



# **Integrated Water Monitoring and Prediction to Improve Crop Production**

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# In Sri Lanka

- **Total available surface water**  
- 43,200 MCm
- **Irrigation usage**  
- 12,000 MCm
- **Domestic & Industrial usage**  
- 3,000 MCm
- **Water goes to Sea without utilising**  
- 28,200 MCm

# In Sri Lanka

## From the Surface Water

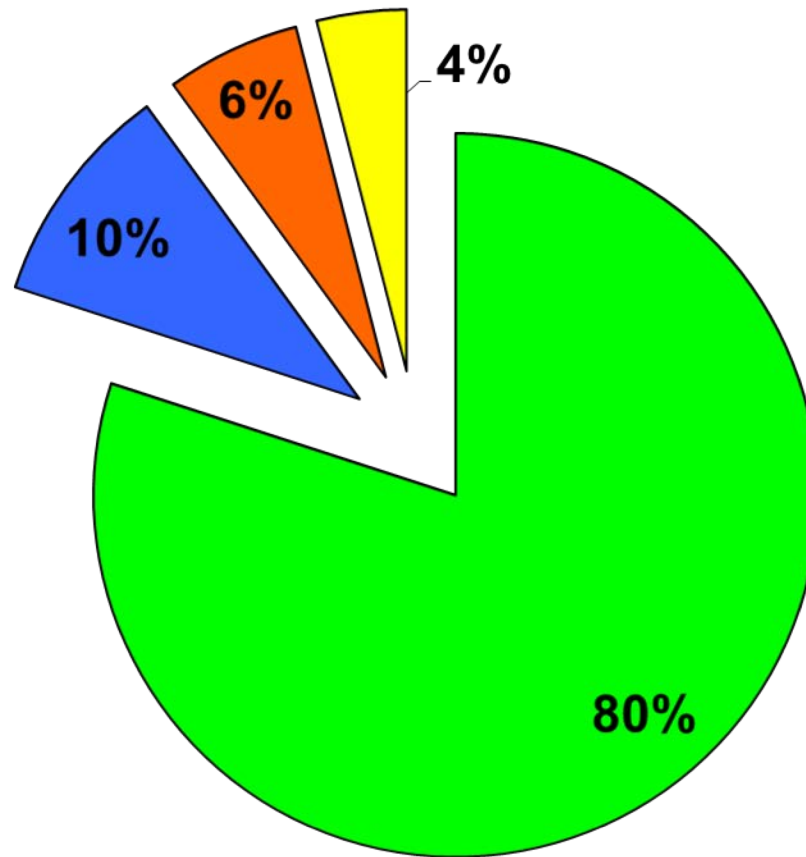
➤ Irrigation usage is 28%

➤ Industrial & Domestic usage is 7%

➤ 65% goes to the sea without any  
usage



# Usage of Water in Sri Lanka



# Irrigation

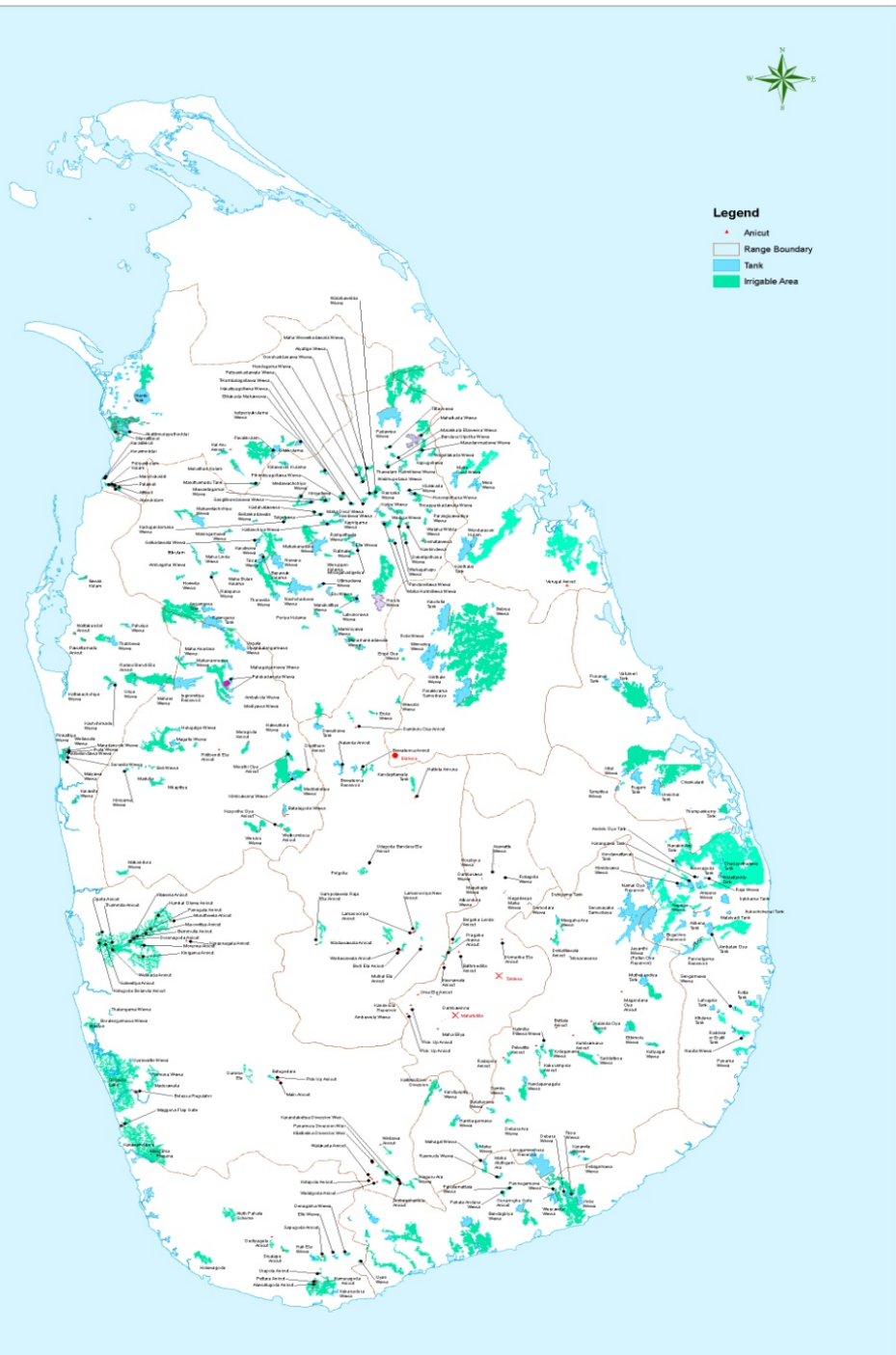
- Irrigation Schemes are Managed by four institutions in Sri Lanka
  - ✓ Mahaweli Authority of Sri Lanka
    - Schemes under Gazetted area as Mahaweli area
  - ✓ Irrigation Department
    - All Major and Medium schemes of interprovincial rivers
  - ✓ Provincial Council
    - All Major and Medium schemes of provincial rivers
  - ✓ Agrarian Development Department
    - All Minor Irrigation Schemes

# Irrigated Agriculture in Sri Lanka

■ Irrigation Manage	-	282,000 ha
■ Mahawelli Manage	-	100,000 ha
■ Agrarian Development Department Manage	-	257,000 ha
■ Provincial Council	-	39,000 ha
■ Rainfed	-	145,000 ha
Total	-	823,000 ha

# Schemes under the Purview of Irrigation Department

➤ No. of Majors schemes	-	97
✓ Reservoir	-	73
✓ Anicut	-	24
➤ No. of Medium Schemes	-	220



# Irrigable Area around the Country under the Purview of Irrigation Department



# Irrigation Department

- Irrigation Department manage;
  - ❖ Gravity Irrigation Schemes
    - 304 schemes (281,914 ha)
  - ❖ Lift Irrigation Schemes
    - 6 schemes (2,000 ha)
  - ❖ Flood Protection, Drainage & SWE Scheme
    - 62 schemes

# Gravity Schemes Under Irrigation Department

- 320 km length of dams;
- 310 km of feeder canals;
- 2,820 km of main canals & branch canals;
- 2,600 km of distributary canals

# Roads maintained by Irrigation Department

- Length of roads - 3,400 km

# Maximum Crop Yield

The following factors play an important role in the photosynthesis process:

- ✓ CO<sub>2</sub> Concentration of the air
- ✓ Water availability
- ✓ Solar Radiation
- ✓ Temperature
- ✓ Crop characteristics

# CROP YIELD

$$\left[1 - \frac{Y_a}{Y_m}\right] = k_y \left[1 - \frac{ET_a}{ET_m}\right]$$

Where as

$Y_a$  – Actual Dry matter Yield

$Y_m$  – Maximum Dry Matter Yield

$ET_a$  – Actual Evapotranspiration

$ET_m$  – Maximum Evapotranspiration

# Water Distribution System

- Our Water Distribution is Imposed
- We prepare Prior Water Delivery Schedule (Seasonal Planning, Project Management Committee & Cultivation Meeting)
- Issue water according to the delivery schedule and in any case if there is a drought the Irrigation Interval is being increased during non sensitive period

# Monitoring System

- The reservoir water levels monitored daily and website is updated
- The channel water level, reservoir water levels are monitored manually and gradually being automated

# Future Challenges

- Presently the Water Requirement are based on past records of climatic condition. This should be enhanced by remote sensing method.
- Due to the Climate Change the Rainfall intensity increased and dry spell duration also increased. Due to this more water is unutilized during rainy period & cultivation and crop yield are decreased during dry period.



# Future Challenges

- To improve efficiency of the distribution system cutting edge technology need to be adopted.

**Thank You for Listening !**