



Momavali-France

No safe drinking water in rural Georgia, the Caucasus Lacking structures and responsibilities

Case Study



Involving schools in developing community based
Water Safety Plans for small-scale water supply systems in
4 villages of Chokhatauri Municipality, Georgia

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Involving schools in developing community based Water Safety Plans (WSP) for small-scale water supply systems in 4 villages of Chokhatauri Municipality

Objective of the project

Prevention of water-related diseases by mobilizing the community for an appropriate protection of local water sources, a better water management and engagement for an improved access to safe drinking water.

The presented pedagogical project addressed children, teachers, parents and their intermediaries

Implementing organisation

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Financial support: Momavali-France; budget 2400. Euro

Location: Villages Nabeghlavi, Guturi, Gogolesubani and Amakhleba, Region Guria, Georgia



Introduction

Georgia disposes of a plentiful water supply, and safe and sufficient drinking water should not cause significant problems. But the poor state of infrastructure and negligent supervision after the collapse of Soviet Union has created a situation that inspires concerns.

In many rural areas small springs, water collection points and private wells provide drinking water. This is the case in the four target villages. At present time there does not exist any water or health authority, responsible for the water quality of the villagers. Nevertheless, people generally do not question the quality of their water, they are seldom conscious about the risks posed by poor sanitary conditions and mismanagement of human and agricultural waste. In this situation, the first step for changes is to help raise awareness. Cows and pigs in Georgia wander freely. Springs and water collection points are often unprotected. The old pipes, which are resting on the roads often have holes. Pit toilets are unsealed and they are not always at least 30 m away from the wells.

A project for rising awareness in four villages in the Chokhatauri area in Guria

Our project was realized in cooperation with WECF Georgia, the NGO Momavlis Gzebi (founded especially for this purpose) and the French association Momavali-France. WECF already had experience in similar projects (<http://www.wecf.eu/english/water-sanitation>). Specialists of the NGO had created an educational package for schools, based on recommendations of the World Health Organisation, the Water Safety Plan (WSP¹) whose goal is to involve local communities in understanding and improving water supply.

Our first idea was to launch a pilot project in one or two schools. But as the local coordinator was soon confronted with more applicants from different villages, her NGO and the French partner readapted their budgets in order to accept at least four schools, situated in Nabeghlavi, Guturi, Gogolesubani and Amakhleba, villages situated in the district of Chokhatauri (name of the administrative center, a small town of about 2200 inhabitants)

As the training and the toolbox were offered by WECF the budget provided by Momavali-France was relatively modest (in total 2400.€). It covered mainly fees, laboratory tests, and travel and communication costs.

None of the four chosen villages has a central water-supply system. The villagers obtain their drinking water exclusively from spring sources, water collection points or from wells, often constructed by the owners; some are private; others are used by several families. The responsibility for the maintenance lies with the owners or all the persons who use the drinking water. But very often the basic principles of maintenance are not respected.

There are different reasons why the situation is difficult:

- People have confidence in nature
- People do not consider the sources of pollution; some know that wells must be cleaned regularly, but they are very poor and cannot pay for the work; the same problem exists for the old pipes which are in a bad state and should be replaced
- As there is no official authority in charge of operation, maintenance and monitoring the rural water sources, the majority of villagers forget about the risks.

¹ The Water Safety Plan (WSP) was initiated by the World Health Organisation (WHO). It is a risk assessment and risk management approach to water supply and sanitation.

Implementation of the project

In autumn 2010, Anna Samwel from WECF and Eto Jincharadze from Momavlis Gzebi began with the training of teachers and the distribution of the detailed educational package (WSP toolbox for schools)² In all villages the project was carefully planned and implemented over nine or ten months. After the training sessions, the villages and their surroundings were divided in different areas. Each one had to be explored by a group composed of school children (mainly from the six classes before graduation), of teachers and often parents. The children were the main actors. Their task were:

- To interview the inhabitants, some citizens as well as the village doctor; they used different questionnaires referring to the perception of the quality of water, the risks of pollution, frequent diseases and possible correlations with the drinking water.
- To describe and map in details water sources, water collection points and wells, taking in account the distance from the village, the geographical situation, the cleanliness of the environment.
- To perform several nitrate tests, according to the instructions of the toolkit delivered by WECF to test a large number of wells in the village for nitrates contamination, and to monitor periodically 4-5 selected wells the seasonal nitrate fluctuations.
- To produce and to distribute posters, reports, indications for a safe-water strategy, main findings and information on how to avoid water pollution.
- Microbiological analyses were done by professional laboratories.

The relatively small schools in these villages (between 250 and 1 100 inhabitants) were highly motivated. For a foreign observer, the engagement and the enthusiasm of teachers and children were impressive. They even worked sometimes during the weekends. They knew to implicate children of all age groups. The smaller pupils prepared for instance expositions with pictures of their wells.

In addition to the working groups of the schools, often a large part of the residents have participated in the project in one way or the other. The information about the project was sent in all cases to the authorities of the village and the belonging district. They were invited to the closing session of the project, where the results of the project were presented in detail. The project included a pedagogical trip to exemplary ecological realizations, Kobi³ or in Misaktsieli⁴. In these places, pupils and those who accompanied them, learnt about sustainable technologies such as Eco-san toilets, ground water protection and many other things. The children participated with great pleasure; they very seldom have the opportunity to make a trip and the more eager they absorbed the new impressions.

²WECF's WSP toolkit provides schools and other stakeholders with a WSP manual with background information about the aims of the WSP, about properties of drinking water and sources of pollution and related health risks . The toolkit also includes questionnaires for collecting information from citizens, local health authorities and local authorities. Further, the toolkit includes sanitary inspection forms on the current state and potential risks of (private) wells. The toolkit also contains materials and instructions for carrying out simple water tests

³ In Khobi WECF equipped a Kindergarten with ecosan toilets – an excellent tool to improve the sanitary conditions in a sustainable way and to protect the groundwater

⁴ A village near Tbilisi, where a "Demonstration, Training and Innovation Centre" demonstrates different alternative appropriate technologies for sustainable rural living

Results of the four target villages

Water analyses results

1) Nabeglavi

Whereas Chokhatauri is situated in the broad valley of the river Supsa, the village of Nabeglavi (250 inhabitants, 95 families) is located at 470 m. The inhabitants obtain their drinking water exclusively from springs (sources). In total there exist 32 sources, combined with water collection points.

The investigations found that all water collection points were in poor condition:

1. Dobiros Tskali, 1 km from the village: the water collection chamber consists of an aluminum barrel, covered with a plastic sheet. There is no protecting fence. The pipes, made of iron and rubber, are in very bad condition, damaged in several places and rusted. These pipes are lying on the paths and streets where they can be polluted by excreta of passing livestock.
2. Aretis Tskali, rather near to the village, is made of concrete and also covered with a plastic sheet. The environment – not protected by a fence – is quite dirty. The enclosure of the original spring itself is made of cement, covered with a tin roof and as the collection chamber full of moss and grass. The rubber pipes have holes in several places.
- 3 Tavpanta Tskali, 1 km from the village: the collection chamber is made of concrete and covered with a tin roof. There is no fence, but the surroundings are relatively clean. The pipes are made of iron.

The nitrate tests: The concentration of the tested samples did not exceed 25 mg/l, neither before nor after rainfall.

The microbiological analyses showed alarming results: None of the three investigated water collection points meet the microbiological standards for safe drinking water.

Coliform bacteria, Escherichia Coli, Fecal Streptococci and Pseudomonas aeruginosa exceeded severe the standards of the World Health Organisation (WHO) and the European Union (EU) on the quality of drinking water.

Photo: Example of an unprotected water source in Nabeglavi, which is contaminated with pathogenic bacteria:

Coliform bacteria, Escherichia Coli, Fecal Streptococci and Pseudomonas aeruginosa



2) Guturi

The village of Guturi (1100 inhabitants) is located 140 m high. All residents use water from self-dug wells, always situated in the vicinity of the houses or the stables.

The wells are between 4 and 11 m deep. Most of them are not covered tightly or not covered at all. There is no drainage around the well; the concrete apron is often cracked or damaged; surface water can trickle along the outside walls into the ground. Potential pollution sources are often close to the

well (up to at a distance of 50 m). With some exception, these observations suggest that the risks of contamination are rather high.

Photo: Example of a well in Guturi. Pupils test the nitrate concentration of the well.

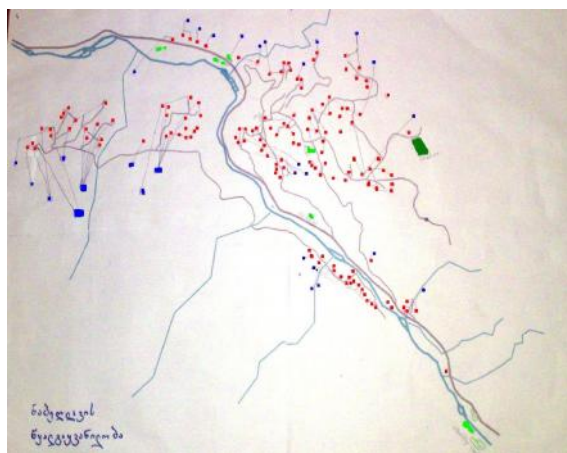


The nitrate tests: in spite of the rainy weather, the values remained about the same: 10 -25 mg/l. Only in one well the tests revealed 50 mg/l

The microbiological analyses: The water samples were taken from the school well and from two other wells; the criteria for the selection was the number of the users. Analyses were made in Kutaisi (Laboratory "Mikrobiologi). All results were alarming: they do not meet the standards of the Georgian regulatory framework for drinking water. The presence of a high number of pathogenic micro-organisms in the drinking water poses health risks.

3) Gogolesubani

The village of Gogolesubani (1100 inhabitants, 270 families) is located 140 m high. The working groups were investigating springs and wells in seven areas of the village. In the first area, 50 families are using the water of a source from a water pipe, in the 2nd area 15 families are using together 3 wells, in the 6th area, 13 families are using 3 wells, in the other areas nearly every family has its own well. The report does not inform about the depth of the wells. Most of them are not covered; often the concrete apron is cracked and damaged. And the unsealed pit toilets are often located at a distance less than 30 or 50 m. The water sources are not protected by fences, they are never disinfected; sometimes they are cleaned manually.



Drawings; Example of mapping the village and the water wells in Nabeghlavi



Pupils prepared for expositions pictures of their wells. Drawing of a pupil from Gogolesubani

The nitrate tests: The found values did not exceed 25 mg/l, neither before nor after rainfall. The tests of wells near the river revealed the highest values, probably due to the pollution of the riverbank.

The microbiological analyses: The water samples were taken from the school well, more used than any other well. Analyses were made in Kutaisi. Results revealed the presence of a high number of pathogenic microorganisms and don't meet the standards of the EU and WHO on the quality of drinking water.

4) Amakhleba and Shua Ganakhleba

The village of Amakhleba (700 inhabitants) is located 200 m high. Most of the inhabitants use wells. But there are also springs with water collection chambers: in particular, there is a rather important one in Amakhleba, which is providing 60 families; in Shua Ganakhleba another water collection point is providing 65 families. The working groups investigated wells and water collection points in both villages.

The majority of wells don't correspond to the standards defined by the standards of the WHO and EU. Protecting fences don't surround the wells; the water buckets are often defective. The concrete apron is frequently damaged. The wells are not regularly cleaned. Sometimes the animal shelters are close to the wells (cowsheds, pigsties and henhouses). Potential pollution sources can easily contaminate the water.

The important water collection points in Amakhleba and in Shua Ganakhleba are also not fenced. They are not regularly cleaned and never disinfected. The pipes are completely rusted; the drinking water is not filtered.

Photo: Example of a bad-maintained well



Nitrate tests: In both villages nearly all families have been visited. The schoolchildren carried out quick tests of the well water in the presence of the owners. In addition they examined the source-collection points in Amakhleba and in Shua Ganakhleba. The values did never exceed 50 mg/l, neither before nor after rainfall, but with exceptions: in Shua Ganakhleba: two wells located near the graveyard exceeded 50mg/l.

The microbiological analyses: The water samples were taken from the water pipes in Amakhleba and in Shua Ganakhleba. Analyses were made in Kutaissi (for Amakhleba) and in Nabeghlavi (for Shua Ganakhleba). The results revealed the presence of a high number of pathogenic micro-organisms.

The situation in Shua Ganakhleba is particularly alarming. The analysis of the water collection point which is providing 65 families does not only reveal an important quantity of unsafe micro-biological substances, but also chemical contaminants.

Coliform bacteria, Escherichia Coli, Fecal Streptococci and Pseudomonas aeruginosa exceeded severe the standards of the WHO and the EU on the quality of drinking water.

Results of the interviews

The residents: In *Nabeghlavi*, most residents have appreciated that their drinking-water has become à subject of interest. During the interviews, some were at first reluctant, because they feared receiving bills. When asked about their opinion on the quality of their drinking water, the majority of people interviewed (75 % of the residents) considered that there were no problems – with notable exceptions: 40 % complained that indeed, they had doubts, it often contained sand and from time to time small water scorpions and leeches. On the other hand, only 23% considered that the springs and the water collection points are in a bad state.

The majority had never imagined the possibility of becoming ill because of the water.

26% of the interviewed complained about water deficiency, especially in summer. The daily needed quantity was estimated to be 180 l per family.

In *Guturi* the majority of residents were surprised when learning that their water could be dangerous for health. In *Gogolesubani* the response of the people was similar. In *Amakhleba and Shua Ganakhleba* all inhabitants showed much interest. About 15 residents said that they had become ill several times because of some “poison”, but they didn’t know if the cause was the drinking water or food.

In these villages children met also persons who possess traditional knowledge about how to build and how to protect wells: Digging and building a well is considered as a hard work of great consequence; the well should be cleaned once a year: it is necessary to remove moss and green

plants, because they host insects; the bottom of the well should be covered with pebbles, a very good natural filter. Big stones must always be taken off. As cleaning and protecting is tough work, it can't be done by everyone. It should be well paid.

The village doctors: The village doctor of *Nabeghlavi* said that she never diagnosed water related diseases (such as typhus, tuberculosis and diarrhea), only some cases of goiter disease due to iodine deficiency. But she underlined that the drinking water in Nabeghlavi was never controlled. She recommends boiling it for small children. And she would recommend disinfection of the water collection points once a year.

The doctor of *Guturi* was particularly interested. She said that even if she seldom found diseases caused by drinking water, she did not exclude that it could be the origin of diseases discovered too late. People often don't consult the doctor in time, because they are very poor. She pleaded for taking very seriously the findings of the project. The reports of Gogolesubani and Amakhleba don't mention the opinion of doctors.

Communication of the results and recommendations

The results of the project had to be communicated in a comprehensible way. In the four villages, the working groups drew maps indicating the location of all springs and wells. They produced leaflets informing the local community about the quality defects of their drinking water, explaining and illustrating the risks for health and the symptoms of related diseases. They described in details how the sources, the water collection points and the wells should be protected in order to reduce pollution and in particular fecal contamination. Animal droppings and toilets without septic tank appear to be central problems.

The schools organized exhibitions of posters, pictures and of photos. Articles in the regional newspaper reached a broader audience. In June the schools organized public assemblies where they presented the findings of the project and distributed the leaflets. All villagers were invited and in particular the local authorities.

In the closing session in Guturi the doctor underlined: Life is the fundament for all things we find important. And the basic need for life is clean drinking water.

As presently official structures for water monitoring and water protection measures do not exist, villagers must see how to take some measures themselves. But people are too poor to pay for several significant measures; they'll have to look for financial resources.

Regional and national authorities, international donors should give more attention on the situation in the rural areas of Georgia. Mostly sufficient water sources are available, but due to lacking awareness and neglected operation and maintenance of the sources, drinking water pose a risk to the health of the rural population.

Conclusion and next steps

The project has been a rich experience not only for the schools, but for the whole villages. All participants agreed that the project has been very useful – even if some said, they would have preferred not to know about the problems. But the general conclusion was: “We learnt much about our drinking water – how it is now and how it should be. We’ll try now to change things.”

The aim of the project has been attained: the first step for better conditions is awareness raising. Problems have been analysed and possible solutions identified. Now it is very important that the residents remain motivated. On one hand, they can make themselves efforts for the protection of the water and for the protection of their health; on the other hand they have to remind the authorities of their obligation. The results of the program can be used for backing their demands.

Georgia has ratified the Protocol on Water and Health and recognizes the access to safe water as a human right. The national and international monitoring programs don't monitor drinking water quality – only the presence of a water connection. The real problems of the rural areas of Georgia are not represented in the official statistics and not recognized by officials. The results of the program can be used for awareness rising on national level and advocacy for a better implementation of the international agreements.

In November 2012, the three representatives of the involved NGOs had a long exchange with the actual Mayor of Chokhatauri, responsible for the same district. The newly elected mayor showed much interest for the problems revealed by the Water Safety Project. She promised to think about solutions and cooperation with civil society. The best option would of course be a central water supply, which could be monitored and regularly disinfected. But it will be very difficult to find the necessary funding.

The local government of Shua Ganakhleba (the Mayor of the village and three collaborators) decided to take action. They set up a working group and reflect about the possibility of constructing a sewage treatment plant.

In Nabeglavi, an “initiative group” consisting of children and adults is preparing a pilot project for the protection of a water source and collection chamber. Momavali-France will finance this project.

Investments to improve the existing water sources, establishing water committees, education of all stakeholders on financing, operation and maintenance of the local water sources, could benefit on a short term the rural consumers.

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