ECOPROFIT approach

Tool for Environmental Improvements in SME's

Technical Session 03(b):

Tools, Technologies and Services for Planning, Development and Management of ECO-Industrial Parks

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What is AIM of ECOPROFIT

The prefix '**ECO**' means:

- *Ecological Benefit and*
- *Economic Benefit*

The overall aim in brief of ECOPROFIT is to

- **Increase the efficiency** of the companies by **reducing their demand** of raw and auxiliary materials
- **Minimize the environmental impacts** by adopting preventive environmental production leading to **cleaner production**

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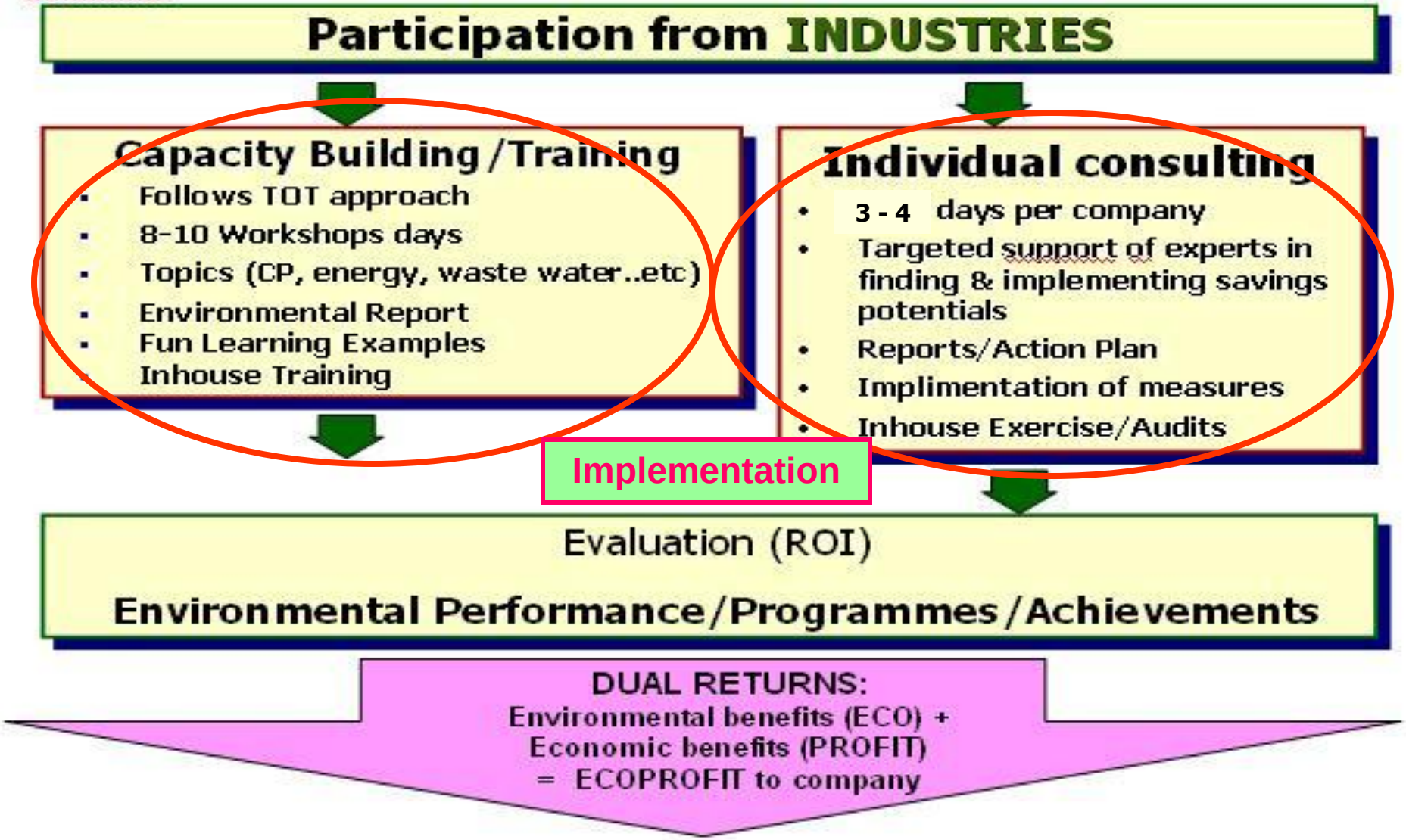
How ECOPROFIT work?



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Training Workshops : Interactive Practical Sessions

Input on Energy : Coffee making exercise?

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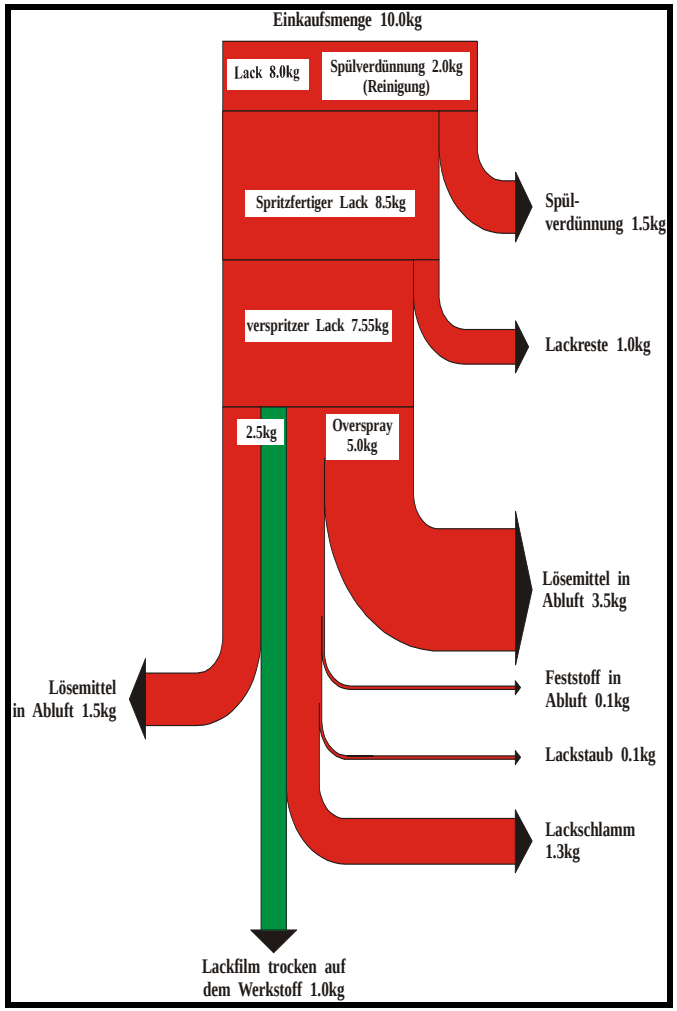
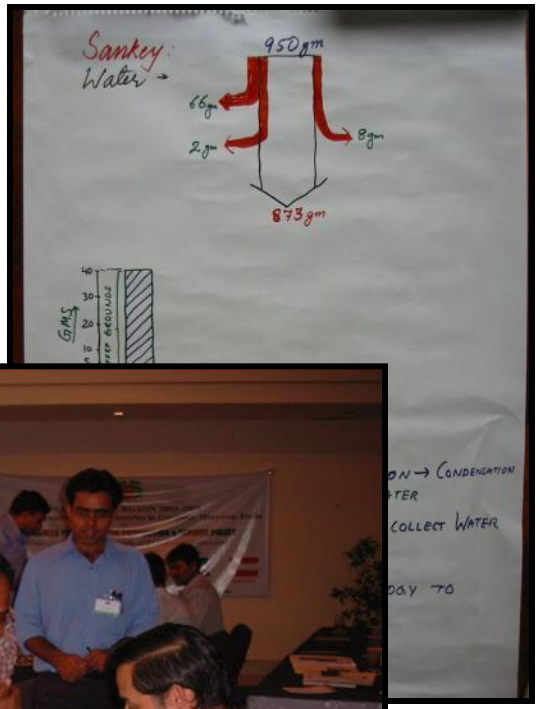
Training Workshops : Creative Sessions





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Input Material MFA Exercise: How to find waste streams?

Training Workshops : Easy To Use Tools

Cleaner Production:

- **Sustainability, Cleaner Production, CP Options, Environmental Report, Environmental Monitoring, Exercise**

Energy Management:

- Technical input on major energy systems viz., boilers, compressors, generators, furnaces, compressed air/steam distribution systems, insulations
- Exposure to best practices, Interactive exercises
- Modern tools for establishing benchmarks and monitoring/control
- Identification of customized solutions possible to improve efficiency

Waste Management:

- **Technical input on industrial waste, hazardous waste, e-waste and organic waste for proper storage, handling and disposal**
- **Monitoring tools (MFA), with practical examples and interactive exercises**
- **Customized support towards reduction, reuse and recycle**

Water Management:

- **Technical input on water conservation in industrial processes, water systems maintenance, benchmarking**
- **Support in preparing water balance at organizational level and sub levels, scope for internal recycling, monitoring of key parameters**
- **Customized support to reduce specific consumption, to best possible level.**

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Element Two: Individual Consulting Visits

Onsite Consulting:

- **This component translates workshop contents into practical, technically and economically feasible options that improve the existing situation.**

- **Identification of low/medium cost options tend to bring environmental and economical savings together.**

…bringing creative, but general ideas with logical justification

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Action Plan – Structure
(Diff case studies with details)

Supported by Excel tools sheet.

Case 4

AREA: Water conservation

OBSERVATIONS:
In pre-treatment, some 420 m³ of fresh water is needed daily to top up their recycling system. As told, 95 % of the water is recycled. However, our calculations during the visit show that actually from this data some 16,500 m³ of water per year should be used and recycling could be only 75%. That means that there is lack of water balancing and there are hidden losses which are to be discovered.

SUGGESTIONS & METHODOLOGY:

4.1 Initially take the data for one week in the current practice about drag out, drop in liquid level in each tank etc.

4.2 Then holding time above the tanks should be increased to 10 – 15 seconds. This shows the time dependency of drag out (as a multiple factor), e. g. increasing dripping time from 5 to 10 seconds with Chromatising reduces drag out by some 50%, from 8 to 12 by some 20%,

4.3 Now it should be measured (after one week), how much the actual drag out is (for each day, the drop in liquid level in all the tanks shall be measured), then we will correct for the effect of temperature and evaporation.

4.4 If we know this lost volume and the surface treated in the corresponding time (for all tanks) we can calculate the drag out by balances.

FURTHER INVESTIGATION:
Information required from ORIENT:

1 The actual water flows and figures are required to identify the possible options.

2 We await a video of phosphating line as discussed in meeting after the visit. To do the calculation, we would need to know the actual drag out and the rinsing criteria.

3 Actual dripping time shall be identified for each pause in a complete cycle.

COMPANY REMARKS:

Element THREE : Performance Evaluation : Certificate

S K Electroplating, Gurgaon. ECOPROFIT NCR 2005/06 Programme

7 Environmental Programme

(list of the environmental projects planned for next year: use the excel sheet „en_tables_performance_programme)

Our environmental programme								Year 2006		
Description of the measure	annual reduction/use for the environment						economical effect		responsibility	
short verbal description of the realised measure (type of the measure, improvement effect)	what	basis	unit	absolute	%	Further use	Savings (Rs/a)	Investm. Costs	who	till when?
EXAMPLE: Use of an environmental friendly cleaning agent for toilet bowl cleaning instead of Acid	acid	15	lt.	7.5	50	improvement in workers care	100	-	RST	02/04
EXAMPLE: Automatic control (on/off) for DG set	diesel	31600	lt.	4700	15	reduction of emissions	80,000	25,000	RST	02/04

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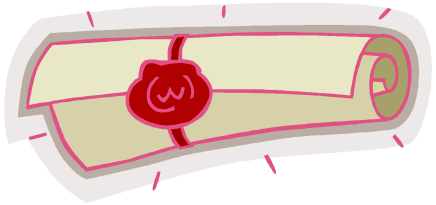
Certification



An ecoprofit award is given at the end of the project period after evaluating the performance of the company with the set criteria for the award.

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Individual Advantages (Company)

- **Reduced production costs**
- **Reduced maintenance costs**
- **Reduced enviornmental impacts**
- **Better legal compliance**
- **Better work conditions to work**
- **Better cooperation with authorities**
- **Enhanced image**
- **Preparation or addition to ISO 14001 or other standards**

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Regional Advantages (IP)

- Accelerated industrial growth
- Production pressure
- Increase in resource price
- Laws and their enforcement –stringent
- Cost reductions by OEMs
- Profit Margins reducing

- Arresting the environmental costs improves not only internal working environment (as less waste, energy, water) but also reduces production costs.

ECOPROFIT ….! have a slow but study regional impact

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Case Study

Fuel Consumption 50% reduction **by managing Thermal Losses from Surface**

55 hrs / month to 23 hrs /month (diesel fired hot water generation)

@ 35 l/hr of fuel consumption

@ 34 Rs/l

~ Rs. 4.5 lac/yr

Case Study

Packing of Card Board Carton with a plastic strip was reduced from 2 strips to 1 strips…!!

Rs. ~210,000/ year

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Case Study

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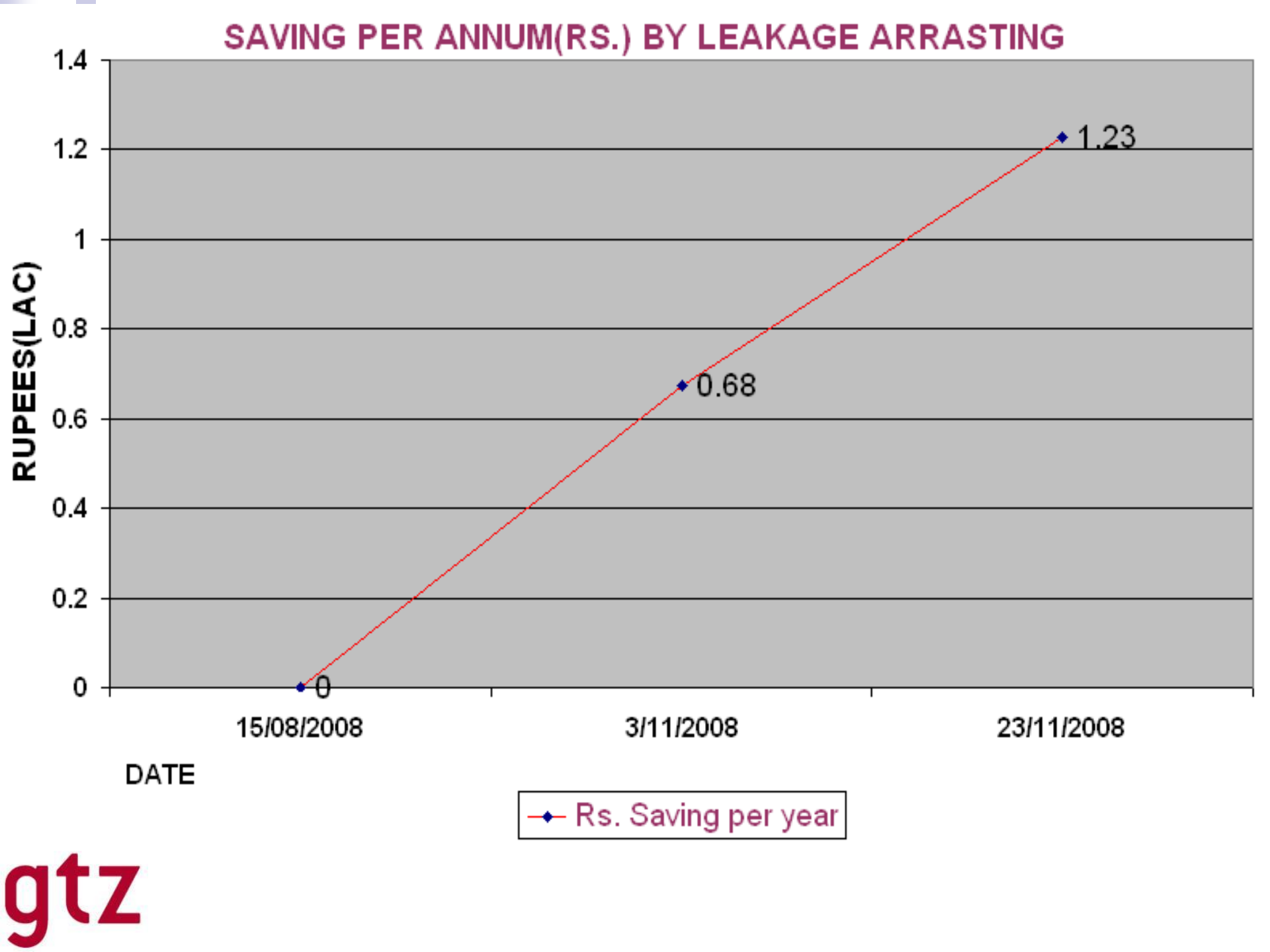
SAVING PER ANNUM(RS.) BY LEAKAGE ARRASTING
1.4
1.2
1
0.8
0.6
0.4
0.2
0
RUPEES(LAC)
1.23
0.68
0
15/08/2008
3/11/2008
23/11/2008
DATE
Rs. Saving per year

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Case Study

Reduction in rinse water consumption in plating lines

- Conductivity profile of relevant tanks measured for period of 3 months
- Based on this proper rinse water flow rate suggested
- The quality criteria and other things were not compromised
- Operators were trained to measure conductivity as a basis for flow rate

Parameters	Before	After
Water flow rate # 1	300	250
Water flow rate # 2	300	200
Operation hours	7200	7200
No. of plating lines	5	5
Water consumption (kl/year)	21600	16200
Reduction (kl/year)	0	5400 (-25%)

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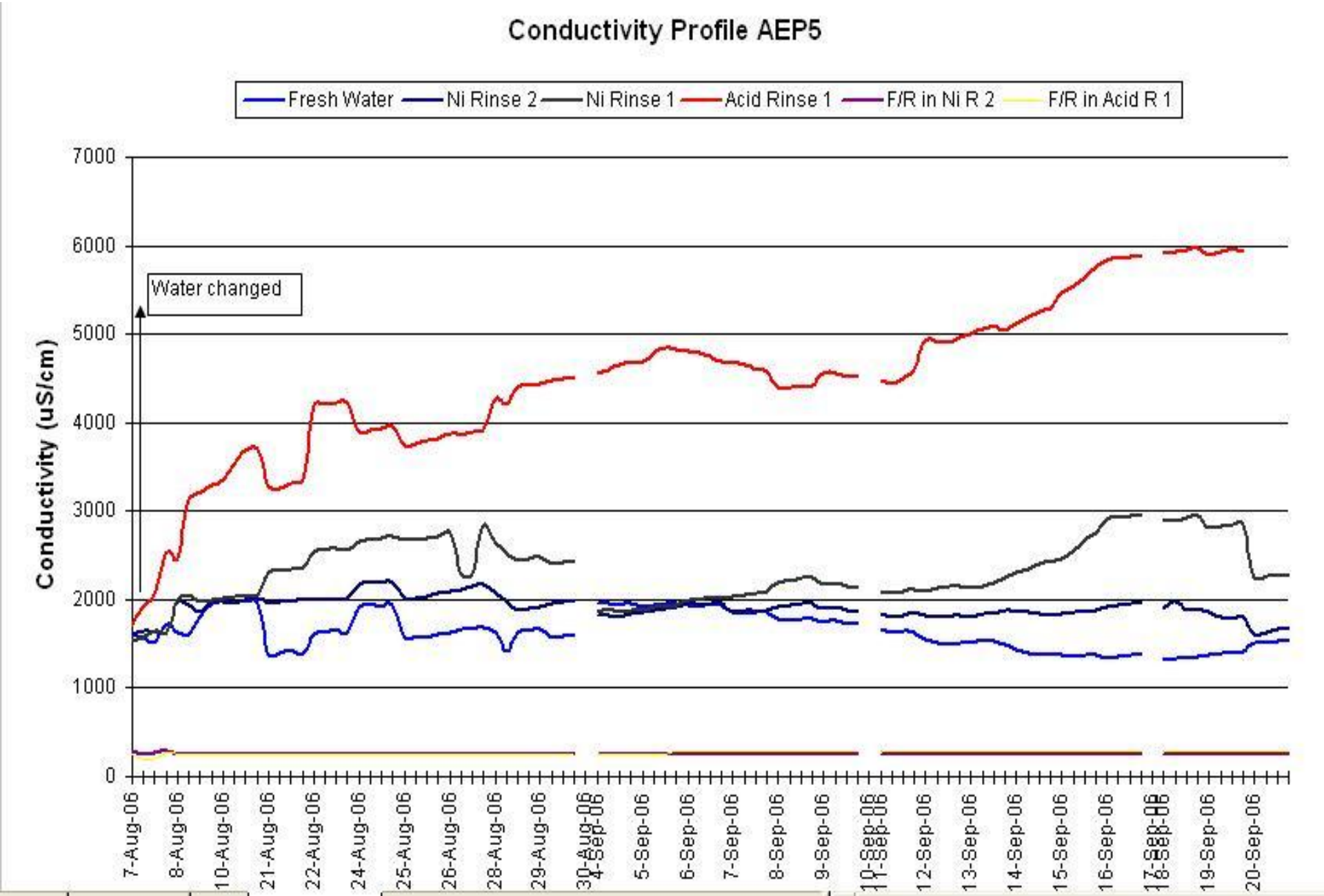
Conductivity Profile AEP5
Fresh Water
Ni Rinse 2
Ni Rinse 1
Acid Rinse 1
F/R in Ni R 2
F/R in Acid R 1
Water changed
Conductivity (uS/cm)
7000
6000
5000
4000
3000
2000
1000
0
7-Aug-06
8-Aug-06
10-Aug-06
21-Aug-06
22-Aug-06
24-Aug-06
25-Aug-06
26-Aug-06
28-Aug-06
29-Aug-06
30-Aug-06
4-Sep-06
5-Sep-06
6-Sep-06
7-Sep-06
8-Sep-06
9-Sep-06
10-Sep-06
11-Sep-06
12-Sep-06
13-Sep-06
14-Sep-06
15-Sep-06
16-Sep-06
17-Sep-06
18-Sep-06
19-Sep-06
20-Sep-06

21.5 % reduction

In an leading Electroplating industry, a whooping 5,400,000 liters per year of ground water reduction is possible by installing conductivity based flow meters and further optimizing of process and rinse baths

Reduced energy cost, treatment cost, maintenance cost!

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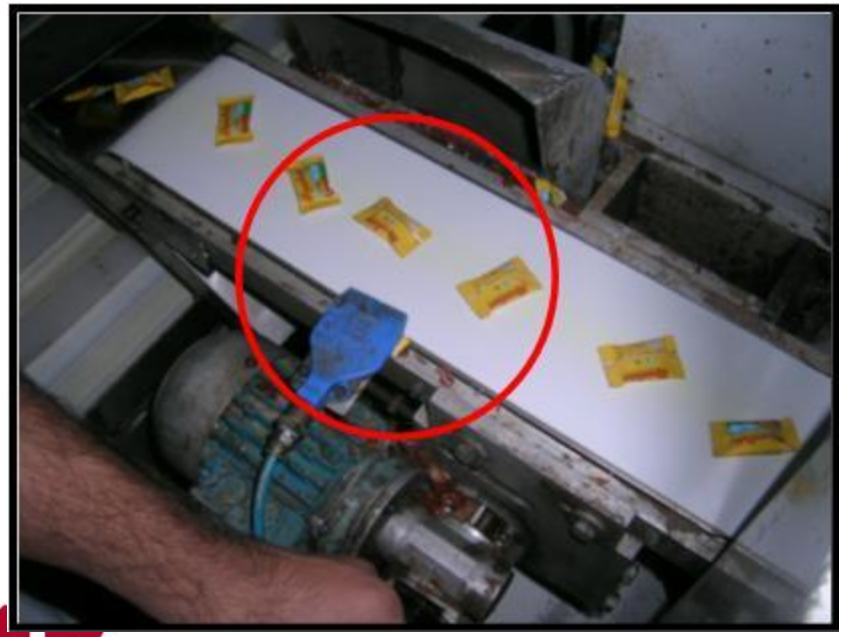
Case Study

Compressed air was used to blow away empty pouches from the packing line
A simple low voltage micro-blower (12 V) was installed to do the job

So the loss of energy is ~ 600 000 kWh/year

CO2 reduction ~450 t/year



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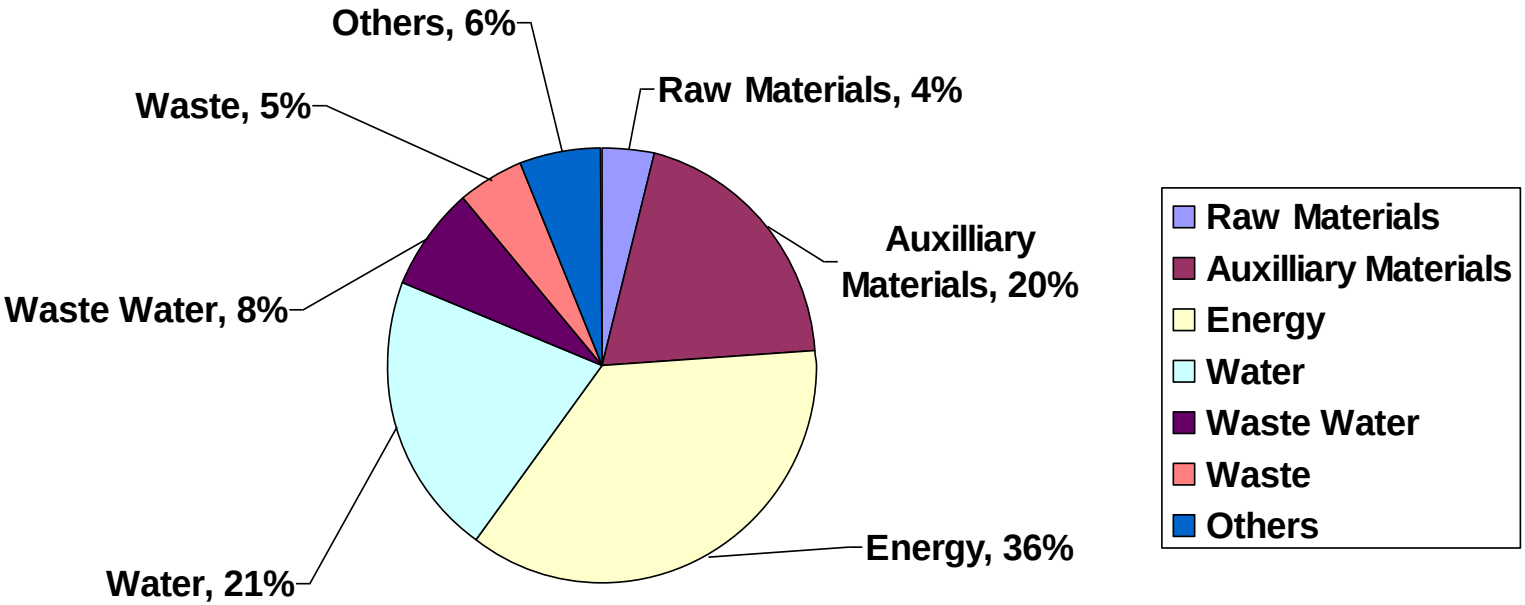
ECOPROFIT NCR 2006/7

Classification of options implemented, as per categories

235 options/9 industries



ROI 1:8.92 (for companies)

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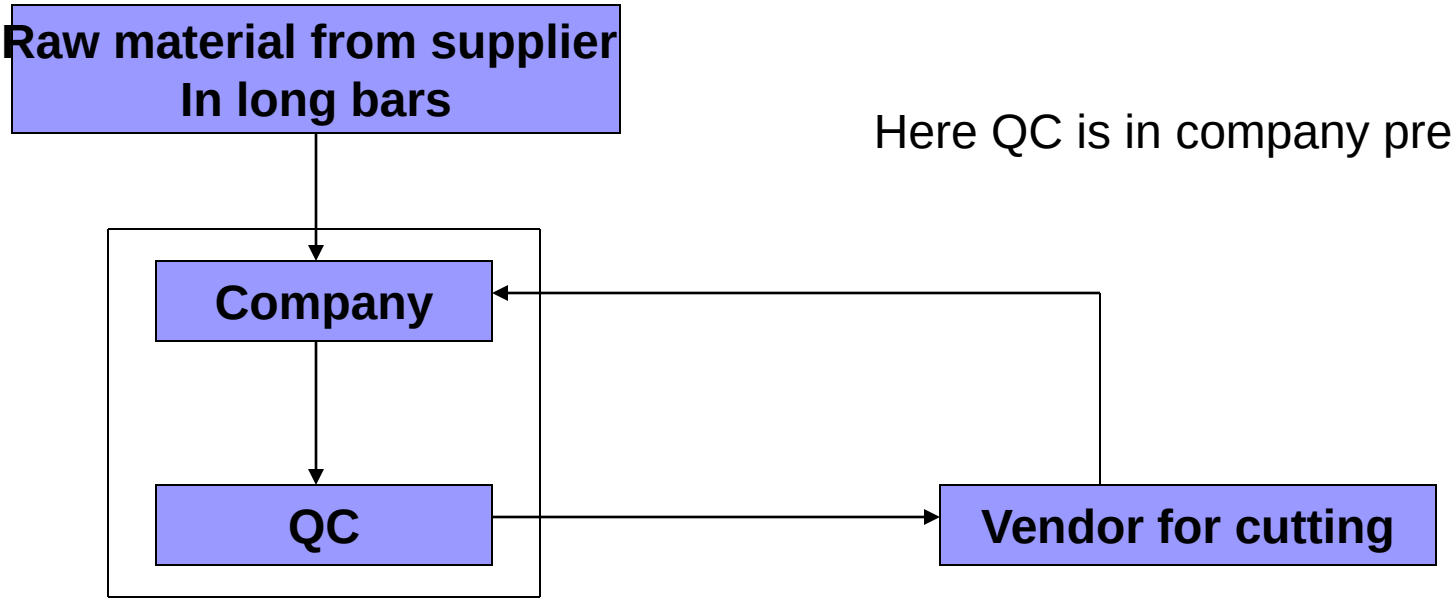
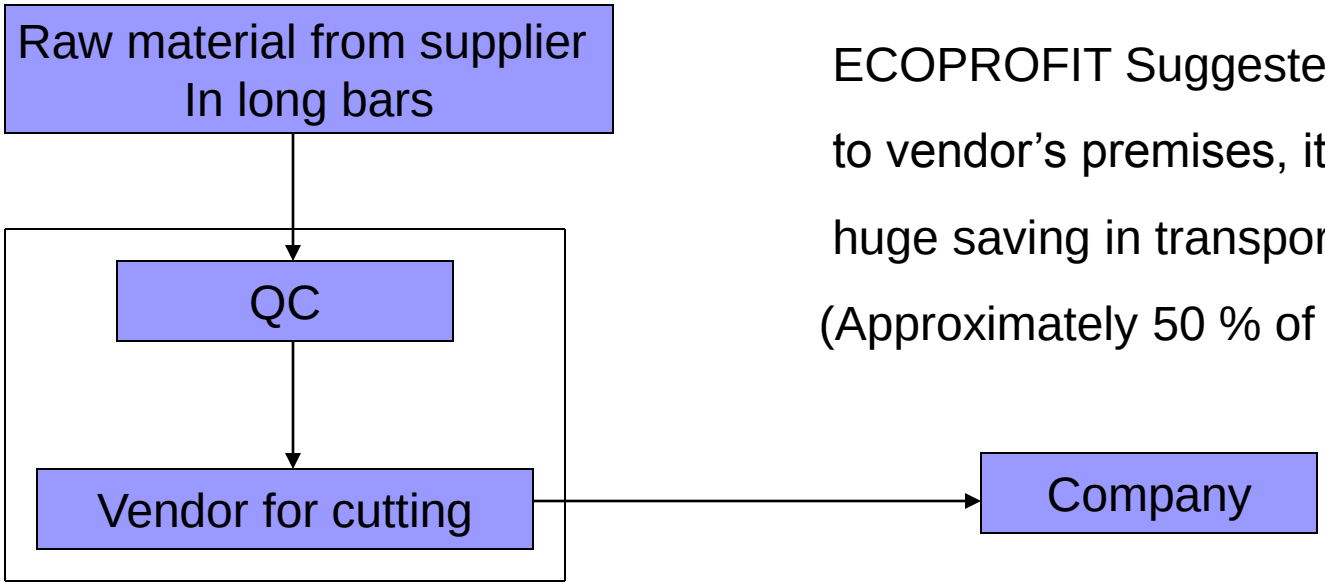
Saving by Raw Material Logistic

A company used following logistic flow for their raw material:



Logistics suggested by ECOPROFIT:



ECOPROFIT Suggested to shift QC to vendor's premises, it will result in huge saving in transportation cost (Approximately 50 % of present value)

Material Saving by Capturing Rubber Dust at Recycling Area.

The plant has a vibrating separator at their Rubber recycling plant, out of which fine rubber dust spills out into the surrounding. The dust is of usable rubber and thus plant Is loosing huge amount of raw material. (Approximately 10% of rubber recycled)

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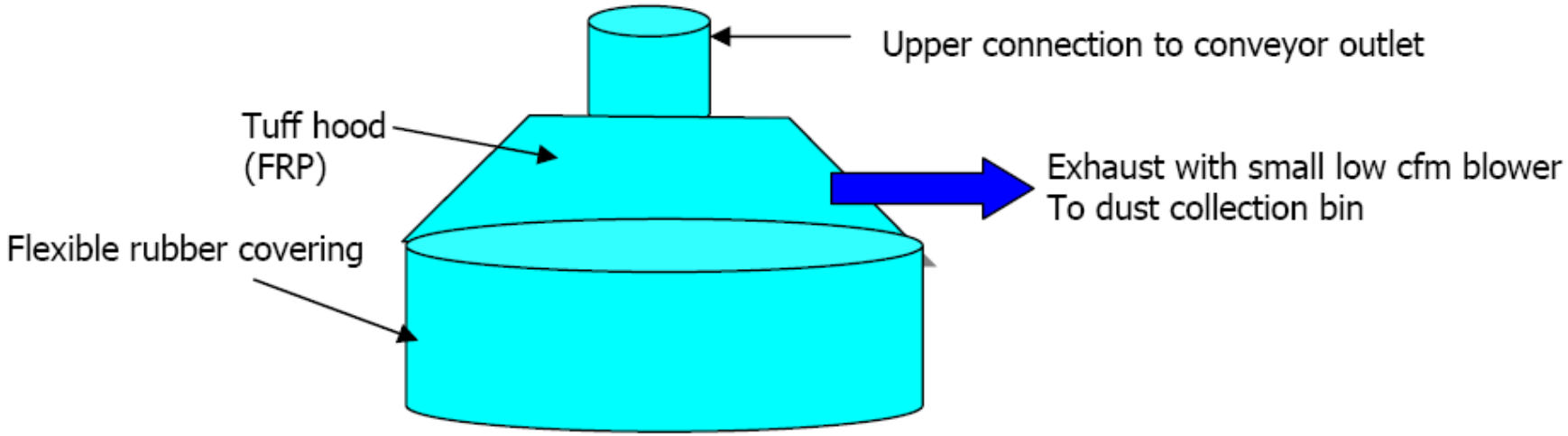
ECOPROFIT suggested to put dust collection system over vibrating separator which will result in saving of around 327 kg/day of usable rubber. Also improved working conditions for the operators.

Type of dust collection system suggested is shown below:



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PARTICIPATING COMPANIES 2003-2005

BASE PROGRAMME COMPANIES (BEGINNERS PROGRAMME): 12 new companies were selected from more than one hundred companies which had responded their interest to participate in the programme.

- **AVL TECHNICAL CENTRE LTD.**
- **BAXTER INDIA LTD.**
- **CAPARO MARUTI LTD.**
- **JAY BHARAT MARUTI LTD.**
- **KRISHNA MARUTI LTD.**
- **NAPINO AUTO & ELECTRIC LTD.**
- **NTF INDIA LTD.**
- **PUROLATOR INDIA LTD.**
- **SANDHAR AUTOCOMPONENTS LTD.S**
- **SANDHAR IDUSTRIES LTD.**
- **SANDHAR LOCKING DEVICES LTD.**

CLUB PROGRAMME COMPANIES (ADVANCED PROGRAMME) : 9 out of 15 participating companies in the Ecoprofit Gurgaon 2002-2003 were selected for the club programme.

- **ARJAN AUTO P. LTD.**
- **AMRIT FEEDS**
- **AVL INDIA LTD.**
- **CARRIER AIRCON LTD.**
- **JAY BHARAT MARUTI LTD.**
- **MACHINO BASELL INDIA LTD.**
- **MACHNO PLASTIC LTD.**
- **MULTIVAC INDIA LTD.**
- **SANDHAR LOCKING DEVICES LTD.**

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GTZ supported ECOPROFIT NCR 2005-2006

ECOPROFIT Training programme for the Industries in NCR Region

1. ARJAN Autos Pvt Ltd, Gurgaon
2. ASK Automotive (P) Ltd. Unit – II, Manesar
3. PERFETTI Van Melle India Pvt. Ltd, Manesar
4. OMAX Autos Limited, Dharuhera
5. ORIENT Fans, Faridabad
6. SOLO Precisions Udyog, Gurgaon
7. SPECTRA Products Pvt. Ltd, Ghaziabad
8. S. K. Engineering Works, Gurgaon
9. STANDARD Coatings, Gurgaon

Partners: GTZ-ASEM, New Delhi, India; STENUM GmbH, Austria: SEPIET: New Delhi, India

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GTZ supported ECOPROFIT Ludhiana 2008

ECOPROFIT consulting & training programme for the Industries in Ludhiana

1. HERO Auto Rim Division, Mangli, Ludhiana
2. Anand Nishikawa Company Limited, Ludhiana
3. PVM Enterprises, Ludhiana
4. Nahar Spining Mills, Ludhiana
5. Malwa Industries Limited, Ludhiana
6. Jai Durga Paper Mills Ltd, Ludhiana
7. Satkar Paper Mills, Ludhiana
8. Shree Ganesh Agroils, Ludhiana

Partners: GTZ-ASEM, New Delhi, India; STENUM GmbH, Austria: SEPIET: New Delhi, India

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GTZ supported ECOPROFIT NCR Club 2008

ECOPROFIT Training programme for the Industries in NCR Region

1. ARJAN Stampings Ltd, Gurgaon
2. ASK Automotive (P) Ltd. Unit – III, Manesar
3. AVL Technical Center, Gurgaon
4. Hella Electronics, Gurgaon
5. SPM Auto, Manesar
6. Hi-Lex, Manesar
7. Lumax Auto, Dharuhera.
8. SKH Metals
9. NEEL Metals, Gurgaon
10. Roop Auto, Sohna
11. Roop Polymers, Sohna
12. Sandhar Auto, Manesar
13. Sandhar Roloforms, Sandhar

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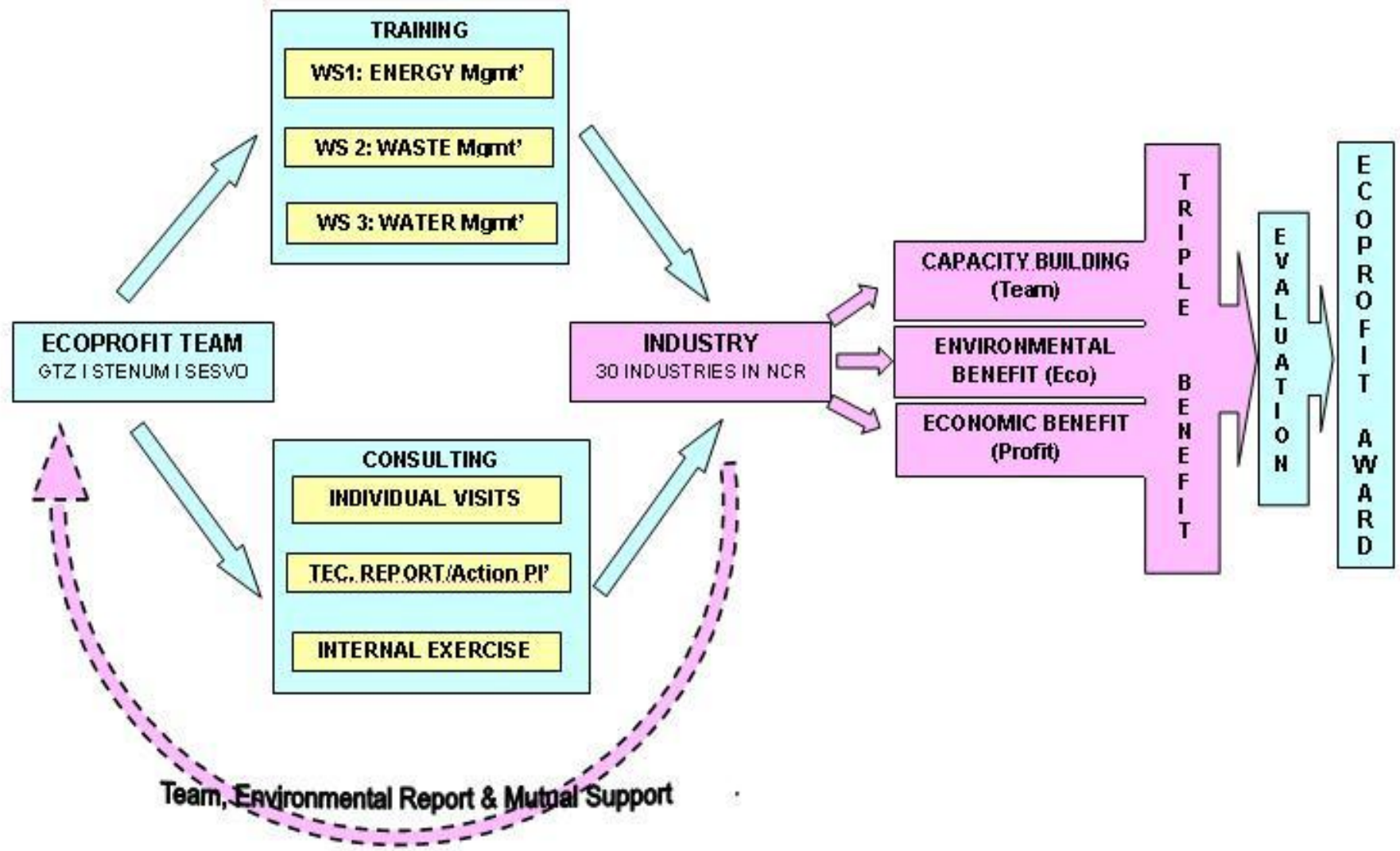
Partners: GTZ-ASEM, STENUM GmbH, SEPIET

Ecoprofit Club 2009 (Project Structure)



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ECOPROFIT Programme Hyderabad 2009-10

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 LimitedSanathnagar,**
6. **M/s Taurus Chemicals (P) LtdBollaram**
7. **M/s Sri Krishna Drugs Limited.Bollaram**
8. **M/s Paragon Polymer Products Pvt. Ltd.Patancheru,**
9. **M/s Agarwal Rubber LimitedPatancheru**
10. **M/s Sri Krishna Pharmaceuticals LimitedUppal,**
11. **M/s Alkali Metals LimitedUppal,**
12. **M/s Aster Teleservices Pvt. Ltd.Nacharam**
13. **M/s Dual Rings Pvt LtdNacharam**
14. **M/s Times Of IndiaNacharam**
15. **M/s Salicylates and Chemicals Pvt LtdNachram**
16. **M/s AVRA Labs Private Limited (Unit II)Nacharam**

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Vision of APIIC - a Promising Strategy

- . . .to transform the Existing Industrial Parks into Eco – Industrial Parks and to ensure industrial growth in the state of Andhra Pradesh on sustainable models.

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ECOPROFIT …… is already existing, proven and structured tool which improves eco-efficiency for the enterprises.

to think Global……act local !!!

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Thank you for your attention!

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