



**Regional Workshop on Trade and Environment:  
Developing the Environmental Goods and Services  
Sector in the Arab Region for Transformation  
into a Green Economy**

**Green Production and Sustainable  
Consumption and Production**

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**OUTLINE OF PRESENTATION**



- 1. Green Production in Lebanon**
- 2. LCPC Establishment**
- 3. Sustainable Consumption & Production**
- 4. Economical & Environmental Savings**
- 5. Case Study in Lebanon:**  
**CORTAS - LEFICO**



## 1. Green Production in Lebanon



- **Clean Production is an integrated part of the technical assistance provided by NCPCs at plant level**
- **CP Unit in Vienna established 42 National CP Centers and Programmes in developing countries and countries with economy in transition**
- **In Lebanon, there is a need for Energy Savings and Resources Efficiency →**  
**Establishment of the Lebanese CPC**
- **LCPC is elected to be the representative of West Asia in the RECP UNIDO/UNEP Global Network**



## What is Clean Production (CP)?



- **"Anticipate & Prevent" philosophy**
- **Cleaner Production Definition:**  
" **The continuous application of an integrated preventive environmental strategy applied to processes, products, and services to increase overall efficiency and reduce risks to humans and the environment.**" **UNEP.**
- **Applied "From Cradle to Grave"**

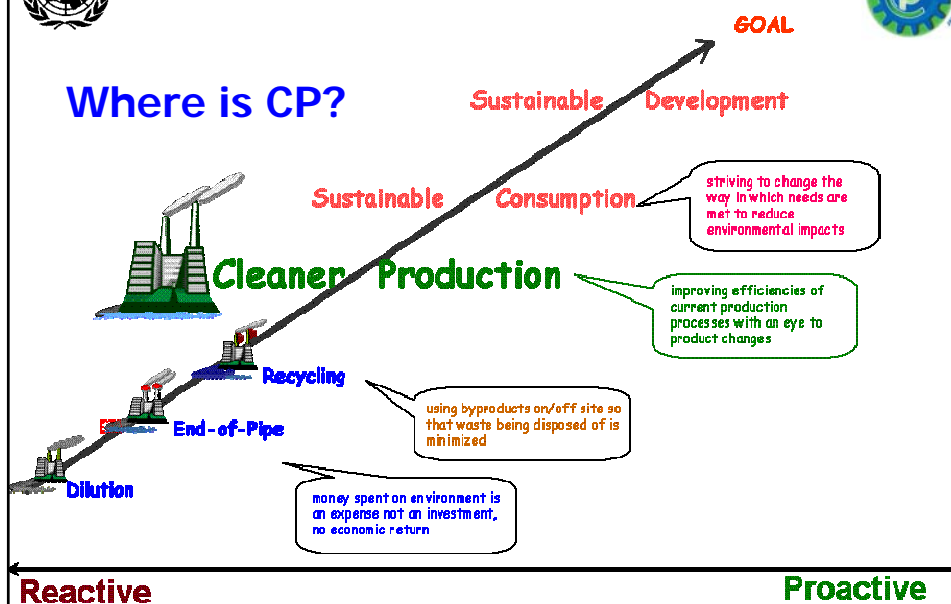


## What is NOT CP?

- ↳ Diluting hazardous or toxic constituents to reduce hazard or toxicity  
OR  
Concentrating hazardous or toxic constituents to reduce volume  
(Which do not reduce the absolute amount of hazardous constituents entering the environment)
- ↳ Transferring hazardous or toxic constituents from one environmental medium to another
- ↳ Off-site recycling (a waste management option which creates pollution during transport)
- ↳ Waste treatment



## Where is CP?





## Common Waste Treatment :

Waste is generated !

**What** do I have to do with it ?

## Cleaner Production :

Waste is generated !

**Where** does it come from ?



## 2. LCPC ESTABLISHMENT



- Establishment of a Lebanese Cleaner Production Center (LCPC) by the Ministry of Environment (MoE) in **May 2002**. The activities were launched in **June 2003**.
- LCPC is part of the United Nations Industrial Development Organization (UNIDO) Network which comprises National Cleaner Production Centres (NCPC) in **42 countries**.
- After being **hosted at MoE**, LCPC premises moved and are now located at Industrial Research Institute (IRI) in **Hadath- Baabda**.



## 2. LCPC ESTABLISHMENT



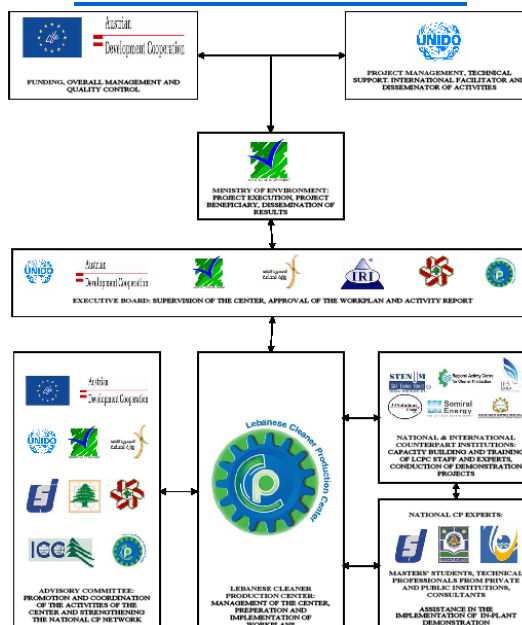
### Objectives:

LCPC aims facilitating the transfer of Lebanese SME's to CP in the wake of Lebanon's efforts to join the World Trade Organisation (WTO).

- To empower SME's to design and manufacture products that meet growing **consumers' demand** for more environmentally-friendly products
- To facilitate the access of local products to **international markets** thus encouraging economic growth
- To increase constructive **competition** among industrial establishments
- To help industries to get the **ISO 14000**
- To reduce the adverse **environmental impacts** of industrial production thus responding to the requirements of sustainable development



### LCPC MANAGEMENT

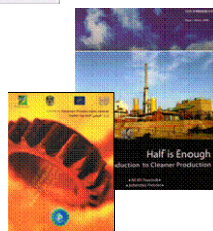




## LCPC Activities / Awareness & Training



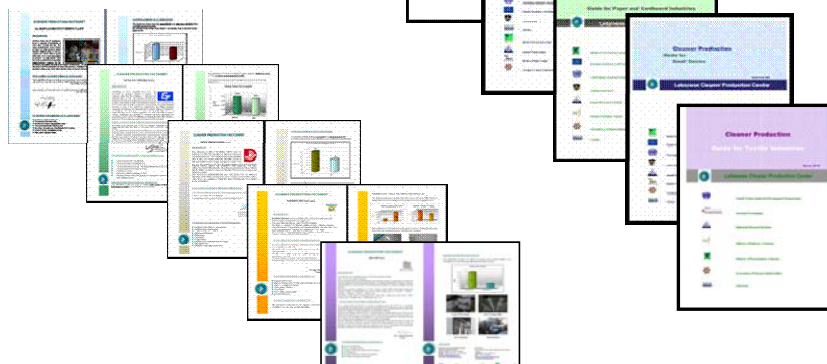
- Brochure
- Book: Half is enough
- Annual Reports
- Conferences
- Lectures
- Seminars
- Newsletters
- Radio/TV Show
- CD/Documentary



## LCPC Outputs till End 2009

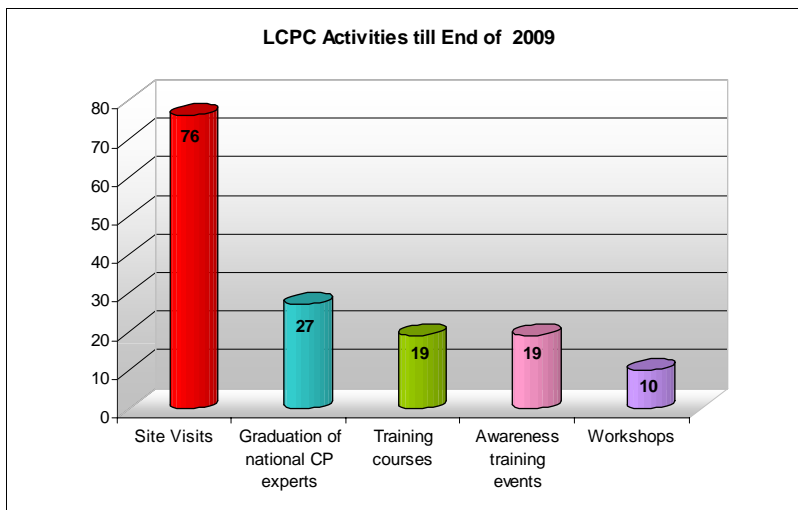


- 5 CP Manuals
- 25 CP Reports
- 25 Factsheets

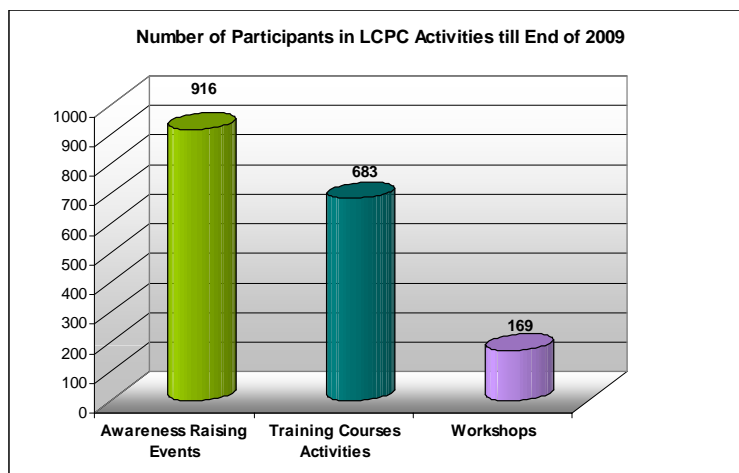




## LCPC Activities / End 2009

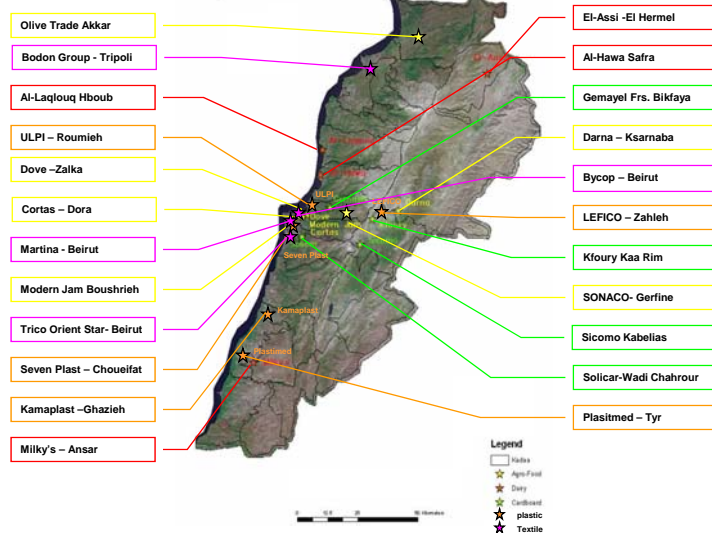


## Participants / End 2009

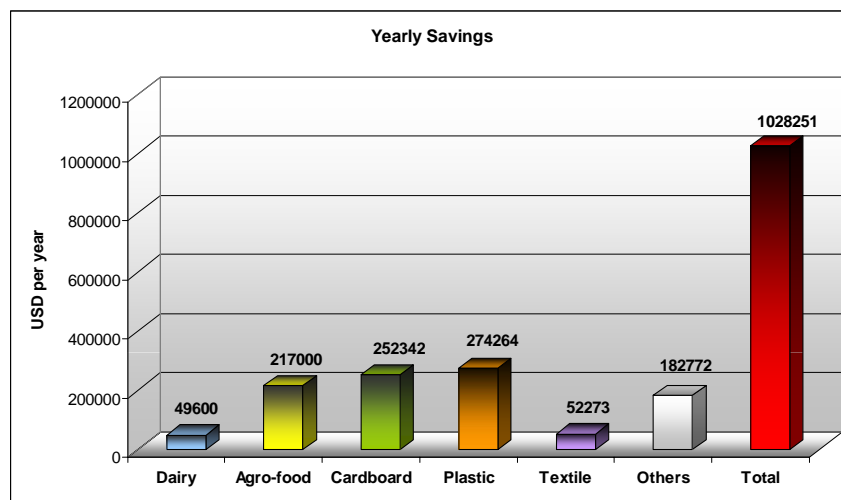




## LCPC CP Projects till End 2009



## LCPC Savings till End 2009







## CONCLUSION

➤ The results of the 25 in-plant assessments in 7 sectors were **MORE THAN SATISFACTORY**

➤ More than **One million US\$ SAVINGS** per year is achieved. The Enterprises implemented successful CP projects with a short pay back, on average less than one year, on their investments.

➤ LCPC is recognized very well in the country, and CP started to be considered as a win-win approach among the industries.



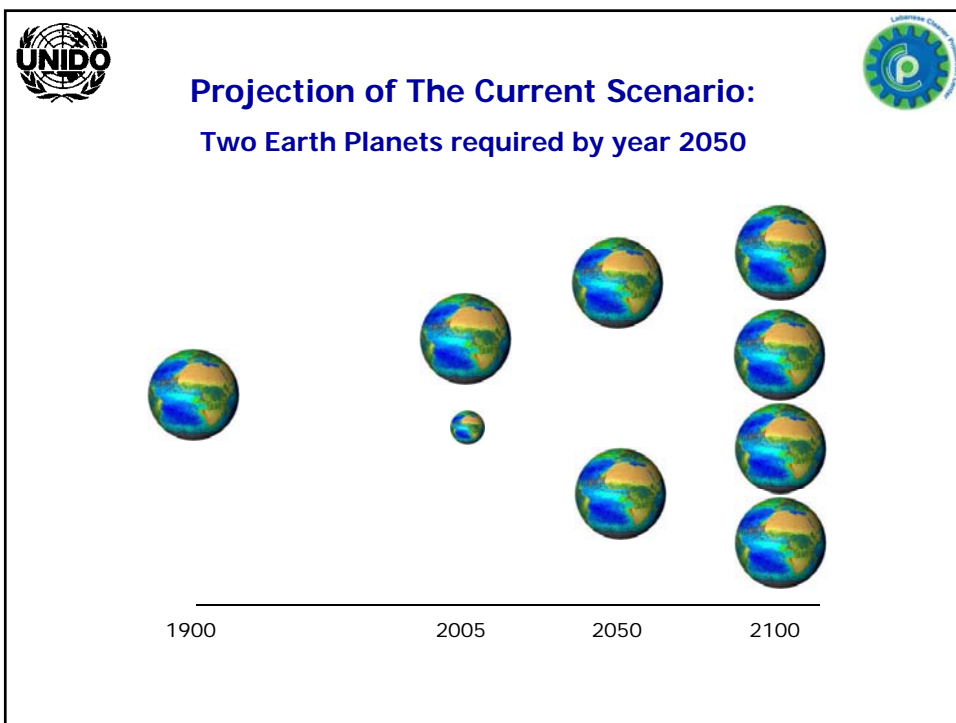
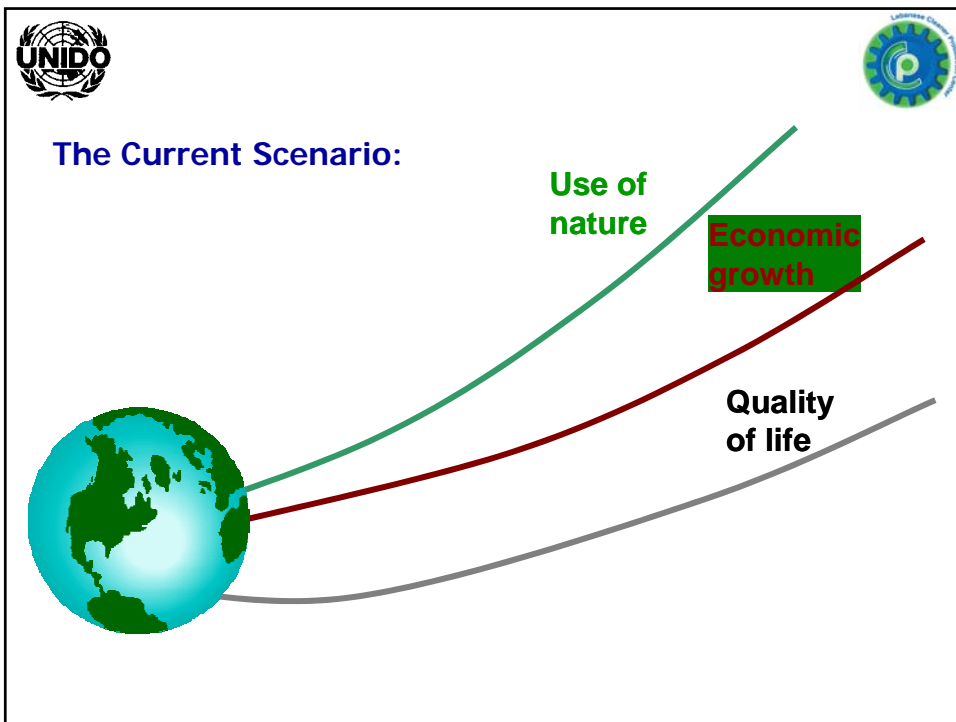
## 3. Sustainable Consumption & Production (SCP)



### Why & What

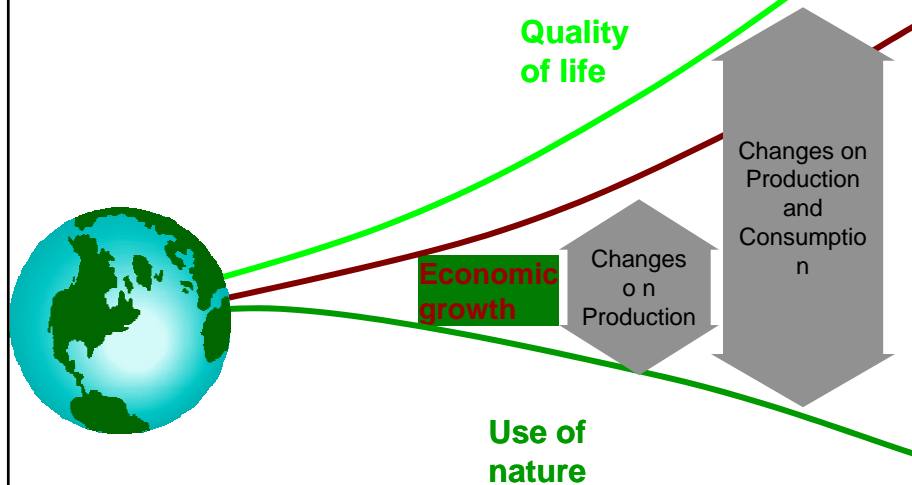
#### The development imperatives:

- **Developing countries need to develop their economies in order to fulfill the basic aspirations of their people.**
- **Developed countries need to sustain their economic development in order to maintain their current status of living standards.**





### The Sustainability Scenario:



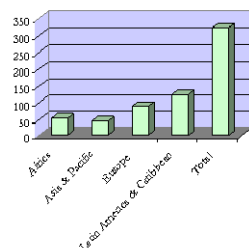
Source: Wuppertal Institute



## 4. Economical & Environmental Savings

- **Overall reduction in energy consumption achieved through the implementation of CP in the period 2001-2003: more than 100 millions kWh**

CP Audits by Region - 2003



**Total CP and energy audits carried out in the same period: 1050**



## 4. Economical & Environmental Savings



ECONOMIC AND ENVIRONMENTAL IMPACT ON ENERGY SAVINGS

**Total Energy Savings reported in 2003 = 104.9 million kWh**

### KNOWING

**As average to generate 1 kWh – 300 ml diesel are needed  
1000 ml diesel emit about 3.2 kg of CO<sub>2</sub> to the atmosphere.**

### SAVINGS

**104.9 million kWh avoided the emission of 100,700 tons of CO<sub>2</sub>  
and saved**

**ECONOMIC SAVINGS 5.250.000 US\$**



## 5. CASE STUDY: CORTAS CANNING & REFRIGERATING COMPANY



- Located in DORA
- 120 Employees
- Major exporter
- Produces dips, tomato-based products and pickles

**CORTAS**

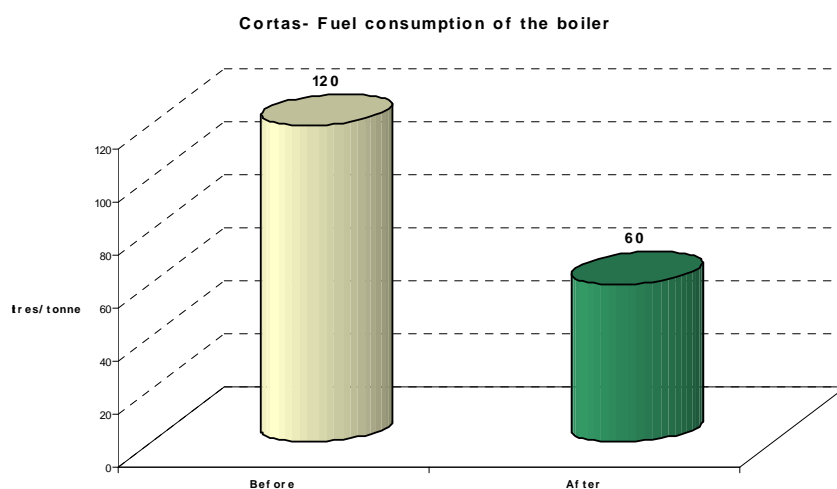


## CP OPTIONS IMPLEMENTED AT CORTAS

- **Installation of a new boiler;**
- **Hiring of expert to train employees**
- **Installation of new Generator**



## SAVINGS ACHIEVED AT CORTAS





## SAVINGS ACHIEVED AT CORTAS

- Savings of \$67,000 yearly
- at an investment of \$102,000



## Replacement of the Boiler



Before



After



## CASE STUDY: Lebanese Fiber Company s.a.l LEFICO



- Established in 2004 in the Bekaa Valley
- LEFICO has 50 employees.
- The main product is polyester staple fiber, made from virgin material or PET flakes, and used in various applications.
- one of the major recycling pioneer enterprises in the Middle East.



## CP OPTIONS IMPLEMENTED AT LEFICO



- Check the lighting for automatic control (censors, dimmers)
- Insulate condensate return system
- Clean boiler regularly
- Provide oxygen control for boiler
- Check efficiency of thermo oil system
- Check feasibility of incineration small flakes & refused bottles



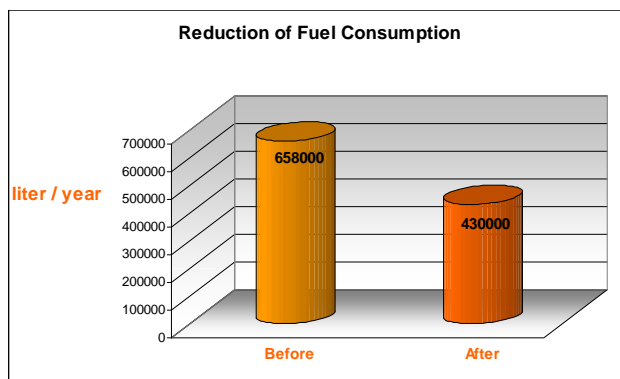
## SAVINGS ACHIEVED AT LEFICO



- Savings of 87,000 \$ yearly
- at an investment of 50,000 \$



## SAVINGS ACHIEVED AT







## Factsheet



**CLEANER PRODUCTION FACTSHEET**

**Lebanese Fiber Company s.a.l**  
LEFICO

**BACKGROUND**

Lebanese Fiber Company s.a.l - LEFICO is the first PET Polyester Staple Fiber producer in the Middle East. It was established in 2004 in the Bekaa Valley. LEFICO has 50 employees. The main product is polyester staple fiber, made from virgin material or PET flakes, and used in various applications. The main policy and support for the environment are the pillars of its development. It retrieves plastic bottles to produce PET flakes, used in fiber production; it has become one of the major recycling projects enterprises in the Middle East.

**EVALUATION STATEMENT FROM LEFICO**

We would like to thank the UNIDO and UNEP programs for their efforts paid to reduce operational cost in LEFICO s.a.l. This cooperation leads to better energy savings, cost saving and waste recycling, therefore saving raw resources with best production and more revenues.

We really need like these programs in Lebanon to improve the industrial sector taking into consideration all environmental aspects, and for Lebanon.

**Mr. Ahmad Haddad**  
General Manager

**CF. OPTIONS IDENTIFIED AT LEFICO**

- Check the lighting for automatic control (sensors, dimmers)
- Installate condensation return system
- Close boiler regularly
- Provide oxygen control for boiler
- Check efficiency of furnace oil system
- Check feasibility of incineration small flakes & refined bottles

**CF. ACTIONS ACHIEVED AT LEFICO**

The application of the last CF option will save 87 000 USD as an estimated investment cost of 50 000 USD for a purchase of a small incinerator.

LEFICO, by purchasing an incinerator for handling more around 700 kg/day refined bottles and 8 000 small flakes, will reduce the fuel consumption per year up to 220 tons.

**Reduction of Fuel Consumption**

| Year   | Fuel Consumption (kg) |
|--------|-----------------------|
| Before | 40000                 |
| After  | 38000                 |

Used and refined plastic bottles and small flakes at LEFICO will be sent for incineration as illustrated in photos below:

Refined bottles: 700 kg/day      Small flakes: 8000 /year

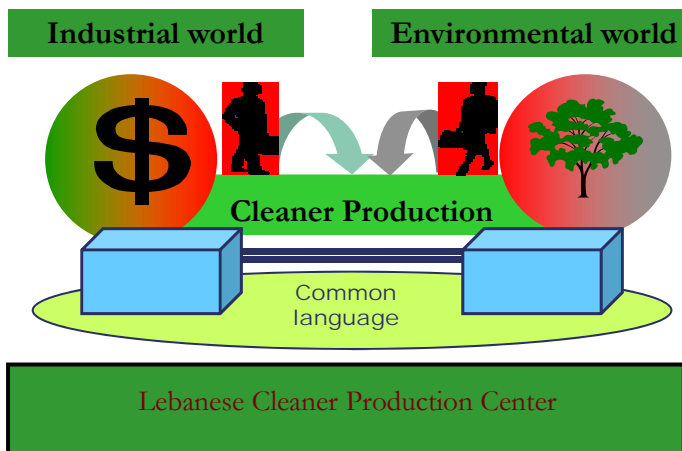
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## Bridging the Gap between Environment & Industry through Cleaner Production





**Thank you for your attention**

*CP is  
a journey  
not a destination*