

## School Sanitation Based on Urine Diverting Dry Toilets – A Case Study from Tajikistan

Surayo Saidova, ASDP Nau, [surikova\\_params@mail.ru](mailto:surikova_params@mail.ru)

Claudia Wendland, WECF, [claudia.wendland@wecf.eu](mailto:claudia.wendland@wecf.eu)

Stefan Deegener, WECF/TUHH, [deegener@tuhh.de](mailto:deegener@tuhh.de)

School sanitation is a crucial issue for public health. It is well known that pupils are dropping out of school in case of bad toilet conditions. This is particularly the case for adolescent girls and leads to lower educational standards which hinder to break down the loop of poverty.



However, in many countries only little attention is paid to school sanitation not only because of lacking financial resources but also a lack of awareness of how important school sanitation is.

In Northern Tajikistan, the NGO ASDP Nau built with the help of Dutch Ministry of Foreign Affairs and WECF 3 toilet facilities for rural primary schools with urine diverting dry toilets and waterless urinals in summer 2008. The toilets are the first out of 4 school toilets of this kind which will be built by ASDP Nau in the frame of the 3 years project 'Empowerment & Local Action - ELA'. The facilities serve 1428 schoolchildren and teachers. There are 3 rooms for girls and 2 rooms plus 3 urinals for boys in every school toilet.

The urine is collected in 2 tanks, a farmer decided to buy the urine after a storage-time of minimum 6 month and use it as a fertilizer on his fields. The nutrients contained in the treated urine and faeces are especially valuable in poor countries like Tajikistan where artificial fertilizer is too expensive for most of the local dwellers and in regions with nutrient-deficient soils like the mountainous project-area. The faeces are collected in a double vault chamber system and are stored und possibly post-composted for minimum 2 years to assure a proper hygienisation of the product. A plot for a demonstration-garden is prepared in front of the toilet to show the fertilizing-effect of treated urine and faeces.

Accompanied with trainings for school children, caretaker and teacher, the new toilets were accepted very well and the sanitary conditions are improved immensely.

### Keywords

Ecosan, PHAST, fertilizer, hygiene, sanitation

### Background

Tajikistan is a country of abundant water resources. At the same time, less than half of the population has access to safe drinking water, resulting in epidemics of some waterborne diseases, such as typhoid, dysentery and malaria. Almost invariably, communities and their authorities cite clean water as their main need and priority. The reasons for this can be grouped into four categories:

- Disproportionate increase in users (population);
- Lack of proper water supply; Poor sanitation and hygiene;

- Poor management of water supply systems.

Towards the end of the Soviet era, meeting the populations need for drinking water was still rather poor, with approximately 65% of the urban and only 22% of the rural population having access to safe drinking water through piped water systems. A doubling of the population<sup>1</sup> from 2.9 million in 1970 to 6.1 million in 2000 (now the population is 7 million) strongly contributed to a rising demand for water and a relative decline in service coverage.

The situation of water supplies in the countryside has been exacerbated by stronger growth in rural areas as opposed to urban ones. The share of the urban population has declined from 37 percent in 1970 to 27 percent in 2000<sup>2</sup>, resulting in an increase from 1.8 million to almost 4.5 million rural inhabitants. The increasing rural population has long outnumbered the service capacity of any village or rural water supply designed, constructed or expanded until the mid-1980s. In contrast, water supplies serving urban areas and rural towns have deteriorated as a result of marginalized budget allocations for system operation and maintenance from the central government and local administrations. This degradation of these systems has been exacerbated due to the general economic decline, budget constraints, and the civil war.

Presently, it is estimated that approximately 50% of the water supply systems are not functioning or are seriously damaged, therefore providing only one third of the population with regular water from such systems. Up to 80% of the still functioning systems no longer use chlorination or are using too little, meaning that water supplied is often far from safe to drink without boiling. The high prevalence of kidney ailments is often attributed to the poor quality of water, especially in Dushanbe and Sugd area, where the water is extremely hard.

The collapse of many piped water supply systems has been partly offset by transporting water in water trucks to communities, apart from being costly; this may reach only 15% of the population. Moreover, irregularity in supply and improper storage of the water in the houses makes this kind of drinking water provision as inappropriate as collecting water from irrigation canals.

The concept of water as a commodity with a price is still new. Although fees for water usage have now been introduced in many parts of the country, revenues are well below what is needed to ensure proper maintenance of water supply systems. This has to do with widespread and often extreme poverty, especially in the rural areas where basic food requirements are not being met. Additionally, the institutions designated to collect the fees often lack operational and managerial capacity to undertake this task and require further capacity building.

Only 49% of the overall population of Tajikistan has access to known safe and clean water supplies. In the rural areas this percentage drops dramatically. While the traditional means of collecting water from ditches or rivers was not a problem for thousands of years, farm chemicals, sewage treatment, sanitation, domestic animals and an increasing population using the water systems all contribute to a water supply that is unusable without proper handling and treatment.

## **Objective**

**As part of the project** "Fair access to pure water, hygiene and sanitation via community mobilization in Northern Tajikistan" a school toilet was built in 2008 to demonstrate the feasibility of a safe sanitation system without water supply.

---

<sup>1</sup> "The Population of the Republic of Tajikistan 2000", State Committee on Statistics Republic of Tajikistan, Dushanbe, Tajikistan

<sup>2</sup> Ibid.

There were built 3 school ecotoilets for 1428 school children, adults and teachers in the target regions. The designs of the toilets are different. See pictures 1, 2, 3. The measure of toilets are 9,4 m x 3,4 m.



Picture 1



Picture 2



Picture 3

The capacity of urine chambers in school dry toilets are 2 tons. They placed in concreted pit (see pic.4). The pit is covered with wood lid. There is a roof hatch for repairing and checking the state of urine chambers (see pic.5). The size of pit for urine chambers: depth 2,10 m, width 4 m, length 5 m.



Picture 4



Picture 5

There are 3 rooms for girls and 2 rooms plus 3 urinals (pic. 6) for boys in every school toilet. School toilets supplied with necessary cleaning tools in order to keep school toilets clean. The hand wash basins are installed in both rooms. The hand wash basins made by local producers (pic.7). The water from wash basin takes away to plot near the toilet. The slabs produced in China (pic. 8).



Picture 6



Picture 7



Picture 8

The school staff and schoolchildren participated in all seminars and trainings where they get information (booklets, brochures, hand out materials) on benefits and correct of using of ecotoilets. Now teachers and schoolchildren who participated in the trainings can conduct ToT and seminars concerning dry toilet for other new schoolchildren or for those who didn't take part in the trainings. There were also trainings for girls on using and cleaning up proper after themselves Dry Urine-Deverting Toilets during a woman's menstrual cycle.



*Picture 9*



*Picture 10*



*Picture 11*

There were formed Parent's Committees in the target schools which in the future will assist to school by creating fund for eco toilet maintenance. School caretakers are responsible to clean the school toilets, they gained the knowledge on general cleaning methods for the Dry Urine-Deverting toilets (pic.11).

Plots for a demonstration-garden are prepared in front of the every school toilets to show the fertilizing-effect of treated urine and faeces.

The school administration is going to sale the fertilizer to farmers. The farmers showed their interest in buying the fertilizer from school, especially urine.



## **Results and discussion**

*Picture 12*

In 2009 year ASDP Nau is planning to build 10 dry urine diverting toilets in households and 1 school toilet in Ganchy district. Demoplots will be implemented in schools and in the households in order to show the use of compost and urine as fertilizer. All schools in rural districts of Tajikistan are not connected to centralize systems. These schools use out door toilets – pit latrines. Only some of them which are in the centre of region has toilet inside but they are out of order [are not working].

### **Conclusions:**

Presently, the sanitary and hygienic conditions in the communities do not meet any standards due to what there are much infectious diseases among the population. The communities are ready to improve the situation. Project: "Fair access to pure water, hygiene and sanitation via community mobilization in Northern Tajikistan" will increase the awareness level of communities in the sphere of sanitation and hygiene. And it's better to start to build the dry toilets in households because we must start to change the behavior of community from the family.