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First Module Report

ECOPROFIT Programme Hyderabad - 2009

(Project: Planning and Development of Eco Industrial Parks in Andhra Pradesh)

A Management Strategy for Industries' Economic and Ecological Benefits and Sustainable Development



May 12 - 22, 2009
Hyderabad

Supported by:

Federal Ministry for the Environment, Nature Conservation and Nuclear Safety

Report Content

1. Introduction

The concept note on ECOPROFIT Programme Hyderabad was released in January 2009 and companies from different industrial parks and zones were invited to submit their interest for participation in the programme by submitting filled-in "Application Form" to GTZ-ASEM Environment cell at APIIC.

On April 22, 2009, the Preparatory Meeting was conducted which was chaired by Dr. S. S. Varaprasad, Advisor (EMP) APIIC, Hyderabad and the participants included Mr. Raghu Babu Sr. Technical Specialist, GTZ – ASEM, New Delhi, Mr. C. Reddy, Sr. Technical Expert BDS, GTZ-SME, Hyderabad, and Mr. A. Narayan Reddy, Sr. Technical Consultant Environment Cell, GTZ – ASEM, APIIC, Hyderabad. Mr. Lalit Sharma Project Manager of ECOPROFIT Team India of GTZ-ASEM has presented the programme structure, content and deliverables. First Selection List of the companies was also evaluated on the basis of information provided in their submitted "Application Form" and further a Preliminary Assessment Visit was planned from April 27-May 02, 2009. During the assessment visit 28 companies were visited and ultimately on the basis of specific selection criteria and company's response and consent, final 16 companies were chosen for the project and were participation letter signed by Dr. Juergan Bischoff, Director GTZ-ASEM, New Delhi was sent to these companies and they were invited for Workshop 01 and further activities of Module I of this programme.

The list of selected companies is given below:

1.	M/s Srichaitanya Chlorides Pvt. Ltd.	Pashammylaram
2.	M/s Rane Engine Valve Ltd.	Aziznagar
3.	M/s Nakoda Chemicals Ltd.	Jeedimetla
4.	M/s Srinath Rotopack Pvt. Ltd.	Mankhal
5.	M/s Glochem Industries Limited	Sanathnagar
6.	M/s Taurus Chemicals (P) Ltd	Bollaram
7.	M/s Sri Krishna Drugs Limited.	Bollaram
8.	M/s Paragon Polymer Products Pvt. Ltd.	Patancheru
9.	M/s Agarwal Rubber Limited	Patancheru
10.	M/s Sri Krishna Pharmaceuticals Limited	Uppal
11.	M/s Alkali Metals Limited	Uppal
12.	M/s Aster Teleservices Pvt. Ltd.	Nacharam
13.	M/s Dual Rings Pvt Ltd	Nacharam
14.	M/s Times Of India	Nacharam
15.	M/s Salicylates and Chemicals Pvt Ltd	Nachram
16.	M/s AVRA Labs Private Limited (Unit II)	Nacharam

2. Planned Activities: Module I

Broadly there were four activities planned in this module.

i) Collecting the Letter of Interest (LoA) and Project Nomination Form by the companies
ii) Participation of the companies in Capacity building training workshop 01 and workshop 02, conducted on May 14 and 15, 2009 respectively.
iii) Half day (4-5 hours) on-sight consulting visit at participating companies to identify potential areas of improvement on basis of which technical reports Action Plan would be made and
iv) Submission of Environment Report by the companies.

The above activities are further described in detail in respective parts of this report.

3. Project Inauguration Session

3.1 Inauguration Schedule

ECOPROFIT Programme Hyderabad - 2009 PROJECT INAUGURAL SESSION	
Date:	**May 14, 2009 (Thursday)**
Venue:	Bulk Drug Manufacturers Association (BDMA) - Seminar Hall C/25 Industrial State, Sanath Nagar, Hyderabad - 500 018
Topic:	**Cleaner Production and Waste Minimization - *steps towards ECOPROFIT approach* -**

Time	Training Sessions Description
09:00-09:30	*Registration for the workshop*
09:30-10:00	Project Inaugural Session: ▪ Mr. A.V. Ramakrishna, General Manager, EMP, APIIC, Hyderabad. ▪ Mr. K. V. Ranga Rao Executive Director, Bulk Drug Manufacturers Association (BDMA). ▪ Mr. Chandrasekhar Reddy, Sr. Technical Expert, BDS, GTZ-SME, Hyderabad ▪ Dr. S.S. Vara Prasad, Advisor, EMP, APIIC, Hyderabad. ▪ Introduction with companies.

3.2 Inauguration Speech

- *Mr. A.V. Ramakrishna, General Manager, EMP, APIIC, Hyderabad.*
  Mr. Ramakrishna, has officially inaugurated the programme, and in his introduction speech he emphasised on the importance of Energy conservation and waste minimisation practices for the SME's. He also briefed the participants about various other initiatives APIIC has been bringing to companies in their industrial parks.

- *Mr. K. V. Ranga Rao Executive Director, Bulk Drug Manufacturers Association (BDMA).*
  Mr. Rao, informed the participants about the working of BDMA and their association with APIIC. He also briefed the companies about the need of climate mitigations measures and CDM concepts. During his detail speech he urged the companies to emphasise on the need of implementation of environmental measures, and have thanked GTZ-ASEM for bringing this project to Hyderabad

- *Mr. Chandrasekhar Reddy, Sr. Technical Expert, BDS, GTZ-SME, Hyderabad*
  Mr. Redy, expressed vote of thanks for all dignitaries on dais, the companies participants, GTZ-ASEM, Local Experts and Mr. Markus Moeller, from STENUM GmbH, Austria –The International Expert for initiating this project in Hyderabad. He also briefed about their project initiatives and have urged the companies to concentrate more on the implementation and documentation of the suggested measures, from such projects.

- *Dr. S.S. Vara Prasad, Advisor, EMP, APIIC, Hyderabad.*
  Dr. Prasad at the end of session interacted with the company participants and has urged them to take maximum benefit of the training and individual consulting component of this project. He also thanked GTZ-ASEM for initiating this project.

- Finally all the participants from the companies were introduced.

3.3 Pictures from Inauguration

On the dais during Inaugural Session: From right to left - Mr. K. V. Ranga Rao (BDMA), addressing the inaugural session along with other dignitaries. Mr. Chandrasekhar Reddy (SME-GTZ), Mr. A.V. Ramakrishna, (EMP-APIIC), Mr. Markus Moeller, (STENUM) and Mr. N. Reddy (GTZ-ASEM)

Mr. A.V. Ramakrishna, (EMP-APIIC), addressing the participants during his project inaugural speech.

Mr. C. Reddy delivering Vote of thanks after the inaugural session

Participants and other delegates during the training workshop

Project Component 01:

Capacity Building Training Workshop 01

4. Project Component 01: Capacity Building Training Workshop 01

4.1 Programme Schedule for Training Workshop No. 01

ECOPROFIT Programme Hyderabad - 2009 PROGRAMME SCHEDULE : WORKSHOP 01	
Date:	**May 14, 2009 (Thursday)**
Venue:	Bulk Drug Manufacturers Association (BDMA) - Seminar Hall C/25 Industrial State, Sanath Nagar, Hyderabad - 500 018
Topic:	**Cleaner Production and Waste Minimization - *steps towards ECOPROFIT approach -***

Time	Training Sessions Description
10-00-10:30	**Input:** Introduction to the Project Structure and deliverables. *How does the approach works? What makes this approach successful? What are the overall all deliverables? What are the contents for Workshop 01?*
10:30-10:45	***Tea Break***
10:45-11:20	**Input:** Introduction into Cleaner Production (C.P.) - preventive environmental protection *What is the idea of CP? How do CP and ECOPROFIT work together? What is the connection to waste minimisation?*
11:20-11:35	**Input:** Brief about the Tools of ECOPROFIT concerning CP
11:35-11:45	**Exercise: Working Break**: ECOPROFIT' s Weather Situation in company
11:45-12:45	**Input:** CP Strategies in daily life of work with practical examples of CP in various Industries. *Examples of options and measures implemented by ECOPROFIT companies and development of resource efficiency in these companies.*
12:45-01:00	**Exercise: Interactive:** Cleaner Production Ideas from Participating Companies *To discuss some ideas from the participating companies regarding their CP experience*
01:00-02:00	**Lunch**
02:00-03:00	**Exercise: Group Work**: Mini Case Studies *Test for participants with practical exercise on CP to be done in groups and results to be explained*
03:00-03:10	**Input:** Conclusion on CP
03:10-04:00	**Exercise**: **Group Work:** Fun Factory Exercise on Cleaner Production *Practical usage of the theoretical input via exercise over an imaginary industrial production*
04:00-04:15	***Tea Break***
04:15-04:30	**Input:** Topic Conclusion / Interaction with participants
04:30-04:45	**Input:** Description of Environmental Report: *Tool of ECOPROFIT to support work and get important controlling tool for steady improvement in the companies*
04:45-05:00	**Feedback/ Discussion**
05:00	End of the day

Description:
Inputs: is the technical presentation session about the described topic.
Exercise: is the practical interactive session about the described topic which adds fun in learning and makes the technical topics interesting and easy for understanding for the participants.

4.2 Technical Session:

The Technical sessions and the Interactive Exercises (Group Work) were made by Mr. Markus Moeller, Expert, STENUM GmbH - Austria, Mr. Lalit Sharma and Mr. Nitesh Patel from ECOPROFIT Team India. The gist of all the technical sessions is described below.

Input Session 01:
Introduction to the Project Structure and deliverables.

- This workshop was an opportunity where everyone associated with the project was present hence the overall project structure, content, approach, and possible deliverables were explained in detail, so that everyone has a common understanding about the project and expected results.

- The session incorporated aspects as: How does the approach works? What makes this approach successful? What are the overall all deliverables? What are the contents for Workshop 01?

- Also explained were the methodology that how this ECOPROFIT concept combines the training components with the individual consulting and how company team will have to work on the suggested measures which would be suggested to them by technical reports

- Also Road Map of the project was projected.

Input Session 02:
Introduction into Cleaner Production (C.P.) - preventive environmental protection

- This session was the first step for the participants to learn that what the backbone of ECOPROFIT approach. It was important to describe in detail that it's the Cleaner Production on which ECOPROFIT works, hence CP was explained. Also comparison of CP with End of Pipe approach was elaborated more with explaining the industrial examples, from the past projects.

- Further other aspects were explained like, what is the idea of CP? How do CP and ECOPROFIT work together? What is the connection to waste minimisation?

- Also it was explained that this project is not about bringing over all changes in the process, but is about arresting the low hanging fruits, resource optimisation and detail investigation of the support system of the company.

- Further strategies of waste prevention were elaborated, that how integrated preventive environmental protection can be achieved by using the CP Strategy Level Charts. Various examples were explained and what are the idea killers

(which prevent implementation) were discussed.

Input Session 03:

Brief description about the Tools of ECOPROFIT concerning CP: This session was to briefly describe the tools of ECOPROFIT which would be taught in detail in the upcoming training workshops

- Various aspects like, Input/Output analysis, Data collection, establishing the environmental team, bringing motivation, etc, were discussed.
- How to get the options in the company by tracking the material flow was discussed with the example of Internal Energy System.
- Energy Efficiency, chemical Storages, working with Hazardous Material, and Environmental Controlling aspects were discussed in brief, so that participants may have wide spectrum of over all learning they are going to achieve from these capacity building workshops.

Exercise 01: Interactive only:

The ECOPROFIT weather exercise was conducted, which was an effort to get an unbiased opinion of the participants about their companies situation concerning, waste water, emissions, energy utilisation, occupational hazards, safety issues, etc.

Input Session 04:

CP Strategies in daily life of work with practical examples of CP in various Industries.

- After having the basic knowledge of CP it was important to describe the live case studies incorporating them with the various levels of integrated preventive environmental protection strategies. This was done by explaining each level of strategy with examples of options and measures implemented by ECOPROFIT companies from the past national and international projects.
- This details interactive session has helped the participants to understand that how opting for preventive CP approach/ideas instead of traditional end of pipe control approach, can bring them better results and sustainability in long term. With the case by case pictorial explanations it was easy for them to understand that how with simple creative preventive approach they can bring big environmental savings, in small packages.
- Also the live examples of the previous projects which were explained through these CP strategic Levels, have brought ideas to the participants which they can directly implement in their companies, Like: Compressed Air Monitoring and Control Tool, Drag Out Reduction in Waster Treatment, Cutting Oil Measurement mechanism, Pressurised Water Cleaning instead of traditional one, Gardening at appropriate time, Polypropylene Balls and their thermal insulation, Art out of Waste, etc

Exercise 02: Interactive only:

- Participants were asked to share their experience (if any) where they have done some improvement measures in their premises, which now out of their understanding qualifies as CP idea. This was quite an interactive session where some accurate and some wrong ideas were discussed, argues, and finally explained, that if they fall in CP levels, or not and why so.
- This exercise have further elaborated their understanding of CP as this time by providing their own examples they have felt more associated and learned to point out how Cleaner Production Ideas works.

Exercise 03: Group Work: Mini Case Studies

- This exercise was the test for participants on CP strategies were they were divided in 4 working groups. Each group was provided with one task situation and they were asked to answer that what CP strategy in the task is chosen and does it make sense in their opinion from a technically OR ecological point o view, and finally which additional strategy they would opt for.
- This exercise has given them a chance to understand that in industrial situations how they can implement CP approach.

Exercise 04: Group Work: Fun Factory Exercise on Cleaner Production

- During this group work exercise participants were again divided in 3 groups, and were shown a practical usage of the theoretical input via exercise over an imaginary industrial Fun Factory production situation where they were provided with some coloured plastic row material (yellow – non hazardous, red and blue – hazardous) and some toy machine through which they had to produce requested products (stars, ropes, of flexible material etc).
- The purpose of the exercise was to explain the participants that how Good Housekeeping measures are to be emphasises in every production unit by keeping an eye on efficient row material use, use of proper measuring/ cutting tools, need of safety equipments, etc.
- The learning was to correlate this imaginary situation with company production and examine how to separate waste, use ideas of minimising waste, how to use existing equipments and not think of change in technology, etc. This also have emphasised on handling and waste minimisation aspects and need of appropriate measuring data in any production process.

- The desired outcome was achieved as the participants realised (through this imaginary production system) that what can be the impact of ignoring the minute aspects of good house keeping in the preliminary establishment of any production unit and if ignored then how can they contribute in tackling the environmental consequences by emphasising on CP measures and applying CP tools, with which they can bring improvements in the existing conditions.

4.3 Pictures from the workshop

Lalit Sharma during the input session addressing the First session of the day, while he introduce the overall project structure, deliverable, and planned road map of the project.

Mr. Markus Moeller and Mr. Nitesh Patel during the input session addressing the queries of the participants

Mr. Markus Moeller during the Interactive Exercise 03: Group Work: Mini Case Studies on Cleaner Production, explaining the task and helping one of the working group to understand and solve the calculations of the assigned exercise.

Mr. Nitesh Patel during the Internal Exercise 03: Group Work: Mini Case Studies on Cleaner Production explaining the task to another group.

4.4 Distribution Material (Presentation and Exercises Handouts)

The presentation handouts of the technical sessions are available at the following link:
http://www.hrdp-net.in/e8451/e8981/e9908/e11766/e11893/

4.5 Gist of the Feedback Forms submitted by participants in Workshop 01:

1. One participant suggested that the case studies should be sector-specific according to the majority of participating industry types. He suggested looking into quantification and rectification of various leakages/losses of resources in industries.
2. One participant suggested for the inputs to be more practical than theoretical.
3. One participant requested for more detailed inputs on Cleaner Production strategies.
4. Two participants suggested for including more practical exercises.
5. Four participants found every thing included in the workshop of excellence.
6. One participant wanted inputs to be categorized for production and engineering separately for particular industry type.
7. One participant suggested for more inputs for waste management and energy savings.
8. One participant suggested for input on waste materials.
9. One participant suggested lectures on Cleaner Production are very good and useful for their industry.

Original Forms filled by the participants are attached in Annexure 11.

Project Component 01:

Capacity Building Training Workshop 02

5. Project Component 01: Capacity Building Training Workshop 02

5.1 Programme Schedule

ECOPROFIT Programme Hyderabad - 2009 PROGRAMME SCHEDULE : WORKSHOP 02	
Date:	**May 15, 2009 (Friday)**
Venue:	Bulk Drug Manufacturers Association (BDMA) - Seminar Hall C/25 Industrial State, Sanath Nagar, Hyderabad - 500 018
Topic:	**Material Flow Analysis - an ECOPROFIT tool -**

Time	Training Sessions Description
09:30-10:00	Creative wake up! Exercise on creative thinking!
10:00-11:30	**Input:** Introduction into "Material Flow Analysis". Why a material Flow analysis? What are the steps in carrying out a material flow analysis and Practical advices?
11:30-11:45	**Tea Break**
11:45-12:30	**Input:** Examples of material flow analysis. Material flow analysis of ECOPROFIT Companies
12:30-01:00	**Exercise: Group Work:** Flow chart! Drawing a flow chart of a diary
01:00-02:00	**Lunch**
02:00-03:45	**Exercise: Group Work**: Material Flow Analysis Carrying out a material flow analysis for oil in a process including flow chart, calculations of present situation, calculation of improving measures and savings
03:45-04:00	**Feedback/ Discussion**
04:00	End of the day

Description:
Inputs: is the technical presentation session about the described topic
Exercise: is the practical interactive session about the described topic which adds fun in learning and makes the technical topics interesting and easy for understanding for the participants.

Initially the project structure, content, and deliverables, was introduced to the companies in details and then as per the above schedule the training sessions were executed one after the other.

Sessions Coordinated by Mr. Markus Moeller, Mr. Lalit Sharma and Mr. Nitesh Patel.

5.2. Technical Session

The Technical sessions and the Interactive Exercises (Group Work) on the second workshop day were made by Mr. Markus Moeller, Expert, STENUM GmbH - Austria, Mr. Lalit Sharma and Mr. Nitesh Patel from ECOPROFIT Team India. This second day of the training workshop was descriptive and was emphasising on MFA tool where participants for the whole day were busy in understanding the tool and conducting the relevant calculations assigned to them in Exercises.
The gist of all the technical sessions is described below.

Input 01: Introduction into Material Flow Analysis MFA.

- Material Flow Analysis was described to the participants that it is the way to map the balance between inputs with the outputs in any defined process. It is to make clear that whatever is the total quantity of all inputs (Material, Energy etc.), it should match with the total quantity of outputs (Products, Waste, Emissions etc.) and if not so then there are inefficiencies in the system.

- The next step was to give them an idea about How MFA can be conducted?, with available resources of measurement, by describing the parameters to be considered, balance space, balance period, drafting material flows quantity as well as quality. Making approximate assumptions in cases exact data are not available and to verify those with the balances and cross check mechanism. Finally to draw a proper flow sheets.

- Further to give participants about the feel that how MFA is a useful tool for improving process efficiency it was briefed that by defining the benchmarks for the particular process out of the material flow analysis will help them to monitor the consistency in process efficiency as well as they can compare with the available national/international benchmarks to improve their existing efficiency by simple modifications.

Input 02: Examples of Material Flow Analysis MFA:

- This input was to provide the effectiveness and practical working of Material Flow Analysis, by means of providing various case studies actually implemented in ECOPROFIT companies, which results in good process efficiency improvements and increase in productivity with reduction and optimization of waste.

- These case studies included results from effective MFA implemented in some processes which are found in most of the industries so that every individual industry participant can get relevance between case studies and particular process in their industry.

- Since the case studies involved are having relevance with the processes in the various participating industries in one or other way, this input helped each participant to understand the working and benefits out of Material Flow Analysis.

- Also the participants correlated the case studies with some of their processes and clarified the doubts by interacting with ECOPROFIT experts to conduct such analysis in their process. Participants after getting clear view of Material Flow Analysis accepted the application in various process steps irrespective of manufacturing product in their facility.

Exercise 01: Group Work: Making a Flow Chart

- In this exercise the participants were divided in 4 groups and were provided with an exercise. Input data was provided and they have to make a flow chart for the water flow through different process in a diary. The purpose of the exercise is to have more

clear understanding of the basic steps to be followed for Material Flow Analysis, with the help of a industrial problem and through the inputs provided in the technical sessions they should able to execute the Material Flow Analysis in their respective task.

- The exercise task assigned was to make a flow chart in which they have to draw process steps with rectangles and material flows with arrows (which is water in this case). They were provided with the data for the processes which are using water, the source of water, application of water in the process steps and the final destination of the used water. Then the task is to draw a systematic flow chart from first process step to end process step and draw the complete network of the water flow starting from the source through different process steps and according to the applications outflow to the described destination.

- The outcome of the exercise showed the clear understanding about the topic as every participant had completed the exercise with exact results and they felt confident regarding basics of drawing the flow chart for any process or industry as first step of the Material Flow Analysis.

Exercise 02: Group Work: on making calculations of Material Flow Analysis

- In the second practical session the participants are provided with a group exercise to have complete Material Flow Analysis for a fixed resource oil usage in an industry through different processes, not only for the present situation but also for the situation after improving measures and savings as second part of the exercise. This was a extensive exercise and was also performed in 3 groups which were different from the groups of the earlier exercise.

- The aim behind this exercise was to make them conversant to use all the theoretical inputs provided by the ECOPROFIT team in presentation and conduct and effective Material Flow Analysis so that they can directly implement the concept in their respective industries to avail benefits out of this tool.

- The exercise provided is to draw the complete Material Flow Analysis for the cooling oil and lubrication oil in a turnery department. Here the process steps are explained with the amount of oil input and output to every process step with all individual oil input sources and all individual output destinations. The first task is to draw the flowchart of the process steps and the material (oil in this case) flow, but with the quantity provided and doing proper material flow balancing for each process step. Then secondly from the chart data they have to estimate the amount of fresh oil used annually.

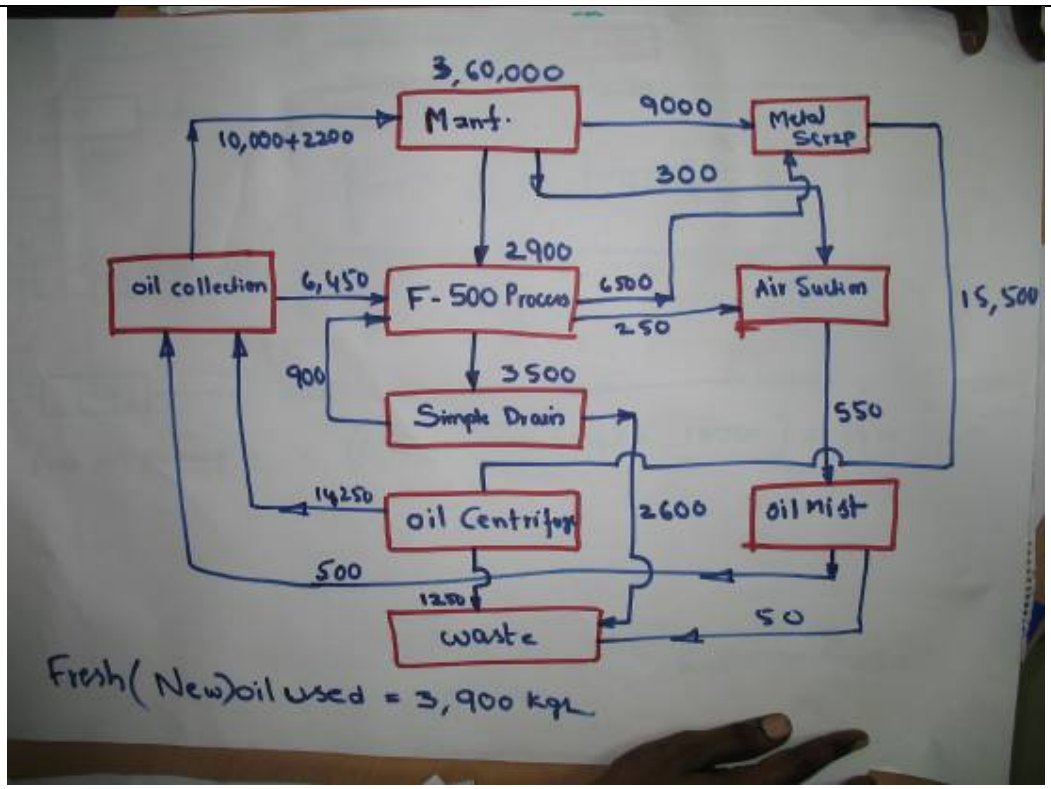
- Then after getting the amount of fresh oil required annually, they are provided with some Cleaner Production options implemented with all possible interventions and the savings in oil quantity. Now with these changes they have to repeat the exercise of first to draw the flow chart and secondly to evaluate the fresh oil requirement annually after Cleaner Production measures implementation.

- The results out of exercise showed that all the participants are having clear understanding for implementing Material Flow Analysis irrespective of the process and production type. As the result drawn out by every group was perfect and they even had fun doing it and shared their own experiences with each other and concluded the exercise with individual presentations by one of the group member.

5.3 Pictures from the workshop

Mr. Markus Moeller helping the group during Exercise 01, for the workshop 02

One of the group performing in interactive group task for Exercise 01



The chart prepared by one of the group for Exercise 02, shows the complete systematic flow of oil with actual oil quantity through different process steps, the oil balance and also gives the quantity of oil consumed or quantity of fresh oil required annually.

One of the participants interacting with the experts during the group exercise.

5.4 Distribution Material (Presentation and Exercises Handouts)

The presentation handouts of the technical sessions are available on the following line
http://www.hrdp-net.in/e8451/e8981/e9908/e11766/e11893/

5.5 Gist of the Feedback Forms submitted by participants in Workshop 02:

1. Few participants suggested for changing the Venue of the workshop.
2. One participant gave feedback for work shop on Cleaner Production as very good, this should be repeated every year.
3. One participant suggested for improving practical sessions in the workshop.
4. Two participants found practical sessions very useful and requested to add more practical sessions in the workshop.
5. One participant found training as very helpful and with new concept. Also found flow chart exercise (simpler one) poor.
6. One participant wanted inputs for the efficiency identification for utilities (Boiler, Generator, Chilling Plant etc.) with method to run utilities economically.
7. Two participants found contribution of programme to knowledge enhancement as weak.
8. Seven participants found every thing included in the workshop either very good or excellent.
9. One participant requested for more training programmes in future with more details on practical production. Provided thanks in written to the team members for the inputs in the workshop.

Original Forms filled by the participants are attached in Annexure 11

6. Workshop Conclusion Session

After the two days of Technical inputs and interactive exercises, it was the time to take some feedback from the participants hence Mr. Raghu Babu, Sr. Technical Specialist GTZ-ASEM has coordinated the conclusion session and various points discussed are mentioned below:

6.1 Mr. Babu, informed the participants about the various interventions which GTZ-ASEM is conducting with APIIC, for the benefit of companies. The projects which are in phase of implementation were been discussed in short, and few future projects were also projects in very brief to the participants.

6.2 Mr. Babu, asked the companies to give their honest remarks about this project initiative and hence following participants replied.

6.2.1 **Mr. P. C. Das, Manager – Maintenance, M/s Agarwal Rubber Limited** – was the first one to initiate the feedback. He thanked GTZ for this initiative, and have appreciated the efforts of ECOPROFIT Team to convenience his management for participating in this project. He mentioned that initially there were some hesitation for participation but later after the vigorous follow-up discussion of ECORPOFIT Team he mentioned that because this project was Result Oriented and had a Consulting component, his management was even ready to pay for the participation, if the results are obvious. He also mentioned that before coming to the workshop he was bit confused about the structure and content of the workshop, but now the overall objective is clear to him, and he would like to take the best advantage of this programme.

6.2.2 **Mr. N. A. Nayar, GM – QA & QC, M/s Sri Krishna Drugs Limited,** emphasised that this programme should be sector specific and have mentioned that if there could be only representatives from one sector, (like Pharmaceuticals) then the outcome of the project in his opinion would be more productive. He also ensured that there would be almost support available from their side, for this project.

6.2.3 **Mr. S. Punna Rao, Project Manager, M/s Alkali Metals Limited,** specifically requested to incorporate Occupational Safety also in the similar project workshop topics. He mentioned that such projects have direct implementation potential and are surely going to bring good results.

6.3 Further to the above three major feedbacks, there were few more question/answer exchange where Mr. Babu was asking about the individual industrial specific benefit and possible potentials, hence these were all general discussion, nothing specific, but the over all aim was to know if the companies are finding something of their benefit or not.

6.4 The session concluded with the thought that there is utmost need of such result based projects and urged the industries to take maximum benefit of the current ECOPROFIT programme.

6.5 At last Mr. Babu, also have asked companies not to hesitate in making the calculated investments if the returns of investments are visible.

6.6 **Pictures from Conclusion Session:**

Mr. Raghu Babu Sr. Technical Specialist – GTZ-ASEM, New Delhi, interacting with the participants.

Project Component 02:

Consulting Visits to Industries

7 Project component 02: Individual Consulting visits to the participating companies

7.1 Individual Consulting Visit Schedule

Team A:

S. No	Date	Time	Company Name	Manufacturing	Area
1	May 18 2009 Monday	09:00 – 01:00	Sri Krishna Drugs Limited.	Bulk Drugs	Bollaram
2		02:00 – 06:30	Taurus Chemicals (P) Ltd	Intermediate Comp' drugs	Bollaram
3	May 19 2009 Tuesday	09:00 – 01:00	Sigachi Chloro-Chemicals	Intermediate Comp' drugs	Pashammailaram
4		02:00 – 05:00	Srichaitanya Chlorides Pvt. Ltd.	Intermediate Comp' drugs	Pashammylaram
5	May 20 2009 Wednesday	09:00 – 01:00	Sri Krishna Pharmaceuticals Limited	Bulk Drugs	Uppal,
6		02:00 – 06:30	Alkali Metals Limited	Bulk Drugs (Sodium based)	Uppal,
7	*May 21 2009 Thursday	09:00 – 01:00	Times Of India	Printing Press	Nacharam
8		02:00 – 06:30	Nakoda Chemicals Ltd.	Intermediate Comp' drugs	Jeedimetla,
9	May 22 2009 Friday	09:30 – 01:00	Dual Rings Pvt Ltd	Forging and Precision	Nacharam
International Experts		Dr. Johannes Fresner, STENUM GmbH, Graz, Austria		j.fresner@stenum.at	
National Expert		Mr. Lalit Sharma,		ecoprofit@asemindia.com	

** Mr. Nitesh Patel have joined the team for the visits on this specific day*

Team B		
International Experts	Mr. Markus Moeller, STENUM GmbH, Graz, Austria	m.moeller@stenum.at
National Expert	Mr. Nitesh Patel,	ecoprofit@asemindia.com

S. No	Date	Time	Company Name	Manufacturing	Area
10	May 16 2009 Saturday	10:00 – 03:00	Rane Engine Valve Ltd.	Engine Valves – Auto	Aziznagar,
11	May 18 2009 Monday	09:00 – 01:00	Paragon Polymer Products Pvt. Ltd.	Plastic Slippers	Patancheru,
12		02:00 – 06:00	Agarwal Rubber Limited	Tires	Patancheru
13	May 19 209 Tuesday	09:00 – 01:00	Glochem Industries Limited	Intermediate Comp' drugs	Sanathnagar,
14	May 20 Wednesday	09:00 – 01:00	Salicylates and Chemicals Pvt Ltd	Bulk Drugs	Nachram
15		02:00 – 06:00	AVRA Labs Private Limited (Unit II)	Intermediate Comp' drugs	Nacharam
16	May 22 Wednesday	Not visited	* M/s Aster Teleservices Pvt. Ltd.	Galvanizing Unit	Nacharam

** M/s Aster Teleservices Pvt. Ltd, was selected for the project but was not visited as they have not participated in the workshop and have called off from participation at last moment.*

7.2 **Description of the Company visits:** As per the visit schedule all the 15 companies were visited by one international and one national expert for approx four hours each, with the objective to.

- Elaborate the theoretical technical input of the workshop into practical experience, where the same participants (who attended the workshop) were exposed to inefficiencies in their production areas with a view to explain them practically, that how to look at the cleaner production and material balance measures in their production units with using the tools explained in the training.
- Understand their production, utilities, raw material, and waste areas of the company.
- Find out the potential areas of improvement in the company which at later stage can be addressed through individual consulting.
- Make the consulting visit reports (Action Plan) on behalf of which further improvements can be carried out.

7.3 The consulting visit reports (Action Plans) would be delivered to all the companies separately with identified potential cases/options, which would be explained in detail with observation, findings and suggestions, applicable improvement methodology and further investigation.

7.4 These reports may also have confidential information regarding the company data, which would not be exposed to any individual as per signed Letter of Agreement (LoA).

7.5 Further the companies after analyzing the feasibility of the cases suggested would implement them and would also document the results.

7.6 Pictures from the company visits

Module 1:

Sumamry of Observations

8 Module I Summary Minutes

8.1 The following 13 participating companies have been finalised for the project:

1.	M/s Sigachi Chloro-Chemicals	Pashammylaram
2.	M/s Rane Engine Valve Ltd.	Aziznagar,
3.	M/s Nakoda Chemicals Ltd.	Jeedimetla,
4.	M/s Taurus Chemicals (P) Ltd	Bollaram
5.	M/s Sri Krishna Drugs Limited.	Bollaram
6.	M/s Paragon Polymer Products Pvt. Ltd.	Patancheru,
7.	M/s Agarwal Rubber Limited	Patancheru
8.	M/s Sri Krishna Pharmaceuticals Limited	Uppal,
9.	M/s Alkali Metals Limited	Uppal,
10.	M/s Dual Rings Pvt Ltd	Nacharam
11.	M/s Times Of India	Nacharam
12.	M/s Salicylates and Chemicals Pvt Ltd	Nachram
13.	M/s AVRA Labs Private Limited (Unit II)	Nacharam

8.2 Regarding the Capacity Building component of the project over all there has been a proactive participation in the training workshop. There were 23 participants in the first workshop and 21 in the second, which indicates a considerably a healthy participation.

8.3 The workshop was a mix of theoretical and practical inputs where participants were capacity built on the topics of Cleaner Production and Material Flow Analysis. This was evident from the response of participants (as shown in pictures from 4.3 and 5.3 section of this report) that they enjoyed the Fun Learning Methodology of ECOPROFIT Project.

8.4 The project still needs three more companies to have a required number of 16, concerning which further industries would be identified, examined and selected before Module II (which is tentatively scheduled in August 2009). Also to conquer their loss of Module I, further initiatives would be carried out.

9 Next Steps/Suggestions:

9.1 All the participants were advised to “replicate the workshop” in their own summarized way to disperse the knowledge further to their associated departments. This would be crossed checked during the next module if the companies have replicated the workshop or not.

9.2 Concerning the workshop venue as per the Feedback Forms of the participants, suggested improvements would be made in the next venue.

9.3 Regarding the Individual Consulting Component of the project, all the companies were visited for 4-5 hours. The objective was to link the theoretical knowledge (learned in the workshops) to the identification of practical inefficiencies present in their own premises, which can encourage the company team to encounter the specific situation by utilizing ECORPOFIT tools. As a result of the visit, options/cases for improvements were identified, which would be documented with Observation, Solutions, Suggestion and Methodology, in the form of First Technical Report for the companies called as Action Plan – 01, which would be provided to all the companies separately.

9.4 Further the companies after analyzing the feasibility of the cases suggested would implement the suggested options/cases and would also document the results.

9.5 All attempts would be made to support the companies to answer their queries and to help them in implementation of the suggested options of the provided Action Plans.

9.6 The next follow-up visit would be conducted in July 2009, and by then companies have to implement the feasible suggested options mentioned in Action Plan I.

9.7 Additional brief report addressing the "General Potential Areas Identified" in all the participating companies, would be submitted separately. But this report would not have specific data, or information about the companies situation, as it does not lies in the preview of project confidentiality

9.8 The Module II would be scheduled in end of August 2009 which would be on Environment team, Energy Management and Water Management.

10 . Recommendations:

After Module I, there have been two broad observations by the International and National Experts regarding the overall project.

10.1 Due to the reason that 8 out of 13 participating companies are from Pharmaceutical Sector, (which was not visualized at the project conceptualization stage) there is a suggestion to execute additional module for these 8 companies where special International/National Expertise can support these companies even with their core processing methodologies/recipe for bringing further environmental progress.

10.2 Also, there is a need for separate sector specific project in this region especially for Pharmaceuticals Sector - where additional project can be designed which can bring training and improvements to their know-how in their core processing recipe. The above suggested additional Module can act as a feasibility assessment to carry such individual project of not.

11 . Annexure

11.1 Documents Submitted by companies Letter of Agreement (LoA) & Nomination Form (NF)
This is confidential Documents hense is not attached.

11.2 Detailed List of 13 companies participating in the project.

11.3 Format of Company Visit Record used during the individual consulting visits.
Only the Format is attached.

11.4 Feedback Form from the workshops 01 and workshop 02.
Only the Format is attached

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