Making clean water available to poor communities

Conditions for a sustainable water supply

Many projects submitted to the Addax and Oryx Foundation deal with water supply (for drinking, sanitation, domestic use, irrigation, etc.). Most of them concern pumping and purification of water or sanitation, but very few address the long term availability of water resources.

The Addax and Oryx Foundation gives priority to projects that encompass the whole cycle of water supply, in particular the natural recharging of underground water through intact ecosystems.

Water…

1.6 billion human beings have no access to safe water and 2.6 billion do not dispose of basic sanitation facilities. More than 4,500 children die every day from diseases related to unsafe water and 2.6 million people die every year from diseases related to unsafe water.

About 70% of the water used by Mankind is devoted to irrigation.

More than 80% of wastewaters are discharged directly into nature, rivers, lakes and seas, without any treatment.

Floods cause 70% of deaths caused by natural events.

SDG n° 6 Ensure access to water and sanitation for all

The sustainable development goals of the UN include access to water and sanitation for all. They say:

> *"Clean, accessible water for all is an essential part of the world we want to live in. There is sufficient fresh water on the planet to achieve this. But due to bad economics or poor infrastructure, every year millions of people, most of them children, die from diseases associated with inadequate water supply, sanitation and hygiene.*
>
> *Water scarcity, poor water quality and inadequate sanitation negatively impact food security, livelihood choices and educational opportunities for poor families across the world. Drought afflicts some of the world's poorest countries, worsening hunger and malnutrition.*
>
> *By 2050, at least one in four people is likely to live in a country affected by chronic or recurring shortages of fresh water."*

This is a commendable goal, but SDGs do not say how to achieve it. Technological measures may help, but will not be sufficient to achieve SDG n°6.

The water cycle

The only provider of clean water is Nature.

Every year, the sun evaporates 577,000 km3 of water from the ocean surface (502,800 km3) and land (74,200 km3). The same amount of water falls as rainfall, of which 119,000 km3 on land. This represents approximately 6.9 million litres per year and person. This means that Nature is generous enough to allow everyone to dispose of sufficient water. But water is unequally distributed, wasted and polluted.

The availability of safe water depends on so many factors all along the water cycle that nobody can pretend that: “It is my property”. Water is a gift of Nature, which we have to respect, protect and share as a global common good.

The integrated water resource management (IWRM), universally promoted at the World Summit on sustainable development in Johannesburg in 2002 is the recognition of this complexity of the water cycle.

Most organisations dealing with water problems concentrate their efforts on digging to access underground water and/or treating water to eliminate pathogenic organisms (bacteria, worms…).

This is good but insufficient. There is a need for an integrated water management (IWRM) which includes the whole water cycle. UNDP finally addressed this question in its 2017 report “Nature-based solutions for water”[1].

Some examples

90% of the water distributed in New York (USA) comes from the Catskill Mountains in Delaware. The production of this water is natural, protected by forests and by a low input agriculture, which is subsidised by the price of water. The cost of this naturally-produced water is seven times lower than the price of filtered and treated water.

The city of Basle (Switzerland) provides 166,000 inhabitants with ground-water. The underground reservoir is refilled with water, which is pumped out of the Rhine River and filtered through the soil of a forest.

In the canton of Uri (Switzerland), a wetland of 35 hectares, and a forest above the city of Altdorf provide 75% of the needs of the inhabitants with clean water, which doesn’t need any further treatment.

The water company Henniez has planted 70,000 trees over the past 20 years, creating a 200 hectare forest in order to protect its water springs.

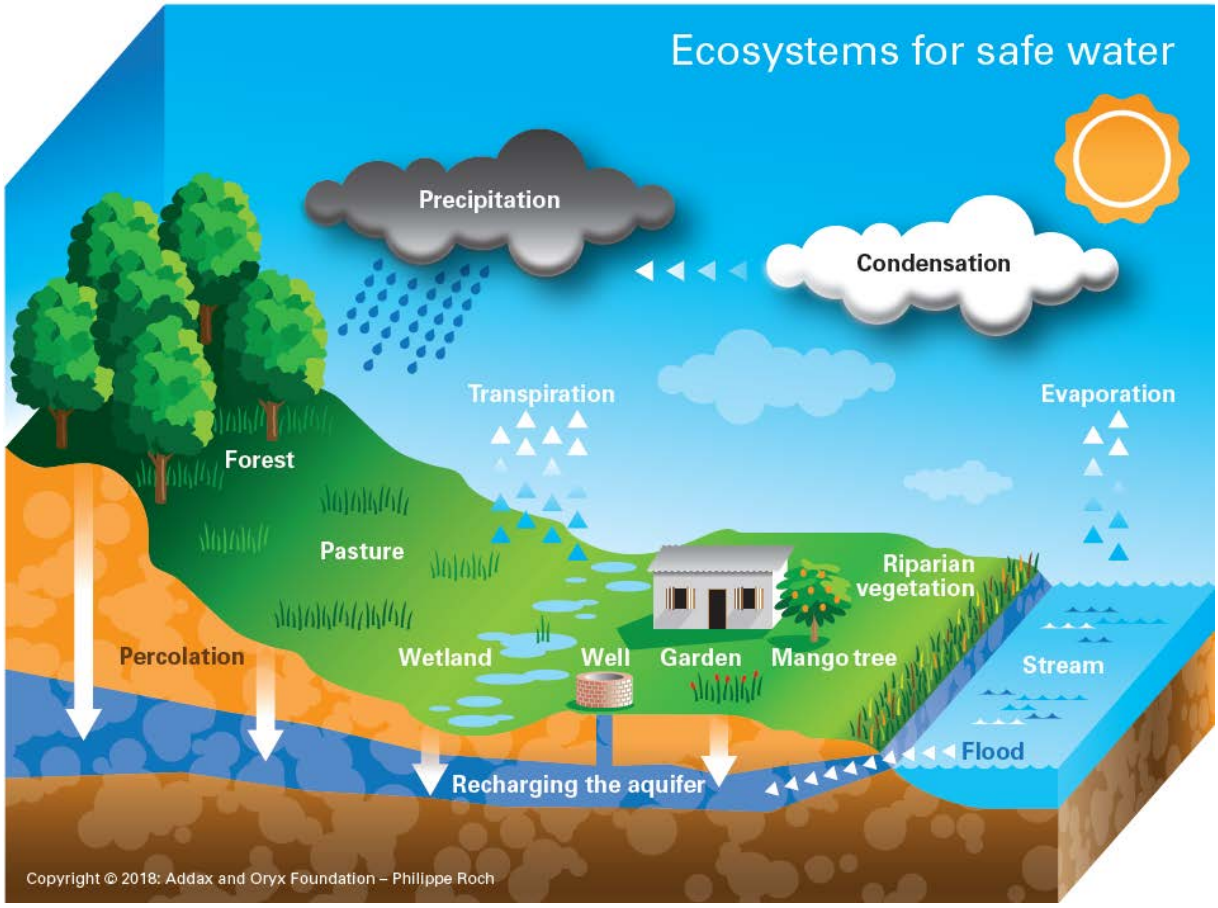
The forests of Switzerland ensure the production of clean water, for an estimated value of 80 million CHF a year.

[1] UNDP (2018) Nature based solutions for water: http://www.unwater.org/publications/world-water-development-report-2018

Ensure recharge of ground water through intact ecosystems

As the above examples show, natural ecosystems have a major role in the production of safe water. Forests, wetlands and natural soils capture, filter, store and redistribute rainwater in a regular stream of high quality water. This is the reason why conservation of natural ecosystems in watersheds is an essential part of long term sustainable water management. Every water project should look at the ecosystems which ensure recharging the groundwater and fully include their protection or restoration in the framework of the project. This may concern riverbanks, forests, wetlands, natural pastures, etc..

For this reason the Addax and Oryx Foundation wants to give priority to projects that encompass the whole cycle of water supply, in particular the natural recharging of underground water through intact ecosystems.



Rainwater

The direct capture of rainwater is another way of getting safe water[2], in many regions of the world. This very simple technology, associated with family scale reservoirs, can improve the quality of life for many people among the poorest, especially for hygiene and cooking. The installation of rainwater harvesting in schools is a substantial contribution to the comfort, health and hygiene education of young people.

[2] https://www.irha-h2o.org/fr

Sanitation

Sanitation is the inseparable complement to water supply. It's a question of hygiene, but also of environmental protection. It is particularly important that dejections do not pollute water wells. In addition, faecal matter, when properly treated and composted, may provide a useful fertilizer. Dry toilets appear worldwide to be a good solution to save water and recycle organic material. Properly managed composting eliminates the risks of contamination[3].

Annexes:
- United Nations Water Development Report 2018
- International Association of Hydrogeologists (IAH): Ecosystem conservation & Groundwater

[3] https://en.wikipedia.org/wiki/Composting_toilet