HEAR Nepal (Health, Education, Awareness and Rights)

A Nepalese registered non-profit organization

By Madhav Joshi

Results of a Drinking Water Survey in Bajhang District, Nepal

Introduction/Background

Water is one of the basic human necessities and in the Millennium Development Goals, one of the targets is to substantially reduce the proportion of people without access to safe water. A large proportion of the Nepalese population is devoid of access to safe and adequate drinking water. In a country of around 6,000 rivers, the water crisis in Nepal sounds a bit paradoxical. According to the 2011 census, 85 per cent of Nepalis had access to drinking water, up from 72 per cent. This indeed is huge progress compared to 1990 when only 46 per cent of the population had access to drinking water. However, according to the Department of Water Supply and Sewerage in Nepal, although most people have access to drinking water, it is generally not safe.

Water is needed for the maintenance of health. Its importance is not only related to the quantity, but also the quality. Access to water in the required quantity is needed to achieve good personal and domestic hygiene practices. Good quality water ensures that ingested water does not constitute a health hazard, even after a lifetime of consumption. It is, however, estimated that the drinking of contaminated water is responsible for 88% of the cases of diarrhoeal diseases that occur in the world every year, and deaths that result from them. It is also indirectly responsible for the 50% of childhood malnutrition that is linked to diarrhoeal and dysentery diseases.

The WHO estimates that 94% of diarrhoeal diseases are preventable through modifications to the environment. According to two systematic reviews, improved access to safe drinking water alone can reduce diarrhea episodes by between 20% and 35%. Also, ready access to water eliminates the need for carrying water, thus saving time for more productive activities.

The Survey

During June and July 2019, HEAR Nepal conducted a survey of drinking water from public and private sources in municipalities and rural municipalities in the District of Bajhang in Nepal. The main reason for conducting the survey was to determine how many villages in Bajhang have no access to safe drinking water and instead get their water from contaminated rivers, ponds, lakes, etc., resulting in serious health consequences. HEAR Nepal is planning to deliver so-called PAUL filters (http://waterbackpack.org/) to such villages.

A total of 35 locations were surveyed. Questions were posed to municipal authorities, health post staff and villagers who drink water directly from a river, canal or other sources. The probability of source contamination was assessed by inspecting the sources' physical condition and that of its immediate surroundings.

Materials and Methods

This was a descriptive cross-sectional study using a structured interviewer-administered questionnaire, field observations and focus group discussions carried out in 22 villages, 3 schools, one district hospital, two primary health care centers (PHC) and 7 health posts, in nine rural municipalities and two municipalities in the Bajhang district of Nepal. A triangulation of the qualitative research techniques was used to help gain a deeper insight into the context of the water situation in the study communities. We developed three different questionnaires for (A) the municipalities/rural municipality, (B) hospital/primary health care centers/health posts and (C) villagers who drink water directly from a river/canal/pond/lake or other alternative source.

The survey was conducted in the two municipalities (Jayaprithive Municipality and Bugal municipality) and 9 of the 10 rural municipalities in Bajhang. The 10th, Kanda Dhuli, is very remote (no road goes there and it takes 3 days on foot to reach) and is sparsely populated.

In the **Municipalities / Rural Municipalities,** we interviewed the Mayor, the Deputy Mayor, the Administrative Officer, the Health in-Charge and the Education in-Charge of the municipality, based on our questionnaire.

Hospital / Primary Health Care Centers / Health Posts: Jayaprithive Municipality has a district hospital, whereas Kidarsui Rural Municipality and Chir Bithada Rural Municipality have a primary health care center. In the district hospital we interviewed medical doctors, health workers, including nurses, patients and others. Since the primary health care centers and the health posts have no access to medical doctors, we collected information from the health workers. Some of the health posts did not have any data about safe drinking water.

Villagers: We questioned the inhabitants of different villages, based on the information we had received from the local government. During our survey, we were sometimes accompanied by the ward chairman. Overall, we interviewed more male inhabitants, since many of the women were planting rice in the fields. We were pleased to note that in many villages small children were curious about our work and listened carefully to what we said.

The Seti River, Bajhang

Water Sources

In Bajhang, water is obtained mainly from two sources:

(A) Ground Water: Ground water, which is obtained directly from spring sources; and

(B) Surface water: Surface water is water that collects on the ground or in a stream, river, canal, lake, reservoir or pond.

According to the villagers, most inhabitants receive their water from surface water sources. In cases where they have access to spring water, the source is often open and unprotected, which often gives rise to contamination.

Results and consequences

As can be seen in the table below, we identified 5 villages, 1 district hospital, 1 Health Post, 1 secondary school and 2 primary health care centers that are in urgent need of safe drinking water that they cannot get elsewhere. Our goal is therefore to deliver and install 10 PAUL filters and train local villagers in their maintenance and use.

Tabulation of results of drinking water survey in Bajhang

SN	Name of municipality	Total number of villages along the river	Total number of villages who take their drinking water from the river			Remarks	Comments
				Name of village	Population		
1	Jaya Prithive Municipality	12	6	Luyata	540	There is tap water from a spring, but it is not enough for drinking. There is one well (kuwa) from which the villagers drink most of the time. If we provide a filter, then all villagers can use filtered water because the village is very near and the villagers are all from the same caste.	Possibility
				Sutiya	190	The villagers have installed a tank at a stream that flows into the river, but the water is open and contaminated, and most of the villagers are suffering from different diseases like kidney problem and others.	Yes
				Deval	95	There is tap water in this village. We held discussions with the ward chairman and the villagers. The villagers do not drink water from the river.	No filter needed
				Subeda	328	The villagers do not drink water from the river but the tap water source is not covered but open, so most of the villagers are suffering from different diseases.	No filter needed
				Padesh	495	Tap water is available but it is not enough and the source of the water is very far away and it is an open source that is not clean. They use black pipe for bringing drinking water but many people cut the pipe from to access the water, opening it up for contamination. There is also a canal running from which the villagers sometimes get	Possibility

						drinking water. But they have not yet had any epidemic there and the health post report is good.	
				Damdhur	159	Here we have a different situation. There is spring water, but the source of spring water is very near the river. In the monsoon time, when the river is full, the source of the spring water is submerged in the river. The villagers therefore have to drink the water for the river during this time. They do have electricity. The villagers get the water from the river via a motor pump.	Possibility
				District hospital	1	In the Bajhang there is only one hospital in the district. 65-70 patient are visit in the Out Patient Department (OPD)and 40-45 are in Emergency in every day .in the monsoon time Enteric fiver(Typhoid)skin diseases, Diarrhea /Dysentery and others are suffering from water borne diseases. Hospital staff was commitment to manage the filter if they got .if HEAR Nepal will provide the filter that is the good lesson for other. If patient see the filter in the hospital they will copy and they can try to buy small filter for personal use in the home. ".imitation is the first stage of the learning "that is the good slogan for copy.	Yes
				Tamail	275	Tamail is a very public village along the main road with a market every day that is visited by many people. But there is no access to drinking water. A few months ago, they installed a tank and filled it with water and used it. But one day the water was used by a poultry farm nearby and the chicken and hens died due to a problem with the water. Now they are scared to drink that water.	Yes
2	Bugal munici-pality	23 (12 on the left side of	0	Satta, Damauni, Sanigad, Bagadgau,		All villages have access to drinking water. I visited all the villages. They were recommended by the local government. In the Bugal municipality there is spring water everywhere, but people do not manage the spring	No filter needed

		the river and 11 on the right side)		kailapal, Kapalseri, Dahabagad		water properly. Each village has a source with enough spring water, and most people have installed black pipes for their homes	
3	Surma Rural munici-pality	10	1	Dogdi	198	The source of the water from a spring is near the river. During the monsoon, when the river is full, the spring source is submerged below the surface of the river. So during the monsoon, the villagers drink water from the river. They have electricity with which they pump water from the river. So if we decide to provide a filter the pumps are in place.	Yes
				Kaulikhola, Mandugri, Gairigau, Surma, Daulichour Surma		I visited all the villages and they have access to drinking water. But the village of Mandugri has no drinking water and it does not even have access to river water. They have a small source they use for drinking water, but it is not really enough and they walk 10 minutes to the river to wash clothes and bathe. So we cannot do anything about the conditions there. The other villages have enough drinking water from spring sources.	No filter needed
4	Khaptad chhana Rural-munici-pality	11				In this rural municipality, every village has a drinking water facility, except for one called Toli, which does not have a drinking water facility and no river close by. So we cannot help them.	No filter needed
				Health post Channa		This health post has 210 – 240 patients a day, which includes 13-15 patients a day suffering from various diseases. The health post has access to water from a black pipe, but it is contaminated.	Yes
5	Masta Rural Munici-	7	3	Samdeue	245	This village is right on the river. Some of the time, villagers suffer from water-borne diseases. 2 years ago this village had an epidemic of diarrhea / dysentery. Every	Yes

	pality					day 4-5 people have abdominal pain, but they think that this is normal. Every month 8-10 people take anti-diarrhea/ dysentery medicine from the pharmacy. During the monsoon. when the villagers go to the river to fetch water, most of the time they see the dead bodies of humans, cattle and other animals. After consuming this water villager often suffer from abdominal pains and other problems.	
6	Chhabish Pativera Rural Munici-pality	5	4	Jhuteda joshi gau	221	This village has tap water but the source of the water is open, which means the water tends to be polluted, since it comes from a place 5 km away. Most of the time, dirt can be seen in the water. They do not have any alternative source of drinking water.. They have a well nearby, but that well is too dirty and is more than 500 years old. Only the same caste people live there so all people in the village can use filtered water if we provide a filter.	Yes
				Bhandari gau “A”	74	They have access to drinking water. This village is near the river. A few years ago they fixed the spring water source from the opposite side of the river and the source is now safe.	No filter needed
				Bhandary gau “B”	199	Here, the same applies as to Bhandary gau “A,” the neighboring village of Bhandari “B.”	No filter needed
				Matela / Bagadgau	127	This village has no bad problems regarding drinking water. There is a small spring producing tap water, but this is not enough. Near this village there is a campus of a higher secondary school. The campus and the school already have access to drinking water. A different aid organization is going to start a drinking water project here.	No filter needed
7	Talkot Rural munici-pality	15	2	Ghatte Bager	102	The source with spring water is near the river side, and in the monsoon time when the river swells, it covers the spring water source. So in the monsoon time the villagers drink water from the river. If we were to provide a filter, it	No, too few inhabitants

						is far from one home to another in the village.	
				Bhatgau, Sungau, Basti, Lugada, Datola, Khairadi, Sangrakot, Bhelata, Thananna		These 9 villages were recommended by the local government, but when we went to the villages, it turned out that all villages have access to drinking water, but they do not have enough water. If they were to manage the water properly, they would have enough water. We therefore will not provide filters to these villages.	What is most important is education
				Himalaya Secondary School Datola	445 Students	The school has 445 students. It is located in a very remote area. So far, the students have been drinking from a very small spring, which is 5 minutes away by foot. However, the water from the spring does not suffice and in winter it stops flowing. The PAUL-filter will be fed by river water. The corresponding village lies 10 minutes away by foot and the villagers would also collect water from the PAUL station.	Yes
				Bhagwati , Kalika and Tapoban Primary Schools	3 schools	These 3 primary schools have less than 120 students each. Another problem is that the schools are located far from the villages and thus have no security. Filters can therefore easily be stolen.	No filter needed
8	Kidarsiyu Rural Municipality	18	No	Chaudam, Pathuda, Bajuwabagad, Deura, Rayal, Sainsu, Kalanga		We visited all the villages that were recommended by the Kidarsiyu Rural Municipality. All villages have access to drinking water. The villagers live very far from each other and they are geographically very difficult to visit.	No filter needed

				Rayal Primary Health Care Center	150-185 / week 25-40/ day	This primary health care center (PHC) has 25-40 patient per day that come for treatment This PHC does have a medical doctors. During the monsoon time 4-5 of the patients per day suffer from diarrhea and dysentery, which is caused by bad sanitation and hygiene, resulting in unsafe drinking water. If we provide a filter there, the patients will learn to drink and handle water from a filter. Another advantage of providing the filter to this PHC is that the office of the rural municipality is close by. Many villagers visit the rural municipality every day so they can also get access to filtered water, which helps teach them to learn about drinking clean water and using filters at home.	Yes
9	Bitthd Chir Rural Munici-pality	No villages near the river	No			None of the villages are near the river. At this rural municipality some of the villages use water from the "khola" (small river or stream). The villagers believe that the water they use is not contaminated. At the rural municipality we were told that some of the villagers of the rural municipality are dying from diarrhea and dysentery, caused not by unsafe drinking water, but by bad sanitation and hygiene.	No filter needed
				Deulekh Primary Health Care Center	45-46 / day	In this PHC, 45-46 patient come every day for treatment. This PHC has access to a medical doctor. During the monsoon, patients suffer from diarrhea and dysentery, caused by a lack of health education regarding bad sanitation, hygiene and unsafe drinking water. If we provided a filter there, this sensitizes them to the importance of safe drink water. Here too, an additional advantage of providing the filter to this PHC is that the office of the rural municipality is close by. Many villagers visit the rural municipality every day, so they can also get access to filtered water, which helps teach them to learn about drinking clean water and using filters at home.	Yes

10	Durga Thali Rural Munici-pality	6	No	Mori-Bagad, Jhota, Jhanana, Juil-Gad		The inhabitants of this rural municipality have no problem with drinking water. These four villages are near the river, but they have enough drinking water from other sources. What is lacking is knowledge about managing drinking water. Other villages in this rural municipality are along the hillside, so there is enough water for drinking. One of the villages in the rural municipality is JUGI, a small village with no access to drinking water, but since there is no river, there is no water to filter. Somehow, they manage to get drinking water from further away. The local government has plans to provide drinking water to all the village so there is no reason for us to be active there.	No filter needed
11	Thalara Rural Munici-pality	13				We did not visit all the villages in this rural municipality because the villages near the river have access to enough water for drinking from elsewhere. Most villages take their water from spring sources from far away. Some have sources of water with safe drinking water close by, but the people do not care for it properly. It is an open source and cattle graze there, contaminating the water. Also, sometimes people also defecate near the source and during the monsoon there have been epidemics of diarrhea and dysentery. The best would be if we provide them with education about water-borne disease and how to properly deal with drinking water to keep it clean.	No filter needed
12	Kada Dhuli					We did not visit this rural municipality because it is very far from Chainpur, there is no road to reach it and by foot it takes 3 day to reach. It is also quite sparsely populated.	Not applicable

Gathering drinking water from canal

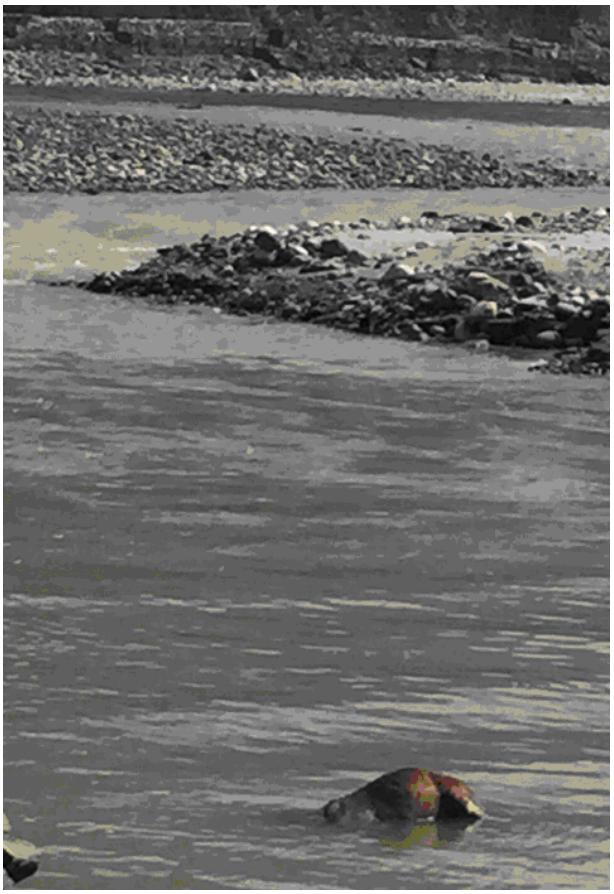
Plastic/metal containers for collecting water

Water source at well (kuwa)

Collecting water from a stream

School students drinking river water

Collecting drinking water from the Seti River



Dead cow in the river