

TRANSFER OF CLEANER PRODUCTION TECHNOLOGIES TO TRANSITION ECONOMIES AND THE ROLE OF MESO-LEVEL INSTITUTIONS: THE CASE OF LITHUANIA

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Contents

1. Introduction
2. Establishment of Meso-Level Institutions: a Phase-wise Approach
3. Formation of the PPC in Lithuania
4. Lessons Drawn and Conclusions

Bibliography

Biographical Sketch

Summary

One of the main problems today is how to bring the already existing and available environmental knowledge and expertise into particular industrial companies. The state institutions and international donor organizations act as the agents of change by launching and supporting new establishments for environmental re-training and technology diffusion. This paper explores the case of one type of meso-level institution disseminating pollution prevention and cleaner technologies in one of the Central and Eastern European countries, Lithuania. It is the Pollution Prevention Center (PPC) set-up to catalyze and facilitate the shift from technologies based on the end-of-pipe paradigm towards pollution prevention.

1. Introduction

It has been widely recognized that informative instruments should come to play an important role together with environmental regulations as a tool to stimulate the greening of industry. Information and environmental education is to become an inseparable part of the basic education of every engineer, manager, technician, and many other professionals both before they start practicing their job, and during their professional activity. Diffusion of relevant knowledge and know-how in environmental technology and management should be a key to the process of continuous environmental innovation and improvements, whatever they are—radical or incremental. One of the main problems today is how to bring the already existing and available environmental knowledge and expertise into particular industrial companies.

There is a variety of channels through which relevant information and know-how can reach industrial companies. As Rogers (1983) pointed out, these channels are direct and indirect, formal and informal. Often the diffusion of knowledge takes place through the combination of various channels. The state institutions act as the change agents by

launching and supporting new establishments for environmental re-training. But, the success of disseminating advanced technology and know-how often depends on more informal channels that are opened up by institutionalized mediators, such as the non-governmental organizations (NGOs), or special consulting or training center that are often affiliated with academic institutions. In order to foster continuous environmental innovation and to make improvement in the companies, the active involvement of agencies institutionalized on a meso-level, i.e. between industrial companies and environmental authorities, becomes highly important. Such agencies tend to be more flexible and dynamic, compared to the formal organizations and thereby achieve the objectives more effectively.

2. Establishment of the Meso-Level Institutions: a Phase-wise Approach

This paper will explore the case of one type of a meso-level institution disseminating pollution prevention and cleaner technologies in Lithuania. It is the Pollution Prevention Center (PPC) established at the Institute for Environmental Engineering, Kaunas University of Technology. Lithuania is one of the transition economies attempting to shift from technologies based on the old end-of-pipe paradigm towards cleaner production methods. In order to facilitate this, an industry-oriented center, PPC was established in 1994 by the USA-based World Environment Center (WEC).

WEC is a not-for-profit, non-advocacy, independent, environmental organization that contributes to sustainable development world-wide by strengthening industry's environmental and health and safety policies and practices. Under a cooperative agreement with the United States Agency for International Development (USAID), WEC began implementing in 1991 its industrial waste minimization program for Central and Eastern Europe (i.e., Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia and Romania). The objective of the program is to demonstrate that measurable environmental and economic benefits can be achieved at industries through implementing low- and/or no-cost waste minimization activities and to disseminate waste minimization practices throughout all industrial sectors in each country.

The WEC industrial waste minimization program consists of three phases:

1. Waste Minimization Demonstration Program (WMDP);
2. Waste Minimization Impact Program (WMIP); and
3. Waste Minimization introduced throughout industry.

The goal of the first phase, WMDP is to demonstrate the effectiveness of waste minimization by implementing a successful waste minimization program at specific enterprises. In Lithuania, WEC selected two large enterprises (a phosphate fertilizer plant, and a nitric acid fertilizer plant) that are important to Lithuania in terms of product and number of employees, and whose management is open to incorporating new ideas into their production process. For each enterprise, WEC formed a team of experts from USA who worked with the enterprise team for approximately 18 months to identify low-cost/no-cost waste minimization opportunities and to specify and install equipment/instrumentation and to monitor results.

The pollution prevention centers in USA observe that the primary motivation for industries to seek the assistance of the centres was the regulatory obligation and/or problem. It was expected that Lithuanian industries were more likely to be motivated to establish a pollution prevention/ waste minimization program if the economic benefits become evident as a result of its implementation. Environmental improvements, while appreciated, are often considered a luxury for enterprises in transition economies. Therefore it was very important that WEC had demonstrated the success of implementing waste minimization programs in Central and Eastern Europe. Local success stories are often much more convincing and motivating to local companies than foreign examples.

In the second phase, the WMIP, WEC incorporated waste minimization practices into a larger number of enterprises. Since May 1994, WEC has been working with five Lithuanian enterprises (two plastic manufacturers, a rubber boot and medical products manufacturer, an artificial rubber plant, and a cement plant) that were good candidates for waste minimization. Following one week of general waste minimization training as a group, each enterprise proposed to WEC the WMIP project that it would like to implement over the next year. While technical assistance is provided by the experts from USA, the WMIP is primarily an effort by the local enterprise.

It was expected that a demand for establishing waste minimization programs in industrial enterprises of Central and Eastern European (CEE) countries would develop, as the economic benefits of WEC's WMDP, WMIP and other on-going pollution prevention projects were verified. To satisfy this anticipated demand, WEC established a Pollution Prevention Center in each of the CEE countries, thus initiating the third phase of its Industrial Waste Minimization Program. The Lithuanian PPC services include: a technical library; on-site technical assistance; industry specific training workshops; and publication of newsletters, fact sheets and case studies.

This three phase approach to introducing and disseminating waste minimization philosophy and practices throughout CEE industry requires the industry to take an increasingly more proactive role in seeking and obtaining waste minimization assistance. During Phase 1, the WMDP, enterprises were gradually convinced to implement a waste minimization program. In phase 2, the WMIP, enterprises expected to take a more active role in identifying and implementing specific waste minimization projects. To reap the benefits of Phase 3—through the PPCs—industries must take greater initiative to contact the PPC in order to receive technical assistance regarding waste minimization.

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Biographical Sketch

Leonardas Rinkevicius is the head of the Department of Sociology at Kaunas University of Technology, Lithuania. He has been involved in environmental policy, politics and sociology research since 1988, and has an extensive record of involvement in different research activities and policy-making bodies. Professor Rinkevicius has published widely on the issues of environmental policy, risk society, environmental movements, diffusion of innovations, public participation, inter-institutional tensions and learning. He has been an expert, lead-researcher and consultant for such organizations as the World Bank, European Commission, World Health Organization, Regional Environment Center, etc. He is a board member of the research committee No. 24 "Environment and Society" of the International Sociological Association, a Vice-president of the Lithuanian Sociological Association, a board member of the international Greening of Industry Network, and other organizations.