Improving Water Use and Reducing Water Pollution in Industries

Experiences from the “Sustainable and Environment-friendly Industrial Production Project” of the German Development Cooperation in India

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Successful Approach 1: RECP in individual industries

- Over 100 success stories
- Water savings: 14,129 m³ per year
- Energy savings: 1,418,178 Kilo Watt per year
- Money savings: 200,000 US $ per year
Successful Approach 1: RECP in individual industries [2]

Approach Followed:

• Awareness sessions conducted in selected industry clusters
• Low hanging fruits identified in volunteering industries
• Technical support provided on solutions
• Results tracked and documented
• Industries implemented more results
• Successes shared with other industries and industrial areas for replication
Successful Approach 1: RECP in individual industries [3]
Successful Approach 2: Water pollution reduction in industries

- 20 to 60% pollution reduction at sources
- Improvements in ETPs and CETPs
- 200 tons of waste at Vapi CETP getting sun dried
- Co-processing solutions for CETP waste
Successful Approach 2: Water pollution reduction in industries [2]

Approach Followed:

• Awareness sessions conducted in selected industry clusters

• Low hanging fruits identified in volunteering industries

• Technical support provided on solutions

• Results tracked and documented

• Industries implemented more results

• Successes shared with other industries and industrial areas for replication
Kwality Polythreads Pvt. Ltd., Haridwar - successfully recycled treated wastewater for dyeing of dark coloured yarns. **Target: Zero Liquid discharge.**
M/s Wipro Enterprises Pvt Ltd., Haridwar - Operational costs are being reduced through effective fats, oil & grease management. **Targeted reduction of pollutant load > 40%**
Successful Approach 3: Skills development of technicians of waste water treatment plants

• Training system developed for skills development for technicians
  • Over 500 technicians trained
  • Over 30 certified individual trainers
  • From pilot run, 5 industries show improvements

Nearly 65% of the workforce constitutes technicians and helpers!!
Successful Approach 3: Skills development of technicians of waste water treatment plants [2]

Skills development for technicians and helpers – Delhi, Vapi, Haridwar; 2016, 2017
Skills development for technicians and helpers

- **Sarna Chemicals Pvt. Ltd., Vapi**: Reduction in excess sludge generation in the aeration tank.
- **Bayer Vapi Pvt. Ltd., Vapi**: Improved clarifier performance led to reduction in TSS and COD by about 19%.
- **Aarti Industries Ltd, Organic Apple Division, Vapi**: Reduced water consumption, reduced COD and Ammoniacal Nitrogen, reduced sludge.
- **Aarti Industries Ltd., Amine Division, Vapi**: Reduced sludge generation at the ETP.
- **M/s Enviro Technology Ltd., Bharuch**: 20% reduction in sludge generation and reduced moisture content.
Pollution reduction at M/s Meenakshi Polymers Pvt. Ltd. in Haridwar

- Sodium Bimetasulphate (SBMS) to neutralise reduced from 550 kg costing INR 15,950 in July 2016 to 200 kg costing INR 6,200 in October 2016. A significant **cost reduction of 61%** was achieved in just 3 months!!
- **Monthly savings of INR 33,600**, besides saving consumption of 700 kg of caustic soda per month.
- Change of pumps **reduced the expenditure** on the disposal of about 3,000 kg of wet sludge per month at a cost of INR 12 per kg
- Regular replacement of the carbon and sand filters in RO Plant every six months in order **to avoid sludge bypass**.
- Waste rendering plant or an evaporator to heat and dry the wet sludge is under planning. This will help in estimated **40% reducing waste quantity**.

**Waste generation reduced by nearly 50% and cost reduction by 60%!!**
Successful Approach 4: Improvement of drainage systems and rainwater harvesting

Approach Followed:

• Integrated stormwater management plan developed for the industrial area
• Drainage retrofitting
• Rainwater harvesting in non-contaminated areas
Storage tank above ground  

Storage tank below ground  

Troughs, Water retention basins
Successful Approach 5: Participatory Approaches and Voluntary Actions

Approach Followed:

• Industry associations and industries volunteer

• 1 to 3 months of clean up drives undertaken

• Waste dumps are removed

• Clogged drains are cleaned

• Plantation taken up
Successful Approach 5: Participatory Approaches and Voluntary Actions

Participatory Approaches for Building Environmental Consciousness – Case of GIDC Industrial Estate, Vapi

- More than 6,000 people participated
- 450 people signed the pledge for taking efforts towards protecting the environment

| Over 500 tons waste dumps removed | Lots of plantation undertaken | Illegal discharges stopped | Clogged drains cleaned up |
Environment Improvement Drives in Haridwar Industrial Estate

- Nearly 40,000 tons of waste removed.
- Clogged drains cleaned
- 2 waste dumps converted to parks
Transformation of 20 year old waste dumpyard into a park in Patparganj Industrial Area through participatory approach; 1.26 acre site; 3 months (June to August 2016)

Mr. Sanjay Gaur, President, Patparganj Industrial Association (PFEA)

“We are thankful to DSIIDC and GIZ for their cooperation and motivating us to take up the Environment Improvement Drive. We will have more such drives in future and many more activities are in the pipeline, and step by step, we are confident to make Patparganj Industrial Area into a role model for other industrial areas in Delhi to follow!”
Successful Approach 6: Best Available Techniques
Reference Documents

Approach Followed:

• Process oriented approach of 24 to 36 months

• BAT documents for textiles under preparation

• Water use, water pollution reduction etc. explained

• Regulations can be better framed and compliance improved

http://seip.urban-industrial.in/e63552/e65250/e65251/
European Best Available Techniques Reference (BAT) Documents

Successful Approach 7: Improvement of framework

International Framework for Eco-Industrial Parks

- Park management performance
- Environment performance
- Social performance
- Economic performance

Successful Approach 7: Improvement of framework [2]

Improved planning and retrofitting of industrial areas
Successful Approach 7: Improvement of framework [3]

Professional Management Bodies for Industrial Parks

**Infrastructure Services**
- Environmental infrastructure & services
- Social infrastructure & services
- Technical infrastructure & services
- Disaster risk management services

**Governance Services**
- Property management
- Advisory role to GIDC
- Stakeholder management, CSR
- Information & communication

**Promotional Services**
- Marketing of the estate and products
- Mobilisation of funds & resources
- Business development
- Training, awareness, capacity development
Successful Approach 7: Improvement of framework [4]

- Online monitoring guidelines
- Comprehensive guidelines for tannery sector
- Sustainability standards for industrial areas
- Grant scheme for promoting cleaner production
- Best Available Techniques Reference (BAT) Documents
- Industrial infrastructure upgradation scheme
## Recommendations

- **Strengthen framework conditions**
  - Legal framework
  - Knowledge products
  - Incentive mechanisms
  - Organisational structures & processes

- **Promote cleaner production in industries**

- **Retrofit planning for old industrial areas**

- **Promote voluntary actions by industries and industrial areas**

- **Adopt ‘International Framework for Eco Industrial Parks, plan properly new old industrial areas**

- **Develop BAT reference documents**
Visit of German Ambassador to SIIDCUL Haridwar

30 August 2017, Haridwar

His Excellency Dr. Martin Ney, German Ambassador to India visited Integrated Industrial Estate (IIE), SIIDCUL Haridwar on Wednesday, 30th August 2017. This was a part of a 4-day visit to the state of Uttarakhand, in which he was accompanied by his wife, key officials from German Embassy and other representatives.

During his visit, a ‘Coffee meeting: Interaction with Industry’ was organised by SIIDCUL Manufacturers Association of

http://seip.urban-industrial.in/
Thank you!

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