

## In Focus

We welcome you to the first issue of the Technical Cooperation for Environment in India Project Newsletter. The aim of the project, which was launched in October 2014, is to contribute towards India's sustainable and inclusive development based on the experience of India and the EU through capacity building and skill development.

The Program Advisory Committee co-chaired by the Joint Secretary, Ministry of Environment, Forests and Climate Change and the Joint Secretary, Ministry of New and Renewable Energy, Government of India has endorsed the two thematic areas of the project viz. (i) Sewage Treatment and (ii) Solid Waste Management. The thematic areas are closely associated with the National Action Plan on Climate Change and the *Swachh Bharat* Mission. The pilot cities for the implementation of the project are (i) NCT of Delhi and (ii) Mumbai.

During the lifecycle of the project, a number of activities will be realized in accordance to 10 work packages. Since the launch of the project various activities have been implemented including stakeholder mapping/meetings, formulation of the inception report, policy research, development of survey instruments, site visits, formulation of the communication and visibility plan, presentations and participation in various conferences, etc. At the same time the project is planning the first study workshops in Europe, the development of an e-learning tool, extensive stakeholder meetings as well as communication activities.

We believe that by focusing on various forms of capacity building, such as in-house training, study workshops, and e-learning we can effectively contribute to the Indian Government's objectives.

Dr. P. Karamanos  
Team Leader

Dr. V.K. Verma  
Alternate Team Leader

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## Quick Facts

**Project Focus**  
Capacity building

**Areas**  
Solid waste management & wastewater management

**Cities**  
New Delhi & Mumbai

**Duration**  
October 2014-September 2018

**Policy & Advisory Partners**  
Ministry of Environment, Forest & Climate Change  
Ministry of New & Renewable Energy  
Ministry of Urban Development

**Implementation Partners**  
Delhi Jal Board  
North Delhi Municipal Corporation  
East Delhi Municipal Corporation  
South Delhi Municipal Corporation  
Municipal Corporation of Greater Mumbai  
Mumbai First  
Non-Governmental Organisations  
Private Entities

**Regulators**  
Central Pollution Control Board  
Department of Environment, Government of NCT of Delhi  
Delhi Pollution Control Committee  
Maharashtra Pollution Control Board

**Consortium Partners**  
IVL-Swedish Environmental Research Institute  
Danish Technological Institute  
Shriram Institute for Industrial Research, India



Flaring of gas at Kanjur SLF, Mumbai



Waste dumping at Okhla landfill



Transportation of MSW in Mumbai



A Sewage Treatment Plant in Delhi



WWTF Process at Colaba, Mumbai



Waste compaction at Mulund landfill

## Stakeholder Interactions

From June 2015 to March 2016, around 40 meetings have been conducted with stakeholders to disseminate the work plan as well as to conceptualize the line of action to execute further activities. The meetings and interactions represent a core part of the project in order to enable the stakeholders to become acquainted with the benefits and framework of the EU project.

In addition, project experts are undertaking site visits and delivering surveys to collect data, review best practices, identify gap areas and barriers and better understand the sewage treatment and solid waste management challenges. The survey instruments are focusing on the processes for solid waste management and sewage treatment (e.g., collection, transportation, landfills, waste-to-energy, sludge management).

All these activities facilitate policy and situation analysis leading to the formulation and implementation of action plans to meet the set objectives.

Cooperation with



As part of the project's work in Mumbai, we are cooperating with Mumbai First, whose vision is to transform Mumbai into a world-class city, one of the best places in which to live and do business.

Given the experience of Mumbai First on policy and urban issues, our cooperation is related to the participation in project activities, information dissemination, communications, event planning, and other tasks. For more information visit: <http://www.mumbaifirst.org>



## Communication & Visibility Plan

The purpose of the Communication and Visibility Plan, which was developed in early 2016, is to identify the most appropriate initiatives to ensure effective dissemination of the project's activities and raise awareness about solid waste and sewage management. The plan includes a number of communication activities, such as the newsletter, a website, seminars, and information campaigns.



## Conferences & Publications

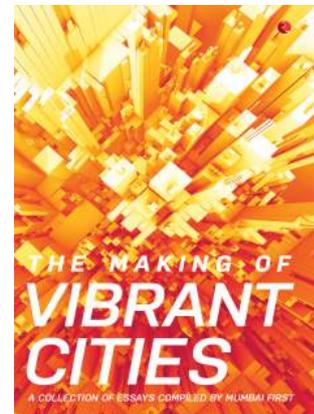
In February 2016, Security Watch India organized the Water Management for Smart Cities Conference. The subject has considerable synergies with the EU Project, while a wide spectrum of stakeholders attended this event.

During the inaugural session, the Ambassador of the European Union to India H.E. Mr. Tomasz Kozlowski, highlighted the multidisciplinary EU initiatives on water management and introduced the EU project.

Dr. V.K. Verma, Alternate Team Leader, delivered a presentation on “Water and Wastewater Management Challenges in India: Opportunities from Cooperation with the European Union.” The presentation focused on the total water budget of India including annual precipitation, average annual natural flow to

rivers and aquifers, losses, actual utilization for domestic, industrial and irrigation purposes, as well as the critical hotspots, where considerable attention is required to replenish highly stressed ground water.

Regarding wastewater, India has capacity to treat only 35% of sewage being generated in urban areas. In order to address the water management challenges, the presentation highlighted the importance of augmenting the sewage treatment facilities together with exploring the potential for re-use of treated water for various applications. Capacity building and skill development through the EU project, can significantly contribute towards this objective.



### Smart Solid Waste Management in BRICS Countries

A chapter on “Smart Solid Waste Management in BRICS Countries” by Dr. P. Karamanos appears in the collection of essays *The Making of Vibrant BRICS Cities*, which was released in April 2016 by Maharashtra’s Chief Minister D. Fadnavis and Union Urban Development Minister V. Naidu. The chapter presents global solid waste management facts, explains important challenges, introduces case studies from the EU (including our project), India and Brazil and makes 4 recommendations to achieve smart solid waste management.



## Municipal Solid Waste Management

Municipal solid waste management has emerged as one of the biggest environmental challenges of India. More than 144,000 tonnes of municipal solid waste are generated every day, however only around 20%-30% are properly treated. Currently there are 59 operational landfills, 376 planned landfills, while 1,305 sites have been identified for future use.

The Municipal Solid Waste (Management & Handling) Rules of 2000 (MSW Rules), focus on collection, segregation, storage, transportation, processing, and disposal of solid waste. Schedule IV of the MSW Rules introduces waste processing options including standards for incineration, composting and treated leachates. The MSW Rules are in the process of being updated.



## Waste to Energy

The National Capital Territory of Delhi generates 8,400 tonnes of Municipal Solid Waste (MSW) per day. Municipal authorities are responsible for MSW Management. Delhi has three landfill sites (i.e., Bhalswa, Ghazipur, Okhla). However, these landfills are not designed as per the MSW rules of 2000.

One of the best ways to manage mixed waste, is by converting waste to energy (WtE). WtE involves thermal breakdown of MSW through controlled combustion to generate electricity, steam or other forms of energy. The WtE plants in Delhi include the following:

1. Timarpur-Okhla with a capacity of 1,950 tonnes of MSW per day. The electricity generation capacity of the plant is 16MW.
2. Ghazipur, which is under installation, with a capacity of 1,350 tonnes of MSW per day. The electricity generation capacity of the plant is 12MW.
3. Narela Bawana (under construction) with a planned capacity of 3,000 tonnes of MSW per day and 24 MW of electricity generation.

The Timarpur-Okhla plant is developed and operated by M/s Jindal ITF Ecopolis on a Built Own Operate and Transfer (BOOT) basis, as a public private partnership with the Delhi Government.

Incineration was commissioned in 2012. There is no tipping fee but waste is provided by the Municipal Corporations of Delhi on the site. The project is the first and largest integrated waste management project in the country. The project is registered with the Clean Development Mechanism of the United Nations Framework Convention on Climate Change (UNFCCC) for earning carbon credits.

A team from the EU Delegation in India along with EU Project experts visited the Timarpur-Okhla Plant in March, 2016 to review the processes, technologies, and challenges faced by these plants as well as the opportunities for cooperation and capacity building (Photo).





## Site Visits

Project representatives have been visiting Mumbai regularly to collect technical data on solid waste and wastewater management and to interact with regulators and the informal sector. During the April mission they were accompanied by representatives from the EU Delegation who visited a landfill and a Sewage Treatment Plant (STP) and were briefed about the progress of the project and operational issues. Details about the visit will follow in Volume 2 of the Newsletter.

In April, a team of representatives from the EU Delegation and the project also visited the Dr. Sen Sewage Treatment Plant in Delhi and had the opportunity to observe the treatment process and discuss operational aspects. The STP has a capacity of 10 million litres per day while the treated effluent is used at the adjoining power plant, which was also visited.



## Additional Presentations

- “Sustainable Urbanization & World Cities” Conference, Mumbai, May 2015, by Dr. V.K. Verma
- “1<sup>st</sup> Smart Cities India” Conference, Delhi, May 2015, by Dr. H. Lundberg



## The Informal Sector

Several activities in solid waste management involve a very significant but usually unacknowledged contribution from people occupied in various operations including household collection, separation and transportation. Recycling and rag-picking of municipal solid waste is widely prevalent in Delhi based on an extensive network of formal and informal workers. Rag-pickers in Delhi are around 80.000-100.000. A wide range of materials is collected, such as paper, metal glass, rubber, and plastics. It is estimated that between 1.200-1.500 tonnes per day are removed from the waste management chain. Occupational risks are present at every step of the waste management process because of the composition of waste (e.g., toxic, infectious) and characteristics of waste handling (e.g., noise, odours,

## Working with Parisar Vikas on a Mobile Training Program

The Parisar Vikas program was launched in 1998 by the NGO Stree Mukti Sanghatana in cooperation with the Municipal Corporation of Greater Mumbai. The program aims to address the challenges of waste management and of self-employed women engaged in the tasks of collecting waste.



An extensive site visit and meeting took place in 2015 regarding the activities of the NGO, with special reference to biogas generation, solid waste management, recycling, composting, and training (Photo). The project will cooperate with Parisar Vikas for the development of a mobile training program and display for people directly involved with solid waste management (especially for the informal sector). For more information on Parisar Vikas visit: <http://stremuktisanghatana.org/programs/parisar-vikas>



## Information from Surveys

In order to have more specific information about the informal stakeholders in waste management, the survey instruments of the project elicit information from implementers and other stakeholders about the status of the informal sector, including health and safety issues, in order to develop recommendations in the action plan.

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