

Innovative Home Sanitation

saves water, lives and money

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Introduction

The rapidly increasing population requires more and more water, which puts enormous pressure on our water resources. Water is thus becoming a scarce product. Fulfilling the ever increasing demand for fresh water requires a holistic approach at all levels from international to local.

ECOSAVE, in the Netherlands, has created an integrated solution to water conservation in the home by linking several approaches:

- **ECO-nomical:** providing water saving device on taps and showers saves 50 – 70% of drinking water;
- **ECO-sanitation:** providing dry- or composting toilets, with closed collection and no or little water use;
- **ECO-purifying wastewater:** providing simple but reliable systems cleaning more than 95% all the waste water from the household;
- **ECO-collecting of natural water sources:** collecting and purifying rainwater.

In this way, a household is made 'self-supporting', requiring 20-30% of normal fresh drinking water usage, producing no wastewater sewage or contamination of the natural habitat and keeping the environment clean.

Using this approach in the rural and coastal areas of the Netherlands and Spain, we have carried out projects where the water usage required only 30 litres of drinking water per person per day instead of the usual 130 litres, without giving up comfort.

Apply this technology on a large scale could mean a huge reduction in the pressure on water resources.



Our ECOHOUSE & ECOSAVE Office, Flevoland, Holland, trapping the solar radiation in the central greenhouse part of the building, with solar PV and thermal panels and rain water collection and waste water purification in the garden. (photo: D. Vandy)

Home Sanitation units - Dry Toilets:

ECOSAVE Separett provides toilets in houses, in holiday and garden complexes, boats and campers. After 25 years of development, these toilets are technically very sound. They each contain a built-in aerator and are as a result odourless. They require little maintenance, are noiseless, very efficient and driven by solar energy on request. The aerator prevent odours and therefore does not attract insects. The aerator also contributes to the purification of the human waste converting it into valuable natural compost rich in nitrogen. Within a half to one year the first few litres compost (after >90% reduction of organic mass) can be collected and safely used.



*One of the types of Dry Toilets.
(photo: D. Vandy)*

The benefits of the Home Dry Toilets are:

- Simply to install, with no very costly sewage pipe line constructions;
- No water usage;
- Contaminant free;
- Odourless and do not attract insects which diminishes the spreading of diseases.

An additional advantage of this ECO-concept is that the purified compost and compost tea can be safely used in gardens for growing vegetables. Research has shown that the human excrement was safely processed and the quality of the compost was rich and valuable to farmers.

A video of the simple installation is available at our website (www.ecosave.com).

ECOSAVE provides a 5-year guarantee on all the original toilet material. The prices of the different types of Dry Toilets varies between €300 and €700. Shared production of a large number of locally constructed Dry Toilets however is also possible, which will reduce the costs considerably.

Some examples of Home Sanitation Units installed

ECOSAVE is successfully applying the integrated approach to water management in different countries.

Holland

In Holland about a quarter of a million houses are not connected to sewage system. These houses are often located at remote rural areas. Home-sanitation units are well in place in such locations.

Egypt

Ecosave was involved in preparing and executing a

sanitation project in Egypt. The large coastal lake Manzalla in the eastern part of the Nile Delta, has a multifunctional use: firstly for drinking water, secondly fishing and thirdly for recreational purposes. The major threat to the functioning and future exploitation of the lake comes from the fact that all sewage of the megacity Cairo (18 million habitants) is dumped in this lake. By introducing ECO-sanitation and ECO-purifying systems, it was possible to realise small-scale improvements, which will have considerable benefits for the quality of life and would help ensure the future of the lake.

USA

In the US, large-scale ECO-sanitation is used in beach clubs and a large nature visiting centre in a nature reserve in Florida, which has more than one million visitors per year. In 2009, a special programme began collecting urine, from a school, for agriculture use. Urine is rich in nitrogen and can be efficiently used in agriculture instead of artificial fertilisers.

Israel and Jordan

Economical use of water in the agriculture by drip irrigation is well known. However, a household may use up to 250 litres fresh water per person per day. The fresh water resources in this region are under increasing pressure. As a result the level of Lake Tibereas (a major fresh water resource for Jordan, Israel and Palestine) is falling dramatically.

By initiating ECO-nomical use of drinking water in the homes and other uses, it was possible to reduce, at a pilot scale, fresh water usage by 50%. Additionally by using ECO-collecting and re-using purified waste water it has been possible to gain another 30% reduction in water usage. Using purified wastewater for the garden or even agriculture was not widely known but can have surprising results, such as has been shown by the date palm nurseries, south of Jerusalem. "Ecological working with water", sharing new water technology directed at conservation of water and safely re-using water will reduce the pressure on the resource and may even be a building block for peace!

Concluding

We must use drinking water more efficiently. ECO-sanitation using closed toilet systems, which use a little or no water and produce no wastewater. With ECO-purifying and – collecting we re-use all the water that is possibly to be re-used. The result is a cleaner, healthier environment, with opportunities for use of purified water on garden vegetables or agriculture. In this way the ECO-circle is round.

More information

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