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PRIORITY AREA

EUTROPHICATION



AGRICULTURE: MANURE MANAGEMENT PLAN FOR KALININGRAD

PREPARATION OF LONG-TERM MANURE MANAGEMENT PLAN FOR KALININGRAD REGION

Implemented by The State Scientific Institution North-West Research Institute of Agricultural Engineering and Electrification (SZNIIMESH) of the Russian Academy of Agricultural Sciences (Main Consultant)

Support provided by MTT Agrifood Research Finland (EU Expert)

BACKGROUND

Agriculture is a major source of nutrient inputs into the Baltic Sea and thus any intensification of farming practices will, in turn, increase said inputs. The Agriculture Development Programme in Kaliningrad Region up to the year 2015 stipulates a substantial increase

in livestock and poultry stocks. This will be achieved through the reconstruction of the existing and the construction of new livestock complexes that use highly intensive technologies and by concentrating animals in large farms.

However, the experience of intensive farming development in Leningrad Region demonstrates that complying with environmental standards is difficult, especially in cases where many animals are concentrated and vast amounts of animal and poultry manure is used (up to 100,000 tonnes per farm/annum).

At the same time, most agricultural enterprises in Leningrad and Kaliningrad Regions do not have the state-of-the-art environmental technologies for animal and poultry waste handling in place. This increases the loss of nutrients from the agricultural processes to the water bodies.

Building on a pilot implemented under BALTHAZAR project in Leningrad Region, BASE project experts have

prepared a Long-Term Manure Management Plan for Kaliningrad Region to address the issue of nutrient management. This will avoid serious environmental problems already at the planning, design and construction stages of new animal and poultry complexes. Moreover, the experiences to date of introducing best available technologies (BATs) will also be taken into account.

OBJECTIVES

The main aims of the project were to:

- assist the Kaliningrad Regional Government to implement the Baltic Sea Action Plan;
- establish a regional farming database to contribute to the environmental soundness of regional farming; and



- draw up guidelines on the location and operation of environmentally sustainable animal and poultry farms in Kaliningrad Region.

CONCLUSIONS AND RECOMMENDATIONS

- The project analysed the amount of animal/poultry manure produced in Kaliningrad Region and the area of agricultural cropland and concluded that all the processed animal/poultry manure may be used as an organic fertilizer. As there is a shortage of organic fertilizers, even in the case of

“Producing organic fertilizer from manure is economically profitable for farmers”

a substantial growth in animal/poultry stocks all produced manure will be in high demand in the region.

- The project has identified relevant technologies for processing animal/poultry manure. Although good practices have been adopted in certain places, most farms still need to upgrade the materials they use and modernise technical facilities for animal/poultry manure handling taking into account the best ‘region specific’ practices.
- In order to raise the stakeholders’ awareness of available choices, an extensive online database of technologies, machines and equipment for manure processing can be found at <http://eco.szii.ru>. This project has contributed to updating the database with region-specific information.
- Decision-making guidelines were elaborated for the local executive agencies responsible for agriculture development. The guidelines focus on the siting of new and the modernization of existing livestock complexes and based on nutrients (N and P) balance calculation.

• The project calculated that producing organic fertilizer is economically profitable for farmers.

• The project also recommends subsidies to agricultural producers as a tool of state economic support. Subsidies would be used to compensate a portion of expenditures on organic fertilizer.

NEXT STEPS

The outcomes have been discussed in meetings and workshops with representatives of Kaliningrad Regional Government and managers and specialists of large-scale agricultural enterprises. The project outcomes and recommendations will be submitted for further consideration of the Agriculture Minister of Kaliningrad Region.

Should the Kaliningrad Regional Government (especially the Ministry of Agriculture of Kaliningrad Region) adopt the recommended approach, it will be able to initiate the coordination of activities, which will lead to improved ecological safety of agricultural production in the region. ●

Full report available at
www.helcom.fi

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SCATTERED SETTLEMENTS - NUTRIENT REDUCTION POTENTIAL FROM WASTE WATER

PILOT ACTIVITY REGARDING THE TREATMENT OF WASTE WATER FROM SMALL AND SCATTERED COMMUNITIES IN LENINGRAD AND KALININGRAD REGIONS AND ELABORATION OF A WATER MANAGEMENT PLAN (WATER SUPPLY AND SANITATION) FOR A PILOT AGGLOMERATION IN LENINGRAD REGION (VISTINO SETTLEMENT)

Implemented by Marketing Agency Murkot
(Main Consultant)

Implemented in cooperation with
FCG International Ltd and TineCoin
SUE Vodokanal of St. Petersburg

BACKGROUND

Urban areas are significant sources of nutrient loads to the Baltic Sea and further reductions are needed in order to meet the HELCOM Recommendation for waste water treatment plants. Russia is among the countries with the largest potential for phosphorus reductions. There has been remarkable progress in the upgrading of waste water treatment in municipalities around the Baltic Sea in recent decades. The city of St Petersburg is an example of such success. There are also various on-going activities for medium sized municipalities in Russia initiated by the regions in cooperation with financing institutions.

However, smaller municipalities, scattered settlements and single family homes have received less attention and there is not enough information available for the estimation of the nutrient reduction potential of these smaller units. The BASE project has built on existing reports and estimates and has come up with proposals and recommendations for good solutions to improve the waste water treatment of individual households and dachas, summerhouses and other second homes.

OBJECTIVES

Before the start of the project, BASE was in touch with major actors aiming to reduce nutrient input into the Baltic Sea. In full synergy with other similar work, the BASE pilot project aimed at assessing the nutrient reduction potential of certain scattered settlements in Leningrad and Kaliningrad Regions. Furthermore, the project had an important aim of informing local authorities and individual home owners in the regions on the technical solutions

available for them in order to improve waste water treatment in scattered settlements.

MAIN OUTCOMES

Based on the assessment and other available information, the pilot project has come up with proposals and recommendations for good solutions to improve the waste water treatment of individual households and dachas, summerhouses and other second homes.

The final report contains an estimation of the nutrient inputs from scattered settlements according to the different sizes as per HELCOM recommendations (mainly up to 300 p.e. and 300-2,000 p.e.). The project has also estimated the cost-effectiveness of the waste water treatment plant on the Isle of Valaam in Karelia. The conclusion was that other similar sized settlements could consider cheaper, technologically simpler options.

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The report also contains an analysis of the typical and specific (environmental, economic, legal and social) problems/obstacles in the field of waste water treatment in different sizes of small and scattered agglomerations in Leningrad and Kaliningrad Regions.

The pilot has been implemented in close cooperation with SUE Vodokanal of St. Petersburg, which has been instrumental in reaching the right authorities and other stakeholders as well as having much of the baseline information for the reports. Several local authorities have been informed of the project findings in workshops in Kaliningrad and in St. Petersburg.

In order to give a concrete example of how nutrient releases from small and scattered settlements could be reduced, a pilot settlement in Leningrad Region was chosen and a water management plan (water and waste water) was made for the settlement. Below is the structure of such a plan.

1. DESCRIPTION OF THE TERRITORY

- 1.1 Location of the territory
- 1.2 Land use and status of general plans
- 1.3 Objects of natural and cultural heritage and protected areas

2. HYDROGRAPHY

- 2.1. Ground water resources
- 2.2. Surface water resources

3. DESCRIPTION OF EXISTING WATER SUPPLY AND SEWAGE SYSTEMS OF MUNICIPALITY 'VISTINO RURAL SETTLEMENT'

- 3.1. Main information about Vistino
- 3.2. General characteristics of water supply and waste water systems
 - 3.2.1. Characteristics of the water supply network
 - 3.2.2. Characteristics of the sewerage network
 - 3.2.3. Water consumption volume and waste water volume
 - 3.2.4. Calculation of infiltration
 - 3.2.5. Balance of water supply and sewerage systems
 - 3.2.6. Water intake and treatment facilities
 - 3.2.7. Existing water supply and water treatment process
 - 3.2.8. Proposals for a water purification system
 - 3.2.9. Waste water treatment facilities
 - 3.2.10. Suggestions for CLEANING SYSTEM discharged waste water

4. FORECASTS OF DEVELOPMENT VISTINO SETTLEMENT

- 4.1. Forecast of development Vistino settlement

5. TECHNICAL SOLUTIONS AND PLANNING SCHEMES

- 5.1. Drinkwater sources
- 5.2. Suggestions for line-purification system water conveyed to the users
 - 5.2.1. Technical description and basic parameters of the various options
 - 5.2.2. The length of pipe diameters, in need of refurbishment. Whenever possible, the recommended method of reconstruction
 - 5.2.3. Assessment of the risks and impacts of different options
 - 5.2.4. Comparison of different variants in terms of cost and effects

6. GUIDELINE

7. CONCLUSIONS AND RECOMMENDATIONS

APPENDIX 1. Questionnaire to the authorities

NEXT STEPS

The results will be shared with the relevant local and regional authorities, the Ministry of Natural Resources and Environment of the Russian Federation, different HELCOM Groups as well as with international financing institutions and private foundations working towards reducing nutrients input into the Baltic Sea. Building on the existing reports and pre-feasibility studies, it will be possible for Russian regions to implement activities aimed at nutrient reduction from scattered settlements. ●

Full report available at

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