



STRATEGIC ACTION PLAN TO COMBAT CLIMATE CHANGE IMPACT IN IRRIGATION SECTOR IN SRI LANKA

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IRRIGATION SECTOR OF SRI LANKA

- Total irrigated paddy area – 625,000 ha
 - Total rainfed paddy area – 219,000 ha
 - Irrigation Schemes : Major 373, Minor nearly 14000
 - Water withdrawal for irrigation in 2005 – 11,314 MCM
 - Current water withdrawal for irrigation – 12,000 MCM
 - Estimated water withdrawal for 2025 – 12,350 to 12,450 MCM
- Impacts on Irrigated Agriculture Sector**
- Decreasing production in farm fields - **Drought**
 - Decreased availability of year-round safe drinking water
 - Loss of life, damage to livelihood assets including livestock and community assets - **Floods**

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PRESENTATION OUTLINE

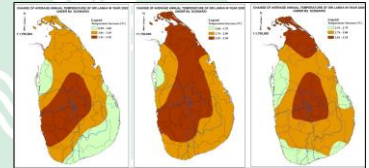
- Background - Country's Water Resources
- Climate Change Impacts - Vulnerability Assessment
- Needs for the Change – Adaptation and Mitigation
- Strategic Action Plan
- Conclusion - Vision for the Future

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PROJECTED CHANGES IN WEATHER AND CLIMATE

Long-term temperature changes for 3 future time intervals across Sri Lanka

Average annual temperature is predicted to increase by 1.6°C and 1.2°C under the A2 and B2 SRES scenarios (A study using HADCM3 – 2013)

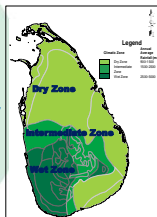


(Source - Punyawardane et al., 2010)

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BACKGROUND - COUNTRY'S WATER RESOURCES

- Total coverage of the inland water surface - 2,905 km² out of 65,610 km² of total land area of the country
- Three climatic zones are Dry Zone, Intermediate Zone and Wet Zone
- Mean Annual Rainfall - 1860 mm
- Equivalent to a rainfall volume of 120 BCM over the land area
- Internal renewable annual water resources of Sri Lanka are estimated as 52.80 km³
- 103 river basins and 94 small drainage basins
- Annual runoff - 35% of the annual rainfall volume

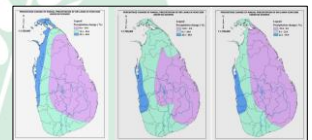


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PROJECTED CHANGES IN WEATHER AND CLIMATE

Long-term rainfall changes for 3 future time intervals across Sri Lanka

- South West Monsoon (SWM) rains could increase by 38% (SRES A2 scenario) and 16% (B2 scenario) in the 2050s
- North East Monsoon rainfall, which provides the major part of rainfall to Dry Zone, was projected to decrease by 34% and 26%



(Source - Punyawardane et al., 2010)

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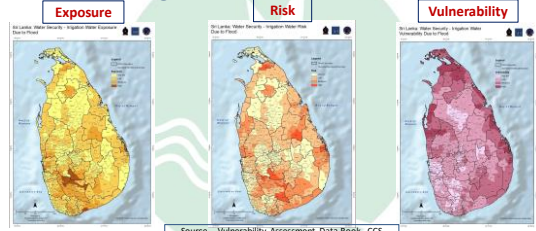
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PROJECTED CHANGES IN WEATHER AND CLIMATE

- Wet season average rainfall will decrease by 17% (A2 scenario) and 9% (B2 scenario)
- Potential evapotranspiration will increase by 3.5% (A2 scenario) 3% (B2 scenario).
- Average paddy irrigation water requirement increases by 23% (A2 scenario) and 13% (B2 scenario)
- High water demand regions - North Eastern, Eastern, South Eastern
- Increase evaporative demand result in high water consumption on food crops leading to challenges in reservoir water management and system water management

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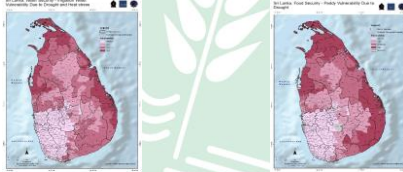
Exposure, risk and vulnerability assessment on irrigation water due to flood



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IRRIGATION SECTOR VULNERABILITY

Irrigation sector vulnerability due to drought and heat stresses Rice (paddy) sector vulnerability due to drought



(Source: Climate Change Vulnerable Data Book, 2011)

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NEEDS FOR THE CHANGE – STRATEGIC ACTIONS

- ❖ **Recognize** - River Basin Planning
- ❖ **Identify** - Development Options
- ❖ **Mapping** - Data and Information
- ❖ **Actions** - Efficient and Effective Water Management
- ❖ **Introduce** - Potential Adaptation and Mitigation Measures
- ❖ **Investment** - Adaptation and Mitigation Measures
- ❖ **Motivate** - Conduct appropriate Research and Development
- ❖ **Understand** - Training and Capacity Building
- ❖ **Encourage** - National Water Policy/ Institutional Setup

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Exposure, risk and vulnerability assessment on irrigation water due to drought and heat stress

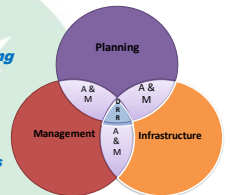


Source – Vulnerability Assessment Data Book, CCS

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Nine Strategic Actions – 2019 to 2025 and beyond

1. Restore and rehabilitate
2. water flow and sediment load monitoring
3. Boreholes / tube wells – Irrigation & domestic water supply
4. Enhancement of water use efficiency and water productivity
5. Adaptation and Mitigation measures
6. Develop River Basin management plans
7. Efficient Technologies
8. Modify irrigation techniques
9. Conservation measures



**A & M – Adaptation & Mitigation
D R R – Disaster Risk Reduction**

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VISION FOR THE FUTURE – KEY IMPORTANT AREAS

Food Security

Improved system efficiencies/ Increased storage / Water diversion / Conjunctive use of surface and ground water/ Disciplined farming practices

Health and Sanitation

Increased coverage/ Minimized waste/ Minimized pollution and contamination/ Minimized NRW and System losses

Power & Energy

Maximized hydro power generation/ Reduced losses / Renewable energy options/ Renewable energy for agriculture sector



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VISION FOR THE FUTURE – KEY IMPORTANT AREAS

Eco-System Services

Less damages to eco system / Watershed conservation and management / Wetlands and flood plains conservation / Protected Bio- Diversity and nourished fauna and flora habitats.

Economic Development

Urban development / Industries and employment / Water related disaster management / Tourism industry / Export market



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