



IIT Tirupati
Institution of Eminence



विज्ञान एवं प्रौद्योगिकी विभाग
DEPARTMENT OF
SCIENCE & TECHNOLOGY

सत्यमेव जयते



DST-IITM Centre for Sustainable Treatment, Reuse and Management for Efficient, Affordable and Synergistic Solutions for Water (Water-IC for SUTRAM of EASY WATER)

Issue:

- Unprotected surface or groundwater for drinking purpose.
- Emerging pollutants like pharmaceuticals; personal care products etc. diffusing into water sources.
- Water intensive industries like textile and tanneries are having severe problems with respect to water availability and treatment of complex wastewaters.
- Improper storm water management especially in cities.
- Requirement of sustainable approach for water resources protection and augmentation through wastewater treatment and reuse and storm water management.

What will Centre do?:

- Develop easy to use water treatment technologies and state of the art technologies employing novel materials and processes.
- Develop Wastewater treatment and management with the concept of closing the loop completely with respect to water and nutrients.
- Assess the raw, treated and wastewater quality through developing sensors and testing kits
- Development of waste management and water conservation technologies for water intensive industries like textile and tanneries.
- Best piping materials for water distribution system and sewer networks for reducing the risk of failure and water lose.
- Software development for leak detection and optimal operation of water distribution networks.
- The effect of gray water separation and recycling on existing sewer networks will be assessed and optimum operation conditions will be evolved.
- Storm water management, predictive models will be developed to assess quality and quantity of storm water in different catchments.
- Recharge locations and the quality of such augmented sources will be identified and sustainable drainage system components will be evolved and designed.

Vision:

To ensure adequate, safe, reliable and sustainable sources of drinking water for rural and urban India and process water for highly polluting and water intensive industries, through research, technology development and capacity building.

Deliverables:

I. Processes -

- Nano-structured materials – solutions for As, F, bacteria and organics
- Composite adsorbents for emerging contaminants
- A solution to ensure availability of clean drinking during natural calamities
- A sustainable atmospheric water generator
- Sustainable wastewater treatment for households
- Process know-how for recovery of nutrients and water from wastewater
- Anaerobic digestion and resource recovery system for tannery wastewater

II. Products -

- Cost-effective process for color removal from textile effluent
- New methodology for water distribution network mapping, calibration, leak detection and operation
- Continuous flow pulse power technology (PPT)-based systems for drinking water and wastewater treatment
- Sensors and kits for water quality monitoring
- Development of processes for scale-up of production of new materials
- Creation of mechanisms for business incubation in this sector

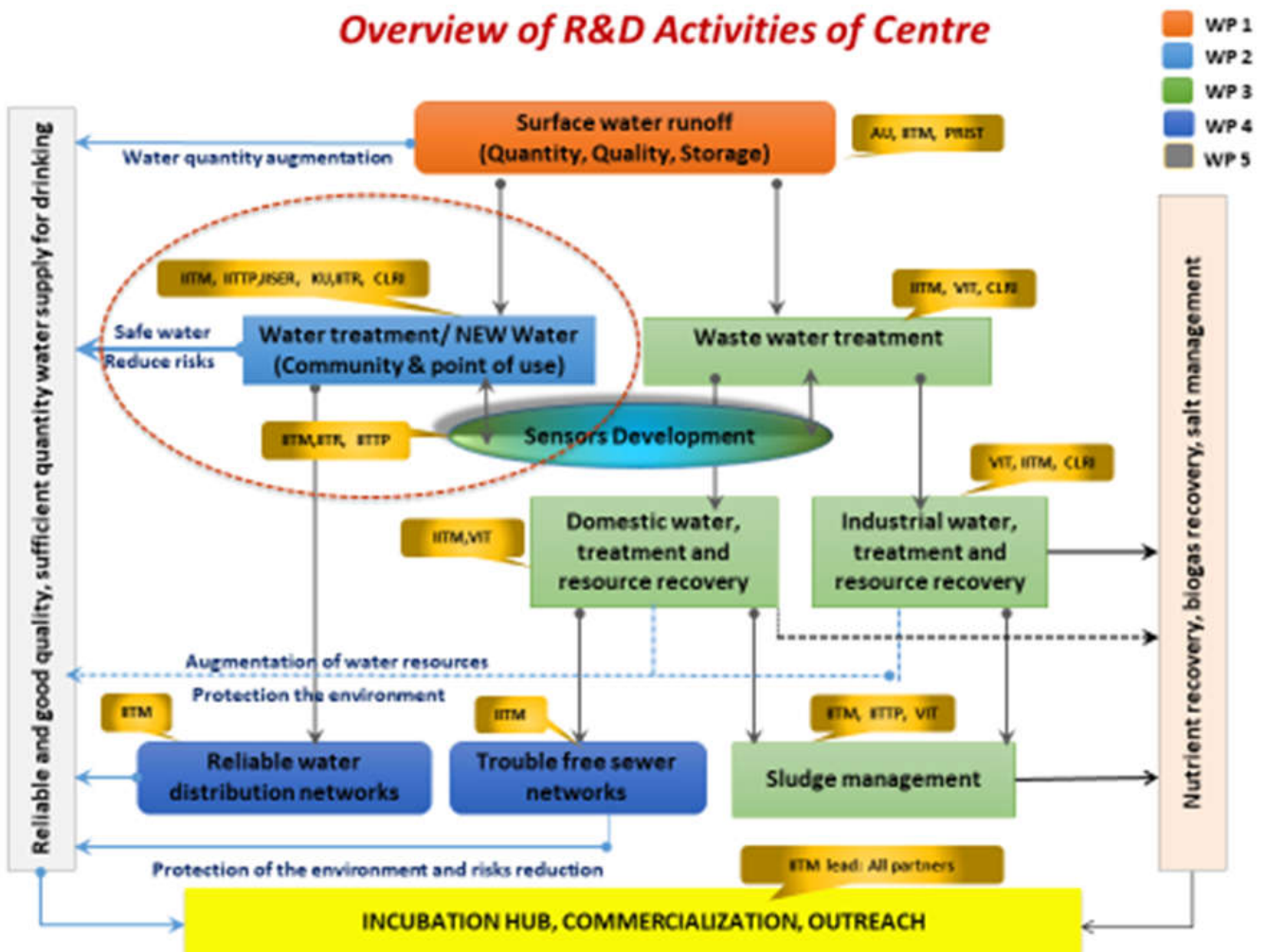
III. Databases -

- Guidelines and models for using storm water for groundwater recharge
- Appropriate Sustainable Drainage System (SuDS) components for Indian conditions

IV. Services (including software) -

- SuDS numerical tool box
- A well tested management model for retrofitting sewer networks when implementing grey water recycling schemes
- A decision support system (DSS) for pipe material selection and for design, monitoring, operation and rehabilitation of large water distribution networks

R&D Frame work of Centre:





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