SENSORS FOR WATER MONITORING IN PADDY FIELDS FOR IMPROVED ON FARM WATER MANAGEMENT

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DEPLETING GROUND WATER

CONCERN
Irrigating land or crop?

Water for domestic demand
NWP 2012 - Guidelines for Improving WUE

- Increase water use efficiency by 20%
- Water Footprints and Water Auditing (assessment of water use), need to be developed.
- Continuous water balance and water accounting studies
- Methods to encourage water saving (Ex. Micro Irrigation)
- Conjunctive ground water use
- Participatory Approach: Users of water should be involved in monitoring the pattern of water use
Water Measurement

The engineers of I&CAD Department should install special water measurement structures like RBC flumes as a standard procedure in all their new irrigation projects; the same applies for their modernization projects of existing schemes.
Matching Irrigation Demand and Canal Supply

The engineers of I&CAD Department, officials of Agriculture and Ground Water Department should be offered trainings on a regular basis on irrigation modernisation, crop irrigation requirements including effective rainfall contribution, water budgeting, latest aspects of water measurement and regulation, participatory approaches in water management and women’s participation in AWM.
Water Saving Crop Production Technologies

- Direct seeding / MSRI / AWD for rice in harmony with soil microbial technologies in maximizing the water use efficiency.
Yield & Water productivity in AWD

![Graph showing yield and water productivity comparison between AWD and normal method of irrigation.]

- AWD: Yield = 3339 kg/acre, Water Productivity = 2198 L/kg
- Normal Method of Irrigation: Yield = 2923 kg/acre, Water Productivity = 4121 L/kg
Performance of paddy crop under SRI, SD and RI systems during kharif 2005-09

<table>
<thead>
<tr>
<th>Method of Cultivation</th>
<th>Grain Yield (kg/ha)</th>
<th>Depth of water applied (mm)</th>
<th>WUE (kg/ha.mm)</th>
<th>Virtual Water (L/kg)</th>
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</thead>
<tbody>
<tr>
<td>SRI</td>
<td>6900</td>
<td>594</td>
<td>11.6</td>
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<tr>
<td>SD</td>
<td>6400</td>
<td>790</td>
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<tr>
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<td>5400</td>
<td>1031</td>
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Project Area

- Krishna Basin
- Cauvery Basin

NSPL, DC 4, Nalgonda district

NSPR, DC 21, Guntur district
Pilot Field area
With sensors
AWD Tubes, Flumes, Water Meters
Solar Power

Arduino, SIM 900, Battery, Temp and Relative Humidity sensor

Bowman Water Tube with ultrasonic sensor

RBC Flume with ultrasonic sensor
Water Level in Field water tube (Bowman) using ultrasonic sensor
Soil Moisture measurement in the soil at various depths using ER sensors and Arduino.
DC-4 – INSTALLED SENSORS FOR MONITORING WATER LEVEL, TEMPERATURE AND RELATIVE HUMIDITY
WCAT0011_MLGWater Level1: 53 cm

WCAT0011_MLGWater Level2:
51 cm
ambient Temp: 25.00°C
Relative Humidity: 61.00%
SCHOOL CHILDREN AWARENESS AND TRAINING
SCHOOL CHILDREN AWARENESS MEETING - CLIMAADDAPT PROJECT
HON’BLE MINISTER FOR WATER RESOURCES Ms. UMA BHARATHI AND MINISTER FOR STATE WATER RESOURCES VISIT TO CLIMAADAPT EXHIBITION AT INDIA WATER WEEK 2015
DEMONSTRATION AND TRAINING ON SENSORS TO IRRIGATION ENGINEERS AND AGRICULTURE OFFICERS AT WALAMTARI
MEDIA COVERAGE
Significant achievements

- Climate Cell established at WALAMTARI
- Established sensors lab at WALAMTARI
- Developed sensors for monitoring water at on-farm, canal and reservoir level
- Increased participation of women in capacity building activities
- Side event, Exhibition and participation at 22nd ICID Congress, Gwangju, South Korea, Sept 2014
- Organised Water Week, 2014, 2015
- Participated India Water Week 2015
- National workshop on Climate Change Water and Improving water use efficiency. November 2014