

Irrigated Agriculture



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Every human, animal and plant depends on Water for survival !



World Without Water.....



No Life



No Food



No Biodiversity



No Dairy



No Flush



Reservoirs

- Multiple services of irrigation, hydropower, flood control, domestic water, industrial water, inland fisheries and environment.



Water buffalo still continues to work in some areas



An older farmer in his dry field



Life in a farming community





Major cropping Seasons

- Yala Season

March- August (southwest monsoon rain season&

- Maha Season

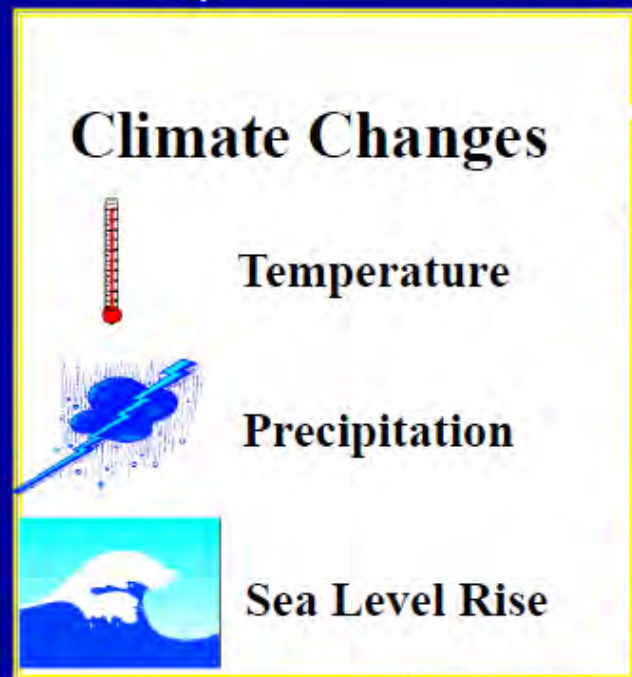
September- February (northwest monsoon rain
season&

Climate Change is Affecting Human Health and the Environment



Infrastructure

Water
Transportation
Energy Supply & Use



Health

Weather-related Mortality
Infectious Diseases
Air Quality -Respiratory Illnesses



Agriculture

Crop yields
Irrigation demands



Forest

Change in forest composition
Shift geographic range of forests
Forest Health and Productivity



Water Resources

Changes in water supply
Water quality
Increased competition for water



Coastal Areas

Erosion of beaches
Inundate coastal lands
Costs to defend coastal communities



Wildlife and Ecosystems

Shift in ecological zones
Loss of habitat and species
Damage to Coral Reefs



Cultural Resources



Economic Disruption

If Water Scars - Issues related to Water Resources

- Basic Needs
- Food security
- Livelihoods
- Environment
- Wild life & Fisheries
- Social unrest
- ...
- Finally Economy of the country

Tools for Diagnosis

Monitoring
Benchmarking
Studies &
Forecasts



Sore Thumbs
Hot Spots &
Trends

Effects and Impact on Water Resources & Irrigation

- ❑ Reduction of Available Water for Agriculture, Hydro Power, Domestic, wild life & Environment needs
- ❑ Increased Evaporation & Evapo-transpiration
- ❑ Effect on crops and their Yields
- ❑ Irrigation System Capacity problems, diversion problems
- ❑ crop saving

Impact of less availability

- Depletion of ground Water re-charge volumes
- Decreasing river flows during dry periods
- Drying-up of wells
- Water quality Degradation
- Reduction and Fluctuation of water available for agriculture,
- Faster Depletion of Soil Moisture
- Increased Irrigation Frequency
- Reduction/ Fluctuation of Crop Production

If Water Scarcity national observations

- Resulting increased competition between sectors
- Resulting Water Management/ Reservoir Management Problems
- Salt Water Intrusion into river and Ground water Table
- Reduced flows to lagoons

Effects on Human Settlements

- Effects on the number of irrigation settlements in the country

Adaptation Strategies – Different Perspectives

Perspective of

- Individual
- Regional
- National
- Global

Adaptation Strategies- Different Levels

- User Level – Eg. Farmer
 - Deficit Irrigation, Change of Cropping Pattern, Intensification, Short maturing varieties, ...
- Manager
 - Water allocation, Increase storage, Basin diversions, alternative sources, Re-use, ..
- Policy Maker, ..
 - Insurance, Promotion of Research, Awareness, Weather Forecasting ,..

Current adaptation measures

Changes to cropping plan

Increased storage

Trans-Basin diversions

Increased capacity of canals

Change of operation plans & Standing Orders

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Use of most recent data set in planning
designing and management

If water scares , demand Management

- Reserve drinking water requirements first
- Securing at cultivated Paddy Farms by Digging shallow wells / Agro wells
- Digging of Drinking Water Wells; Huruluwewa
- Pumping of dead storage to safeguard paddy cultivation
- Construct canals up to sluice
- Night Irrigation, changing rotational issues, Increase rotational intervals, close monitoring
- Weekly Water management committee meetings



Demand Management in Agriculture

- Reduce Land Preparation Period - 3 to 2 weeks
- Standardization of Cropping Season with Short Maturing Varieties (2 ½, 3 & 3 1/2 months paddy varieties)
- Crop Diversification – select less water consumed crops
- Introduced seed paddy programme – to increase farmer income
- Bethma cultivation
- Reduce area, select area with less water losses, Select area with suitable soil type
- Find alternative water sources – agro wells, pumping



On farm saving techniques

- Parachute Method
- Alternative wet and dry method
- Shallow water depth method
- Introduce on farm water Management Practice



Increased storage



Pumping available water to protect cultivation





Other crops less water consumed
Maha Siyambalangamuwa Scheme





Muruthawela

Drought relief work

Digging and deepening of Agro wells

No	Scheme	New Wells		Deepening of wells		Allocation (Rs.) Mn
		Planned	Actual	Planned	Actual	
01.	Padaviya	150	251	132	132	12.240
02.	Huruluwewa			800	930	5.745

Padaviya Division





OFC in Padaviya Division



Huruluwewa Division





OFC in Huruluwewa Division





Crop Diversification

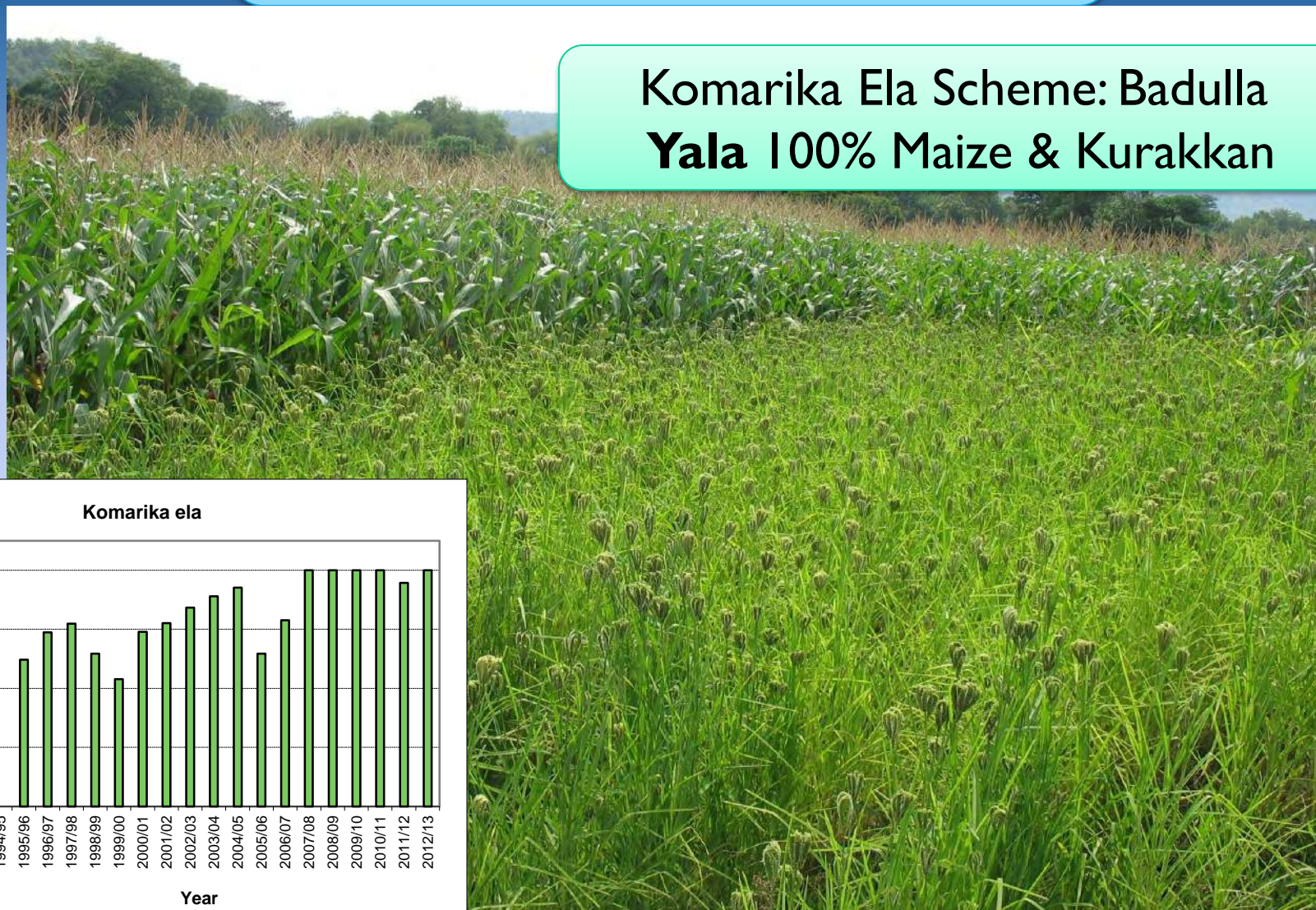
- Soil Test
- Soil Classification
- Soil Nutrients
- Identify Suitable Crops



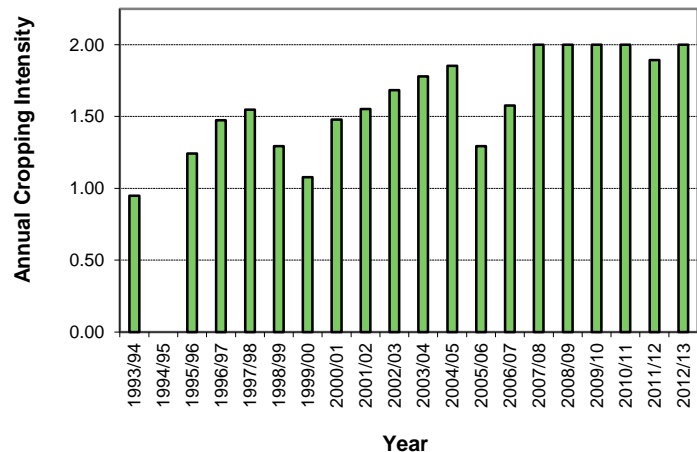


Crop Diversification

Komarika Ela Scheme: Badulla
Yala 100% Maize & Kurakkan



Komarika ela





Competing demand

- Irrigation Projects developed in dry zone
 - 100% cropping during maha
 - 50% cropping during yala
- Population increase, 3rd & 4th generation
 - Agriculture is main livelihood
 - Increase area of cultivation
 - Increase cropping intensities
 - Both is essential to sustain communities
 - Conflict arise at times in sharing



Agriculture Vs Industries

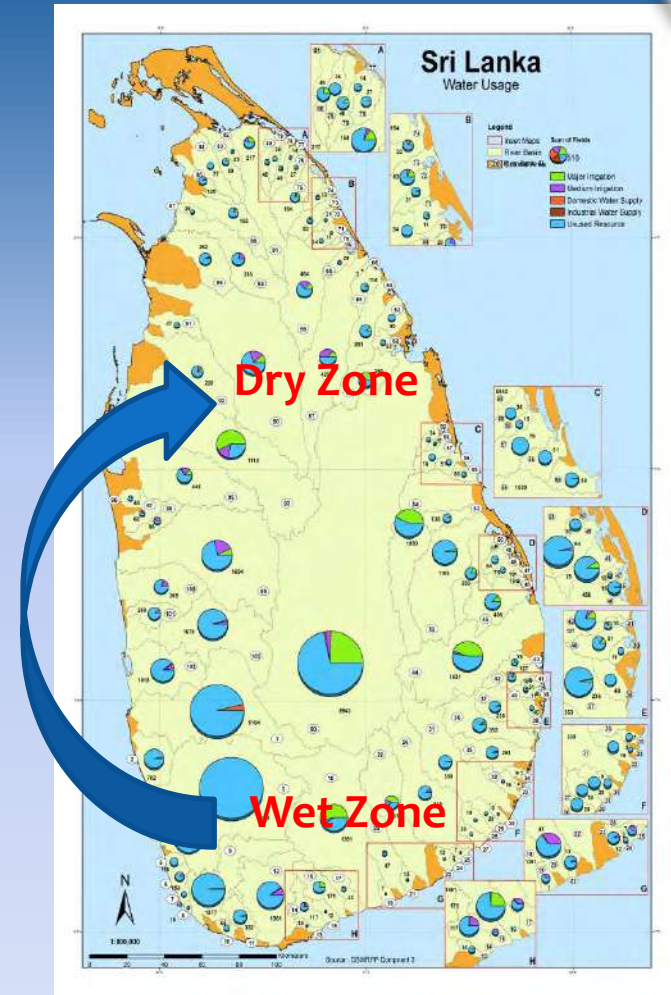
- Water supply requirement for Industries
- Eg Hambantota Harbor & Airport from Ridiyagama Reservoir
 - Increase system efficiency
 - Fixed & Variable
- Latest industry – Agro Industry; Sugar
- To address above issues need to reduce water from agriculture

Addressing Challenges – Trans Basin Diversions



Minimize spatial variations of water availability

- Implementing **trans-basin diversions** to divert unused water in the wet zone to the water shortage areas
 - Uma Oya diversion, Gin – Nilwala Diversion, NCP canal, Kalu Ganga, Yan Oya , Deduru Oya reservoirs





Improving Supply Side

- New reservoirs
 - Moragahakanda, Kalu Ganga
 - Yan Oya,
 - Lower Malwatu Oya
 - Deduru Oya
- Storage increase existing reservoirs
 - Raising Spill





Water Shed Management & Protection of Upper catchment





T(h)ank you