

## **THE LONG TERM EFFECTS OF CLEANER PRODUCTION PROJECTS; A SYSTEM APPROACH AROUND OPTIONS, PROCESS AND CONTEXT**

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Experiences with cleaner production (CP) projects in many companies indicate that a variety of options for change can be implemented, resulting in win-win situations: saving money and reducing environmental impact. Not much is known however about the long term effects of cleaner production projects in companies, in terms of continuous efforts to look for new CP-options. The paper focuses on these effects. It is based on the thesis "The Arena of Cleaner Production, man and organization between conservation and change", Hans Dieleman, Erasmus University Rotterdam, 1999.

Usually, CP-projects present their results in terms of prevention-options that have been identified. Success is based on the number of these options, and it is assumed that they give an indication for the continuation of CP in companies. The paper aims to show that the options are not a good indicator for success. The search processes behind the options, as well as the conditions that determine these search processes (the context), are crucial in understanding the long term effects of CP projects. A central element is the distinction between options, process and context.

The search processes behind the generation of prevention options have the characteristics of "trial and error" and "learning by doing". These processes are by nature uncertain and success can only be known ex post. Therefore it is essential to have ongoing search and trial processes in companies. It is the ongoing process that counts. The paper illustrates this through the analysis of search processes in 5 companies.

The analysis is based on a systems approach (the arena of cleaner production). The way people in companies organize their environmental affairs, interact and search for solutions, is embedded in the social or institutional system they work in. Relevant process variables are the search processes within the company and the interaction with stakeholders of a company. Relevant contextual variables are the institutional set-up (including environmental policy), the company's culture as well as individual experiences and competence's. All these variables interact but it is primarily the context that steers the search process, and not the options. Changes in the context are the key variables in understanding the long term developments towards cleaner production, as they determine the search process. The paper illustrates this by identifying the key variables in the Dutch arena for cleaner production.

## **Concluding remarks; suggestions for the stimulation of Cleaner Production**

CP-projects can play a role in stimulating cleaner production. These projects can identify how and why existing search processes in companies do not favourize cleaner production, and how this is linked to the systems characteristics. They can help in formulating policy changes and changes in company cultures and knowledge and skills.