



# CIRCULAR ECONOMY MISSION TO INDIA

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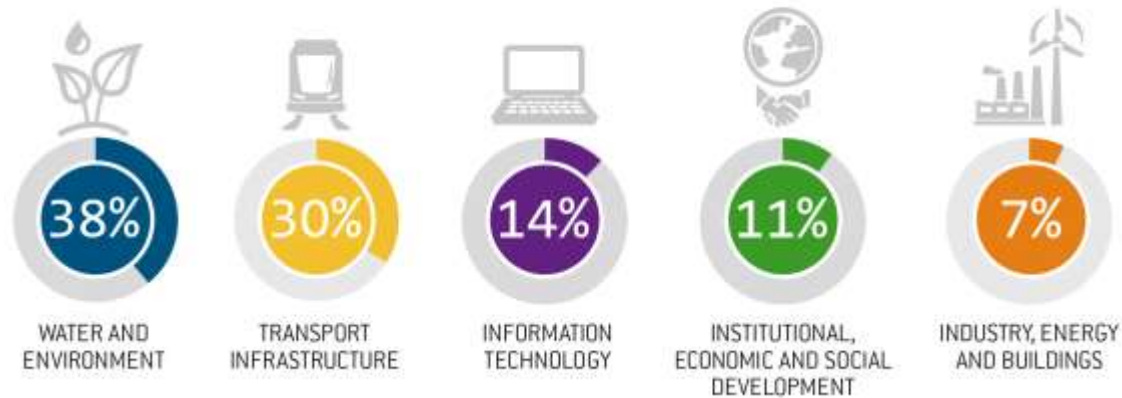
Together for a better future



We are a global company specialised in **engineering, consultancy, information technologies and institutional, economic and social development** with over 60 years of experience.

The **quality of our services** has led us to become a reference in the sectors of **Transport, Water, Environment, Industry, Energy, Buildings, and Institutional, Economic and Social Development**.

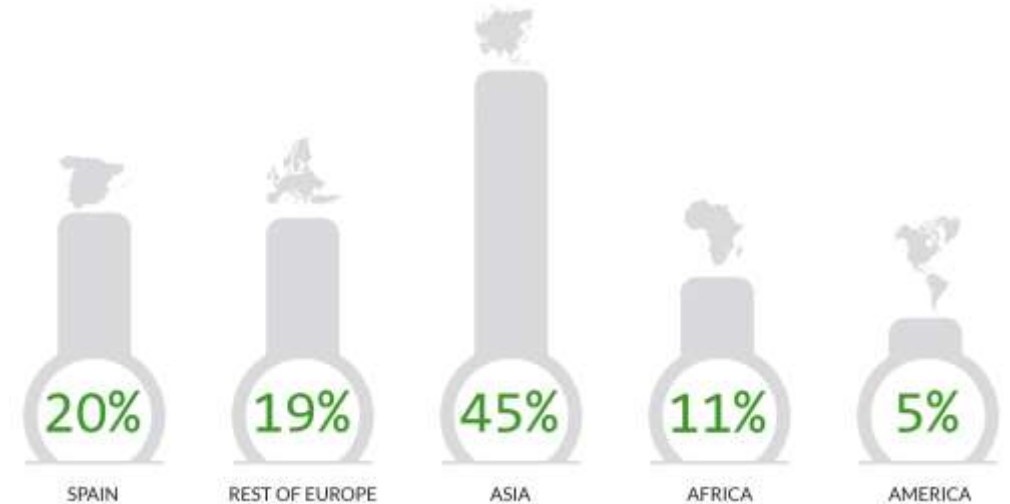
### ACTIVITY BY SECTORS



We apply the **technical know-how, innovation and our project management capacity** for the benefit of the client and the sustainable development of the society.



### GEOGRAPHIC DISTRIBUTION



With a presence in over 55 countries and a network of 28 well established local offices, Eptisa is a **global company that acts locally, close to the client and the civil society in which we intervene.**





## Broad experience in solid urban waste management

We have carried out multiple projects in the fields of transport, organization, compacting, design and construction of landfills, and provide technical assistance in the various fields of solid waste management.



## Benchmark for managing industrial and energy projects

### Industry

- Sectors: mining, chemical industry and industrial waste management.

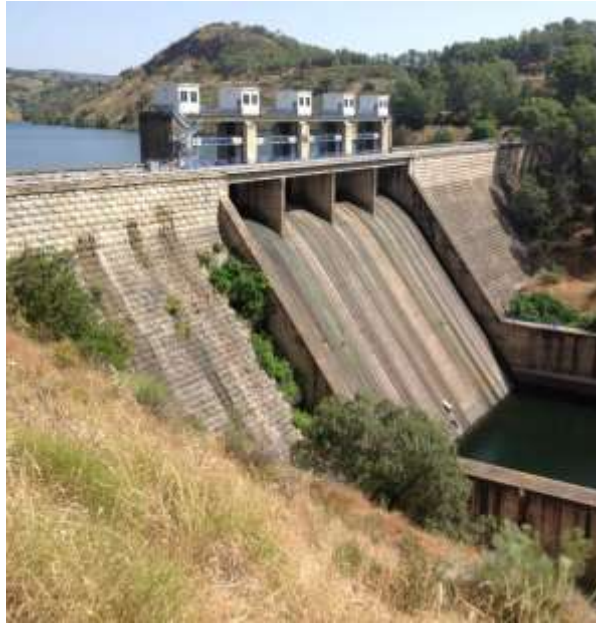
### Energy.

- Renewable energy : wind generation, photovoltaic generation, biomass and WTE.



## Strong worldwide experience

And a proven capacity for managing large-scale and multidisciplinary projects in the energy sector financed by IFIs (WB, IADB, EBRD, EIB, ADB and EC) with the aim of improve the welfare of the people and the social-economic development of the countries.



## Broad experience in all phases of the water cycle

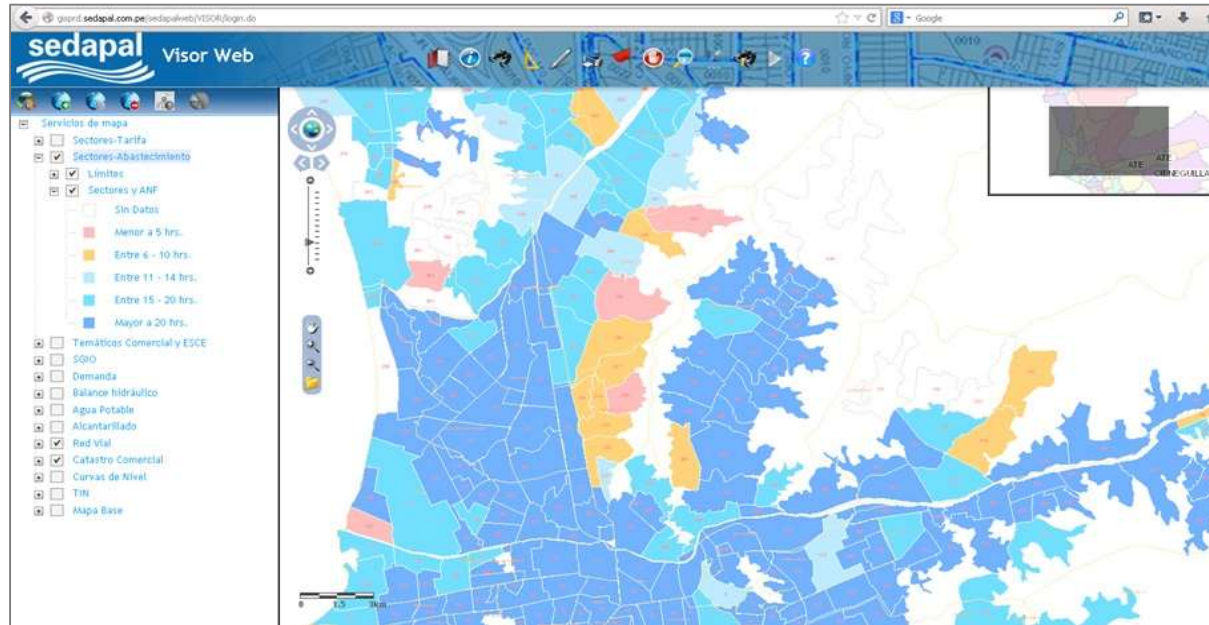
- Technical support and capacity building services to water bodies
- Design and implementation of water infrastructure and water supply and sanitation networks
- Turnkey projects for urban and industrial wastewater treatment plants
- Plans for prevention and mitigation of the natural, social and economic disasters
- Studies, surveys and action plans for water resources management according to WFD standards
- Development of River Basin Management Plans and Transboundary Cooperation
- Implementation and development of new policies in accordance with the international legislation, water monitoring systems (ecological, chemical, hydro-morphological)
- Development of training programmes, seminars, workshops and other instruments to allow sustainable development in water management

## Privileged partner of international organizations

Eptisa is a privileged partner of international organizations including the WB, IADB, EBRD, EIB, ADB and EC in the development of water projects with the objective to provide a better and safer environment for the population.

## Technological added value to our projects

Eptisa has reinforced their leadership in the sector by bringing technological added value to our projects, combining experience, innovation and cost-effectiveness: Automatic Hydrological Information Systems (AHIS), SCADA, GIS and Hydrological models.



### We combine knowledge from the two areas of expertise

- **IT Information Technologies**, dedicated to providing consultancy and solution development and implementation
- **Monitoring, telemetry & control of infrastructures**, to control the structural behavior and its evolution, detection of damages, pathologies, maintenance strategies and operation of civil infrastructures and networks over its lifetime.

### We provide a wide range of innovative solutions for all sectors

- Infrastructure Control
  - Dams, bridges, roads and tunnels
  - Historical buildings.
- Utilities
  - Wind farms
  - Water and sanitation networks
- Risk & emergency management
  - Flood prevention
  - Seismicity control
  - Landslides
- eGovernment
  - Corporate GIS
  - Cadastre, planning and land management
  - Security and Police Intelligence System
  - Urban asset management
  - Management of works licenses
  - Smart Cities
- Enterprise search
  - Grouping and filtering of corporate results

### Global and integrated solutions

- NILO. Water Management System
- GIS. Geographic Information Systems
- WFM Geocall. Work Field Management
- STT. Searching Technologies
- MTT. Mapping Technologies (GPS and mobility based)
- SHM. Structural Health Monitoring
- DSM. Dam Surveillance & Monitoring
- GIS-SCADA. Real-time monitoring and geospatial management
- ISS. Innovative & Smart Solutions

**EU-FUNDED "SUSTAINABLE DEVELOPMENT IN THE ENERGY SECTOR, SERBIA ( 650,000 EUR)**



The project included analysis of impact on the energy sector based on different scenarios as obligations of GHG emission reduction and/or limitation; Elaboration of the functioning of two Kyoto Protocol's flexible mechanisms Joint Implementation and ETS; Techno-economic analysis of possibilities of utilization of Carbon Capture and Storage concept; Institutional strengthening and capacity building for future obligations of Serbia in terms of Climate Change and Fuel Quality.

**•EU-FUNDED "STRENGTHENING OF THE MINISTRY OF ENVIRONMENT CAPACITY FOR CLIMATE CHANGE ADAPTATION AND PREPARATION OF DRAFT CLIMATE CHANGE ADAPTATION STRATEGY**



The overall objective is **alleviation of the effects of climate change in Croatia**. The purpose is strengthening of capacity for the assessment of vulnerability and impacts of climate change, development of priority measures and activities for adaptation in sectors exposed to climate change and **drafting of Strategy on climate change adaptation of the Republic of Croatia for the period until 2040, with a view to 2070 and drafting of Action Plan.**

**EU-IPA "TA SUPPORT TO MEET THE REQUIREMENTS OF THE ENCT WITH FOCUS ON EE AND RES" BiH (2,383,888 EUR)**



The overall objective was to assist in the reform of the energy sector in BiH and to create a country wide energy market which is in line with the Energy Community Treaty (EnCT), Energy Charter Treaty, Kyoto Protocol and all aspects of the EU environmental and climate change **acquis** relating to energy efficiency (EE), renewables (RES), and sustainability. The project supported **transposition and implementation of the acquis on EE and RES**

**•EU TECHNICAL ASSISTANCE FACILITY FOR THE "SUSTAINABLE ENERGYFOR ALL" INITIATIVE (SE4ALL) (22,183,250 EUR) AFRICA**



•The overall objective of the project is to support, in the framework of the Sustainable Energy for All initiative, the **targeted developing countries to improve their energy and climate change policy and regulatory framework** conditions aiming at providing attractive and enabling conditions for increased public and private investment in energy access, energy supplies, RES as well as energy efficiency.

**•IMPLEMENTATION OF WESTERN BALKANS GREEN ECONOMY FINANCING FACILITY (WB GEFF – RESIDENTIAL) (1,369,832 EUR)**



The EBRD aimed to establish the WBGF Facility in the six countries to eligible sub-borrowers to finance residential energy efficiency and/or small-scale renewable energy investments. The objective is to transfer strategic know-how and raise awareness about modern energy performance standards to contribute to the creation of a demand-driven, self-sustaining market for investments in high performance technologies and services supporting a green economy.

**•DEVELOPING SUSTAINABLE ENERGY USE, MONTENEGRO (790,000 EUR)**



The aim was **defining potential for use of renewable energy sources and energy efficiency measures** in transport sector, finalized legislation and regulatory framework for sustainable energy use in transport, in order to help development of use of RES and EE measures in transport sector, **improved monitoring of production of biofuels and use of energy in transport sector in accordance with EU energy policy.**

**EU-FUNDED "AIR QUALITY GOVERNANCE IN THE ENPI EAST COUNTRIES" (6,935,000 EUR)**



The **Air Quality Governance** project supported participating countries in **improving their institutional and legislative frameworks** in line with the EU standards and implementing multilateral environmental and climate change agreements and conventions. It also supported the cooperation between key stakeholders in the region and helps raise public awareness regarding air quality, air pollution and climate change issues.

**EU-FUNDED "LOW CARBON BUSINESS ACTION" MEXICO (2,500,000 EUR)**



The overall objective is to support the efforts of Mexico to tackle climate change by facilitating the uptake by businesses of low carbon technologies. Specific objectives include adoption of low carbon technologies and facilitate industrial cooperation between low carbon solution providers from the EU and industrial partners from Mexico resulting in contract-based cooperation between SMEs in the field of low carbon technologies.

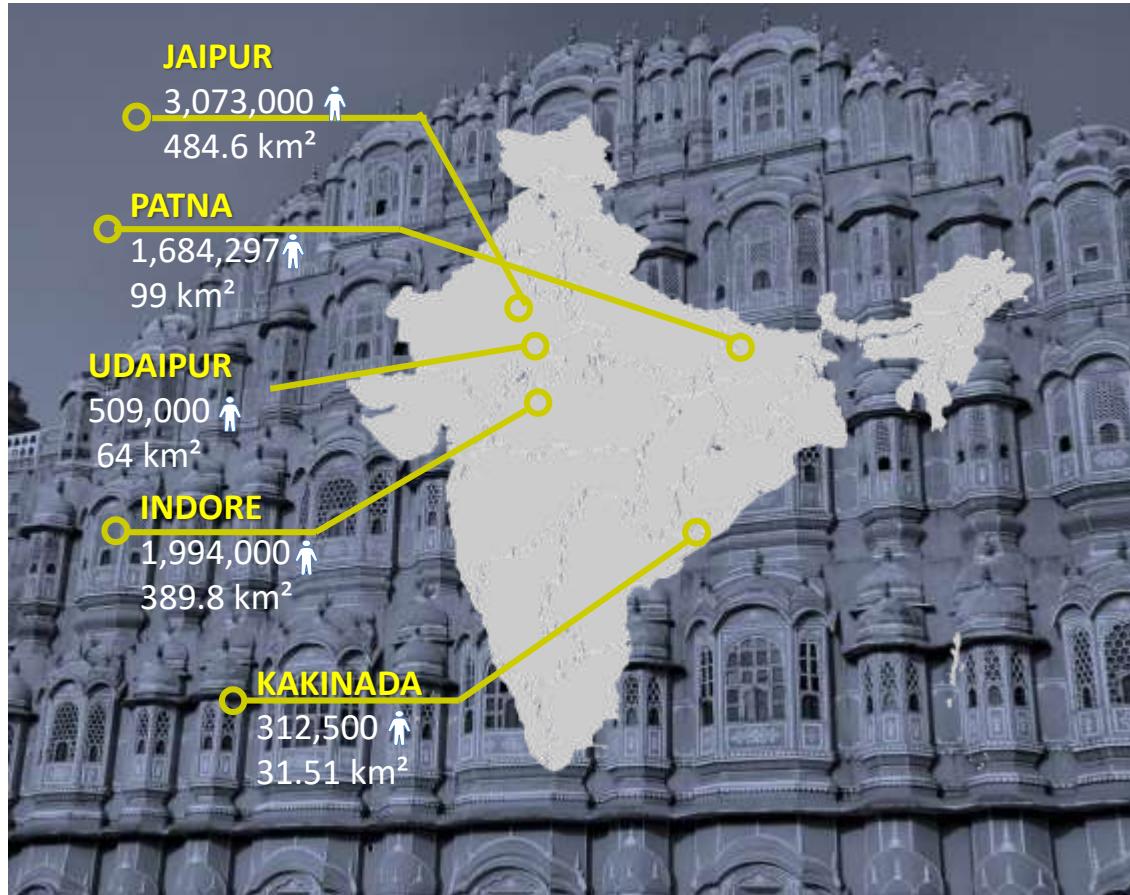




# Most relevant projects in the country

The purpose of the NHP is to improve and expand the water resources monitoring system, strengthen water resources operation and planning systems, and enhance institutional capacity for water resources management

Eptisa supports the National Project Monitoring Unit of the Ministry of Water Resources, River Development & Ganga Rejuvenation and 49 implementing agencies with the project planning, procurement, technical developments, training and capacity building, as well as regular project reporting to the World Bank



Eptisa has been selected as Project Manager Consultant (PMC) to provide technical assistance to five of these cities: Jaipur, Udaipur, Indore, Patna and Kakinada

Three of these cities have been included in the Top 10 ranking recently published by the Indian Government to choose the "best performing cities" within the National Mission

Technical assistance provided in all aspects related to the execution of the projects, especially:

- Overall management
- Planning and structuring of subprojects
- Bidding process and selection of contractors
- Supervision, monitoring and evaluation of the results of each project



## Auscultation system for the energy receiving elements in Solar Thermal Power Plants

- The aim of the project is the development of an auscultation system for measuring the geometric parameters and the efficiency of panels in solar thermal power plants.
- In particular, the aim is to automatically measure the relative position of the mirrors and the reception tubes so that the percentage of radiation hitting the collection tubes from the mirrors can be assessed

## **MUSE GRIDS project to optimize the energy management in a rural community of India**

**MUSE GRIDS project aims to develop new models and tools to coordinate interactions between different energy systems and networks (the so-called Smart Energy Systems), promoting the optimized management of Local Energy Communities, demand-side management (DSM) and increasing the share of renewable energies in the global energy mix**

**Eptisa will lead the implementation of these new energy management models in an off-Grid rural community in West Bengal in India. This simulation will allow applying the results of the pilot projects implemented in other urban areas of the EU (specifically in Belgium and Italy) in a very different environment, thus guaranteeing the replicability of the project**

## Udaipur: Integrated Infrastructure project



## Background

- Rapid development of the City has resulted into a sharp increase in water demand and the most accessible water resources, such as rivers and shallow aquifers- Volume of sewage also increases and safe disposal of sewage has become a cause of concern
- The appropriate reuse of treated sewage is the obvious and eminent solution. If waste water reuse is exercised properly, the benefits that can be reaped are great and will far outweigh any associated costs. To achieve this concept, eco-friendly, viable and integrated system of waste management is required



# Challenges

- There are nine inter-connected lakes in Udaipur: Lake Badi, Chhota Madar & Bada Madar, Lake Pichhola, Fateh Sagar, Swaroop Sagar, Rang Sagar, Kumharia Talab, Goverdhan Sagar
- Environmental challenges from urbanization of catchment and lake area, uneven monsoon pattern linked with global climate change and anthropogenic pressure due to population growth, industrialization and mining of natural resources in the catchment
- Water is polluted and needs remedial measures. The lake is polluted due to disposal of sewerage directly into surface drains of surface water bodies
- The wetland ecosystems (lakes, rivers, marshes, etc) are also degraded, or, the decline over the years of the capacity of the wetland ecosystems to provide clean and reliable sources of water (or the problem/risk of freshwater deterioration)
- Wastewater released to the natural environment without treatment generates significant negative impacts – on human health, environmental quality, and the economy (including higher cost of water treatment downstream and lost opportunities to develop economic activities)
- Disturbance of the entire delicate hydrological eco-balance of the lakes' ecosystems and of the aquatic resources so fundamental for the economic development of the city – what is of greatest importance is ecological renewal of the river and the lakes





## Solutions

- Improve resource use efficiency and resource recovery along the water value chain, and, re-use/re-cycle it for various uses that do not need potable water quality.
- Recycling/re-using treated sewage can reduce fresh water requirements very substantially
- Udaipur smart city project might want to look at opportunities for LEAP-FROGGING in wastewater management. In this regard, a level of innovation and of smartness to be added, where the wastewater multifunctional infrastructure would be able to provide for water recovery and for grey water reuse
- Three projects have been underway:
  1. Abatement of Sewerage in Ayad River
  2. Commissioning of 3 STPs' through Hybrid Annuity Model - To get the wastewater treated so that same can be recycled and reused with an aim to serve the growing population of the City
  3. Ayad Development – Gumaniyan Nallah Project: beautification of a stretch with the channel of treated water from STP flowing through the centre with landscaping on both sides

## Impacts

- The problem of sewage and sludge from the houses and falling into the water ecosystem causing pollution has been arrested
- While the current sewage discharge of the city is 57MLD, the sewage treatment capacity of all the plants on completion would be more than the discharge – scalability for future
- The River which initially bore the brunt with raw sewage or septic tank outflows and discharges shall be transformed for recreational activities like yoga with future provisions for walking tracks and place where onlookers can enjoy the landscaping also
- The scientific close loop system of water comprising water supply, sewage collection and treatment of sewage up to tertiary level and ultimately ending by re-usage of waste water, thereby promoting the conservation of water will be achieved post the completion of the aforementioned projects

## Results

- 1st time in Rajasthan, STPs' are being constructed under the Hybrid Annuity Model
- Capacity has been Increased from 20 MLD to 60 MLD with a provision of another 5 MLD
- Current Sewerage Discharge is 57 MLD. Therefore for the first time the treatment capacity will commensurate with the discharge
- For the first time in Rajasthan, the concept of Decentralized STPs' is brought to the fore whereby reducing the cost of collection of sewage and its conveyance to one terminal point

Gumaniyan Nallah - Before



Gumaniyan Nallah - After



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**THANK YOU**

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