



## **SUSTAINABLE & ENVIRONMENT-FRIENDLY INDUSTRIAL PRODUCTION (SEIP)** **Activities in GIDC, Vapi, Gujarat: Monthly Progress Report – January, 2017**

### **Introduction**

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

The project works on mitigating selected environmental problems of national importance, with focus on industrial waste water and solid waste management. The project aims at demonstrating solutions on reducing acute environmental pollution and improving resource efficiency in industrial production for which technical solutions and business and management models can be showcased with positive results and direct impact on improving the environmental conditions at the selected sites. Further on, the cases can serve as models to be replicated nationwide subsequently. The project activities are focused to waste water conveyance, treatment, recycle and reuse, waste management, monitoring, process modification in individual industries etc. These will be complemented by training and skills development and by setting up of a virtual platform that offers exchange of best practice technologies.

States selected for this project are Uttarakhand, Gujarat and Delhi. The SEIP project has a duration of March 2015 to February 2018 (likely to be extended by upto 1 year) and a budget of 6.5 million EUR. A brief overview of the SEIP Project is given at Annexure 1.

## Activities for GIDC, Vapi, Gujarat

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The priority activities identified for Vapi include:

- Environment improvement in individual industries
- Waste water management
  - a) Improvement in storm water drainage systems
  - b) Energy efficiency in CETP
  - c) Moisture reduction in CETP sludge and improved management
  - d) Demonstration of improvement in 10 ETPs and replication
- Skills Development – ETP/CETP Operators (Helpers, Technicians)
- Improvements through environment drives and participatory approaches
- Improved online monitoring systems for wastewater at ETPs/CETP
- Retrofitting of industrial parks in Gujarat

Brief description of the above activities is given at Annexure 2.

The complementary activities of the SEIP Project that are relevant for Gujarat are:

- Technology platform - industry led platform will be established on a viable business model
- Green rating and certification system for industrial areas
- Recommend new measures for pollution control and resource efficiency under policies/plans/programmes of the government
- Upscaling/replication of successful models in upto 10 industrial areas
- Solutions for online monitoring system for ETPs/CETPs

Brief description of the above complementary activities is given at Annexure 3.

## Monthly Progress of Activities for GIDC, Vapi, Gujarat

### Activity 1: Environment improvement in individual industries

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#### About the activity:

The activity will support in identifying key issues related to industries so that solutions can be worked out to achieve pollution reduction and resource efficiency in individual industries.

#### Summary of progress so far:

A questionnaire was developed for inventory of industries, which was discussed in the Advisory Committee meeting held on August 10, 2016. As suggested by the Advisory Committee, the questionnaire had been discussed with the representatives of industries, government body representatives (GIDC/GPCB) and some of the members of the industrial associations.

As per decisions taken in the meeting held on the September 9, 2016 at MoEFCC in New Delhi with the key stakeholders of the SEIP Project from Gujarat, Delhi and Uttarakhand, the final questionnaire has been developed to be circulated to the industries.

#### Progress for the current month:

- On January 9, 2017, GIZ SEIP cell, GIDC, Vapi had approached Mr. Yogesh Kabaria, President, VIA for signing of the co-operation agreement under SEIP project with GIZ. But for certain reasons best known to him, he could not sign the agreement. He suggested that GIZ can move forward with the SEIP project activities by working with VGEL, Vapi, GPCB and GIDC.
- A list of 42 industries has been received from GPCB based on which the work has begun.

## **Activity 2: Waste water management (CETP performance- CETP Sludge Dewatering and Energy Efficiency, ETPs of selected industries, Storm water conveyance system- Phase IV)**

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### **2.a Improvement in storm water drainage systems**

#### **About the activity:**

The inventory and mapping exercise will help identify stretches needing maintenance or retrofitting due to problems such as overflows, clogging, breakage, inadequate capacities etc.

#### **Summary of progress so far:**

GIZ had appointed an intern for the GIS mapping of GIDC, Vapi. The intern had gone through the data available and prepared a GIS map of all the phases, roads, storm water, drainage, effluent network.

Meanwhile, with discussion in the meeting with VIA drainage committee member, it was decided to improve the storm water drainage of Phase IV area.

GIZ has performed a preliminary survey based on the GIS mapping of the storm water network and road. All the data has been collected and a TOR for has been prepared.

Tendering process is going on for finalization of expert.

#### **Progress for the current month:**

- Tendering process has been completed and Expert has been finalized.
- Expert will visit the site in the month of March.

### **b. Moisture reduction in CETP sludge and improved management**

#### **About the activity:**

The common effluent treatment plant in Vapi, India produces around 70'000 [t/year] of sludge. Currently, the sludge is disposed on a landfill in Vapi. The disposal of the sewage sludge causes problems due to the high moisture content of it. Due to this situation new ways of sewage sludge disposal options have to be found.

#### **Summary of progress so far:**

GIZ has visited the VGEL office bearers and discussed regarding the problem of sludge with them. VGEL agreed to give the complete support to overcome this situation.

GIZ had visited the site and found that the sludge is being de-watered by mechanical de-watering. This mechanically partial dried sludge will be packed in a bag and pet dried in a sludge drying beds.

But these procedure did not help CETP to dry this much of large quantity of sludge. GIZ had collected the data like Quantity, characteristics after different stages of treatment, chemical dosing pattern etc. and developed a TOR for the expert to be appointed.

Tendering process has been completed and expert will be finalized by January 2017

#### **Progress for the current month:**

The Expert has been finalized and will visit the site during March 2017.



**Decanters for Sludge de-watering**



**Sludge after mechanical dewatering**

### **c. Energy efficiency in CETP**

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#### **About the activity:**

This activity is aimed at energy conservation measures through EESCO for CETP, Vapi and GIDC and pumping station.

#### **Summary of progress so far:**

GIZ has collected data for energy consumption from VGEL, Vapi and GIDC, Vapi for CETP and Pumping station respectively

GIZ has prepared TORs for the experts. Interaction with EESCO companies is established. Proposal for conducting study will be taken accordingly

#### **Progress for the current month:**

- References of EESCO companies have been gathered from the experts of the field.
- The communication with EESCO companies is going on.

### **d. Demonstration of improvement in 10 ETPs and replication**

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#### **About the activity:**

This activity will have focus on ETP performance from selected 30 nos. industries from selected sectors whose effluent is critical for performance of CETP.

#### **Summary of progress so far:**

As per decisions taken in the Project steering committee meeting held on the September 9, 2016 at MoEFCC in New Delhi with the key stakeholders of the SEIP Project from Gujarat, Delhi and Uttarakhand, the final questionnaire is shown to VIA. VIA has finalized the questionnaire. Also, a "Facility Team: Waste Water Pollution Reduction" has been constituted by VIA.

The list of the 30 industries has been finalised for parameters majorly colour, COD, BOD, TDS & TSS.

#### **Progress for the current month:**

- GIZ SEIP cell approached the industries individually to help them in filling up the questionnaire.

- As mentioned in the Activity No. 1, VIA has denied to support GIZ in SEIP project and told GIZ to continue the activities with VGEL, GPCB and GIDC, Vapi.
- Most of the industries also not supporting in filling up the questionnaire.
- The management of approached industries not helping the GIZ SEIP Cell, Vapi.
- So, finally GIZ approached RO, GPCB, Vapi to give list of the industries having problem in colour, BOD, COD, TDS, TSS Etc.
- RO, GPCB has given the list and GIZ SEIP Cell, Vapi has initiated the activity to approach them through GPCB.
- Expert for this activity will visit Vapi during 2<sup>nd</sup> week of February, 2017 for field investigation.

### **Activity 3: Skill development of ETP/CETP operators Skills development of technicians and helpers**

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#### **About the activity:**

This activity will help in CoE in offering skills development courses for technicians and helpers of ETPs/CETPs in GIDC Vapi as well as from other industrial areas.

#### **Summary of progress so far:**

GIZ discussed with SCGJ on the interest of affiliation of CoE with SCGJ. VGEL will take necessary approval from the Governing Council of VGEL and accordingly proceed with affiliation with SCGJ.

The Governing council of VGEL approval is under process. The proposal for affiliation will be submitted by VGEL to NSDC in January 2017.

GIZ approached other institutions and organization for the affiliation of the skilling program

#### **Progress for the current month:**

- One of the organization M/S Pollucon laboratories Pvt. Ltd., Surat has shown its interest for the affiliation.
- The affiliation procedure is going on with Skill Council for Green Jobs, New Delhi.

### **Improvements through cross learning and facilitation – cleaner production, wastewater management**

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#### **About the activity:**

The skills development courses are targeted to improve skills of the helpers and technicians of ETPs/CETP in GIDC Vapi so as to support in improved performance of ETPs/CETP, besides reducing operational costs. The activity will support skills development of technicians and helpers of ETPs and CETP in accordance with skills development system of the Skill Council for Green Jobs of the National Skills Development Corporation. The successful candidates completing the training and passing a written examination will be awarded a certificate jointly by GIZ and SCGJ.

#### **Summary of progress so far:**

The skill development of ETP/CETP operators programme was held during August 29 to September 03, 2016 for the operators and helpers at VIA conference hall. Total 34 participants from various industrial regions participated in the skills development programme of 6 days. 28 participants were from different chemical industries and VGEL (CETP, Vapi), 4 participants from Uttarakhand, 3 participants from Surat and 1 from Ankleshwar.

The training was conducted by a senior German trainer, Mr. Micheal Dorr, from the German Association for Water, Wastewater and Waste (DWA). During the training, the participants also got solutions for some of



their practical problems. Certificates, signed by GIZ and SCGJ, were given to all the participants after passing a written test.

**Progress for the current month:**

- M/S Sarna Chemicals witnessed improvements in their ETP for TSS and Sludge dewatering after the skilling program.
- The Success story is under preparation and it will shortly be uploaded on the SEIP website.

## **Activity 4: Retrofitting of industrial estates in Gujarat**

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**About the activity:**

The existing industrial estates need to overcome problems being faced (environmental, business related, employee related etc.) to become efficient, overcome any negative environmental impacts and support in easing business of the individual industrial industries. Such retrofitting is also required to bring in new investments/entrepreneurs for developing/providing common infrastructure and services, besides giving an opportunity for revitalising sick industries and vacant plots.

**Summary of progress so far:**

The Gujarat Government's keenness towards promoting women entrepreneurship and sustainable industrial areas in Gujarat translated into a day-long workshop organised by the Gujarat Industrial Development Corporation (GIDC) on 18th January 2017 at Gandhinagar, Gujarat with resource persons from GIZ and the Gujarat Cleaner Production Centre (GCPC). The workshop had nearly 100 participants from GIDC, planners from industrial development agencies of the Government of Gujarat, Gujarat Pollution Control Board, officials from the German Federal Environment Agency (UBA), GIZ, GCPC and GPCPSIRDA.

It was decided to initiate retrofitting initially of 5 nos. industrial estates, namely, Vapi GIDC, Vatva GIDC, Naroda GIDC, Ankeleshwar GIDC and Rajkot GIDC.

**Progress for the current month:**

- A 3-day training programme will be organised at Auroville in March or April 2017 to train officials on GIDC about site master planning and retrofitting, and visit some of the living examples related to buildings, renewable energy, drainage, water harvesting, decentralised wastewater treatment, waste recycling, plantation, landscaping etc.
- The site master plan prepared for the GIDC Estate at Sanand to cater to women entrepreneurs will be revised by GIDC with the support from GIZ. The German/international green/sustainability will be incorporated.

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## **Annexures**

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Annexure 1: SEIP Project Overview

Annexure 2: Brief description of various activities for GIDC, Vapi, Gujarat.

Annexure 3: Brief description of SEIP project level complementary activities

## Annexure 1: SEIP Project Overview

**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 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 16<sup>th</sup> 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 GIDC, Vapi, Gujarat) are:

- GIDC
- CPCB
- VGEL
- VIA

## 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 modernization 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.



## Annexure 2: SEIP Project Activities in GIDC, Vapi, Gujarat

### Activity 1: Environment improvement in individual industries

#### Key issues:

GIDC, Vapi Industrial Area:

- GIDC, Vapi Industrial Estate is among the developed estates of Gujarat in terms of infrastructure as well as economy but as far as environment is concerned there is still a lot of scope for the development of the estate. There are seriously polluting industries, which are producing thousands of liters of waste water every day. This waste water is conveyed to the CETP, Vapi through underground conveyance system. GIDC, Vapi Industrial Area located on the bank of Daman Ganga River. So the industrial effluent generated within the industrial area causing water pollution in the CETP and eventually to river Daman Ganga. The reduce water pollution, industrial effluent disposal from GIDC, Vapi Industrial Area must be addressed.
- Solid waste management is the next issue of concern as there are many loop holes in the management of the waste generated from the estate.
- The problems like inefficiency, pollution are still existing in some industries, there is a scope of considerable environment improvements.
- Energy Efficiency and older generation production practices also consumes lots of resources unnecessarily. So, sustainable practices needs to be implemented.

#### Proposed measures:

The proposed measures under the SEIP Project include:

- Monthly meetings are to be conducted with industries for knowledge exchange and to promote Best Available Technique (BAT).
- Detailing of solutions on industrial effluent disposal and cleaner production (target – 10 industries) by international experts.
- Support during implementation of solutions related to cleaner production practices in 5 sectors such as Chemical, Dyes & Intermediate, Pesticides, Bulk drug & Pharmaceutical, Electroplating Etc.
- Enable replication of successful models in other industrial areas.

### Activity 2: Waste water management

#### a. Improvement in storm water drainage systems

#### Key Issues:

- GIDC Vapi, is having nearly 25 year old storm water network in the estate. After that lots of modification was happened with the system.
- The River Damanganga, which flows adjoining he industrial estate, get wastewater discharges from the industrial area and people have been complaining about pollution.
- Lacking or inadequate stormwater drainage in the industrial estate is one of the major concerns.
- Waste dumps and chemical/material spills in stormwater is likely to carry along pollutants.
- Loose soil and gravel from the unpaved areas in the industrial area gets carried along with rain water into the stormwater drains.
- The stormwater drainage system adopted has no special designs catering to the industrial area. Some places pipes are used and yet in other places open drains are used. Some places have covered drains. In most of the places, the storm water drains are broken, clogged and are not functional.
- Some industries discharge wastewater into stormwater drains.

- Vapi is having heavy rainfall as compared to other industrial estates of Gujarat state so, some areas in the industrial estate gets flooded during rainy season due to lack of proper drainage system.
- Poor maintenance of the storm water lines. Poor cleaning of network with broken lids at junction points. There is lack of proper maintenance guidelines for storm water drainage network.

**Proposed measures:**

- Preparation of GIS mapping for roads and storm water conveyance network of GIDC, Vapi industrial estate.
- Preliminary survey of the storm water network for the most affected phase – 4 of the estate and identification of problems related to clogging, spillages, contamination etc.
- Interaction with GIDC officers and technical staff regarding procedure for the cleaning and maintenance schedule availability and types of storm water lines etc.
- An expert will be hired for the modernising/retrofitting and/or newly constructing the stormwater drainage system in the selected zone/area in the industrial estate.
- Providing of general suggestions and concepts for improving the stormwater drainage system in the whole of the GIDC Industrial Estate, Vapi.

**b. Energy efficiency in CETP**

**Key Issues:**

- Vapi CETP is one of the biggest CETP in Gujarat with 55 MLD capacity running on conventional treatment process.
- The CETP is having issues with their higher energy consumption profile.
- Higher energy consumption is playing a vital role to restrict the sustainable development of the estate.

**Proposed measures:**

- Collection of energy consumption details from the CETP, Vapi.
- Identification of higher energy consuming equipment/ machinery and analyzing the facts for higher consumption.
- Details of the probable energy efficiency measures/equipment availability in local market.
- Finalization of vendor who will provide and replace the existing equipment by energy efficient ones under ESCO mode to overcome the higher investment cost and financial burden on the CETP, Vapi.

**c. Moisture reduction in CETP sludge and improved management**

**Key Issues:**

- The common effluent treatment plant in Vapi, India produces around 70'000 [t/year] of sludge.
- Currently, the sludge is disposed on a landfill in Vapi.
- The disposal of the sewage sludge causes problems due to the high moisture content of it.
- Due to this situation new ways of sewage sludge disposal options have to be found.

**Proposed measures:**

- Interaction with CETP office barriers and technical staff and data collection regarding sludge moisture and quantity.
- An international expert will be engaged and collected data will be shared.
- Provision of pilot scale study at CETP premises for moisture reduction.
- Implementation of the moisture reduction technique suggested by expert and documentation.

**d. Demonstration of improvement in 10 ETPs and replication**

**Key Issues:**

- GIDC, Vapi industrial estate is having more than 1500 industries with different types and sectors such as Chemical, Speciality Chemical, Paper, Dyes & Intermediates, Bulk Drug & Pharmaceutical, Pesticide, Fertilizer, Electroplating etc.
- Most of the industries having membership of CETP, Vapi having capacity of 55 MLD.
- To treat the effluent in the CETP will be an expensive and non-viable solution with such a huge volume. So, it is good to treat the effluent parameters at source to reduce the CETP inlet parameters and eventually reduce the pollution load at the inlet of the CETP.
- CETP is presently facing problem in treating the effluent parameters such as Colour, COD, BOD, TDS, TSS, Ammonical Nitrogen, Phenol etc. and at the borderline of the pollution board compliance in terms of above parameters. The CETP treated effluent is directly discharged to the Daman Ganga River.
- So, pollution reduction at the industry level will result in lesser CETP inlet norms and eventually enhance the performance of the CETP which will add into the sustainable development.
- CETP is also not having proper facility to treat colour and it is not economically viable to treat effluent colour for such huge quantity.

**Proposed measures:**

- Identification of the industries, in co-ordination with local pollution regulatory authorities, facing problem in treating the effluent generated to meet the required effluent standards specially for colour, COD, BOD, TDS, TSS, Ammonical Nitrogen etc. from the five sectors such as Dyes & Intermediates, Textile, Pharmaceutical, Pigment manufacturing, Paper etc.
- A questionnaire for the data collection of the ETPs from above industries will be circulated to generate a database of the individual treatment facility.
- An international expert will be engaged and site visits of the experts in 10 nos of selected ETPs along with interactions with the industries and sample collection to have a practical idea of the treatment facility in the individual industries.
- The techno economical solution given by the experts will be reported to the industries for implementation.
- Replication of the solution to the other industries of the similar sector.

**Activity 3: Skills Development – ETP/CETP Operators (Helpers, Technicians)**

**Key issues:**

The environmental laws require the trade effluents discharged from any premises used for carrying on any industry, operation or process or treatment or disposal system to be treated to meet the prescribed standards before their disposal. Accordingly, a number of Effluent Treatment Plants (ETPs) have already been set up by industries and more will come up in the future. The 17-categories of highly polluting industry sectors are in special focus from the regulatory authorities due to pollution caused by them. To facilitate cost effective treatment solution for SMEs, the Government of India has been promoting setting up of Common Effluent Treatment Plants (CETPs) and the country today has over 190 such treatment plants. The key issues/aspects related to skills of ETP/CETP operators (Helpers and Technicians) are:

- ETPs/CETPs operators of GIDC, VAPI Industrial Estate lack the certified/skilled operators in industries.
- Government of India is promoting skills development of ETPs/CETPs operators (Helpers and Technicians) in industries.
- 7 training institutions have been affiliated by SCGJ/NSDC for building the capacity of ETPs/CETPs operators.

**Proposed measures:**

The proposed measures under the SEIP Project include:

- Skills development programmes (2 rounds in 2016/17) are to be organized for 60 helpers and 60 technicians by GIZ.

- The performance of operators need to be analysed and monitored before and after skills development programmes.
- Skills competition was organised for trained teams at IFAT trade fair at Mumbai on Sept. 30, 2016.

#### Activity 4: Improvements through environment drives and participatory approaches

##### Key issues:

- The pollution of the GIDC, Vapi has affected the trees and other ecosystem of the industrial estate.
- The amount of the trees are decreasing at an exponential level in the estate due to increased pollution load from the industries of the estate.

##### Proposed measures:

- Environment drives will be performed to enhance the green quotient of the estate.
- Activities like waste dump removal, plantation drives, green initiative measure etc. will be performed to increase the environmental awareness in the local habitants as well as industrialists
- Development and implementation retrofit concepts in co-ordination with industries, GIDC etc. for systematically transforming the industrial estate to a Green Industrial Estate.

#### Activity 5: Improved online monitoring systems for wastewater at ETPs/CETP

##### Key issues:

As per Central Pollution Control Board vide its letter No. B-29016/04/06PCI-1/5401 dated 05.02.2014 directions under section 18(1) b of the Water and Air Acts to the State Pollution Control Boards and Pollution Control Committees, the industries and CETPs are required to install online effluent quality monitoring systems to help track the discharges of pollutants from the units of the 33 categories of seriously polluting industries. The key issues related to the online monitoring system are:

- Installation of online monitoring system in CETP and industry is on voluntary basis. Data authentication is still not there. GPCB considered online monitoring system only as a self-monitoring mechanism by the individual CETPs. Hence individual manual sample collection and testing is done parallel by GPCB for measuring the performance of the CETPs.
- Problems related to identification of suppliers, calibration and reliability of online monitoring system need to be addressed/solved for the effective implementation of online monitoring systems in industries.

##### Proposed measures:

The proposed measures under the SEIP Project include:

- Survey of industries and CETPs is to be taken up using the questionnaire on the online system by GIZ team.
- Study of existing system at individual industries and CETPs is to be carried out.
- Training and capacity building of stakeholders are required.
- Policy analysis and advice to CPCB on the effective way of implementing and using the online monitoring systems in industries.

### **Annexure 3: SEIP Project Complementary Activities**

<p>□ Environmental Technology Platform</p>	<p>An Environmental Technology Platform is planned to be set up through a private sector on a viable business model, for facilitating information on technologies related industrial waste and wastewater, and to facilitate technology transfer.</p>
<p>□ Green rating and certification system for industrial areas</p>	<p>A green rating and certification system is proposed to be developed for industrial areas so that these serve as benchmarks for planning new industrial area or retrofitting old industrial areas, besides being able to assess how good or bad is an industrial area from environment and sustainability perspective.</p>
<p>□ Policy framework/guidelines/ plans/programmes</p>	<p>The SEIP project will work on measures, policies, plans and promotional funding schemes on the national level and in selected states to support the promotion of an efficient, environment and climate friendly industrial development.</p>
<p>□ Management structures for industrial areas</p>	<p>The existing industrial areas in India and specifically those covered under SEIP Project (GIDC Estate Vapi, SIIDCUL IIE Haridwar and DSIIDC's industrial areas in Delhi) do not have clearly defined management structures to manage the industrial areas. Hence, planning and managing of the infrastructure and services in these industrial areas is becoming difficult. The SEIP project proposes to come up with viable solutions based on Indian and international experiences.</p>
<p>□ Online monitoring systems for industrial wastewater</p>	<p>The environmental regulatory agencies (CPCB/SPCBs) have been constantly tightening the monitoring systems so that not only the conditions of wastewater discharges from industries and industrial areas can be checked, but also the defaulters can be identified and actions taken. Recently, CPCB has suggested online monitoring systems to be installed by the industries and CETPs. However, there are a number of problems associated with choosing the right equipment, after sales services, calibration of equipment etc. CPCB and SPCBs are also working on monitoring of receiving water bodies, such as River Ganga, River Yamuna and River Damanganga that receive industrial wastewater.</p> <p>The SEIP project will work on solutions for improved online monitoring systems, which would help in better monitoring of the pollution levels and improvements from time to time.</p>
<p>□ Skills development for operators (technicians, helpers) of industrial wastewater treatment plants</p>	<p>The industrial wastewater treatment plants has several jobs associated, viz. support staff, supervisory staff, managerial staff etc. depending on the size of the treatment plants. In association with the Skill Council for Green Jobs of the National Skill Development Corporation, the SEIP project is working on skills development for technicians and helpers of the ETPs/CETPs in Vapi, Haridwar and Delhi. The improved skills are expected to improve the operation of the treatment plants, thereby reducing pollution levels.</p>