



SUSTAINABLE & ENVIRONMENT-FRIENDLY INDUSTRIAL PRODUCTION (SEIP)

Activities in Delhi: Monthly Progress Report – September, 2017

“Sustainable and Environment-friendly Industrial Production – SEIP” is a joint project of the Ministry of Environment, Forest and Climate Change (MoEFCC) and the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH within the framework of Indo-German Technical Cooperation. The objective of the SEIP project is to enable Indian public and private stakeholders to jointly implement strategies for efficient, environment- friendly, and climate-friendly industrial development.

The project aims at mitigating environmental problems caused by industrial production focusing on industrial wastewater and solid waste management. During the project duration, technical solutions as well as business and management models to reduce acute environmental pollution and to improve resource efficiency in industrial production are piloted in five Indian industrial estates. Visible positive direct impacts of the solutions showcased are to improve conditions directly at the sites, and to unfold a strong signal effect leading to the replication and upscaling of solutions in industrial parks throughout India. Project activities focus on wastewater conveyance systems, the treatment, recycling and reuse of wastewater, waste management as well as the management and planning practices in the industrial areas. Solutions are piloted in 5 selected industrial areas located in the states of Delhi, Gujarat and Uttarakhand.

Further cross-cutting activities, such as the development of a market-driven training system for technicians and operators of effluent treatment plants, the development of industry-wide environmental standards, the work on a green rating system for industrial areas, and the setting up of a technology platform offering international exchange of best practice technologies target the improvement of enabling framework conditions for sustainable industrial production in India.

SEIP started in March 2015 and will run until February 2018 (with a likely extension of 12 months) and has a budget of EUR 6.5 million. A brief overview of the SEIP Project is given at Annexure 1.

Activities for Delhi

- 1) **SOLUTIONS FOR CETP:** upgradation/modernisation, recycle/reuse of treated wastewater
- 2) **PLANNING OF CETP/STPs** for Patparganj Industrial Area
- 3) **ENVIRONMENTAL IMPROVEMENT** in 50 individual industries to reduce pollution and increase resource efficiency at company level
- 4) Demonstration of **IMPROVEMENT IN 10 ETPs** and replication
- 5) Improvement in **STORM WATER DRAINAGE AND WASTEWATER CONVEYANCE SYSTEMS**
- 6) Improvements through **CROSS-LEARNING AND FACILITATION**
 - a. environment drives
 - b. cleaner production
 - c. Waste water management
- 7) **MANAGEMENT OF SOLID WASTE** from the industrial area and CETP sludge as a part of an Indo-Norwegian project (SINTEF) on co-processing under SEIP
- 8) **MISCELLANEOUS**
- 9) **ANNEXURES**

1. Solutions for CETP: upgradation/modernization, recycle/reuse of treated wastewater

About the activity:

Delhi has 13 CETPs and 29 industrial areas (according to NPC report). The operation of most CETPs is suffering due to a gap between installed and operational capacity due to low effluent supply (sometimes as low as 1/10 of the installed capacity). The CETPs are not able to function properly due to obsolete technology, conveyance problems in the industrial areas connected, a change in type of industries connected to the CETP, and due to existing business and management models. CETPs in Delhi need urgent upgradation in order to meet CPCB/DPCC standards. Under SEIP, GIZ provides technical support to DSIIDC to modernize two CETPs as a pilot.

To identify two CETPs in the project, a meeting chaired by CE, DSIIDC was conducted on 14th December 2016 at Conference Hall DSIIDC, Connaught place where all CETP societies and Confederations of CETP societies were represented. In this meeting, CETP at Lawrence road (connected to Lawrence road industrial area known as Keshavpuram industrial area) and CETP at Okhla (connected with Okhla Industrial Area Phase I and Phase II) were selected anonymously by all participants.

The CETP at Lawrence Road offers physio-chemical treatment only. It receives sewage from industries and slum areas located in the industrial area. The mixture of effluents causes serious issues to their proper treatment. The CETP further receives much less wastewater than it was designed for and can, hence, not operate properly. Further, the business and management model of the CETP is in need of improvement.

Summary of progress so far:

- All data collection and preliminary problem identification steps have been completed by Hydroplan, a German consultancy. Draft reports submitted by Hydroplan have been revised and are currently in the final stages of completion.
- Even though the findings included in the problem analysis were discussed with DSIIDC, the feedback of individual CETP societies (Mayapuri and Lawrence road) are still awaited.

Progress for the current month:

- Hydroplan is working on the revision of their reports as well as the development of solutions based on stakeholders' and GIZ's feedback.

2. Planning of CETPs/STPs for Patparganj Industrial Area

About the activity:

This activity aims at assessing the problems occurring at the CETPs and STPs. Subsequently, technically sound and economically efficient solutions are to be identified and implemented.

There are seven electroplating units (as identified in the PFEA directory 2013) in the Patparganj Industrial Area generating seriously polluting effluent as per DPCC reports. These units have individual ETPs installed. There are further a set of electroplating companies which are not associated with PFEA, and a few service stations causing serious water pollution according to PFEA. However, Patparganj Industrial Area does not have a CETP installed. The industrialists consider this as a cause of major concern.

Summary of progress so far:

- All steps of the data collection and problem identification process for the planning of a new CETP which were initiated in October 2016 were completed in April 2017.

- In May 2017 Hydroplan identified several options for setting up a new CETP at Patparganj. Hydroplan calculated the wastewater volume discharged, collected samples from two pumping stations for analysis in order to plan for an appropriate treatment process.
- In August 2017 Hydroplan met with representatives of the Patparganj Industrial and DSIIDC in order to discuss various options for setting up the new CETP. This included the finalization of the location of the CETP at Patparganj Industrial Area.

Progress for the current month:

- GIZ has started collected the information on the funding options for implementation of the CETP in Patparganj industrial area. It is been observed that The MoEFCC under the Government of India, The Department of industries under The Government of NCT Delhi and Small industries Development bank of India (SIDBI) have financial options available for sustainable development initiatives particularly for the development of CETPs.

3. Environmental improvement in 50 individual industries to reduce pollution and increase resource efficiency at company level

The objective of this activity is to implement measures that will lead to either a reduction in pollution or an increase in resource efficiency thereby improving the environmental improvements of a company and demonstrating the effectiveness of the measure at hand.

Patparganj Industrial Estate is located on the bank of the Ghazipur Drain and is among the most developed estates of Delhi in terms of infrastructure and commerce. However, 12 seriously polluting and 70 polluting industries, which are producing thousands of litres of wastewater every day, are causing serious environmental problems. There are not many effluent treatment plants in the estate which is characterised by many small businesses producing wastewater with differing characteristics. There is no CETP installed. A great share of the wastewater is disposed in the drains without any prior treatment eventually ending up in Yamuna River. Another serious issue is posed by the badly functioning solid waste management system in the industrial estate.

50 companies at which technically sound and financially viable techniques and technologies are to be implemented, are selected at the three sites of in Delhi i.e. Patparganj Industrial Area, Lawrence Road also known as Keshavpuram Industrial Area and Mayapuri Industrial Area. The first step is the assessment for the scope of process optimisation and improvements in resource efficiency (materials, water, energy) before detailing and implementing the solutions suggested. Subsequently, the replication of successful solutions is to be enabled in other industries/industrial areas.

Summary of progress so far:

- Identification of 50 companies for Rapid Assessment (RA), shortlisting of 20 individual companies for Detailed Assessment (DA), as well as all data collection for rapid assessments have been completed by Adelphi Consortium with the support of GIZ.
- 50 rapid assessment reports were submitted to the individual companies till 31st August 2017.
- Adelphi submitted the “Generic Problem Analysis Report” which was assessed by GIZ.
- Adelphi has prepared and submitted the action plan for the conduction of detailed assessments.

Progress for the current month:

- Adelphi, along with GIZ, conducted several of trainings and workshops at Mayapuri, Lawrence Road and Patparganj Industrial Areas on the 1st and 2nd September 2017 for the companies identified for RA and DA.
- The workshop cum training program was conducted by Adelphi at Mayapuri CETP Society covering the industries from Mayapuri and Lawrence Road Industrial Areas. An exclusive event was organised for Patparganj Industrial Area. At both the locations, the venue was provided by the association. There were around 10 and 25 participants at Mayapuri and Patparganj respectively.

- The Adelphi consortium explained the importance of resource efficiency and cleaner production through RAs and DAs. RA reports were distributed to the companies; the action plan for the conduction of DAs at the shortlisted units were discussed.



Adelphi consortium providing training and conducting the workshop at Mayapuri and Patparganj Industrial Areas

4. Demonstration of improvement in 10 ETPs and replication

About the activity:

The aim of this activity is to provide technical assistance to industries for the upgradation of 10 ETPs at the three industrial sites. ETPs will be shortlisted based on type of industry, their water consumption and their effluent generation.

Summary of progress so far:

- Contract awarded to German consultant Hydroplan. Hydroplan started working in Delhi from 15th February 2017. Data collection in process at all three sites.
- Information Event at Patparganj Industrial Area (see 3. *Environmental improvement in 50 individual industries to reduce pollution and increase resource efficiency at company level*).
- Hydroplan assessed industries with ETPs in Patparganj Industrial Area and shortlisted four industries for upgradation.
- Information Event at Mayapuri Industrial Area (see 3. *Environmental improvement in 50 individual industries to reduce pollution and increase resource efficiency at company level*) (April 2017).
- GIZ Delhi team conducted initial surveys of four ETPs in Lawrence Road Industrial Area and seven ETPs in Mayapuri Industrial Area (May 2017).

Progress of current month:

- Hydroplan shortlisted ten industries with an ETP and collected samples for testing in Patparganj Industrial Area, Lawrence Road Industrial Area and Mayapuri Industrial Area.
- Hydroplan is revising the problem identification report for ETPs based on test reports from ETP samples.
- In parallel, Hydroplan is developing solutions for these ETPs.

5. Improvement in storm water drainage and wastewater conveyance systems

About the activity:

The aim of this activity is to improve the conveyance system in two industrial areas i.e. Lawrence Road Industrial area and Mayapuri Industrial Area.

During the planning workshop conducted at Patparganj industrial estate on September 1st, 2016, the association expressed concerns about the existing wastewater conveyance system. Concern was raised regarding the depletion of the groundwater level within the industrial area and a lack of rainwater harvesting. The storm water collected in the industrial area is conducted through surface drains (partially open) to Ghazipur drain. These drains are often choked by solid waste dumps in the open drains during the dry season. Based on the existing situation, measures towards effective storm water management will be proposed to DSIIDC and PFEA under the technical cooperation with GIZ.

Summary of progress so far:

- Base mapping of the existing land use, circulation network and green areas completed by GIZ (May-June 2016)
- GIZ team collected data on the existing sewage/conveyance system and storm water drainage from DSIIDC and PFEA. A layout map with details about sewer line, water supply line, location of fire hydrants (proposed at that time) has been obtained from PFEA, however it is old (last signed in 1989).
- A German consultant (Hydroplan) started work to improve conveyance systems in three sites identified. Collected base data was already shared with Hydroplan.
- Draft of Problem Identification Report, *Existing Conveyance Systems*, was submitted by Hydroplan with details of Patpaarganj Industrial Area and Lawrence Road industrial Area (May 2017).
- Base maps for conveyance systems were collected and shared with Hydroplan.
- Digitalised map of conveyance network in Lawrence Road Industrial Area and Patparganj Industrial Area were assembled and presented in 13th July Stakeholder Review Meeting.
- Hydroplan conducted a reconnaissance survey at Mayapuri industrial Area and Lawrence Road Industrial Area to understand the present situation of wastewater conveyance and storm water drainage.
- Hydroplan completed sampling of ground water, effluent from conveyance and storm water drainage.

Progress for the current month:

- SEIP-Delhi team and stakeholders commented the problem identification report. A revised version, as well as the development of solutions, are currently worked on by Hydroplan.

6. Improvement through cross-learning and facilitation

Under SEIP, facilitation teams on the topics of 1) Environmental Drives, 2) Cleaner Production and 3) Wastewater have been established at the industrial areas. Facilitation teams are supposed to provide a platform for discussion amongst entrepreneurs and other stakeholders of the park covering various topics and including the demonstration and sharing of best practices from industries. GIZ team will provide external field experts (both within and outside GIZ), organisations like DSIIDC, DPCC to educate the industrialists about available best practices in the field. Through these meetings the industrialists themselves educate/guide each other about available best practices.

a. Environment Drives

About the activity:

Solid waste management is a major concern within Patparganj Industrial Estate. PFEA has assigned the waste management task to a private body which is responsible for collection, storage, transportation and disposal of waste. The East Delhi Municipal Corporation collects the waste once in a week through waste collection vehicles from the estate and then dumps it into the dumping grounds of Ghazipur. For lack of designated waste disposal facility within the industrial estate, the waste often dumped in the open areas like vacant plots, parking lots, etc. PFEA has started door to door waste collection system.

Patparganj industrial area is within a close vicinity to ISBT, Anand Vihar. As per PFEA ISBT causes too much traffic within the area causing serious air pollution within the Patparganj Industrial Area. Also the toxic gases generated in the Ghazipur Drain reacts with the surfaces of electronic appliances in the

surroundings and damages them. The buffer zone at one of the edge of the Patparganj industrial estate is still lying under-developed which would have helped in bringing down the effect of air pollution within the industrial area and its surroundings. PFEA is keen to improve the aesthetics and hygiene of the industrial areas and hence have started taking steps towards it.

Summary of progress so far:

- PFEA conducted a cleanliness drive during October 2016. As a result, almost 300 tons of garbage was removed from the industrial area through street cleaning and sweeping.
- PFEA conducted a plantation drive in an open space from June to September 2016 with the support of DSIIDC and GIZ. This resulted in transformation of park once lying as a junkyard into a green lung space for the industrial estate.
- At the “Planning workshop” held on September 1, 2016, PFEA expressed interest in developing more green areas within the industrial area and also in the buffer zone along the drain.
- Following this, GIZ team had a discussion with CE, DSIIDC along with SE (Environment), DSIIDC regarding the same on 16th November meeting at DSIIDC, Connaught Place office. The final decision is awaited.
- Proposal prepared for Environment Improvement Drive to take place in June 2017 in Patparganj Industrial Area by GIZ presented in front of PFEA on 5th April, 2017 meeting. After discussion with PFEA the modified proposal again presented on 7th April, 2017 in PSC Meeting in front of the committee and other stakeholders.
- GIZ met with CE, DSIIDC to discuss pending decisions from DSIIDC. CE directed concerned SE, DSIIDC to identify at least two spots in Patparganj Industrial Area where public toilets can be installed. He also informed GIZ that DSIIDC already started working on parking lots in front Udyog Sadan in Patparganj Industrial Area.
- GIZ organised a small meeting with GIZ IGEN team to discuss on the feasibility of installation of solar panels on Mr. Maheswari’s rooftop as a pilot case. Discussion is under process.
- GIZ informed PFEA (23rd May) that DSIIDC is willing to hand over other parking plots to PFEA for development. PFEA informed both GIZ and DSIIDC due to poor economic condition of the industries they will not be able to take up the project. They requested DSIIDC to look into the matter.
- DSIIDC celebrated World Environment Day along with GIZ, Confederation of CETP Society, Mayapuri CETP Society and Naraina CETP Society. A small talk on importance of environment drive followed by plantation drive was conducted at Naraina CETP premises.
- Chief Engineer DSIIDC conducted a site visit along with his team and GIZ and identified site for toilet construction in Patparganj Industrial Area.
- Cleaning up of proposed Parking lot in front of Udyog Sadan was done by DSIIDC.

Progress for the current month:

- GIZ Delhi team is currently discussing the possibility of conducting an environment improvement drive with Lawrence Road industrialists of whom a few showed their interest. Proposals are under discussion with Lawrence Road industrialists and DSIIDC.

b. Cleaner Production

- This activity has not yet started.

c. Wastewater Management

- This activity has not yet started.

7. Management of solid waste from the industrial area and CETP sludge as a part of an Indo-Norwegian project (SINTEF) on co-processing under SEIP

About the activity:

GIZ and SINTEF are cooperating to provide technical support and capacity building for sustainable management of industrial waste and sewage sludge as well as for the cleaning up of critically polluted areas in the three selected industrial sites.

Summary of progress so far:

- Mr. Palash Kumar Saha from SINTEF visited Patparganj Industrial Area and Lawrence Road CETP to understand whether there is scope for co-processing in energy intensive industries. During his visit he met DSIIDC and DPCC to gain information on initiatives which have already been undertaken by them concerning the utilisation of CETP sludge. DPCC shared minutes of their meeting with the cement industries for utilisation of CETP sludge, which will be used as the baseline by SINTEF.
- Representatives from SINTEF, Dr. Kåre Helge and Mr. Palash Kumar Saha, visited Lawrence Road CETP and Lawrence Road Industrial Area on 21st March 2017 to prepare a plan of action for Delhi site under SEIP.
- GIZ Delhi team collected data on sludge quality report from DSIIDC and submitted it to SINTEF.
- SINTEF shared their action plan for Delhi with GIZ.
- SINTEF scientist Mr. Palash Kumar Saha along with GIZ visited Mayapuri CETP and discussed with Mr. Tandon, from the Confederation of the CETP Society to understand the present condition of CETP sludge in Delhi.
- GIZ along with SINTEF Scientist Dr. Christian visited Ramky Enviro Engineers Ltd. Site Delhi MSW solutions Ltd. In Bawana industrial area to explore possibilities of using CETP sludge in the waste to energy plant.
- SINTEF submitted their first draft of Consolidate Report on visits to Vapi and Delhi, which is currently being assessed by GIZ (June 2017).

Progress for the current month:

- Baseline report on “Management of solid waste from the industrial area and CETP sludge” to be submitted. SINTEF is parallel working on the technical feasibility aspects at parallel. SINTEF scientist will again visit India in the month of September.

8. Miscellaneous:

a. Baseline pollution report for Mayapuri Industrial Area and Lawrence Road Industrial Area:

- Work on “Economic implications of the SEIP project sites in Delhi considering projects implemented so far for the improvement of water quality in the River Yamuna” has started. Data collection from different sources are going on.
- GIZ consultant Sonal Jain visited Lawrence Road industrial area to identify potential pollution points for baseline pollution study for Delhi site in the month of July. She had submitted the first draft of “Report on baseline pollution levels measured by relevant pollutant parameters for project sites in Delhi (Lawrence Road & Mayapuri Industrial Area)”. GIZ Delhi team is currently reviewing the report.

b. Co-operation agreement:

A co-operation agreement for Lawrence Road Industrial Area was handed over to President, Keshavpuram Industrial Area CETP Society. A reply is awaited.

A co-operation agreement for Mayapuri industrial area has been accepted by Mayapuri CETP Society and DSIIDC. The signing of the agreement, however, is still pending.

9. Annexures

Annexure 1: SEIP Project Overview

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Objective: The SEIP project has focus on efficient, and environment and climate-friendly industrial development. The objective of the project is: “Private and public stakeholders jointly implement strategies for efficient, and environmental and climate-friendly industrial development.”

Duration: The project has a duration of 3 years from March 2015 to February 2018. The project is likely to be extended by about 8 to 10 months.

Budget: The total budget available for the duration of the project is 5 million EUR. An additional budget of 1.5 million EUR has been committed by the German for augmenting the activities for controlling industrial pollution to River Ganga.

Project Sites: The project has its focus in selected sites at the Gujarat Industrial Development Corporation’s (GIDC) Industrial Estate at Vapi (Gujarat), Delhi Industrial Infrastructure Development Corporation’s (DSIIDC) industrial areas at Patparganj, Mayapuri and Lawrence Road (Delhi), and the Integrated Industrial Estate State Industrial Infrastructure Development Corporation of Uttarakhand Ltd. (SIIDCUL) in Haridwar (Uttarakhand).

Partners: The Ministry of Environment, Forest and Climate Change (MoEFCC), Government of India and GIZ are the main project partners. An Implementation Agreement has been signed between MoEF&CC and GIZ on 16th June 2016. The Central Pollution Control Board, as a technical arm of MoEF&CC, plays an important role. The key stakeholders for the project site in (Delhi) are:

- Delhi State Industrial and Infrastructure Development Corporation Ltd. (DSIIDC)
- Delhi Pollution Control Committee
- Patparganj F.I.E Entrepreneurs Association (PFEA)
- Mayapuri CETP Society
- Lawrence Road CETP Society
- Confederation of CETP Society, Delhi

Approach

The SEIP project works on selected environmental problems of national importance, with the main thematic focus on industrial wastewater and solid waste management. The project aims to showcase solutions on how acute environmental pollution can be reduced and how resource efficiency in industrial production can be improved. Project outputs are grouped into 3 areas:

- Output A: Environment-oriented modernisation of three industrial areas (showcasing solutions),
- Output B: Establishing appropriate framework conditions at the national and state levels, and
- Output C: Knowledge management and dissemination.

To accomplish these outputs, various activities are being taken up at the national level as well project site level. The project activities are focused on wastewater conveyance, treatment, recycle/reuse, waste management, monitoring, process modification in individual industries etc. These will be complemented by training and skills development, and setting up of a technology platform. At the national and state level, the project supports the creation of an enabling framework by suggesting measures for new policies, plans and support programmes to prevent and reduce pollution and improve resource efficiency in industrial zones. Further, the project will create practical examples of management and planning for sustainable industrial zones supporting women. The project will include private stakeholders such as industry associations, operators of industrial sites and companies, and relevant entities in the states and the centre. The public and private sectors will be effectively engaged at various stages of the project.

Expected Results of SEIP Project

The SEIP project will demonstrate solutions resulting in positive impacts and improved environmental conditions at the selected sites. The successful cases will serve as models that can subsequently be taken up on much larger scales. The key indicators for measuring the results are:

- Decrease in pollution by an average of 20 percent in the surroundings of three industrial sites.
- Launch of development programmes and promotional guidelines that aim at increasing resource efficiency and reducing pollution in selected states.
- Launch of two additional compulsory central government policies, plans and/or programmes, and measures to prevent and reduce pollution as well as improve resource efficiency in industrial zones.
- Adoption of best practices through technology and management methods for an efficient, environment- and climate-friendly industrial development in 10 industrial zones.
- Provision of two additional practical examples regarding management and planning methods of sustainable industrial zones that support women.