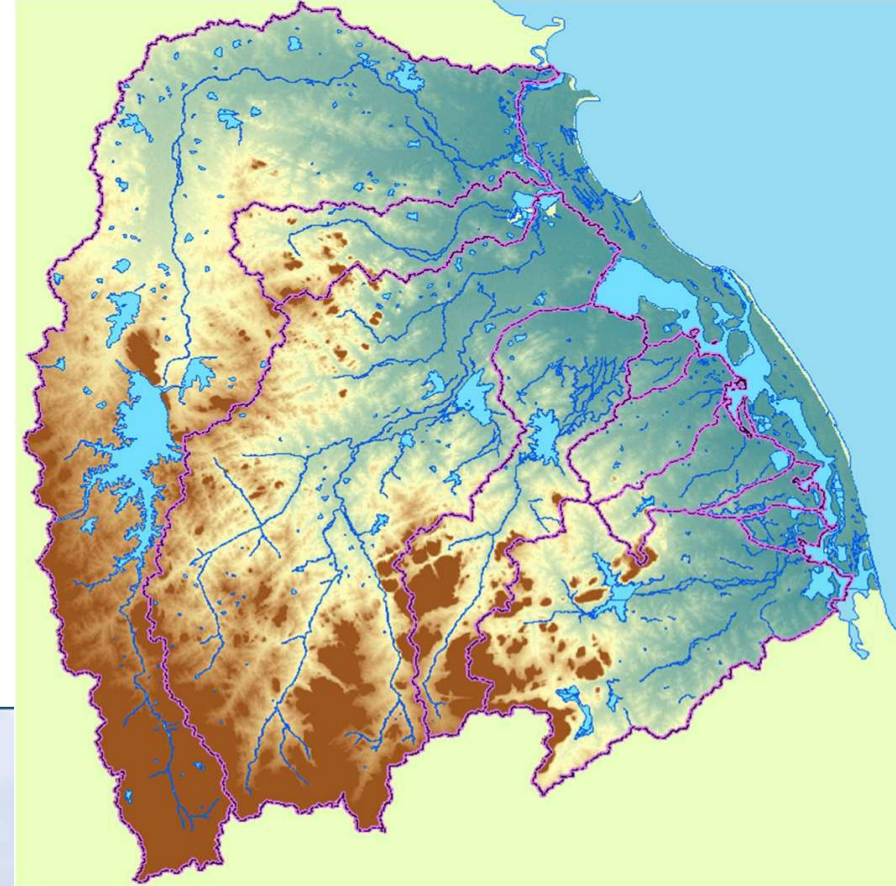


# D/S of Sooriyapura Flood Bunds





# Baticaloa Area (including Mundeni Aru Basin)



# DELTA RELATED SITUATION ctd....

- ▶ Rich diversity of ecosystems in Sri Lanka, including above rivers, wetlands, natural forests and marine and coastal ecosystems
- ▶ Environmental degradation of the coastal zone is a major hazard
- ▶ Climate change increases risk from flooding both from the river and from rising sea levels, threatening old, established farm communities
- ▶ During the last two decades, there has been increasing pressure for development in the coastal zone, particularly for tourism and recreational purposes, near shore fisheries, fish farming, industrial development and housing
- ▶ Communities have exploited the use of natural resources, such as sand and coral, on a commercial basis.



## Ctd.....

- ▶ Development pressures have also led to the reclamation of estuarial, lagoon and marsh waters and the unrestricted disposal of untreated sewage, leading to major pollution problems. The main threat to natural ecosystems, however, is population growth and migration, reducing the available habitat for ecosystems to thrive
- ▶ Some other threats to the island's biodiversity are natural disasters, soil erosion, sedimentation and large-scale sand mining.
- ▶ Developments in these areas to be planned considering agriculture/economy/social/ biodiversity/ ecological & environmental conservation

# REFERENCES

- ▶ CRIP-DBIP(Ministry of I&WR&DM) Study Reports
- ▶ Soils of the Nilwala Ganga Basin by Land Use Division, ID(December 1980)
- ▶ Irrigation Department correspondence
- ▶ Information from Mundeni Aru Project Work Shops
- ▶ <https://www.worldatlas.com/articles/what-is-a-river-delta.html>
- ▶ [https://en.wikipedia.org/wiki/Geography\\_of\\_Sri\\_Lanka](https://en.wikipedia.org/wiki/Geography_of_Sri_Lanka)
- ▶ <https://www.chakra.com>





Thank you!