

The EMAS water and sanitation concept

it gives sustainability by making people dependent to good water and sanitation, adding usefulness to the service, and using appropriate technologies.

By Wolfgang Buchner, director of EMAS

What does additional use of water mean?

If a family only uses electricity for lights, an energy cut doesn't overly affect them. They light a candle and the problem is solved. But it is a much different situation when there are a television, refrigerator, computer and other domestic appliances reliant on electricity. When there is an electricity cut you can't watch television, the work on the computer is halted, the meat in the fridge will go off and the clothes need to be washed by hand. There is much worrying until the electricity is reconnected as the additional value of the electric energy is very significant.

Imagining that in a community exist two identical wells of water at a distance of 100 meters from the houses. One of the wells has installed a hand pump and the other only a pulley to draw water with a bucket and rope. The water level in both wells is 8m below ground level. For one adult the time is the same to fill a bucket by rope/bucket or filling the bucket using the manual pump. Both wells have clear water.

When the pump one day fails due to a malfunction, the community are forced to use the well with bucket and rope. The question is now will the pump be repaired? The advantage added by the well covered with pump is that the water is purer because it is more difficult to introduce microbes. Whereas in the case of the open well, each user introduces their bucket and rope and generally contaminates the well with a variety of bacteria including those which are malignant. However, as the bacteria are not visible and the water leaves clear, the community is not worried. Furthermore, very few of the community are familiar with how one can become ill from these bacteria. From the point of view of the majority of users, the pumped well has no advantage compared to the open well. It is the same effort to take out water, the same time to draw the water, the same trip to the house and it all appears equal.

If there is no obvious advantage, there is no interest to invest in the maintenance. In order that the people invest in the maintenance of the water supply, there must exist clear advantages for the system.

The appropriate technologies of EMAS demonstrate these advantages because the pump is based on this logic. The EMAS pump can eject water with pressure that permits it to pump directly to an elevated tank for domestic use. From this tank, the water can arrive by gravity to a tap in the kitchen sink or pass by a water heater and deliver hot water to the shower. The pedal can be used for minimal effort pumping for micro irrigation. Constructing a deep well near the house and installing an EMAS pumping system or construct underground cisterns for gathering water from the roofs prevents the need to walk long distances to get water. Once accustomed to the benefits of these systems, the individual will not want to stop using the system. Whatever malfunction will be repaired quickly and because it is a simple system it will be repaired by the same users within the family or by a local technician from the region.

Another additional value and probably most importantly for a rural area, can be called self-esteem or dignity. A person who needs to beg normally cannot sustain himself with an other work, he is totally dependent on the voluntary nature of the community. In many rural regions the situation is something similar. Institutional paternalism has diminished the capacity of the communities to resolve their own problems such as drinking water, the construction of a school, roads and other community works. Everything needs to be organized by the municipality, a company or an NGO. The political interests of companies or even the administrative structure of the state does not aid that the community learn to solve their own problems using environmentally friendly, simple and cheap methods. More and more people believe that all community systems of water need to be created by a specialist and in an industrial form. Crafts and family solutions based on local familiar methods no longer exist in the mind of most people. It is patiently waited until someone brings the solution and if this doesn't happen the benefits are lost of a house with a permanent potable water supply.

However, when the person learns to construct small tanks of mesh and cement, sinks for the kitchen, hand pumps, tanks for the storage of water from the roof, solar water heating with shower, a latrine that doesn't smell, therefore the person can give solutions in the home. The technologies of EMAS function because they are of low cost and simple to construct. When the father makes a cistern with a pump and small tank to dispatch water directly to a tap for cleaning dishes in the kitchen, for the wife it is a dream that has become a reality. She is proud of her husband and the children will be proud of their father. The man will feel more than satisfied and keen to look for other solutions for other problems in the daily life.

In summary, there are two types of thinking. One that proposes communal systems like a communal well with a durable and expensive pump but without visible additional utility. On the other hand, the EMAS concept is to use home made pumps and appropriate technologies always looking for the most comfort for the families under the model of self construction supported by local technicians.