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International Commission on Irrigation and Drainage (ICID)



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**From Ancient Wisdom to Climate Reality: Evolution of
Sri Lankan Village Tank Cascade Systems (VTCS)**

**A 2,000-Year-Old Climate-Smart Water Management
System for the Future**

2nd Indo Global Irrigation Summit

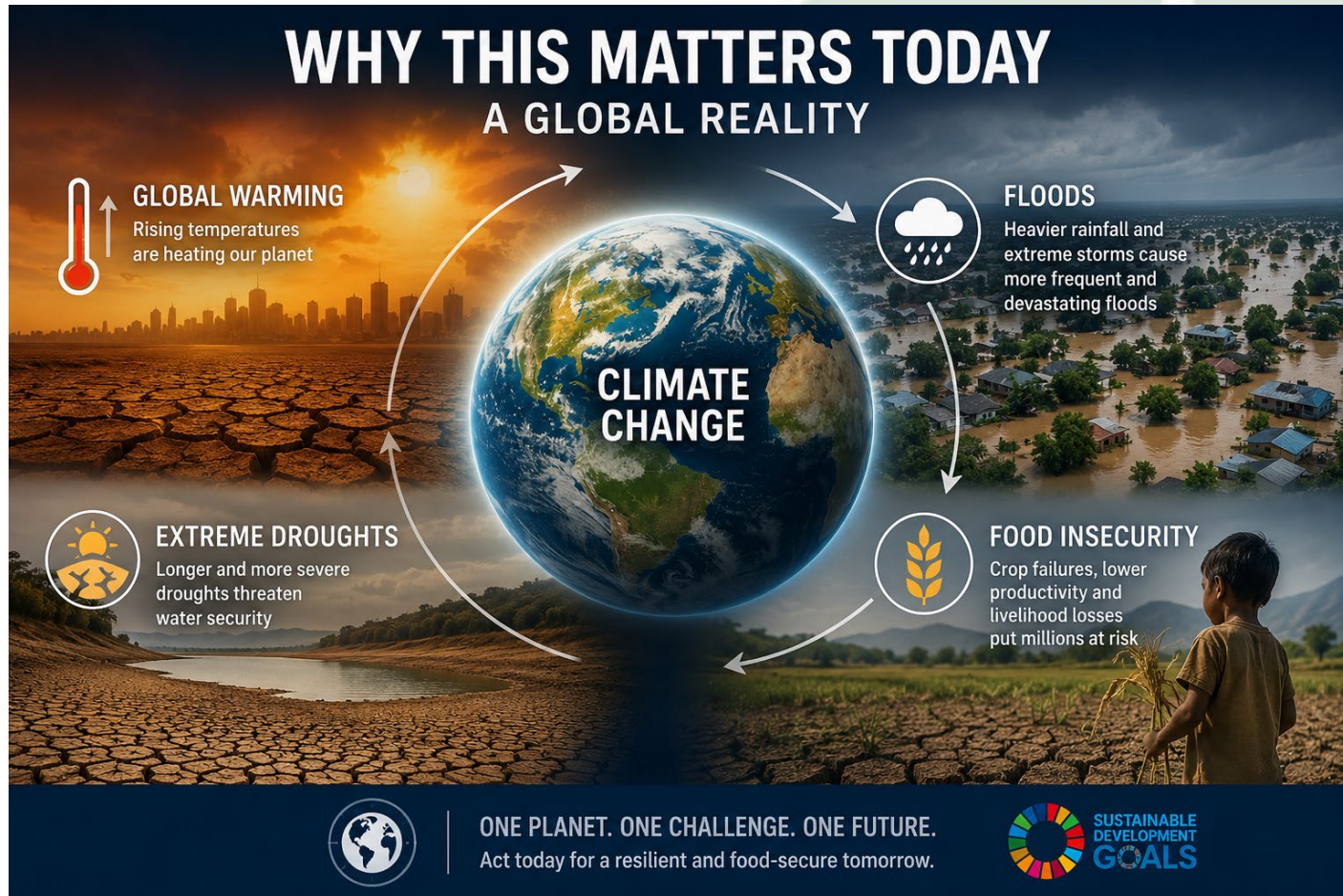
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From Ancient Wisdom to Climate Reality: Evolution of Sri Lankan Village Tank Cascade Systems (VTCS)

**A 2,000-Year-Old Climate-Smart Water Management System for the
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Why Does This Matter Today?



Climate change is creating water uncertainty worldwide.

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Sri Lanka is highly vulnerable to the impact of Climate change



1 Increases in frequency and intensity of disasters such as droughts, floods and landslides



2. Vulnerability and unpredictability of rainfall patterns



3. Increasing temperature

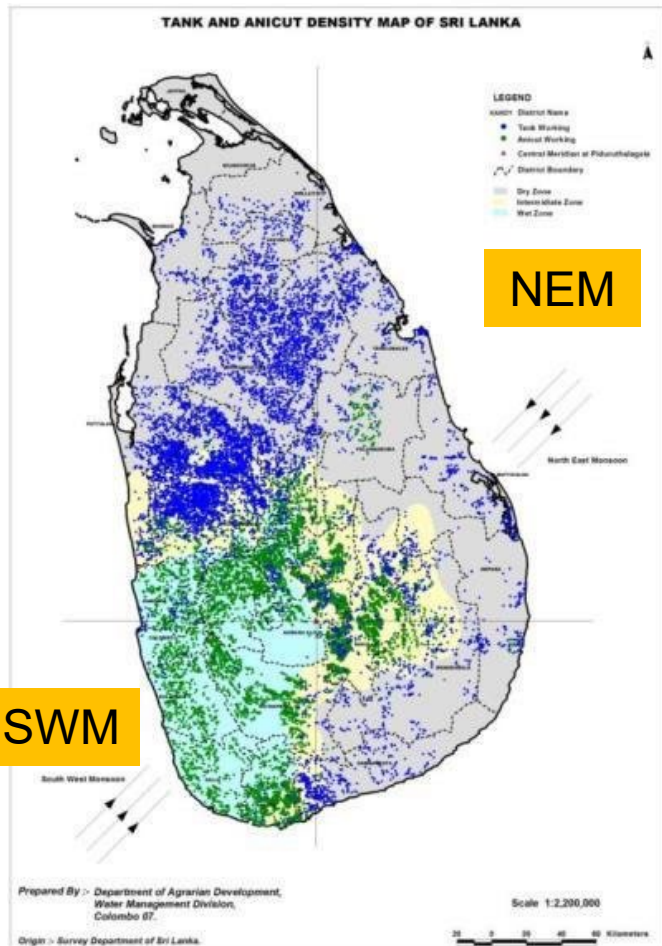


4. Sea Level Rises

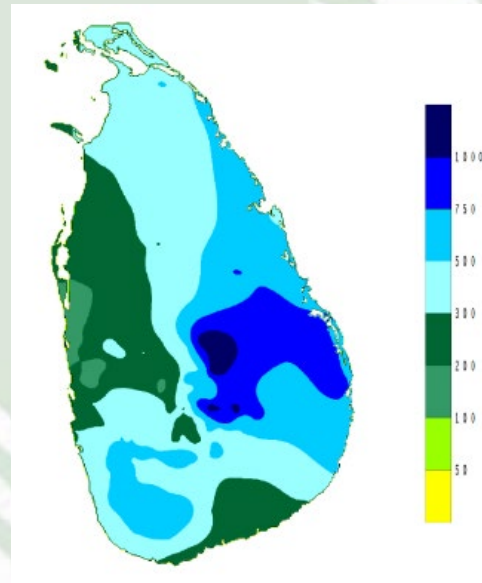
- Being a tropical island in the Indian Ocean, Sri Lanka has consistently been placed among the top ten countries at risk of extreme weather events by the Global Climate Risk Index.
- Sri Lanka spends approximately USD 313 million annually to address climate-related impacts.

Our Ancestors Faced Similar Challenges

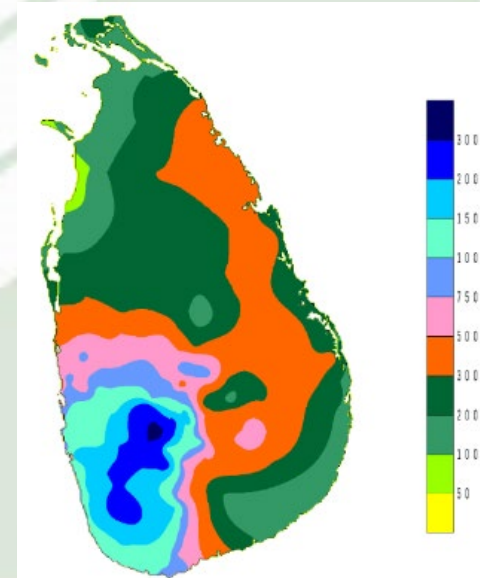
The Dry Zone of Sri Lanka receives highly variable rainfall.



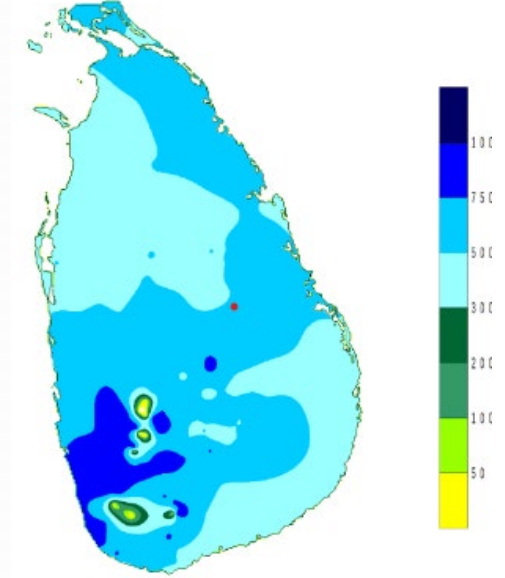
NEM



SWM



SIM



How did ancient communities survive for over 2,000 years?

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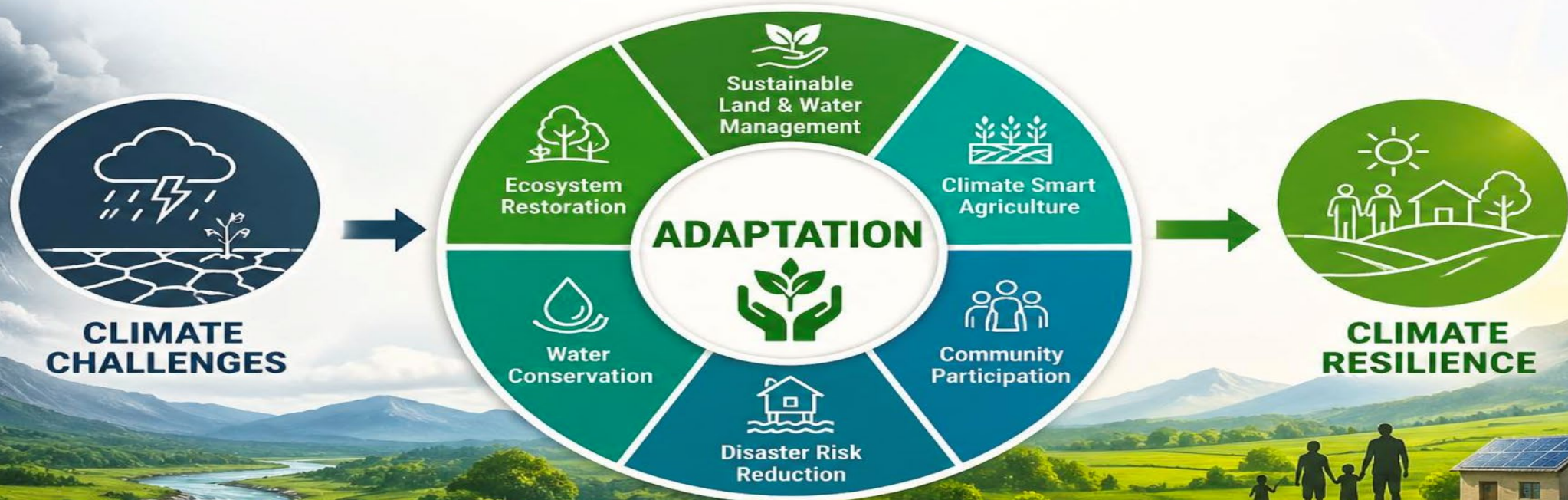
Living and coping with
uncertain impacts of climate
change is no longer a choice;
it is an imperative

there is no other option
than adopttaion.....

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THROUGH ADAPTATION, CLIMATE RESILIENCE CAN BE BUILT



ADAPT TODAY FOR A RESILIENT TOMORROW

Our Ancestors Faced Similar Water Uncertainty

Evolution of Sri Lankan Village Tank Cascade Systems (VTCS)

300 BC	1000 AD	1800s	1950s	Today	Future
Ancient Origins	Golden Age of Hydraulic Civilization	Colonial Decline	Restoration Era	Climate Resilience	Smart VTCS Era

This transition will smoothly connect the **global challenge** to **ancient wisdom** and then to **modern climate resilience**.

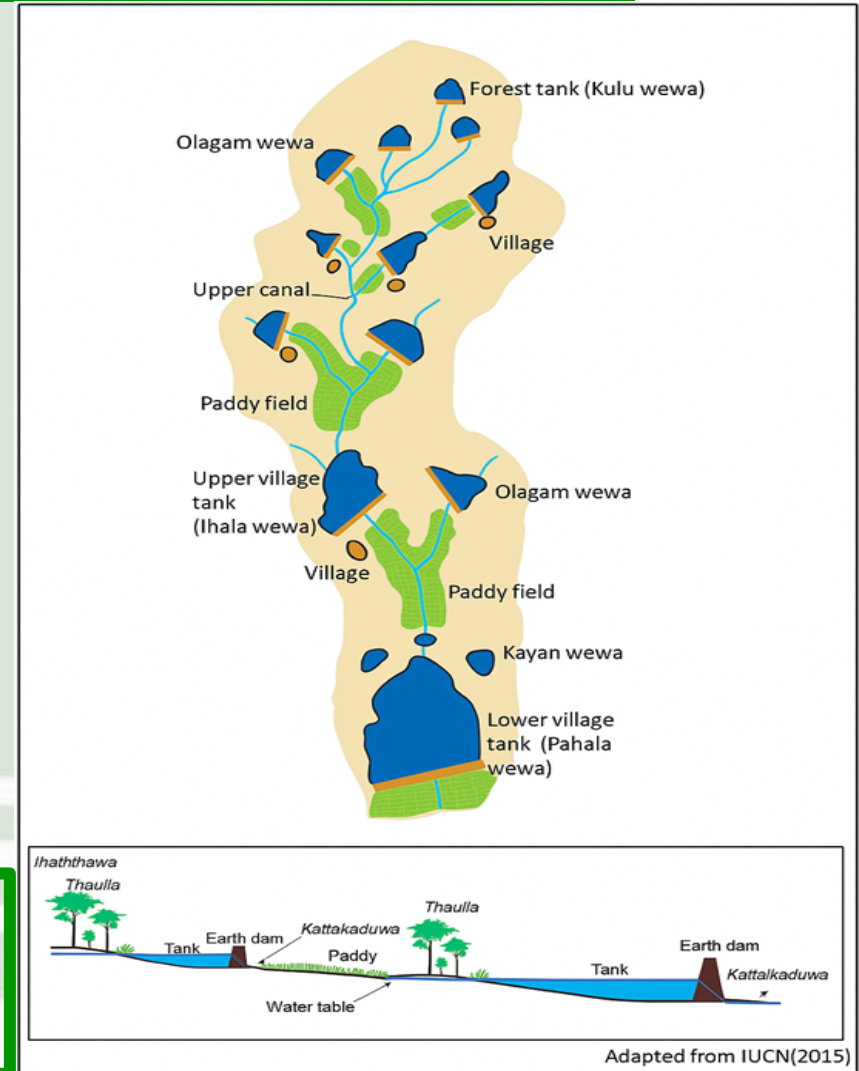
Climate Crisis → Water Insecurity → Ancient Wisdom → VTCS → Climate-Smart Adaptation → Lessons for the Future

Birth of the Village Tank Cascade Civilization

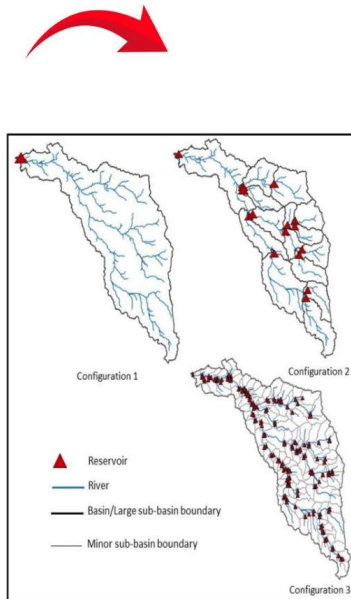
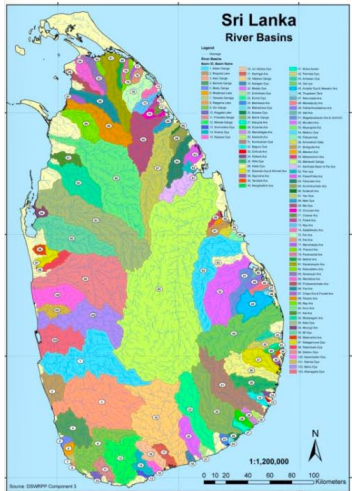
- ❖ This area includes mainly Anuradhapura, Kurunegala and Vavuniya districts, and parts of Puttalam, Matale, Mannar, Mullaitivu, and Trincomalee districts
- ❖ Developed within the Dry Zone's Reddish-Brown Earth (RBE) landscapes characterized by seasonal rainfall and recurrent droughts.

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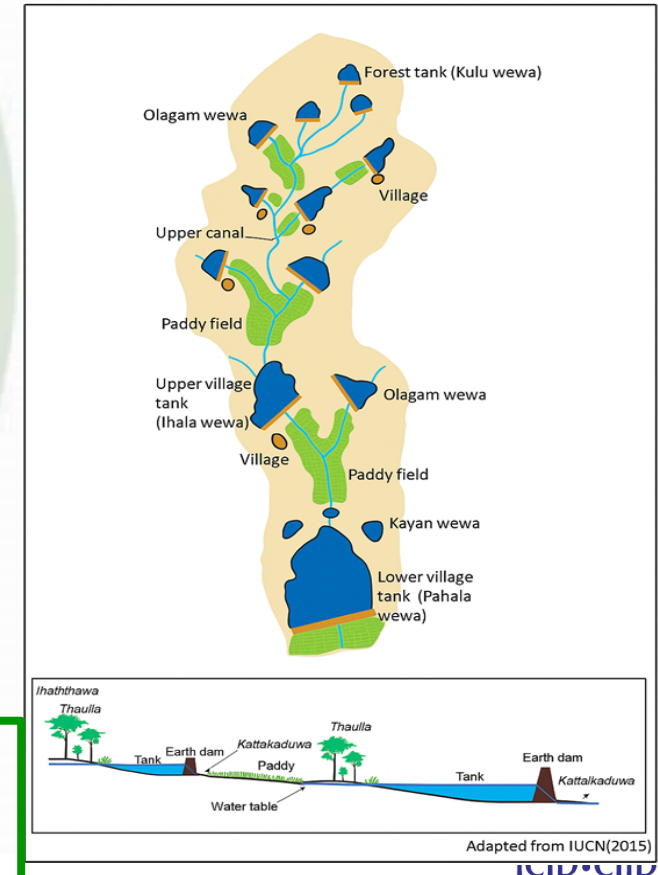
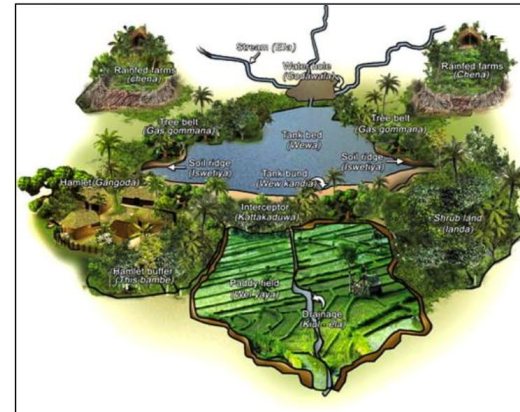
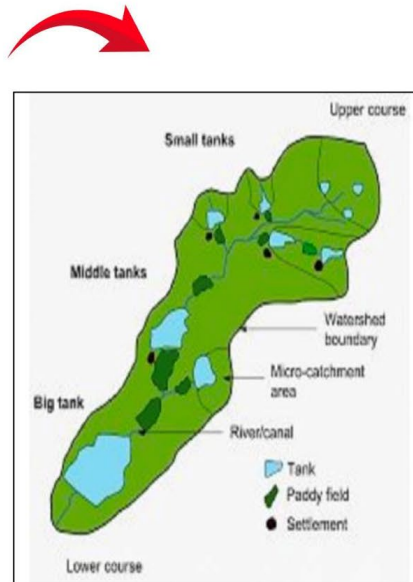
Evolution from single tank to cascades.



What is a Village Tank Cascade System?



Forest → Upper tanks → Intermediate tanks → Village → Paddy lands → Main tank



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A socio-ecological system integrating water, land, biodiversity, agriculture, and community institutions.

Village Tank Cascade System (VTCS)

Cascade system is a connected series of tanks, reservoirs, or control loops designed to optimize resource usage. Typically, water in agriculture or efficiency in engineering

Key Benefits of VTCS

- ❑ **Water Efficiency:** Captures and stores runoff water, reducing wastage in farming.
- ❑ **Climate Resilience:** Helps manage water supply during drought periods.
- ❑ **Sustainability:** Traditionally managed and ecologically sound, supporting rural livelihoods.

VTCS and Climate Resilience

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 **BUILDING CLIMATE RESILIENCE THROUGH NATURE & WISDOM** 

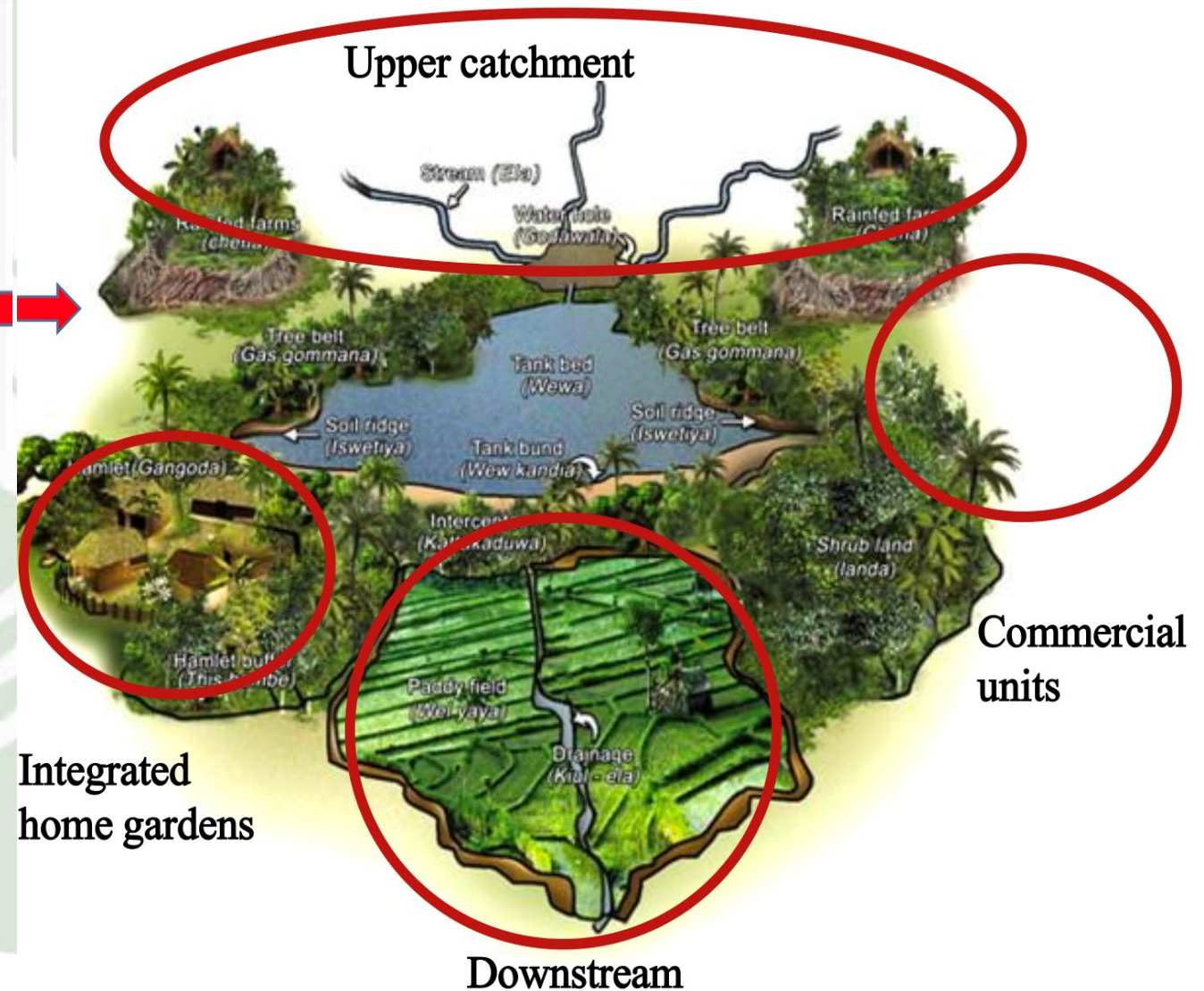
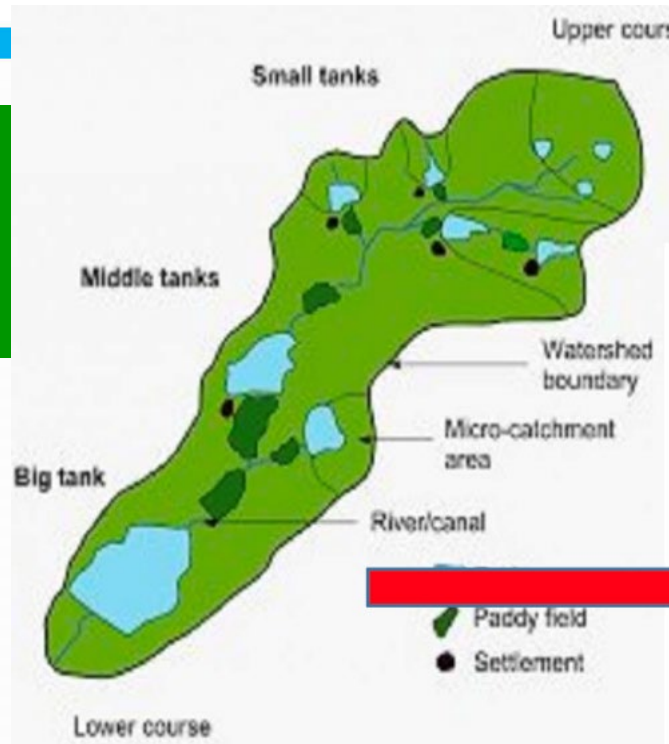
Unique Features

Why VTCS is Unique

- Gasgommana
- Kattakaduwa
- Perahana
- Godawala
- Tree belts
- Sediment trapping
- Groundwater recharge

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ON IRRIGATION AND DRAINAGE (ICID)



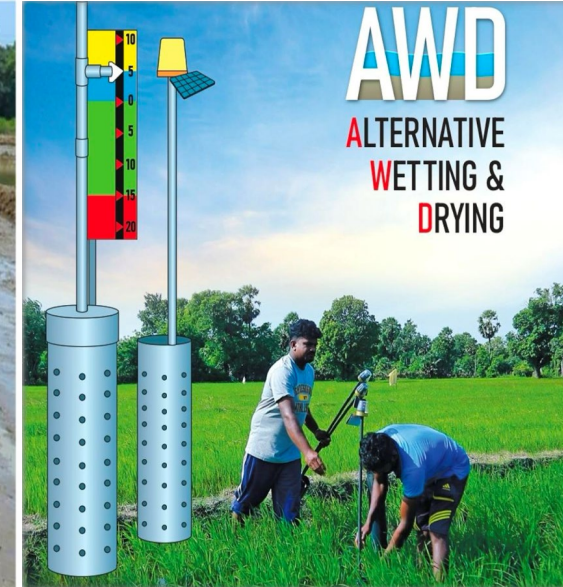
Future Vision

Smart VTCS

Traditional Knowledge +
Modern Technology

- Smart Water Management
- GIS
- Remote sensing
- Climate forecasts – Agro-met Advisory
- Decision support systems

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Key Messages

- ❑ VTCS is more than irrigation infrastructure.
- ❑ VTCS is a proven climate adaptation system.
- ❑ Ancient wisdom aligns with modern science.
- ❑ Restoration of traditional systems can be more sustainable than creating entirely new solutions.
- ❑ Climate-smart water management begins at the landscape scale.



"The challenge before us is not to invent new solutions, but to rediscover, adapt and scale the wisdom of our ancestors."

Thank You