Developing Climate Resilient Water Management Plans/ Agricultural Systems for Water Stressed Areas in South Asia – Sri Lanka.

Context.

With annual renewable water resources of 45 MCM of which less than 35% is developed and a per capita availability at population threshold of 1900 M3 by 2025 Sri Lanka is not water short country. However, a bimodal monsoonal rainfall regime with increasing greater variance due to possible climate change leads to spatial and temporal shortages more prominent in the food basket areas termed the dry zone which receives less than 1000 mm annual rain per year.

A well-established system of reservoirs including cascade systems constructed since ancient times have been reifoced with newly constructed trans basin diversions and regulating multi-purpose reservoirs that help sustain livelihoods during extended drought periods and also help in flood control. Food security is a core strategy and currently the country is almost self-sufficient in cereals such as rice and maize. Agriculture presently contributes about 11% to GDP.

Major issues confronting the water sector are related to pollution/contamination of both water courses and ground water and water quality is key concern with these issues intertwined with environmental degradation and deforestation. To ensure sustainable development in an environment of extreme weather events and climate change, greater attention is being paid to water resources development increasing the present developed from 35% to at least 50%by 2025, increasing trans-basin transfers by 1000MCm and constructing at least 7-8 large multipurpose and river regulating reservoirs that will stabilize water resources availability in the main food production basins (UN Post 2015 SDG Policy for water).

Sri Lanka already has well developed disaster response mechanism. Needed are climate resilient and risk management planning arrangements and institutional strengthening and capacity building to reduce vulnerability to extreme events and strengthening forecasting and communication regimes.

<u>Climate Resilient Water Management Plans.</u>

1) Integrated Water Allocation and Management Planning as currently practiced under the Mahaveli Water Panel where real time planning, management and allocation in Mahaveli linked systems to be expanded to other major basins for dealing with both droughts and floods.
2) IWRM with stakeholder participation in decision making as in irrigated agriculture and water governance to be institutionalized for water sector.

3) Participatory management and beneficiary involvement in both system and watershed management.
4) Development of a Water Resources Master Plan – Ministry of Irrigation and Water Resources
5) Watershed Protection / Management Policy and Law – Ministry of Lands (Final stage)
6) Dam Safety and Water Resources Infrastructure safety programme linked to Climate change – Ministry of Irrigation and Water Resources
7) Island wide Climate Change vulnerability profiles already developed on for flood, drought, irrigation, drinking water and sea level rise being updated
8) Landslide prone area identification and classification, land use planning and revision/re demarcation of agro ecological zones (done) for resource matching.
9) Re-energizing the national level coordinating mechanisms- Central Coordinating Committee for Irrigation Management (CCCIM) established in 1986 and reinforcing the continuing Coordinating Committee on Water Supply and Drainage(CCWSD) established circa 1990 and linking both.
10) Enhancing hydro/meteorology data acquisition, processing and communication platforms.

Agriculture Systems for Water Stressed Areas

1) The Policy of the Agriculture sector is to four on four thrust areas to address issues of Climate Change

a) Crops suitable for Climate Resilience systems- Short age cultivars and promotion diversified/mixed cropping. 75 day rice has been developed and propagated as well as drought and flood tolerant varieties.
b) Climate or drought escape systems- Short age Other Field Crops (OFC) and cultivars that can follow paddy harvest and survive with zero tillage. Drought tolerant millets and traditional rice varieties. Upland rice varieties that can compete with weeds and survive prolonged droughts.
c) Climate smart varieties and technologies. Short age, drought/flood tolerant varieties , wetting and dry irrigation , Parachute system of sowing rice, minimum or zero tillage cultivars. New Technology options such as drip/sprinkler, Protected agriculture (green houses), rainwater harvesting for crops and ground water recharge
d) Varieties to resist High Temperature and Salinity. Most high yielding rice cultivars are temperature sensitive and yields drop drastically due to temperature rise. This also affects many OFC and horticultural crops. Salinity tolerant varieties are being tested including traditional varieties with increased incidence of salinity occurring due to high soil moisture evaporation and less water for leaching.

2) Vulnerably profiles linked to cropping and management systems.

3) Eco based system management approach

4) Capacity Building of Farming Communities with adequate extension services and timely advice and resource support. Strengthening of Farmer Organizations and System level coordinating mechanisms.

5) Soil and water conservation. Land consolidation and levelling. Reduction of land preparation period (water issues reduced from 4 weeks to 3 in most Major and Mahaveli Systems as CCA measure)

6) Strict adherence to agreed cultivation programme / water issue decisions, water budgeting and management both at system and on farm.

7) Risk management measures including crop insurance