

Using algae for recycling phosphorous and nitrogen in the Baltic Sea

Project: Smyge Algae Biogas Plant and Biogas Education and Development Centre, Sweden

Project owner: Municipality of Trelleborg, Sweden

Duration: 2012

Year of BSAP funding: 2011

Approximate total budget: EUR 1.5 million

BSAP funding: EUR 500,000

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The municipality of Trelleborg, a small city situated on the southern tip of Sweden, has decided to become a true pioneer in reducing all its releases of nutrients to the Baltic Sea in its coastal zone.

The aim is to reach a nutrient sea balance and stop the eutrophication of its part of the Baltic Sea's vulnerable brackish waters. This is a great challenge for a community with one of the largest agricultural area proportions in Sweden and the largest roll on-roll off (Ro-Ro) port in the Baltic region.

"If Trelleborg can succeed with this, then most other coastal zone municipalities around the Baltic Sea should also be able to create their own functioning nutrient balance," says Claus Pedersen, Head of Department of Environmental and Urban Management of the Municipality of Trelleborg.

Practical and functional solutions

All nutrient flows from farmlands are fetched up in rivers and wetlands, where sweet water algae are grown and collected at a full-scale biogas plant, in which the green energy is used for heating and electricity production. Phosphorus reaching the sea is swept up in algae from the sea and also used for the production of biogas. The heavy metals in the residues are removed, and they go back to the farmlands again as fertilizers.

On the port side, the solutions are equally simple. Phosphorus and nitrogen flows from the ferries' kitchens and toilettes are kept on board and pumped over in port, and used for biogas production in the municipality's sewage water treatment plant. These residues are also being certified and used as fertilizers for farmlands.

Trelleborg strives to assist and encourage other Baltic Sea municipalities to copy these solutions, and is therefore presently setting up a Biogas Education Centre, where visitors can learn about and share achievements and solutions. This centre will be available for information and training purposes, and together with the ferry sewage installations and the full-scale biogas plant, become ready during 2012.

The BSAP fund has found the solutions to be of such interest for replication in other coastal zone municipalities and ports that it has decided to support the pilot biogas plant and the Education Center financially.



Baltic Sea Action Plan Fund

The BSAP Fund is a fund managed by the Nordic Investment Bank (NIB) and the Nordic Environment Finance Corporation (NEFCO). The fund provides grants for technical assistance to projects that support the implementation of the HELCOM Baltic Sea Action Plan (BSAP). The aim of the BSAP is to help restore the ecological status of the Baltic Sea.

Recipients eligible for financing through the BSAP Fund include both public and private entities operating in the agricultural and wastewater treatment sectors, shipping and ports, as well as those working to reduce hazardous waste in the Baltic Sea catchment area. A key purpose of the fund is to facilitate and speed up the preparation of bankable projects. The fund provides grant financing for the following:

- Project preparation and development, including feasibility studies, development of business ideas, and cash-flow models
- Technical assistance for institutional support, that is, training and support needed for project preparation, development and implementation
- Measures that improve efficiency and quality in project implementation (e.g., the acquisition of equipment for demonstration purposes).

Sweden has committed SEK 90 million (EUR 9 million) to the BSAP Fund and Finland EUR 2 million.

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