**Rural Development and Panchayat Raj Department**

**Minutes of the Fourth State Level Steering Committee meeting on Water Security Climate Adaptation (WASCA) – Tamil Nadu**

**Date: 19th February 2021**

**Venue :** ACS Chamber, Department of IT,2nd floor, Secretariat, Chennai- 600009

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**Chairperson: Dr Hans Raj Verma IAS**
**Additional Chief Secretary, Rural Development & Panchayat Raj Department**

1. The Fourth SLSC meeting was held at ACS Chamber, 2nd Floor, Secretariat on 19th February 2021. The District Collectors of Tiruvannamalai, Ramanathapuram presented the outcomes of the Composite Water Resources Management (CWRM) plans of all the GPs, Number of Works identified through CWRM and action plan for the financial year 2021-2022.
2. The members of the state level steering committee also discussed the outcomes of the studies on surface, ground water, sea water intrusion and need for IoT in water sector.
3. The members participated and discussed on progress and approved the action plan of the WASCA Tamil Nadu for the FY 2021-2022 in the two districts namely Ramanathapuram and Tiruvannamalai.
4. The respective district officials, SLSC members who reside outside Chennai have joined through video conferencing.
5. Thiru **V.R. Sowmithri, TechnicalExpert, WASCA GIZ** welcome all the participants and shared the agenda for the meeting.
6. The meeting began with an introduction by **Er A. Kuttalingam, Chief Engineer (MGNREGS)**, Department of Rural Development. Highlighted

about the completion of the GP level CWRM planning works in WASCA, need to integrate plans in NREGA soft, taking up all approved works, otherspecial initiatives with respect to climate resilience measures (CRM)in both the districts.

7. In the opening address by Chair, **Thiru. Hans RajVerma IAS,** ACS commended good work carried out by the District Collectors of Tiruvannamalai and Ramanathapuram, Additional Collector, Ramanathapuram, Project Director, Tiruvannamalai and Team at DRDA in both the districts for conducting WASCA project to letter and spirit even during sever pandemic year and completing the planning using technology.

   The scientific plans developed, work carried out in identification of works conserving land, water, vegetation need to be translated into action, by focusing on implementation. Works must be implemented through convergence mode, bringing in all schemes. programmes to get the gains, benefits reach vulnerable rural poor due to various challenges faced due to Climate Change.

   Climate Change and Water are key sectors defining the livelihoods of rural poor. WASCA model of Tamil Nadu already generated the material and procedure to addressing them. Various models created under WASCA in both the district should provide opportunity for the other districts, states to learn, replicate it for ensuring "*Climate Resilience for future Livelihoods*".

8. **Thiru Rajeev Ahal, Director, Natural Resource Management & Agroecology cluster, GIZ, India**appreciated the leadership, commitment and progress made of WASCA in the state of Tamil Nadu. In his remarks, he stressed the need to work towards building an effective

implementation mechanism, documenting the success of implementation of the CWRM plans, approaches of managing surface, ground water augmentation and sharing these experiences with other WASCA states. Also, he further stated that cross learning of WASCA states on various initiatives is need of the hour to ensure capacity development.

GIZ shall be more than committed to enlist and support the needs related to technical training, technology interface during implementation of WASCA project in 2021-22.

WASCA project will complete by March 2022. Sustaining the project outcomes, developing partnerships, especially with private sector facilitated through Confederation of Indian Industries, continuation of engagement of technical cooperation through WASCA partnership of M.S.Swaminathan Research Foundation, Centre for Climate Change and Disaster Management, Anna University and other agencies shall help the state and districts for scale up and consolidation. Hence, having a road map for the consolidation much early shall help the project to reap the benefits in long-run.

**9. Presentation by the District Collector and WASCA Chairperson for Tiruvannamalai, Thiru Sandeep Nanduri IAS**

a. The District Collector of Tiruvannamalai explained the progress achieved in the district, timeline for completion plans under WASCA by implementing various components under CWRM Planning process. Through WASCA resource centre and engineers, June- December 2020, 861 GP plans are completed. The district report is compiled based on all GP plans, approved through the DLSC meeting held on 16 Feb 2021 at Tiruvannamalai.

b. The key findings of the CWRM Planning are:

- 27.05% of the total land area is under public and degraded land. Under public and degraded land use, the area under permanent pasture is negligible.
- Under individual land ownership, 30.7% of the areas is fallow and
- 42.48% of the total land area is under cultivation
- 1,11,177 Ha area is under Good Catchment, 13,125 Ha areas is under average catchment and 3,35,218 Ha (25%) is under bad catchment generating 1080 MCM of run-off.
- 73% of geographical area in the district is over-exploited in term of ground water extraction.
- Water Demand for agriculture is 91% and of the total water demand for Human, Agriculture and livestock, 88% is met from ground water resources. This is an alarming situation.
- Due to WASCA interventions, it is estimated to conserve and recharge 52% of run-off over a period of three to four years through various works identified under CWRM GP plans.

c. Three major areas of work categories are identified under WASCA to be implemented through MGNREGS and Convergence schemes and programms in the district under various departments:

Proposals for FY 2021-22 as approved by fourth District Level Steering Committee meeting held on 16 Feb 2021 are:

| S No | Water Actions | No. of. Works | Estimated cost as per RSSR-TN (INR Lakhs ) | Estimated Person Days | Works Proposed for FY 2021-22 |
|---|---|---|---|---|---|
| 1 | Development of Public and common land | 3,86,162 | 11,52,867 | 44,70,41,200 | 30893 |
| 2 | Development | 9,10,927 | 25,98,683 | 27,73,66,878 | 45546 |

| | | | | | |
|---|---|---|---|---|---|
| | of Agriculture and Allied Sector | | | | |
| 3 | Development of Rural Infrastructure Management | 70,354 | 25,628 | 40,17,604 | 71282 |
| Total | | **13,67,443** | **37,77,177** | **72,84,25,682** | **1,47,721** |

- For the proposals FY 2021-22 a total of **5.36 Cr person days** are required under MGNREGS for undertaking **1,47,721** works covering all NRM, Non-NRM activities and ensuring conserving water security

d. The following are the progress of the works under WASCA and convergence:

| Sl.No | NRM Activities | Achieved (no of Works) |
|---|---|---|
| 1 | Check dam | 111 |
| 2 | Culvert | 31 |
| 3 | Massive tree plantation | 156900 |
| 4 | Individual dug well | 5 |
| 5 | Farm pond | 25 |
| 6 | Community dug well | 6 |
| 7 | Drainage | 25 |
| 8 | Earthen bund | 98 |
| 9 | Supply channel | 2000 |
| **Non NRM Works** | | |
| 1 | Cement concrete pavement | 127 |
| 2 | Paver block | 34 |
| 3 | Single layer WBM roads | 23 |
| 4 | School compound wall | 41 |
| 5 | Threshing floor | 1 |

e. Works under Convergence

| S No | Name of the Department | Name of Work | Quantity |
|---|---|---|---|
| 1 | Agriculture Department | Integrated Farming System | 100 Ha |
| 2 | Agriculture Department | FallowLand development | 250 Ha (Millets & Pulses) |
| 3 | Agriculture Department | Micro-Irrigation | 2555 ha |
| 4 | Agriculture Eng Department | Farm Ponds (Large) | 61Nos |
| 5 | Horticulture Department | IHDP (Integrated Horticulture Development) | 48 Ha |
| 6 | Department of Fisheries | Fishponds | 5 Ha, proposals are for 40Ha |

**f. Projects under Climate Resilience measures under WASCA:**

A. Development of Public and Common Land

- Greening of Hillocks: Currently two hillocks are taken up in 2020-21 with 20,000 saplings planted and proposed to cover 14 blocks in 2021-22
- Exploratory survey for works under Kamandalar Naganadi river sub-basin is completed. Works identified. (9 blocks)
- A.S accorded for 31 block nurseries and 5 district nurseries for raising 27 lakhs plants -So far 4 lakh saplings raised and work in progress
- Nursery Development - All the blocks
- 17 villages identified for bamboo plantations
- 12 GPs for Mini Forests
- M.I. Tanks for PPP: 8 Tanks
- Cascade of tanks: 8 Systems Tank Networks
- Silvi-pasture development: 31 Models GPs
- For Artificial recharge structures 5 locations
- 5 Gps for inland fisheries

B. Agriculture and Allied sector development

- 2 GPs for Medicinal plants cultivation
- 7Gps for Floriculture promotion

- Fallow land development - Saturation approach: 350 Ha with Agriculture department
- Open wells and micro irrigation

## 10. Presentation by the District collector and WASCA Chairperson for Ramanathapuram, Thiru Dinesh Oliver Ponraj IAS

a. The District Collector of Ramanathapuram explained the biophysical profile of the district as it is primarily a rainfed agroecosystem with a long coastal line of 271 km in length and 6 out of 11 development blocks are located in the coast.

b. CWRM planning in all 429 total Gram panchayats in 11 Blocks are completed and works approved in the 4th DLSC held on 8th Feb 2021

c. Water Budget, Surface Run-off, Ground Water availability, Soil Moisture, Evapotranspiration losses and salinity are studied in-depth in the CWRM planning.

d. Total annual requirement of water demand in Ramanathapuram district is 1415 MCM, of which 19% is met through ground water resources. Most of the requirement of water is through surface water resources. Hence, focus of WASCA is to strengthen, augment surface water resources and land fertility.

e. The following are key Climate Resilience Measures planned in the district through WASCA for 2021-22:

| S NO | Name of the Block | Key Water Challenge | Proposed CRM | No of GPs |
|---|---|---|---|---|
| 1 | Bogalur | Vegetation cover – soil and water conservation | Mega forest, IFS in common land | 3 |
| 2 | Kadaladi | Salinity, Sand Dunes degradation, Vegetation cover – soil and water conservation | Coastal Watershed, Mega forest , IFS in common land | 30 |
| 3 | Kamudi | Harvesting and storage of surface runoff water | Agro-forestry models, Mega forest, IFS in | 5 |

| | | | | |
|---|---|---|---|---|
| | | | common land | |
| 4 | Mandapam | Coastal erosion, sand dune degradation | coastal watersheds | 49 |
| 5 | Mudukulathur | Harvesting and storage of surface runoff water | Agro-forestry models, IFS in common land | 5 |
| 6 | Nairnarkoil | Harvesting and storage of surface runoff water, Soil erosion | IFS in common land | 5 |
| 7 | Paramakudi | Harvesting and storage of surface runoff water, Soil erosion | IFS in common land, Riverbank stabilization, | 5 |
| 8 | R. S.Mangalam | Harvesting and storage of surface runoff water | Cascade of Tanks and River rejuvenation, mega forest | 15 |
| 9 | Ramanathapuram | Degraded public and common lands | Horticulture parks - IFS in common land | 2 |
| 10 | Tiruppullani | Drinking water, coastal erosion, sea water intrusion | IFS in common land, Community level Tanka, sea water intrusion structures | 5 |
| 11 | Tiruvadanai | water storage, coastal erosion, sea water intrusion | Coastal Watershed, IFS in common land | 22 |

f. Coastal Watershed of Ramanathapuram:

| S No | Description | Number |
|---|---|---|
| 1 | Total No of Blocks in the district | 11 |
| 2 | Total no of coastal blocks | 6 |
| 3 | Coastline length (in Km) | 271 |
| 4 | No of Coastal GPs | 45 |
| 5 | No of House Holds in Coastal area | 1,34,858 |
| 6 | No of Coastal Micro watersheds | 253 |

| | | |
|---|---|---|
| 7 | Categories of Coastal Watersheds | 3 |
| 8 | Coastal Watershed Category 1 area: Mangrove + agriculture Land+ Coastline + creek (ha0<br>Coastal Watershed Category 2 area: Agriculture+ Wetland+ Coastal Line (ha) | 11559<br>26838 |
| | Coastal Watershed Category 3 area: Agriculture+ Coastline+ Sand dune (ha) | 25076 |
| 9 | Bio-sphere reserve (ha) | 277.26 |

g. Of three coastal watersheds, one coastal watershed planning, technical advisors field visits and approval is completed. Over 12,000 works are identified for coastal watershed implementation.
   - Link the tank and tank supply chain and tank and *Oorani* supply chain.
   - Artificial recharge structures in borewell.
   - Cashew tree, casurinatree, Palm tree, fodder development cultivation in barren land.
   - Bund strengthening, bund plantation desilting is needed in *Tharavai* wetland, Karan panchayat – Mandapam block.
   - 5 to 10 recharge pond with 2m depth and recharge filter for the Kodipangu panchayat – Thiruvadanai block.
   - Soil water conservation like contour bund, contour trenches & terracing should be done

h. 34.6 lakhs of seed ball was made within 72 hours and propagated in public lands

i. <u>Mini Forests:</u>
   - 1000 Mini forest- 1st Phase (500 trees in Mini forest)
   - 11 Mega forest- 2nd Phase (5,000 trees in Mega-forest)

- 20 traditional varieties of trees
- Nearly 1536 acres of land converted into mini forest
- Recognized by Elite world Records, Asian book of records, Tamilan book of records and Replication by Other districts

j. Horticulture Park:

- 11 parks in 11 blocks are taken up
- Facilities for Cattle, Country chick, Goat rearing Units, Azolla Production, Mushroom Production, Vegetable, Fruits and Medicinal Plants are cultivated with Organic farming
- MGNREGS women getting more employment days and additional income and Village Panchayat get additional revenue
- Barren land converted into Cultivable land
- Planned 110 Horticulture parks in 11 Blocks

k. Avenue plantation:

- 240 km was covered- Parthibanur to Kamuthi,Parthibanur to Paramakudi, S.P.Pattinam to Ramanathapuram, Sayalkudi to Ramanathapuram
- 12 types of Flowering trees are planted, 24000 – big trees, 48000- small trees are planted
- MGNREGS labourers and SHG women are involved in maintenance of plantations

l. Nursery Raising:

- 15 lakhs tree saplings are grown in the nursery
- Nursery placed at Venthoni and Urapuli Panchayats, Paramakudi Block. Tree saplings are distributed to Miniforest, Avenue plantation, Schools and village panchayats
- 5 lakhs saplings are ready to sale to Sivagangai District for plantation

m. Village level Nursery:

- Established village level Nurseries in 429 Panchayats
- 850 women are trained in nursery management
- MGNREGS women maintain 1000 tree saplings (Minimum) in a Nursery, Growing Fruits and Flowering tree saplings
- Fruits saplings are – Guava, Custard apple, Black Jamun, Madras thorn (Kodikkapuli), Amla, Pappaya and Moringa which are rich in vitamins and minerals, Flowers are Mantharai, kondrai and Vagai

Catch the Rain:

- Size and storage capacity of a pond is 15m x 15m x 1m and 225cum ( 2,25,000 litres) respectively.
- 17,14,50,000 litres (171.45 Million litres) of rain water can be stores through 762 ponds at various places throughout the district.
- This will serve the needs of animals, birds, human beings etc.
- It will also act as a ground water recharge structure
- Planned to create 11,000 ponds across the district

n. Community*TANKA*- Drinking water security (Rain Water Storage):

- 2 community *tankas* were established in R.S. Mangalam and Thiruppulani Blocks of 30 thousand liters capacity each. Both the blocks are affected with salinity and have sea-water intrusion. Hence, only harvesting rainwater is a solution for drinking water. The Rajasthan state model of *Tanaka*are piloted with success.
- Now both the tankas are filled with rainwater and analysed the quality and found to be portable.
- Based on the people utilization, plan to build more individual and community tankas in this district (2000 Nos)

o. Nutri garden

- Established 1001 nutrition Garden in schools

- Growing Nutritional vegetables like Bhendi, Tomato, Curry leaves, Moringa and Leafy vegetables
- MGNREGS women maintains the garden and supply the vegetables to the schools
- It intends to reduce the Maternal Mortality Ratio (MMR) at Ramnad District (113 women death per lakh)

p. Oxygen Park:

- Only 1% of Forest is available in Ramanathapuram
- Planned to cultivate the Bamboo trees
- Tissue culture Bamboo namely Bheema will grow in 10 acres of land at Thiruppulani, Paramakudi and Tiruvadanai Block
- In Third year of plantation,Village panchayat will be get revenue from bamboo stems

q. Livelihood Centres:

- 40 livelihood activity centres created
- Plan to establish 429 livelihood activity centres
- The livelihood activities are quality dry fish production, Palm based products, Moringa value added products etc.
- Discussed with Pay Agri for contract farming and Thiagarajar School of Management Madurai for marketing linkage of products

r. Barren land to cultivable land

- 250 acres of barren land will be converted in to cashew farm
- 100 acres of barren land will be converted in to Chilli park
- 100 acres of barren land will be converted in to Tomato park and *Prosopis juliflora* will be eradicated
- Panchayat will get an additional revenue, MGNREGS women get an additional income and employment

s. Cascade of Tanks: R.S. Mangalam, Cascade of Tanks is identified, and survey is completed. During March-April 2021 works for connecting tank cascades and improvements will be taken up in convergence.

t. Visit of representatives from UN- World Food Programme (UN- WFP):

- Access to reliable forecast information along with location specific advisories.
- Restoration of the water bodies and provision of check dams helps to store the freshwater from the rains which helps to reduce the soil and water salinity.
- Diversification of women's livelihoods by increasing their skills in non-farm and off-farm enterprises.

11. Sharing of views for strengthen private sector partnership under WASCA. **Tmt Sarbani Chakravarty, Director, CII,** New Delhi stressed the need for focused interactions in collaboration in TN state based on the approved plans in two districts. CII has conducted series of meetings to identify, short list and focussed discussions with interested private sector for work under WASCA and for the state of TN. These partnership will be developed with mutual coordination with District Collectors and State, matching to the requirements, capacities, shared goals. Hence, specific interactions with concerned Districts of Tiruvannamalai and Ramanathapuram will be undertaken under the WASCA. CII welcomed the progress made in both the district in implementing WASCA initiatives.

12. Two District Reports and WASCA- TN web portal Version1.0 (About WASCA – TN | CWRM (resilienceindia.org)) was inauguratedby Thiru Hans Raj Verma IAS, ACS, Govt of Tamil Nadu. The content part of the web portal including the sub menus were explained by Mr.R.Nagarajan, MSSRF. The portal is a good platform for policy makers, planners and practitioners in

understanding scientific information, organising gram sabha meetings, convergence meetings.

**13.** Presentation on findings of CWRM planning, **Dr R. Rengalakshmi, MSSRF (Lead Technical partner- WASCA-TN):**

a. WASCA TN adopted 4 Climate Vulnerable Areas, 18 Indicators, 113 parameters (non-spatial) and 17 parameters (Spatial) for assessing and creating GP level Composite Water Resources Management Plans

b. All 1289 GP plans (860 in Tiruvannamalai & 429 in Ramanathapuram) are completed, approved

c. Water Demand and Supply gaps, key water challenges faced in both the districts are presented (see annexure for the detailed PPT)

d. Existing storage structures, soil moisture situation, ET losses, conditions of catchment area (as per Strange Classification-CGWB), Land Use analysis are presented.

e. The overall works identified under CWRM for both the districts as approved under DLSC are:

| S NO | Item | Ramanatha puram | Tiruvannamalai |
|---|---|---|---|
| 1 | No of Blocks | 11 | 18 |
| 2 | No of GPs CWRM Plans completed | 429 | 860 |
| 3 | No of Works: Development of Public & Common Lands | 6,08,423 | 3,86,162 |
| 4 | No of Works: Development of Agricultural and allied Sector | 1,38,116 | 9,10,927 |
| 5 | No of Works: Development of Rural Water Management | 43,740 | 70,354 |

| | | | |
|---|---|---|---|
| 6 | No of Works Identified Ground Water Aquifer Artificial Recharge Works & River Rejuvenation | 63 | 38 |
| 7 | Total No of Works (3+4+5+6+7) | 7,90,341 | 13,67,480 |

f. Key expected outcomes of WASCA interventions are:

| S NO | Item | Ramanathapuram | Tiruvannamalai |
|---|---|---|---|
| 1 | Total Area of the district (Ha) | 3,86,896 | 4,59,542 |
| 3 | Percentage area targeted under treatment (of total area) | 19% | 29% |
| 4 | Total Run Off Conserved due to treatment (Ha m) | 23533 | 40717 |
| 5 | Total No of Vulnerable population estimated to be benefited | 91,712 | 5,89,909 |
| 6 | % Area brought under afforestation in public lands (non forest) | 3% | 27% |
| 7 | % of Fallow lands brought under cultivation | 22% | 31% |
| 8 | % of drylands brought under effective water conservation and change in cropping pattern | 4% | 12% |
| 9 | % of natural drainage lines treated | 6% | 15% |

g. Focus of WASCA Resources Centre for 2021-22

- Interactive Web Portal: CWRM GP plans and Integrating all works, plans
- Training to implement CWRMP GP Plans
- Implementation of Climate Resilience Measures

- Partnership with Private Sector, NABARD, Other projects, NAFCC, GCF
- Developing Knowledge Products For Scale up & Learning

14. **Dr N. Gladwin Gana Asir,** Assistant Professor, Suganthi Devadason Marine Research Institute **(SDMRI),** Thoothukudi presented the findings of study under WASCA on "reducing effects of seawater intrusion into freshwater resources through vulnerability mapping, assessment at Ramanathapuram, coastal district". The study was commissioned by GIZ for WASCA – TN. The study period was July 2020 – Feb 2021.

a. The study collected information and analysis on geochemical of ground water samples for - pH, EC, TDS, Na, K, Ca, Mg, $CO_3$, $HCO_3$, TH, Cl, $SO_4$ &$NO_3$
b. Water Quality Index (WQI) & Seawater Mixing Index (SMI) is carried out and Spatial mapping using GIS, spatial database & maps – shape/kml file format as out puts are generated.
c. The Results are:

| **Parameters** | **Pre-monsoon** | **Post-monsoon** | **WHO standard** | **IS standard (BIS 10500:1991)** | |
|---|---|---|---|---|---|
| | | | | **Desirable** | **Permissible** |
| pH | 6.1 to 8.1 | 6.25 to 8.0 | 8.5 | 6.5 to 8.5 | 6.5 to 8.5 |
| Salinity (ppt) | 0 to 40 | 0 to 28 | - | - | - |
| EC (µS/cm) | 377 to 53,900 | 167 to 38,290 | - | - | - |
| TDS (mg/l) | 214 to 32,020 | 104 to 23,740 | 500 | 500 | 2000 |
| Total Alkalinity (mg/l) | 220 to 481 | 20 to 1297 | - | 200 | 600 |
| Carbonate (mg/l) | 34 to 152 | 3 to 279 | - | - | - |
| Bicarbonate (mg/l) | 121 to 363 | 36 to 987 | 200 | | |
| Total hardness (mg/l) | 45 to 6,425 | 20 to 2,835 | - | 300 | 600 |
| Calcium (mg/l) | 21 to 2,937 | 10 to | 75 | 75 | 200 |

| | | | | | |
|---|---|---|---|---|---|
| | | 1,356 | | | |
| Magnesium (mg/l) | 12 to 1,645 | 2 to 1,461 | 30 | - | - |
| Sodium (mg/l) | 10 to 4,270 | 8 to 1,262 | 200 | - | - |
| Potassium (mg/l) | 1 to 97 | 1 to 168 | 100 | - | - |
| Chloride (mg/l) | 32 to 8,609 | 15 to 6,452 | 200 | 250 | 1000 |
| Nitrate (mg/l) | 1 to 140 | 1 to 186 | 45 | 45 | 100 |
| Sulphate (mg/l) | 2 to 240 | 2 to 268 | 200 | 200 | 400 |

d. The **groundwater quality** of Ramanathapuram district is influenced by seasonal rainfall. Markable change in the **EC** and **TDS**was observed during pre-monsoon and post-monsoon. Seasonal rainfall infiltration – **reduces the pH** – interior of the district

e. Higher concentration of **EC,TDS, Na & Cl** in the central and coastal region possibly due to the seawater intrusion in the aquifer.

f. The increase of **sulphate** - post-monsoon could be due dissolution of minerals by rainwater.

g. **Water Quality Index**

- Poor & very poor water quality – pre-monsoon
- Excellent and good water quality – post-monsoon

h. **Seawater Mixing Index**

- Central and northern side of the district (nearly 30% of the samples are affected by seawater intrusion)

i. Interventions:

- Seasonal rainfall has greater influence in the quality of GW – **Watershed activities**
    - Deepening and desiltation of waterbodies
    - Water harvesting structures
    - Recharge structures and rainwater harvesting structures

- Water absorption trenches
- Kanmai can be rejuvenated

- **Waste management** - waste water drains and soak pits
- Measures to **increase the water levels –** water bodies that are not filled fully with water.
- **Filtration** and **reverse osmosis** can be adopted wherever the water quality is poor.
- **Rejuvenating of Taruvai –** bund rising & surplus weir
- **Sand dune stabilization –** coastal aquifer
- **Coastal Bio-shield** – Mangrove and associates' conservation

15. **Er Raja, Executive Engineer,** Ground and Surface Water Data Centre, PWD & National Water Mission made the presentation on "Surface & Ground Water Assessment & River Sub Basin, Artificial Recharge Structures" in Ramanathapuram and Tiruvannamalai district. The key findings and recommendations are:

| **Number of recharge structures proposed in both the districts** | | |
|---|---|---|
| Proposed Structures | Tiruvannamalai district | Ramanathapuram district |
| Check dams | 2 | 9 |
| Recharge wells | 36 | 54 |

- Ground water Study: The dedicated templates have been designed and disseminated to the rural department engineers so that they can continue this assessment at any point of time even after the project period.
- A User defined model on SWAT has been developed for Tiruvannamalai District and has been validated. One of the main sets of input for simulating the watershed in SWAT is climate data. Climate inputs consist of precipitation, maximum and minimum temperature, solar

radiation, wind speed and relative humidity. The daily precipitation records for the period of 2000–2019 were used which were analysed to develop the climate-input files required for the model.

- River Sub-basin information systems are developed and submitted for
  - Kottakariyar River sub-basin in Ramanathapuram district
  - Kamandalr Naganadi River sub-basin in Tiruvannamalai district
  - KML/ Shp/ Reports are submitted to GIZ and District Administration of Ramanathapuram, Tiruvannamalai
  - Trainings were provided on aquifer geometry, assessment at Tiruvannamalai district

16. **Dr A. Paventhan, Director, ERNET India,** IIT Madras Research Park, Chennai presented on the use of IoT smart water management in Rural India and potential applications under WASCA TN. The key highlights of the presentation are:
    a. ERNET India is a centre for excellence for IoT and has developed IoT solutions for agriculture- soil quality real time monitoring, water, energy etc
    b. Smart Village Initiative is to provide last mile connectivity to the village enabling use of digital services to door steps of rural India
    c. Smart elements of Smart Village for improved service delivery, safety, security, education, connectivity and quality of life of villagers
    d. Potential for IoT use under WASCA TN is in creating technology driven and data driven architecture for Smart Water Management:
       - Ground Water Level and assessment
       - Soil Moisture Nutrients
       - Sea Water intrusion
       - Wastewater quality monitoring
       - Weather information

- Real time monitoring and dashboard creating for CWRM
- Water quality
- Water flow monitoring (Agriculture)
- Water Budgeting
- Water Monitoring Command Control Centre

17. **SLSC Members Key Point Discussion**

a. **Dr. S. Subramanian, Senior Scientist, CGWB,** Chennai appreciated the progress made in the project and the list of works identified to augment the water resources. He has suggested to apply the project WASCA's output to the award under Min of Water Resources.

b. **Ms. Sri Vidya, Deputy Director, Dept of Agriculture**: She highlighted the Agriculture department's schemes for convergence such as Fallow land development, Integrated Farming systems, Micro irrigation etc in relation to WASCA's action plan in both the districts.

c. **Tmt. Karunapriya, CCF**, Department of Forests, Government of Tamil Nadu: She appreciated the efforts taken by the WASCA team in completing the GP based planning in both the districts and assured the cooperation and support of Forest department in improving both plantation and soil and water conservation actions in Tiruvannamalai.

d. **TWAD Board:** Appreciating various works proposed for surface water and ground water recharge, the suggestion was to carefully locate the sites of constructing open wells, especially in Tiruvannamalai district based on geophysical study, aquifer geometry, rock strata with help of ground water experts and engineers from district ground water department as per the need during implementation. This will help to implement the 800 wells targeted with high success rate in the district.

e. **Tmt. Noorjahan Additional Director Department of Fisheries**: She also applauded the team for completing the task within short period and

pointed out the benefits of GIS based planning in Fishing sector. The schemes available under the dept of fisheries can be potentially linked to WASCA in Ramanathapuram district for marine and inland fishing and inland fishing on Tiruvannamalai district.

f. **Dr K. Palanivelu, Director, CCCDM, Anna University:** He complemented the efforts undertaken to complete the planning in both the districts. He shared the broader indicators used in vulnerability assessment and projected climate variables (rainfall, max. and min. temperature) and its impact on the water sector and livelihoods.He stressed the need to develop climate monitoring tools during implementation of WASCA. These indicators shall help to track the capacities of adaptation by securing future demands.

g. **Dr Krishan Tyagi, Senior Technical Expert, WASCA, GIZ, India**recalled the first consultation organised in November 2019 in Chennai based on the scoping study of CCCDM, Anna University and commended on the progress made till date in completing the GP plans. Moving forward he said translating the plans in to action with the participation of local community will help other districts in the state and other states to learn from TN's experiences.

18. **Release of District WASCA Reports**: The district CWRM Report of the Ramanathapuram and Tiruvannamalai are released by ACS Thiru Hans Raj Verma IAS. The Chief Engineer announced that the reports will be circulated to all line departments for its implementation in convergence mode.

19. **Key messages and Concluding Remarks by Thiru. Hans Raj Verma IAS Additional Chief Secretary, Rural Development Department, Govt TN and Chairperson WASCA- TN**

- The ACS, Govt of Tamil Nadu directed the districts and GIZ to focus on Outputs, Results, documenting best practices, show case the success of WASCA intervention at National, International forums for scale up and replication.
- The focus during implementation of WASCA plans prepared using scientific methods under composite water resources management plan (CWRM) and works under Climate Resilience for Future Livelihoods, the District Collectors must ensure use all existing schemes, projects under various departments and association with NABARD to enable the district to tackle the climate change ill effects and monitor the implementation of plans (CWRM) prepared under WASCA through review, joint field visits, appraisals.
- Ramanathapuram to provide learnings and know how on managing resources and schemes for coastal areas through WASCA and Tiruvannamalai district to provide the framework for land-locked, ground water stressed area management under WASCA as examples for other district in the state to follow, replicate and mainstream.
- In the regard, hence preparation of Compendium of Activities is an important task to be taken up. It is therefore instructed GIZ to take uppreparing compendium under WASCA with details of process, procedures, actions and results be made as a joint publication of government of TN and GIZ for the first one-year post state level launch during 29 November 2019. The compendium will be shared with wider national, state and regional stakeholders, ministries of the initiatives undertaken in Tamil Nadu.
- The targets and suggestions received from the district is approved
- The Fifth SLSC meeting will be conducted in the month of May 2021

## 20. Resolutions of 4th SLSC

a. Approval of plans submitted by District Collectors of Tiruvannamalai and Ramanathapuram districts as per CWRM GP plans under WASCA.
b. For the FY 2021-22 under MGNREGS the proposals for person days and works are approved for implementing WASCA (NRM & Non-NRM)
c. 5.36 Cr person days for Tiruvannamalai district
d. 1.86 Cr person days for Ramanathapuram district
e. Corresponding to Wage utilization, material component will be provided as per MGNREGS guidelines with district as a unit
f. All the 1289 GPs (860 GPs in Tiruvannamalai and 429 GPs in Ramanathapuram) shall in phase wise be included in NGREGA-Soft GIS planning (D-29). Necessary instructions shall be provided by Commissioner RDPR in this regard
g. Focus for 2021-22 will be on generation outputs, implementation, convergence of works and schemes and showing results on goals of WASCA
h. Developing model GPs, Climate Resilience Measures as per approvals given under 4$^{th}$ DLSC
i. District Reports of WASCA – TN, CWRM Plan of Tiruvannamalai and Ramanathapuram
j. Web Portal Version 1.0 for WASCA TN
k. Identify projects for NAFCC and GCF in both the districts
l. Joint Publication of Compendium of Activities

The meeting concluded with Vote of Thanks by Dr Radha Priya, JTE, WASCA, GIZ.

## Annexure 1

## Actions Taken on 3rdSLSC Meeting

| SNo | Resolution as per SLSC | Action Taken |
|---|---|---|
| 1 | The ACS, Govt of Tamil Nadu suggested to tie up with NABCONS, a subsidiary of NABARD for financing to strengthen the Realtime water management systems (soil moisture, ground water table and surface water bodies) | Pending for discussion with NABARD |
| 2 | WASCA needs to integrate advanced technologies (AL&ML) to monitor the prime indicators of water and climate factors on regular and Realtime basis. | 1. WASCA Online web portal –Version 1.0 released<br>2. Climate Indicators Monitoring Tool – Agency is Identified, work will start in March 2021<br>3. Ground water Monitoring tool – Agency is identified<br>4. IoT areas, partnership with ERNET India is being explored. |
| 3 | Inclusions of Experts on wetlands and environment | 1. Added to the list of invitees for fourth SLSC |

## Annexure II

## List of Participants

| No. | Name of the Participant | Institution |
|---|---|---|
| 1. | Thiru. Hans Raj Verma IAS | ACS, RD&PR Department, Tamil Nadu |
| 2. | Thiru. Kuttalingam | CE, RD&PR Department |
| 3. | Thiru. Sandeep Nanduri IAS | The District Collector, Ramanathapuram |
| 4 | Thiru. Dinesh Ponraj Oliver IAS | The District Collector, Tiruvannamalai |
| 5 | Mr. Rajeev Ahal | Director, NRM & Agroecology, GIZ, New Delhi |
| 5 | Mr. M. Pradeepkumar IAS | Additional Collector, Ramanathapuram |
| 6 | Tmt. P. Jeyasudha | Project Director, Tiruvannamalai |
| 7 | Ms.Sri Vidya | DD, Department of Agriculture |
| 8 | Dr.Pannerselvam | Director, Water Technology Centre, TNAU, Coimbatore |
| 9 | Tmt. V.Karunapriya, CCF, Chennai circle | Department of Forestry |
| 10 | Mr. R.John Manoharan | Dept of Environment |
| 12 | Er S.Raja | State Ground Water Board, Chennai |
| 13 | Attended | Managing Director, Tamil Nadu Water Supply and Drainage Board |
| 14 | Er. Subramanyam, Sr.Scientist | Central Ground Water Board |
| 15 | Mrs. Noorjahan, Additional director of fisheries | Fisheries Department |
| 16 | Dr. R.Rengalakshmi | M.S.Swaminathan Research Foundation, Chennai |
| 17 | Mr. R.Nagarajan | M.S.Swaminathan Research Foundation, Chennai |
| 16 | Dr. Gladwin | SDMRI, Tuticorin |
| 18 | Dr Krishan Tyagi, Senior Technical Expert | WASCA, GIZ, New Delhi |
| 19 | Mr. V.Sowmithri, TE, GIZ | WASCA, GIZ, TN |
| 20 | Dr. Radha Priya P Jr.TE, GIZ | WASCA, GIZ, TN |

## Annexure III

## *RURAL DEVELOPMENT & PANCHAYAT RAJ DEPARTMENT*
## *GOVERNMENT OF TAMIL NADU*

## *FOURTH STATE LEVEL STEERING COMMITTEE MEETING*

### Water Security & Climate Adaptation (WASCA)- TN
### Focus of Meeting:
### Convergence, linkages & Strategies for Implementing WASCA Plans in the Districts
### Date: 19.02.2021; Time:2:00- 4:00 PM

**Venue: 2nd Floor IT Secretary Chamber,Namakkal Kaviginar Maligai, Secretariat & Online link through Webinar**

| Topic 1 | Opening remarks & Proposals from Districts |
|---|---|
| 1) **Welcome to Members**: Thiru. Kuttalingam, Chief Engineer (MGNREGS) & State Nodal Officer, WASCA – TN<br>2) **Opening Remarks: Key Address by** Dr. K.S. Palanisamy, I.A.S., **Commissioner, RD&PR & Member Secretary WASCA – TN**<br>3) **Chairperson Opening Remarks:** Thiru. Hans Raj Verma IAS, **Additional Chief Secretary, Govt of TN**<br>4) Thiru. Rajeev Ahal, **Director, NRM & Agro-climatic Division, GIZ, New Delhi**(Online)<br>5) **Presentation WASCA Tiruvannamalai:** Thiru. Sandeep Nanduri I.A.S, **District Collector & Chairperson WASCA Tiruvannamalai (Online)**<br>6) **Presentation WASCA Ramanathapuram:** Thiru. Dinesh Ponraj **Oliver I.A.S, District Collector & Chairperson WASCA Ramanathapuram(Online)**<br>Opening of District WASCA Reports and Launch of WASCA TN Web Portal | |
| **Topic 2** | Key Water Actions: Proposals WASCA TN: Presentation by Technical Support Agencies |
| 1) WASCA CWRMP District Reports and Web portal on WASCA: **by Dr R.Rengalakshmi, Director, JRD Tata Eco Technology Centre, MS Swaminathan Research Foundation, Chennai**<br>2) WASCA-TN 'Ground Water' its dynamics with Surface Water for 'CWRMP: **By Er Raja, Executive Engineer, State Ground and Surface Water Resources Data Centre, PWD, Tharamani and Nodal Officer for TN - National Water Mission, MoJS**<br>3) Reducing effects of seawater intrusion into freshwater resources**: Dr N. Gladwin Gana Asir, Assistant Professor, Suganthi Devadason Marine Research Institute (SDMRI), Thoothukudi (online)**<br>4) Focus Points for 2021-2022: Mr. Sowmithri VR , **GIZ, WASCA – TN** | |
| **Topic 3** | **Building Linkages, Convergence and Strategies** |

| | |
|---|---|
| 1) Thiru S Kannan, **Director, Tamil Nadu State Office, Confederation of Indian Industry**<br>2) Mr. Paventhan Arumugam, Director (R&D) **at ERNET India, Chennai, Tamil Nadu, India-**IoT for Water Management<br>3) Representative from NABARD<br>4) Members of SLSC<br>5) Invitees for SLSC<br>6) Ms.Astrid Regler- **WASCA Central Team Member, GIZ (Online)** | |
| **Topic 4** | Way-forward |
| 1) Thiru. Sandeep Nanduri **I.A.S, District Collector & Chairperson WASCA Tiruvannamalai (online)**<br>2) Thiru Dinesh Ponraj Oliver **I.A.S, District Collector & Chairperson WASCA Ramanathapuram(online)**<br>3) Dr. K.S. Palanisamy, **I.A.S., Commissioner, RD&PR & Member Secretary WASCA – TN** | |
| **Topic 5** | **Closing Remarks by Chairperson:** |
| 1) Thiru Hans Raj Verma **IAS, Additional Chief Secretary, Govt of TN** | |
| **Vote of Thanks:** Dr Radha Priya P, **GIZ, WASCA-TN** | |

**Key points for discussions &presentation**

**4th State Level Steering Committee Meeting: WASCA-TN**

1. Approval of Action plans from district collector for FY 2021-22
2. Improving convergence, linkages for "Climate Resilient Future Livelihoods" with existing schemes, programmes for achieving WASCA project goals.
3. Building Alliances and Partnerships with Private sector, PSU, CSR, bi-lateral & multilateral agencies
4. Strategies for enhancing WASCA outputs, scope for scale up
5. Institutional building and capacity development
6. Scope, Opportunities, and development of proposals (at least one per district) in association with NABARD, GIZ for NAFCC (National Adaptation fund for Climate Change) and GCF (Green Climate Fund)

24.2.2021