

First Report on

Cleaner Production Promotional Activities

(Supported by Department of Forests and Environment, Government of Gujarat)



Gujarat Cleaner Production Centre

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Government of Gujarat



Submitted by:



Gujarat Cleaner Production Centre
Udhyog Bhavan, Gandhinagar





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First Report on Cleaner Production Promotional Activities

Project Background:

Gujarat has achieved an impressive industrial development since its inception as a state since 1960. The industrial sector at present comprises of huge number of Micro Small, Medium and Large scale of industries. It has 204 industrial estates established by Gujarat Industrial Development Corporation (GIDC). The strengths of the industries lie in its Small and Medium Enterprises (SMEs).

The industrialization brought economic prosperity to the state, but also resulted in the deterioration of environment. It was realized that taking reactive steps was not a proper answer to pollution control, but there is a need of 'Proactive' step which can prevent the generation of pollutants; rather than treating the generated waste at the End-of-Pipe. Cleaner Production is the preventive approach for the environmental pollution.

Cleaner production is a preventive environmental protection initiative, which emphasizes on reduction of generation of wastage; rather than to treat the generated waste. It is intended to minimize waste and emissions and maximize product output. By analyzing the flow of materials and energy, options to minimize waste and emissions out of industrial process through source reduction strategies are identified. Implementation of Cleaner Production helps to reduce the use of materials and energy, and to avoid waste, waste water generation, and gaseous emissions, and also waste heat and noise and provides better choices for improved processes.

Cleaner production concepts have consequences for the whole life cycle of a product and can foster improvements in product design, selection of raw materials, and efficiency in production and/or energy use, safety during manufacture and consumer use, reparability and recyclables. The cleaner Production strategy is in full compliance with the concept of sustainable development.

Gujarat Cleaner Production Centre, established by the Department of Industries and Mines, Government of Gujarat; has been proactively engaged in the





promotion and implementation of Cleaner Production in various industrial sectors of Gujarat since its inception in 1998. So far, GCPC has conducted more than 200 CP Assessments in various sectors like chemical, dyes & intermediates, pulp & paper, dairy, textile, electroplating, fishery, stone crushing, bentonite manufacturing and service sectors.

Though, by this time many industries have shown interest in CP, however, the implementation and demand has not been generated from the industries. Therefore, it is necessary to make industries aware about CP continuously. To motivate the industries, Department of Forests and Environment, Government of Gujarat has initiated for Proactive Concepts and supporting in implementation of Cleaner Production. As a part of this activity, Forests & Environment Department assigned a project of Promotion Programme Cleaner Production in various industrial sectors of Gujarat to Gujarat Cleaner Production Centre.

The main objective of the Promotion programme is to spread awareness on Cleaner Production in different sectors and to develop understanding of CP concept and its linkages in achieving overall environmental improvement and compliance.

This First Report on Cleaner Production Promotional Activities includes the progress of the Cleaner Production Promotion Programme at Industrial Estates covering the period from May 2015 to September 2015.

Cleaner Production Promotion Programme:

Cleaner Production Promotion Programs at various industrial estates were conducted as below.

1. Cleaner Production Promotion Programme at Odhav, Dated 19/05/2015
2. Cleaner Production Promotion Programme at Himmatnagar, Dated 01/07/2015
3. Cleaner Production Promotion Programme at Sarigam, Dated 17/08/2015
4. Cleaner Production Promotion Programme at Panoli, Dated 09/09/2015
5. Cleaner Production in Household at GCPC, Gandhinagar, Dated 15/09/2015





Preparation of Promotion Programme:

Though to conduct Promotion Programme on Cleaner Production is a routine activity, but for this project an exclusive team of senior officials from GCPC have been formed under direct supervision of Member Secretary, GCPC.

A descriptive presentations covering following themes have been prepared:

→ Industrialization & CP

- Industrial Scenario of Gujarat
- Measure for Environment Protection (End of Pipe) Treatment & Disposal
- Concept of CP
- Establishment of GCPC
- Support by Department of Forests and Environment

→ CP Tools

→ CP Methodology

→ Success Stories of CP

- Textile Sector
- Chemical Sector
- Dyes and Dyestuff Sector
- Pharmaceutical Sector
- Electroplating Sector
- Recycle Paper Sector
- Pulp and paper sector
- Service Sector like Hotels & Hospitals
- Foundry Sector
- Stone Crushing Sector
- Bentonite Sector
- Fish Processing Sector





→ Financial Assistance

- Scheme of financial assistance for CP Implementation under Gujarat Industrial Policy – 2015 of Industries Commissionerate, Government of Gujarat

→ An environment friendly Jute Bags were distributed to all participants, consisting of:

- CD comprising of following things:
 - Guidelines on Cleaner Production Implementation in various sectors, Posters, Cleaner Production Booklets prepared by GCPC.
 - Schemes of financial assistance under Gujarat Industrial Policy 2015 of Industries Commissionerate, Government of Gujarat.
 - Copy of PowerPoint Presentations
- Writing Pad made of Recycled Paper
- Pen
- Programme Schedule

The details of the Promotion programme are given in the following pages.





Cleaner Production Promotion Programme at Odhav

(Venue: Odhav CETP Hall, Odhav Industrial Estate, Odhav, Dated 19/05/2015)

Gujarat Cleaner Production Centre had successfully organized a Cleaner Production Promotion Programme at Odhav CETP Hall on 19th May 2015 between 3.00 PM to 4.30 PM.

The programme aimed to make the industrialists aware about the Cleaner Production, its background, CP techniques and tools and methodology to implement; with that, to upgrade the knowledge of Cleaner Production Concept, to provide technical expertise to identify the scope and implementation of Cleaner Production, cost savings through the knowledge gaining about Cleaner Production techniques and providing access to financial schemes under Gujarat Industrial Policy – 2015.

Mr. Hiren Bhendwal, Senior Project Engineer, GCPC, Mr. Samir Shah, Director, Odhav CETP, and more than 25 other participants from different industries of Odhav Industrial Estate had attended the programme.

Mr. Samir Shah, Director, Odhav CETP welcomed GCPC team members and all the participants of the programme. Mr. Shah enlightened the objective of the Cleaner Production Promotion programme at Odhav Industrial Estate in his addressing speech.

Mr. Hiren Bhendwal, Senior Project Engineer, GCPC presented GCPC activities in various industrial sectors of Gujarat. He explained the concept of Cleaner Production with its various important Environmental, Financial, and Social aspects. Mr. Bhendwal also described various Cleaner Production Tools with Methodology which could be helpful to implement Cleaner Production in the industry.

Mr. Bhendwal also presented a case study of successful implementation of Cleaner Production in CPC Blue pigment manufacturing industry. He differentiated current manufacturing method and advanced cleaner production method for economical and less polluting production.





He also explained Gujarat Industrial Policy – 2015 of Industries Commissionerate, Government of Gujarat, for Financial Assistance to implement Cleaner Production at industry and cluster level.

At the end of the programme, various questions were asked, pertaining to various technology options available, ongoing issues of industries, industrial policy and criteria of eligibility for the financial assistance as per the Industrial Policy. Mr. Bhendwal deliberated on those issues and also gave technical explanation for the given problems. Mr. Samir Shah gave vote of thanks to GCPC Team and participants of the programme.

Photos of the event:



Mr. Hiren Bhendwal, Senior Project Engineer, GCPC, giving presentation on Cleaner Production – Introduction, Tools & Methodology





A view of the participants at the programme



Mr. Hiren Bhendwal explaining the CP case study and Gujarat Industrial Policy – 2015.





Gujarat Cleaner Production Centre Cleaner Production Promotion Programme Schedule

Date: 19/05/2015

Time: 03.00 pm to 04.30 pm

Venue: Conference Hall of Odhav CETP, Odhav

Duration	Activity
03.00 - 03.30	Registration & Tea
03.30 - 03.40	Welcome address by Mr. Samir Shah, Director, OEPL
03.40 - 04.10	Technical presentation by Mr. Hiren Bhendwal, Senior Project Engineer, GCPC <ul style="list-style-type: none">• Concept of Cleaner Production• Cleaner Production Methodology• Cleaner Production Tools• Cleaner Production Case Study• Industrial Policy 2015
4.10 - 4.25	Discussion Session
4.25 - 4.30	Vote of Thanks by Mr. Samir Shah, Director, OEPL

❖ List of participants is attached as **Annexure – I**





Cleaner Production Promotion Programme at Himmatnagar

(Venue: Montage Laboratories Pvt. Ltd., Dhandha, Himmatnagar, Dated 01/07/2015)

The Cleaner Production Promotion Programme was organized by Gujarat Cleaner Production Centre for Pharmaceutical manufacturing industries of Himmatnagar on 1st July 2015 at Montage Laboratories Pvt. Ltd, Dhandha, Himmatnagar from 10:30 AM to 12 PM.

Some of the noteworthy participants at the event were Mr. B. J. Sutreja, RO – Himmatnagar, GPCB, Mr. K. N. Shah, President, Pharma & Drug Industries Association, Mr. Punamchandra Rathod, Senior Project Engineer, GCPC and with that, more than 20 pharmaceutical industries participated in the programme.

Mr. K. N. Shah, President, Pharma & Drug Industries Association, welcomed all the member industries and the GCPC team. He gave in brief introduction on Pharmaceutical Sector's scenario in Himmatnagar. He also discussed on need of implementation of cleaner production techniques for water and energy saving to improve process performance and hence save the environment.

Mr. Punamchandra Rathod, Senior Project Engineer, GCPC also welcomed all the participants and briefed about objective of the programme. He started Technical session with the presentation on “Industrialization and Cleaner Production”. He briefed all the participants on Introduction to Cleaner Production, Concepts of CP, methodology and various tools to implement Cleaner Production in the pharmaceutical industry.

He also presented case studies of successful implementation of Cleaner Production in the pharmaceutical industry. He explained comparison of raw material, energy and water consumption before implementation of CP and after implementation of CP. He also discussed various best available techniques to improve processes and best use of resources. He also made a presentation on Gujarat Industrial Policy 2015 of Industries Commissionerate, Government of Gujarat for financial assistance to implement cleaner production in industries.

After that, Mr. B. J. Sutreja, RO – Himmatnagar, GPCB addressed the participants. He appreciated them for their presence in the event and also appreciated the GCPC team for organizing the programme. He briefed the participants on the





importance of implementing the Cleaner Production techniques in spite of doing end-of-pipe treatment and also suggested them to implement Cleaner Production in their manufacturing units.

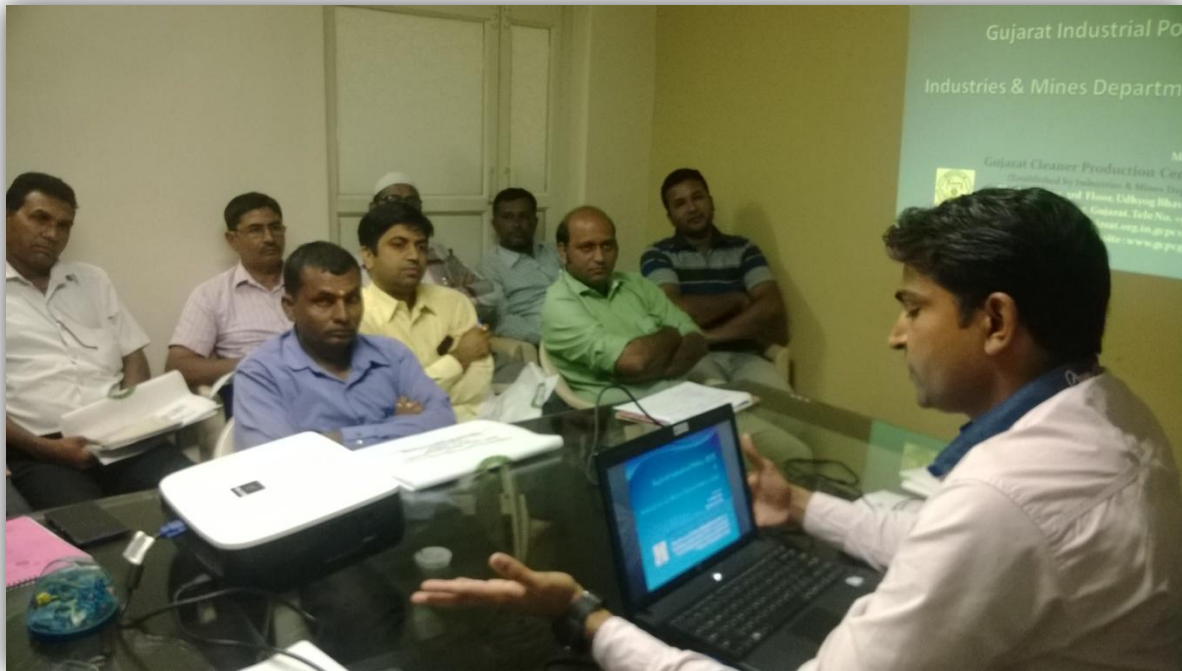
In the discussion session, many participants asked various questions related to guidance for implementing Cleaner Production, especially in the drugs and pharmaceutical manufacturing industries and guidelines to minimize the generation of waste and make the process energy efficient; to which Mr. Rathod replied accordingly, hence solving their queries. The programme concluded with the vote of thanks by Mr. Shah to all the participants.

Photos of the event:



Mr. Punamchandra Rathod, Senior Project Engineer, GCPC, giving presentation on Cleaner Production – Introduction, Tools & Methodology





Mr. Punanchandra Rathod explaining Gujarat Industrial Policy – 2015 of Industrial Commissionerate, Government of Gujarat



Participants asking their queries to GCPC Team





A View of Participants at the programme





Gujarat Cleaner Production Centre

Cleaner Production Promotion Programme Schedule

Date: 01/07/2015

Time: 11:00 AM to 12:00 PM

Venue: Montage Laboratories Pvt. Ltd, At. Dhandha, Idar Road, Himmatnagar

Duration	Activity
10:30 to 11:00	Registration & Tea
11:00 to 11:05	Welcome address by Pharma & Drug Industries Association, Himmatnagar.
11:05 to 11:50	Technical session: Presentation on 1.Cleaner Production Concepts & Tools 2.Methodology 3. CP Case Studies 4. Gujarat Industrial Policy 2015 5. Discussion Session
11:50 to 12:00	Address by Shri B. G. Sutreja, Regional Officer, Himmatnagar, GPCB.
12:00 to 12:05	Vote of Thanks by Pharma & Drug Industries Association, Himmatnagar.

❖ List of participants is attached as **Annexure – II**





Cleaner Production Promotion Programme at Sarigam

(Venue: SIA Conference Hall, Sarigam, Dated 17/08/2015)

The Cleaner Production Promotion Programme was organized at Sarigam Industrial Estate to build wide spread understanding of the concept of Cleaner Production to various industrial sectors and industrial personnel by Gujarat Cleaner Production Centre on 17th August 2015 at Sarigam Industrial Association Hall, Sarigam.

The participants of the programme included Mr. Y. A. Tai, Environment Engineer, Unit Head, Sarigam, GPCB; Dr. Bharat Jain, Member Secretary, GCPC; Mr. G. V. Patel, RO Sarigam, GPCB; Shri Muljibhai, President, Sarigam Industries Association; Mr. Shirish Desai, Ex. President, Sarigam Industries Association; and with that around 75 member Industries of Sarigam Industrial Estate.

The programme started with the welcome speech of Shri Muljibhai, President, Sarigam Industries Association. He welcomed all the participants, GPCB team and GCPC team. He mentioned that Sarigam Industrial Area has more number of chemical industries and that is why the need of pro-active step like cleaner production for the reduction of environmental pollution is required.

Mr. G. V. Patel, RO Sarigam, GPCB, addressed all the participants. He welcomed all the participants to the programme and briefed all the importance of resource conservation and reduction of waste at all the process stages, particularly in polluting industries of chemical sector. He also explained the concept of sustainable economic growth and asked all industries to practice it in their units.

Then, Mr. Y. A. Tai, Environment Engineer, Unit Head, Sarigam, GPCB addressed the participants, mentioning the importance of environment management system at industry level. He also threw some light on the role of GPCB in environment protection and pollution control. He said that apart from being a regulator, GPCB is also facilitator. He explained the concept of End of Pipe treatment strategy and pollution prevention strategy.





The technical session included the presentation by Dr. Bharat Jain, Member Secretary, GCPC. He mentioned about the difference between end of pipe treatment and proactive treatment. He stated that implementation of waste reduction at source is important, even for small scale industries. He requested the industries to enhance the participation and utilize the Government incentive for installation of cleaner/greener processes. He also presented cleaner production concept with methodology for successful implementation of CP in any industry. He also mentioned in his presentation about Cleaner Production tools like good housekeeping, raw material change, process modification, recycle and reuse etc. He also added quantification of selected CP tools with its advantages to the industry.

Dr. Jain also made a presentation on Industrial Policy – 2015 of Industries Commissionerate, Government of Gujarat for financial assistance to implement cleaner production options in industry.

After that, in the question – answer session, participants asked various questions regarding implementation of Cleaner Production. Other questions focused on criteria of eligibility for the financial assistance for Cleaner Production in Industrial Policy – 2015. These questions were answered by Dr. Jain.

In concluding session, Mr. Muljibhai, President, Sarigam Industries Association gave vote of thanks to the GPCB team, GCPC team and all the participants for giving their time for attending the programme.





Photos of the programme:



Dr. Bharat Jain, Member Secretary, GPCB briefing the participants on Cleaner Production





Views of participants at the programme







Gujarat Cleaner Production Centre

Cleaner Production Promotion Programme Schedule

Date: 17/08/2015

Time: 10.30 am to 2.00 pm

Venue: Sarigam Industries Association Hall, Sarigam

Duration	Activity
10.30 to 11.00	Registration & Tea
11.00 to 11.10	Welcome address by SIA
11.10 to 11.20	Address by RO - Sarigam, GPCB
11.20 to 11.30	Address by Unit Head, Sarigam, GPCB
11.35 to 12.20	<p>Technical Session including presentation on</p> <ul style="list-style-type: none"> • Introduction of Industrialization • Gujarat Cleaner Production Centre • Cleaner Production • CP Tools and Methodology • Industrial Policy – 2015 <p>By Dr. Bharat Jain, Member Secretary, GCPC</p>
1.35 to 1.40	Vote of thanks by SIA
1.40 onward	Lunch

❖ List of participants is attached as **Annexure – III**





Cleaner Production Promotion Programme at Panoli

(Venue: Panoli Industries Association Hall, Panoli, Dated 09/09/2015)

GCPC organized Cleaner Production Promotion programme at Panoli Industries Association Hall, Panoli on 9th September 2015, at 02.30 PM to 04.20 PM.

The seminar witnessed participation of Mr. A. V. Shah, RO Ankleshwar, GPCB; Mr. B. S. Patel, President, Panoli Industries Association; Mr. A. K. Nigam, Vice President, Cheminova India Ltd., Panoli; Dr. Bharat Jain, Member Secretary, GCPC; Mr. Punamchandra Rathod, Senior Project Engineer, GCPC; Mr. Hiren Bhendwal Senior Project Engineer, GCPC and with that, around 30 participants from various industries of Panoli Industrial Estate.

The program started with the welcome address by Mr. B. S. Patel, President, Panoli Industries Association. He welcomed all the participants and GCPC Team and participants and spoke on industrial development in Panoli Industrial Estate. He pointed out about the rise in pollution problems occurs from production process and need of Cleaner Production Implementation in Industries.

Mr. A. V. Shah, RO – Ankleshwar, GPCB addressed the participants at the programme. He appreciated the presence of the members of the Panoli Industrial Estate. He also briefed the audience on the damage caused by the environmental pollution and the importance of the pollution prevention strategy. He mentioned that Cleaner Production is the best way to prevent the pollution. He said that industrialists should come forward to reduce the environmental pollution in their units and if all industries would be aware of it, we would be able to achieve what ‘Pollution Prevention’ is known as.

After that, Dr. Bharat Jain, Member Secretary, GCPC addressed the participants at the programme. He welcomed the invitees and industries of the program and stated that it is required to have a preventive strategy in place that will encompass all clean technologies. He reiterated his pleasure to see the participants of the programme who got together to discuss on the Cleaner Production. He also mentioned about the end of pipe solutions. He stated that implementation of waste reduction at source is important, even for small scale Industries. He





requested the industries to enhance the participation and utilize the Government incentive for installation of cleaner/greener processes.

After that, a presentation was made by Mr. Punamchandra Rathod, Senior Project Engineer, GCPC; giving introduction to the Cleaner Production and Cleaner Technology, activities of GCPC in Gujarat, Cleaner Production tools and methodologies to implement CP in industries to lead towards more efficient use of energy, raw material and water and ultimately reducing the generation of waste. Through a map he described how CP concept has grown in Gujarat.

After that, a presentation was made by Mr. A. K. Nigam, Vice President, Cheminova India Ltd. of Panoli, briefing on the implementation of various tools of CP in Cheminova India Ltd. He mentioned about a 4-Rthon program started by Cheminova India Ltd. to successfully implement Reuse, Reduce, Recycle and Recover philosophy in the company. He also mentioned about various improvements undertaken in the safety and health department to ensure the secured working conditions of the workers in the company.

After that, Mr. Punamchandra Rathod also gave a presentation on the schemes for Financial Assistance for the implementation of Cleaner Production and environmental protection as per the Gujarat Industrial Policy – 2015 by Industrial Commissionerate, Government of Gujarat.

At the end of all presentations, various questions were asked, pertaining to various technology options available and ongoing issues of industries. The experts deliberated on these issues and also gave some technical explanation for the given problems. Other questions focused on Industrial Policy 2015 which can be used for small and medium scale industry, particularly regarding the eligibility criteria for obtaining the financial assistance as per the policy. These questions were answered by the experts.

With that, the programme concluded with the vote of thanks by the President, Panoli Industries Association to all the participants, GPCB and GCPC team.





Photos of the programme:



A view of the presentation made at the programme



Dr. Bharat Jain, Member Secretary, addressing the participants





Mr. P. R. Rathod, Senior Project Engineer, giving presentation on Gujarat Industrial Policy – 2015



Mr. A. V. Shah, RO - Ankleshwar, GPCB addressing the audience





A view of the presentation made at the programme





Gujarat Cleaner Production Centre

Cleaner Production Promotion Programme Schedule

Date: 09/09/2015

Time: 02.30 PM to 04.20 PM

Venue: Panoli Industries Association Hall, Panoli.

Duration	Activity
2.30 to 3.00	Registration & Tea
03.00 to 3.10	Welcome address and introduction of programme by President, PIA
03.10 to 03.15	Address by Dr. Bharat Jain, Member Secretary, GCPC.
3.10 to 3.15	Introductory Remarks by Mr. B S Patel, President, PIA
03.15 to 03.25	Address by RO - Ankleshwar, GPCB
03.25 to 03.40	Presentation on Cleaner Production, Introduction, Background, Tools and methodology for implementation by Mr. P. R. Rathod, Sr. Project Engineer, GCPC
03.40 to 04.00	Presentation on Cleaner Production case study by Cheminova India Ltd.
04.00 to 04.10	Presentation on Financial Assistance for Cleaner Production under Gujarat Industrial Policy 2015 by GCPC
04.10 to 04.15	Question – Answer session
04.15 to 04.20	Vote of Thanks by PIA

❖ List of participants is attached as **Annexure – IV**





Cleaner Production in Household

(Venue: Conference Room, GCPC, Gandhinagar, Dated 15/09/2015)

Gujarat Cleaner Production Centre had organized a program on ‘**Cleaner Production in Household**’ at GCPC Conference Hall, Gandhinagar. The objective of the program was to spread awareness about wastage at domestic level and how we can implement the tools of cleaner production at domestic level to reduce the generation of waste at source. About 40 women from Gandhinagar had attended this programme.

“Cleaner Production is the continuous application of an integrated, preventive environmental strategy towards processes, products and services in order to increase overall efficiency and reduce damage and risks for humans and the environment.”

The programme started with Saraswati Vandana.

Dr. Bharat Jain, Member Secretary, GCPC welcomed the participants and addressed the gathering. Dr. Jain explained that how Cleaner Production plays a crucial role for domestic waste management. He also highlighted Gujarat’s industrial growth and activities of GCPC. He mentioned that Gujarat, being the fastest developing state in terms of economy and industrial growth, also results into various types of pollution which has badly affected the environment as well as human health. He also said that, so far, many steps have been taken to reduce the hazardous waste generation, but it is better to prevent the pollution, rather than cure. He mentioned that the best way to reduce the pollution is to generate less waste.

Mr. Paras Gojiya, APE, GCPC explained the existing water scarcity in the world and drinking water scenario in India. He showed different types of water losses in house and also discussed water conservation measures.

Next, Mr. Kiran Varma, APE, GCPC explained different type of Energy Losses at domestic level and also highlighted the energy conservation measures. He also briefed advantages of solar energy over conventional energy resources.





Ms Priyanka Joshi, Information Officer; GCPC-ENVIS explained food waste management followed by plastic waste management and also highlighted the hazards associated with usages of mobile and its precautionary measures. She also briefed different case studies of food waste management.

The final part of the program was an open discussion for all the participants, in which many participants asked questions/queries related to various aspects of domestic waste management.

Participants thanked GCPC to arrange this kind of programme on household for woman. They were glad to attend such programme. They have requested GCPC to arrange such programs at local level; such as in schools, residential colonies, NGOs, hospitals, hotels etc to create awareness about domestic waste management.

Mrs. Maniben Desai, a participant in the programme, discussed existing problem of domestic waste in Gandhinagar and requested GCPC to arrange more programs to aware the local people for domestic waste management.

Dr. Bharat Jain concluded the programme with vote of thanks.

Photographs of the Program:



Dr. Bharat Jain, MS, GCPC, addressing the gathering





Participants singing Saraswati Vandana followed by Vandemataram



Mr. Paras Gojiya, APE, GCPC presenting water conservation measure at domestic level.





Mr. Kiran Varma, APE, GCPC making presentation on energy conservation



Ms. Priyanka Joshi, Information Officer, GCPC-ENVIS giving presentation on food waste and plastic waste management





Participants giving suggestions on plastic waste management



Mrs. Maniben Desai, discussing existing problem of domestic waste in Gandhinagar





Gujarat Cleaner Production Centre

Cleaner Production Promotion Programme Schedule

Date: 15/09/2015

Time: 04.00 PM to 05.15 PM

Venue: Conference Room, Gujarat Cleaner Production Centre, Gandhinagar

Duration	Activity
03.30 to 04.00	Registration & Tea
04.00 to 04.05	Saraswati Vandana and Vandemataram
04.05 to 04.10	Welcome address by Dr. Bharat Jain, Member Secretary, GCPC.
04.10 to 05.00	Technical presentation on Cleaner Production in household; including <ul style="list-style-type: none"> • Introduction to CP and GCPC • Importance of CP in household • Water waste management • Energy waste management • Food waste management • Plastic waste management • Mobile phone hazards
05.00 to 05.10	Discussion session for all the participants
05.10 to 05.15	Vote of thanks by Dr. Bharat Jain, Member Secretary, GCPC.

❖ List of participants is attached as **Annexure – V**





Stop Pollution – Save Environment



Gujarat Cleaner Production Centre

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