

CASE STUDY OF A SUCCESSFUL NATIONAL INDUSTRIAL DEVELOPMENT PROGRAMME/STRATEGY (2)

1. The problem or issue addressed:

Sustainable industrial development

2. Name of the programme:

Lithuanian – Norwegian Cleaner Production (CP) Programme

3. Timeframe: **5 years**

Year started: **1995**

4. Status: ☐ Ongoing ☒ Completed in year 2000

5. Main objectives:

- To improve environmental performance, competitiveness and regulatory compliance, to document environmental improvements achieved from reduced pollution and waste generation, increased efficiency and better management by introducing the concept of CP in participating industrial companies,
- To strengthen the capacity of local partners and consultants to train and support industry in the area of the environmental improvements.

6. Lead institution: **The Institute of Environmental Engineering (APINI) and World Cleaner Production Society (Norway)**

7. Other implementation arrangements and stakeholders involved (public, private, NGOs, CBOs, international support, etc.):

- 63 Lithuanian industrial companies
- 4 municipalities
- 3 regional environmental protection departments
- Ministry of Environment of Lithuania
- Lithuanian Confederation of Industrialists

8. The results achieved (if possible, please address the social, economic and environmental impacts of the programme):

During Lithuanian – Norwegian CP programme, 125 representatives of industry and governmental institutions were trained and certified as CP experts.

The results of the programme were basis for:

- 2 PhD theses,
- 2 monographs,
- 20 scientific papers.

It should be stressed that the last part of the programme (1999 – 2000) has been fully implemented by local experts and was funded from local sources. This clearly demonstrates the long-term impact of the programme in terms of CP sustainability in the country.

Heretofore APINI provides information which is targeted at specific audiences, mainly industry as well as national and local governments, organises seminars, workshops and conferences focusing

on information dissemination and exchange.

9. The relationship of the programme to internationally agreed goals and targets:

In the preparation for the third Conference of Environmental ministers, held in Sofia in 1995, the question about the Basic Capacity level was raised and this concept adopted in Sofia includes creating:

- an active core of Cleaner Production advisors and trainers;
- a set of case studies, demonstration projects and model business plans;
- a functioning Cleaner Production centres;
- training material in the local language;
- Cleaner Production principles included in university curriculum;
- Monitoring frameworks and quality assurance.

The concept is, however, not defined in any qualitative and quantitative way, which would be easily measured, but in 1998 at the Ministerial Conference in Arhus was stated that Lithuanian has reached Basic Capacity Level in Cleaner Production. This achievement has direct link to Lithuanian - Norwegian Cleaner Production Programme.

Lithuanian CP follow-up system was developed and the main objectives of the system are:

- to provide the effective and systematic tool for a solution of environmental problems in each Lithuanian economic sector by preventive measures;
- to integrate Cleaner Production into EMS: firstly, CP is not a continual and normal practice for industry; secondly, Environmental Management Systems are no guarantee that CP will be applied or even an environmental performance above regulatory requirements will be obtained;
- to improve understanding by stakeholders with professional interest in Lithuanian environmental policy – e.g. those in state and local government, industry, environmental and community groups, labour and academia – as well as by members of the general public with an interest in environmental policy, how environmental issues influence key business decisions;
- to engage in a dialogue that relies on the best factual information available;
- to promote CP consistency in Lithuanian industry.

Also “Action Program for the Development of Cleaner Production and Ecological Industry in Lithuania” was prepared. It provide a comprehensive, cross-sectoral analysis of conservation and resources management issues to help integrate environmental concerns with the development process.

More detailed Case 1 Reconstruction of heat supply system for yarn production (Plunge district, Lithuania)

CP method: Process optimization

Problem description:

- 1) Manually controlled steam input valve operated not effectively, with steam losses. Flow meter data and evaluation of the device error showed the steam losses about 52 kg/h. This valve was closed approx. 12 h/week. Production losses were approx. 30 t/year. Steam losses were approx. 32 t/year.
- 2) Steam, produced in the boiler house had pressure of 11 bars and was reduced to 6 bars (for the technological process) in the company's heating centre. Steam reduction equipment (steam regulator could not maintain required pressure and there were fluctuations $\pm 1,5$ bar. The production process requirements were not fulfilled, causing damages of final product and steam losses were approx. 310 t/year.
- 3) Pressure regulators in twisting department could not maintain required pressure of 1 bar. The pressure of steam flow ranged from 0.7 to 1.3 bars. The production process requirements were not fulfilled, causing damages to equipment and steam losses were. 170 t/year. Yarn spoilages due to one ineffective pressure regulator were approx. 16 t/year.

Technical solution

1. Reconstruction of heat supply system by:
 - Replacement of manually controlled valve by automatic one;
 - Installation of a new system for steam reduction.
2. Reconstruction of steam supply system in twisting department:
 - Replacement of ineffective steam pressure regulators;
 - Replacement of ineffective steam traps.

Environmental benefit

Implementation of this CP project resulted in heat energy savings – 800 MWh/year. That constitutes 11% of the total heat energy consumption in the company.

Economic benefit

CP investments - 46000 EUR. Planned savings – 30000 EUR/year, including savings due to reduction of environmental costs – 26000 EUR/year. Pay back period – 1.5 years.

Note: Kindly provide any appropriate facts, figures or charts that document the problem addressed and the results achieved. Noteworthy case studies may be published and/or summarized in UN publications as a means of sharing information on best practices.

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| Number of companies | 63 |
| Number of implemented CP innovations | 102 |
| Environmental results (yearly): | |
| El. energy consumption reduced | 11,5 MWh |
| Heat energy consumption reduced | 478 000 Gcal |
| Waste amount reduced | 700 t |
| Air emission reduced | 1470 t |
| Water consumption reduced | 404 980 m ³ |
| Economic profit: | |
| Total investment in CP innovations | 7 871 257 € |
| Yearly savings from CP innovations | 5 074 320 € |