

Turning waste into new resources in small and medium sized enterprises

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Abstract

Turning waste into new resources in small and medium sized enterprises (SME). During a three years period (2015-2018) a project involving SME's, was carried out in corporation of six Danish municipalities, the Technical University of Denmark (DTU) and Symbiosis Center Denmark. The project was financed by EU. The project focused on industrial symbioses, optimizing resources and/or potential waist minimalization. Initially 107 SME's where screened for their potential to join the project. Of these 52 SME's were offered a technical development plan and 42 SME's were offered a green development plan. The outcome of the project showed following potential savings: • Energy: 36.222 GJ/year • Materials: 10.416 tons/year • Water: 20.935 tons/year • CO2 emission savings: 4.908 ton/year This corresponds to 1 million euro saved. If all the proposed solutions are implemented, it will result in at least 24 new jobs in the participating SME's. Putting resource efficiency and industrial symbiosis on the agenda of small and medium-sized enterprises showed that sustainable growth can be achieved. It requires companies that are ready to think differently and are open to new ways of doing business.

Keywords: industrial symbioses, waist minimalization, readiness

1. Introduction

I want to present the outcome of a project funded by European Fund for Regional Development in which I have been involved. The project focused on industrial symbioses, optimizing resources and/or potential waist minimalization for SME. The outcome is not a traditional scientific paper, but a number of experiences seen from an environmental Inspector's point of view.

2. Turning waste into new resources in small and medium sized enterprises

During a period of three years (2015-2018) an EU financed project involving SME's, was carried out in corporation of six Danish municipalities, the Technical University of Denmark (DTU) and Symbiosis Center Denmark. I am an environmental Inspector in the Municipality of Kalundborg, and I were the municipal project leader during the project period.

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Initially, we mapped out which SME having potential for further investigation. Then we offered those companies to participate in the project. Very surprising was that in general not many companies were immediately interested in participating in the project. Even though the project offered each company consultancy for approx. 17.000-18.000 EURO, they hesitate to take the offer.

DTU developed an excel based screening tool. The screening tool ensure that all the screenings to be complete uniformly, and on a scientific basis. The screening includes detailed information of raw material and energy consumption, solid waste and wastewater. Furthermore, the readiness for eco-Innovation and Industrial Symbiosis of each SME were measured. The readiness was indeed a much more important factor than we had expected before we started the project.

After all data had been entered in the spreadsheet, data were processed and analyzed in relation to some predefined index numbers and a standard report was automatically generated. This report indicates the potential of the SME to proceed in the project process. Based on all the screenings reports, we selected those SME's considered suitable to be offered a technical development plan and/or a green development plan/business plan.

The outcome of the project showed following potential savings:

- Energi: 36.222 GJ/year
- Materials: 10.416 tons/year
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- CO2 emission savings: 4.908 ton/year

This corresponds to 1 million euro saved. If all the proposed solutions are implemented, it will result in at least 24 new jobs in the participating SME's (Nielsen, T.).

Putting resource efficiency and industrial symbiosis on the agenda of small and medium-sized enterprises

showed that sustainable growth can be achieved. It requires companies that are ready to think differently and are open to new ways of doing business.

The process of the project will be described, and experiences seen from an Environmental Inspector's point of view will be presented. The project has led to a different way of carrying out environmental inspections in my municipality. Environmental inspections have changed from control based to dialogue-based inspections. Companies have become more aware of that

focus on environmentally correct and green behavior can be seen on the bottom line. As an Environmental Inspector we can help them and at the same time do the needed inspection and control.

Furthermore, the project has resulted in a changed procedure in relation to new companies wishing to establish a production in the municipality.

References

Nielsen, T. (2018), From waste to resource - Green business models for SME's, *Final Project Report*.