

# WASTWA

INNOVATIVE SYSTEM FOR DRYING LEACHATE

## **SOLWA SRL**

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**WastWa** is a system for leachate treatment directly on landfill. It does not require specific maintenance nor maintenance costs. WastWa mixes the technologies used for solar stills, phytodepuration and scrubber. The leachate depurated, thanks to its chemical characteristics, could be discharged on surface waters, as rivers.

## WHAT IS IT?

**WastWa** is an integrated system to treat leachate in situ, using several techniques powered by environmentally friendly energies. **WastWa** is a plant composed of specific designed solar stills, which are able to remove more than 50% of water and up to 98% of nitrogen (ammonia) from leachate. This process is powered only by solar energy, without chemical products or complex systems. The extracted water goes through a scrubber, the solution is acidified and the ammonium salts fall down. The treated water can be drained into waterways.

The concentrate of leachate is used in a constructed wetland system. Through natural processes, utilized by plants, the concentrate of leachate is purified. At the end of the process, the output of **WastWa** is pure water dischargeable into waterways.

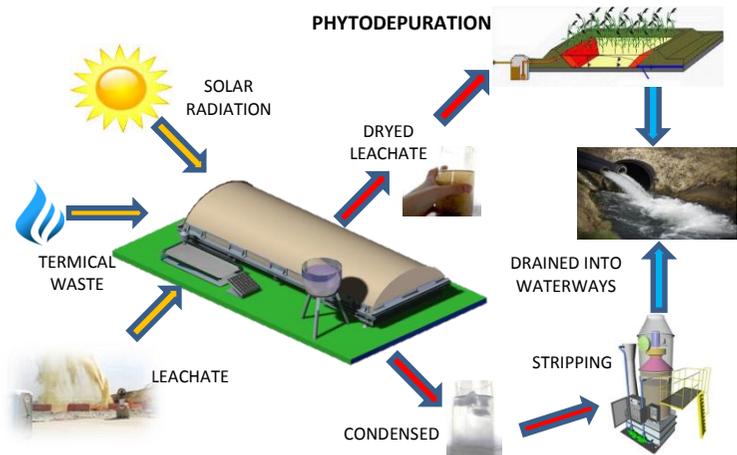
## WHAT DOES IT DO?

**Leachate** is the rainwater that was filtered through landfill, carrying all the pollutants of the solid wastes.

Leachate has high levels of organic and inorganic substances, heavy metals and bioorganic fire-resistant compounds, as humic acids.

Leachate, collected from the bottom of the rubbish dump, has chemical variable characteristics in function of stored waste, the permanence of waste and climatic conditions. This high variety creates problems for the correct functioning of the purification systems.

**WastWa** is compliant with the current Italian regulations.



## HOW DOES IT DO IT?

**WastWa** is a new integrated system, with reduced maintenance requirements, powered only by solar energy. It is environmentally friendly and able to treat leachate directly in the landfill.

The system stands alone (except for ammonia acidification treated thanks to the use of sulphuric acid) and self-adjusting, thus reducing transport costs. It is perfect to reduce management and leachate treatment costs (**less than 20 €/m<sup>3</sup>**). Furthermore it is easy to manage and able to treat chemical variations of post-mortem leachate.

## WHY DOES IT DO IT?

Currently more than 1 billion tons of leachate per year is produced in the whole Europe. In the Region of Veneto the annual production is about 400.000 tons, which represents more than 50% of special waste sent to water treatment plants. Biological treatment is obstructed by toxic substances (as PAH-polycyclic aromatic hydrocarbons, PCB-polychlorinated biphenyls, etc.) and/or by bioorganic fire-resistant compounds (humic acids or surfactants). The main costs of treating leachate are the management, the storage and the transport to the waste treatment plants (**about 40 €/m<sup>3</sup>**).

## THE STRENGTHS OF WASTWA TECHNOLOGY

- ✓ Use of the system in situ (art. 14 DGRV. 264/13)
- ✓ Reduced costs of leachate management by half
- ✓ Able to drain the treated water into waterways
- ✓ Reduction in management, transport and disposal costs of leachate
- ✓ Powered by renewable energy
- ✓ Reduced maintenance requirements and ease of management
- ✓ Lack of odour emission nor other volatile compounds into the atmosphere
- ✓ Able to extract ammonium salts for selling as raw material
- ✓ Good water removal capability from leachate
- ✓ Environmentally friendly system

## WASTWA ECONOMIC CHARACTERISTICS

A **WastWa** plant of **1.000 m<sup>2</sup>** (500 m<sup>2</sup> of solar stills e 500 m<sup>2</sup> of constructed wetlands systems) is able to treat about **3 ton/day** of leachate. The treated volume is about 550 ton per year. Currently the cost of disposing of leachate is about 40 €/m<sup>3</sup>, on the other hand with **WastWa** this cost is about **20 €/m<sup>3</sup>**.

## SUMMARY

**WastWa** System complies with the new environmental legislation concerning waste treatment. Thanks to Solwa Technology, the leachate is disposed of without problems for human health and environment. The leachate can be treated and disposed of directly in situ, without electricity connections and with a low-maintenance of the system.

### HOW IS LEACHATE CURRENTLY TREATED?

Leachate, extracted through pumps, is stored into a basin next to landfills. It is periodically transported, using bowser, to water treatment plants. Leachate is treated with a biological nitrification/denitrification process.

### HOW IS LEACHATE STORED AND DISPOSED OF?

Currently leachate is stored in basins and disposed of in special waste water treatment plants. These systems are often far away from rubbish dumps, requiring high management and transport costs.