Part-financed by the European Union
(European Regional Development Fund)

Experience exchange on operator level 2

Silale district municipality administration

8-9 March, 2012

euroslam

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(European Regional Development Fund)

Study visit, Silale
8-9th of March 2012

Participants

Organization	Name	8th of March	9th of March
P2 Sustainable Business Hub	Bengt Hansson	x	x
P3 Höganäs	Fredrik Arthursson	x	x
P6 Silale	Kęstutis Ačas	x	x
	Laura Šmidtaitė	x	x
	Dovydas Damulis	-	x
	Jonas Gudauskas	-	x
	Raimundas Vaitiekus	-	x
	Valdemaras Jasevičius	-	x
	Dalia Danylienė	-	x
Farmers	Romualdas Bertašius	x	x
	Egidijus Gečas	x	x
„Silale waters“ Ltd	Edmundas Auškalnis	x	x
	Vytautas Vincas Matulaitis	x	-
Silale’s waste water treatment plant	Zigmas Vytartas	x	-
Environmental Protection Agency of Silale’s district	Virgilijus Dvilys	-	x
	Simonas Noreika	-	x
Vilnius Gediminas Technical University, Department of water management	Mindaugas Rimeika	-	x

First day, 8th of March

Meeting with the farmers

Participants:
Bengt Hansson
Fredrik Arthursson
Kęstutis Ačas
Laura Šmidtaitė
Romualdas Bertašius
Egidijus Gečas

Introduction
Project coordinator Laura Šmidtaitė shortly presented Euroslam project, described it’s main purpose and objective (to modernize sewage sludge handling and to reduce the load of nutrients to the Baltic Sea and heavy metals to the environment) and explained Silale’s role within the Project.

Presentation (Appendix 1)
Bengt Hansson made a presentation "Why sludge on farm land and what safety measures should be taken?". Bengt Hansson briefly introduced Sweden's twenty years experience in the field of sludge handling, indicated the most important benefits from using sludge on farm land, explained the results from different crop experiments, that were carried out by using sewage sludge and mineral fertilizers, drew farmers attention to the main problems that must be solved in order to use sewage sludge in a safe way (hygiene, smell, heavy metals, lack of information, etc.).

Data sheet (Appendix 2)
The product data sheet for the agricultural use of Silale's sewage sludge was presented to the farmers. Some adjustments should be made according to the requirements for the maximum permitted contents of heavy metals that may be released into the soil fertilized with sludge per year that are laid down by the national Normative document LAND 20-2005 "Requirements for the use of sewage sludge as a fertilizer and for recultivation".

After the presentation following issues were discussed:

- Difference between allowable nitrogen and phosphorus concentrations that might be added to the soil while using sludge in Sweden and Lithuania.
- Importance of collaboration and communication between municipality, farmers and environmental officers.
- Sludge hygienization possibilities (storing, composting, surveys for salmonella).
- Heavy metals as a long term environmental issue.
- Opportunities to involve local farmers to the small scale experiment that would follow all necessary steps for the proper sludge use in agriculture (sludge storing, sludge and soil surveys, fertilization plan, application of the final product).
- Future possibilities for sludge handling in Silale.
- Possibility to arrange a study visit to the Swedish farm that uses sludge as a fertilizer in the middle of May 2012.

Study visit to the waste water treatment plant and sludge storing lagoons.

Participants:
Bengt Hansoon
Fredrik Arthursson
Kęstutis Ačas
Laura Šmidtaitė
Edmundas Auškalnis
Vytautas Vincas Matulaitis
Zigmas Vytartas

Zigmas Vytartas, engineering technologist, made a tour at the waste water treatment plant to show how the water is cleaned and returned to the environment. During the study visit available technologies and equipments were presented, daily operations explained. The plant is operating well and shows good effluent values. The influent water was discussed and characterized as a household waste water with very low storm water influence.
Participants visited the closed sludge storing lagoon, which has not been used since the year 2008, and the lagoon which is still open. According to the national regulations sludge disposal in landfills, lagoons and other containers must be suspended no later than 2013.

Second day, 9th of March

Meeting with the Municipality leaders

Participants:
Bengt Hansson
Fredrik Arthursson
Kęstutis Ačas
Laura Šmidtaitė
Jonas Gudauskas (Mayor)
Raimundas Vaitiekus (Vice mayor)
Valdemaras Jasevičius (Administrative director)
Dalia Danylienė (spokeswoman)

Mayor Jonas Gudauskas welcomed the guests from Sweden. Meeting attendees talked about Euroslam project's main goals, Silale's role within the Project, discussed the most important current problems related to the sludge handling and how these problems could be solved.

Meeting with the farmers, environmental officers and other stakeholders

Participants:
Bengt Hansson
Fredrik Arthursson
Kęstutis Ačas
Laura Šmidtaitė
Dovydas Damulis
Romualdas Bertašius
Egidijus Gečas
Edmundas Auškalnis
Virgilijus Dvilys
Simonas Noreika
Mindaugas Rimeika

Project manager Kęstutis Ačas made a welcome speech and introduced all participants.
Virgilijus Dvilys, chief inspector from the Environmental Protection Agency, gave a historical background to sludge usage in agriculture, existing legislations and shortly described current situation. Until 2001 Lithuania didn't have any legislation that regulated sludge use in agriculture. At the waste water treatment plant a small site was build with the idea of a short-term storage of sludge. It was expected that untreated sludge will be wildly used by local farmers. In order to protect underground drinking water in 2001 the normative document LAND 20-2001 "Requirements for the use of sewage sludge as a fertilizer" came into force. The current legislation LAND 20-2005 (**Appendix 3**) was harmonized with the EU directive, however it sets stricter requirements for the sludge application rates. LAND 20-2005 document is the main and the most important act as a basis for sludge use in agriculture.
Sewage sludge produced at Silale's waste water treatment plant has a II category (according to the heavy metal concentration) and a C class (according to the microbiological-parasitological parameters).
After the introduction to the current situation and the basic requirements for the sewage sludge use in agriculture meeting attendees discussed the following issues:

- Necessity to use sewage sludge, stored at the lagoon, which was closed due to non-compliance to the environmental requirements.

- Limit values for the quantities of nitrogen and phosphorus, that can be added to the farming land as a result of the use of sludge (nitrogen – 170 kg/ha per year, phosphorus – 40 kg/ha per year). Phosphorus immobility in the soil was discussed (can farmers use a triple phosphorus rate if sludge is used as a fertilizer once in every three years?).
- Limit values for organic and mineral fertilizers (can farmers insert allowable amount of organic fertilizers with the sewage sludge and use extra mineral fertilizers?).
- Intensive farming and the quantity of nutrients necessary for the plants.
- Sludge treatment possibilities in Silale (storage, composting, biogas production). Approximately 10 thousand inhabitants in Silale are connected to the waste water collection system. Biogas production using only sludge would be too expensive. A survey on available additional materials (food waste, waste from slaughterhouses, green waste, etc.) must be made. All the participants agreed that according to the situation in Silale best way to treat sludge and to solve hygienic problems would be sludge storing at the waste water treatment plant.
- Untreated sludge transportation and storing at the farmer's private site. According to national regulations, sludge supplier is responsible for the sludge treatment.
- Construction of the sewage sludge treatment plant in Taurage, it's influence to Silale district municipality and water tariff.
- Necessary investments (sludge storing would be the cheapest way).

Conclusions:

- ❖ Hygienization should be done by storing sewage sludge at the waste water treatment plant site.
- ❖ Collaboration and communication between municipality, farmers, "Silale waters" Ltd and Environmental Protection Agency is essential.
- ❖ There is a lack of knowledge and experience in how national laws should be applied in practice.
- ❖ Strict laws make sludge use in agriculture quite complicated, but farmers are very interested and willing to participate and follow all the necessary procedures. Farmers are mainly interested in sludge as a source of organic phosphorus.

Planning for 2012

Participants:
Bengt Hansson
Fredrik Athursson
Kęstutis Ačas
Laura Šmidtaitė
Dovydas Damulis
Mindaugas Rimeika

The immediate to-dos that must be carried out by the Administration municipality of Silale and Project activity plan were discussed in detail.

Activity	Short description
1. Preparation of product data sheet for agricultural use of sewage sludge	1. By using Excel program, create a formula to calculate possible sludge application per hectare rate (consider allowable heavy metal and nutrient concentrations). 2. Adjust data sheet to the national legislation.
2. Finding an agricultural adviser	During the meeting with farmers questions were raised concerning the nutrient content, which is necessary for the plants. Consultation from a agricultural specialist is needed.

3. Small scale experiment with the sludge	Experiment will be carried out by storing two piles of sludge (fresh sludge and the one taken from the closed lagoon) at the waste water treatment plant. Analysis for salmonella and other 3 microbiological-parasitological parameters must be done at the beginning of the experiment and once every two month until the quality of sludge will increase to A or B class. After hygienization following parameters must be analyzed: heavy metal and nutrient concentrations including ammonia and nitrate nitrogen. A fictitious fertilization plan must be prepared.
4. Information about Taurage sewage sludge treatment plant	What is the stage of the project, what kind of technologies will be used for the sludge treatment?
5. Survey of the available substrates for biogas production	Information about available substrates must be gathered (food waste, manure, waste from slaughterhouses, etc.). Survey will show whether or not to continue studying the potential for biogas production.
6. Self monitoring manual	During the experiment with the sludge piles an instruction on how hygienic problems will be solved must be prepared.
7. Study visit to Sweden	Experience exchange betweens farmers and operators. Study visit to the Swedish farm where sewage sludge has been used and waste water treatment plant can be arranged in the middle of may.
8. Collaboration with farmers, industries and other stakeholders	Communication with farmers and other stakeholders will continue. It is important to find out where our farmers sell their products and try to initiate communication with the food industries.
9. Study on heavy metals in the collection system.	Start with the ideas on how to proceed. In order to get reliable results, proper sampling equipments are necessary. Analyze the balance of phosphorus over the treatment plant.
10. Investments	Potential investments that are necessary for successful implementation of the project (might be machinery, portable sampling equipment, extension of the storage site).