

MENAWARA

Non Conventional WAter Re-use in Agriculture
in Mediterranean countries

NRD-UNISS

Desertification Research Centre, University of Sassari
Italy

- Alberto Carletti



MEDWAYCAP



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more info



project



HOW

It consists of parallel recharge trenches with a depth of 1 m which are supplied with drainage water, pumped from an existing dewatering pumping station. Water infiltrates into the sandy soil through the trenches towards the aquifer. The recharge trenches are placed between rows of white poplar trees (*Populus alba*). In such forest areas, the water that infiltrates into the soil meets an effective filter made up of tree roots.

The depurative action occurs in the rhizosphere where, in conditions of almost oxygen-free soils and in the presence of abundant organic matter provided by the woody plants, the denitrifying bacteria, living in symbiosis with the roots, have a very effective action to promote nitrate attenuation.

This function will be ensured in the medium-long term when the forested area will be fully developed. Considering that in the case of the Arborea pilot site, drainage water characterised by low quality is used for the aquifer recharge, the depurative action in the short term is ensured by the innovative Passive Treatment System installed on the bottom of the recharge trenches.

The Passive Treatment System consists of a mixture of inert and organic materials (e.g. eucalyptus wood chips), to promote the denitrification process, attenuate organic and inorganic contamination and prevent clogging processes at the infiltrating surface.



WHAT

Forested Infiltration Area

The Forested Infiltration Area (FIA) system aims at mitigating the groundwater nitrate contamination for the shallow sandy aquifer in the Nitrate Vulnerable Zone (NVZ) of Arborea (Italy).



AGRICULTURAL

DRAINAGE WATER AS RECHARGE WATER
MANAGED AQUIFER RECHARGE
PASSIVE TREATMENT SYSTEM



▲ tested/installed

● partner location