

EXPERIENCE OF DRY BIOTOILET INSTALLATIONS IN THE FRAME OF THE INTERNATIONAL FINNISH RUSSIAN PROJECT

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Abstract: The co-operation between the Northern Waters Problems Institute Karelian Research Center Russian Academy of Sciences (NWPI KRC RAC) (<http://water.krc.karelia.ru>) and the Global Dry Toilet Association of Finland (GDTAF) (www.huussi.net) was established in 2007 with the aim to improve the environmental situation in the Karelian settlements in the directions of water supply, water treatment, waste treatment sanitation problems, environmental education.

The NWPI has conducted the fundamental work in 1992-2004 in co-operation with the partners from North Savo Regional Environment Center (Finland) in the frame of the joint project "Development of water supply in Republic of Karelia". The situation of the water supply and sanitation was studied almost totally on the Karelian territory. The development of sanitation was considered as urgent also from the surface and ground water protection point of view.

The cooperation between these organizations was started in the frame of the joint project №HEL6312-23/14.2.2008 "Development of sanitation in Karelian villages". The project was prolonged up to 2012 and conducted by independent stages in co-operation with Ministry of Education of Republic of Karelia and State Historical, Architectural and Ethnographic Reserve-Museum KIZHI.

Keywords: Kizhi Island, Lake Onego, tourists, schools, biotoilets, environmental education

The Karelian villages' sanitation development project is focused on the development of water supply and waste water treatment of small villages and important tourist resorts in the Lake Onego and Lake Ladoga catchment areas (Pakula, 2009, 2011, 2012). The three phase project began in April 2008 with the support of the Finnish Ministry for Foreign Affairs. The project has received financial support for the third phase in 2011 (<http://www.drytoilet.org/projects/karelia>).

The project activity was divided in two main directions: Ministry of Education and Ministry of Culture. According to the information got from the Ministry of Education of Republic of Karelia (<http://minedu.karelia.ru>) there are schools and children summer camps without the modern toilet equipment (Protasov, 2009, 2010, 2011). The first object constructed at 2010 was the children summer camp. This place is very popular especially in summer school

vocation period for the children coming from all regions of Karelia and North-west Russia, who are interested to conduct different research investigations concerning the nature and environment.

The second pilot-object is the secondary school in Harlu village, Republic of Karelia (<http://harlu.iso.karelia.ru>), situated not far from the Russian-Finland boundary. There are about 75 pupils at the school. The school building is very old but still in a good condition. There are different possibilities for the pupils with library, sport hall, research laboratories and computer class. The idea was to improve the sanitation situation using the available modern technologies and old facilities.

The school building was constructed at 1934 (pic. 1). There are centralized water supply system and hot-water heating. The toilet (lavatory or cesspool) constructed in the separate building on the school territory (pic. 2). This situation causes some problems. First of them is the children's' health, especially in wintertime, when the outdoor temperature is something close to $-30C^0$. The second one is the sanitation problem, because there is no possibility to wash hands in that toilet building. As the third one it is possible to mention the whole school study process being interrupted due to toilet attendance.

Pic. 1 The school building in Harlu

Pic. 2 The toilet construction in Harlu school

In 2010-2011 some preliminary trips were organized to Harlu with the purpose to investigate the place and possibilities of the project. The colleagues from Finland and the representatives from Ministry of Education discussed the situation, which was not very easy to decide the how to improve the sanitation situation at this object. At last together with the school administration it was decided to prepare the facilities located at the semi-basement near the passage to the dining-hall. The model Ecolet VS-10 was chosen for installation. It was organized 2 toilet places (pic. 3) according to the recommendations for schools and the point for hand washing (pic. 4).

Pic 3. The 2 toilet places

Pic. 4 The point for hand washing

The problem appeared after a month of the happy using the toilets. It was smell. The problem was investigated with the help of Yuri Protasov, the representative from the State Historical, Architectural and Ethnographic Reserve-Museum KIZHI, the real practical

specialist with the great experience on the museum island territory (pic. 5). His conclusion was that the main problem of the smell is ventilation. The problem can be improved by some methods: the installation of the additional electric air-exhauster and the ventilation pipe improving, straightening and cleaning. The works were done and the problem with smell was liquidated.

Pic 5 Yuri Protasov at Harlu school

The State Historical, Architectural and Ethnographic Reserve-Museum KIZHI (<http://kizhi.karelia.ru>) is a center of global tourism – the yearly tourist traffic is about 200 000 people. Given that Kizhi Island is situated in Lake Onego, implementation of the project aimed to improve environmental situation on the island is also topical, as it would reduce point-source impact on surrounding waters.

The main idea of this project part was to present the information and make the wide popularization of the dry toilet possibilities (Protasov, 2010, 2011). In 2010-2011 3 dry toilet of different modification were constructed at the Kizi Island. These toilets meant for different possibilities, for example for the ecological trip in the forest (pic. 6). One of the modifications was done as the mobile construction and transported three times to the different holidays places according to the needs of about 300 people (pic. 7).

Pic. 6 The toilet for the ecological trip in the forest

Pic. 7 Mobile modification of the toilet

The Kizi-museum is the main partner of the project, which was in co-operation with NWPI begging from the 1992. Due to the strength strategy of the sustainable development presented by the museum administration the environmental situation on the Kizi Island retained for many years as compared to another places of Karelia.

More over the Kizi-museum as the project permanent partner goes forward with new ideas and innovations, such as waste waters purification system (pic. 8) and waste collection and composting, which are close connected with the main project direction (pic.9) (Protasov, 2011, 2012).

Pic. 8 The construction of the waste waters purification system

Pic. 9 Composter made from the old waste box

The handbook “Dry toilet is important!” prepared and published by the project is one of the main results available for the general public in electronic and paper versions. The handbook contains multifarious information about the dry toilets beginning from the idea description, present models, planning and construction, maintenance stages and rules for compost utilization.

Conclusions

The project has positive moving in Republic of Karelia never the less the project team wants to be it more active. The sustainable development of the project was based on effective financing and management, close co-operation between partners inside the project and between project and local society (ministries, administrations and people) and on real responsibility for nature and environment.

The project international group is looking with the great hope for the future. The larger work has been done together fro the health and well being of the people and environment (Tukiainen, 2012).

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