

A one week FDP on
**Smart Cities in a Circular Economic
Framework**
By
**National Institute of Technology
Warangal**
2th -6th November, 2020



**Under
TEQIP-Phase III**

**Coordinators
Dr. P. Sridhar
Dr. P.Venkateswara Rao**

WATER & ENVIRONMENT DIVISION
DEPARTMENT OF CIVIL ENGINEERING
DEPARTMENT OF CHEMICAL ENGINEERING
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About NIT Warangal

National Institute of Technology Warangal was established during the year 1959 and over the last 5 decades has emerged as a premier technical institution of national importance. NITW has good infrastructure, highly qualified and motivated faculty and attracts high caliber students. 9 undergraduate programs and 25 postgraduate programs are successfully run by NITW, besides doctoral programs in all the departments.

About Civil Engineering Department

One of the oldest departments of the college with one undergraduate and 8 postgraduate programs, the department is privileged to be recognized as one of the best civil engineering departments in the country. It was the only department to have been recognized as a QIP center right from 1972 and now all the departments are QIP centers. The department has excellent labs to cater to both UG, PG and research programs. The Water & Environment Division is one of the four divisions of the department. The division offers M Tech Programs in Environmental Engineering, Waste Management and Water Resources Engineering.



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REGISTRATION:

The registration for the FDP program is through online mode by filling the details in the link appended below.

<https://forms.gle/xrtKuAbnNN8u3gV28>

The FDP program will offered online mode. It is compulsory to attend all the sessions without fail to receive the digital certificate. The link for attending the online sessions will be shared after completing the registration.

Registration Fee:

Registration Fee for student participants/research scholars is Rs 250/- and for faculty Rs.1000/-

❖ Registration fee should be paid through NEFT / internet banking to the following account:

Account name: TEQIP III FUNDS

Bank: State Bank of India

Account No: 37583198741

IFSC: SBIN0020149

Branch: NITW (REC Warangal)

Background

In the 21st century, the majority of the world's population is residing in urban areas. Many cities worldwide have launched initiatives to become smart cities, and each case is different. The Smart City plans often focuses on the renewal of already existing urban infrastructure in developing countries like in India. A smart city is a city committed to its environment, both environmentally and in terms of the cultural and historical elements, and where the infrastructure is equipped with the most advanced technological solutions to facilitate citizen interaction with urban elements. Even though there is no single solution to ensure the success of a city in its way towards smartness, some certain strategies can be applied in all the smart cities.

Currently cities are within a global economic system that is based on the linear economic model. With this linear system, pressures are leading to structural waste and consequently economic opportunities are lost as well as negative impacts including greenhouse gas emissions, reduced air quality, and congestion. Linear economy is coupled with the lack of restorative or regenerative mechanisms. To address the challenges of the linear economic model smart cities should focus on circular economic models. A circular economy is characterized as an economy that is restorative and regenerative by design and aims to keep products, components, and materials at their highest utility and value at all times, whilst distinguishing between technical and biological cycles. It is conceived as a continuous positive development cycle that preserves and enhances natural capital, optimizes resource yields, and minimizes system risks by managing finite stocks and renewable flows. The concept of the circular economy is particularly relevant in the urban context as it offers designers, planners, policymakers, and businesses a framework to rethink systems: how we design and operate them in a manner that will

preserve, restore and regenerate natural, social and financial capital. During next five years, Government of India have planned to establish 100 smart cities.

Thus the Focused Areas in perspective of circular city.

A circular city embeds the principles of a circular economy across all its functions, establishing an urban system that is regenerative and restorative by purpose. These cities aim to eliminate the concept of waste, maximum utility of the resources. A circular city aims to generate resources and economy for the city from itself, and hence eliminating a lot of virgin resource consumption. A circular city will likely include the following elements: Built Environment; Food and Water, Trash and Waste, Transportation, and Energy

Objective

This FDP aims at providing knowledge and technical skills for development and operation a smart city in a scientifically sustainable method. The key deliverables of this programme will be:

- Circular economy
- Role of Bio-economy in circular economy
- Energy generation from wastes and biomass
- Infrastructure solutions for mobility and low-energy city
- Innovation in water and waste management systems
- Green building and Eco-design principles in the built environment

Course contents

- ✓ Circular Economy for Smart Cities
- ✓ Worldwide scenario of circular economy
- ✓ Bio-Economy in Circular economy
- ✓ Role Anaerobic digestion in circular economy
- ✓ Challenges for transformation towards circular economy for smart cities

- ✓ Renewable fuels for organic waste
- ✓ Green building : sustainable approach
- ✓ Infrastructural requirements for mobility and low-energy city

Participants

The workshop is aimed at researchers, academicians, scientists, the upper and middle level engineers/officers working in public health engineering department, designers, planners, policymakers, municipal corporations, municipalities, water supply department, industrial townships, and urban development authorities, related Industrialists, who involved in the planning, development, and implementation of smart cities marching towards circular economy.

Resource persons

Eminent personalities and experts from industry along with faculty of Civil Engineering and Chemical Engineering at NIT Warangal are the resource persons. Faculty from IITs and Central/State Funded Research Institutions and from Industry sector will be delivering the lectures on various technical aspects.