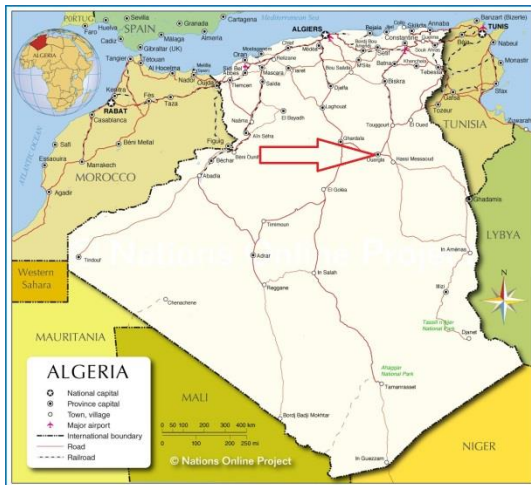
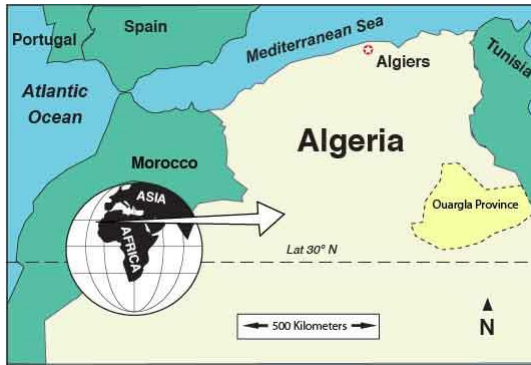


# Waste Water Reuse for Irrigation in Arid Region

## *Water Reuse in the Sahara desert*



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# Description of the case study

Project's name	Country	City	Start Date-End Date	Water Sources	Uses
WAWARIA	Algeria	Ouargla	_____	Domestic WasteWater	Irrigation



## Sources

<b>Origin</b>	<i>Industrial, domestic, urban</i>
<b>Water reused (m<sup>3</sup>/Y)</b>	<i>40 m<sup>3</sup>/day</i>

## Uses

<b>Crops</b>	<i>tomatoes, beetroot, cucumber, potatoes, lettuce, peas</i>
<b>Irrigated Area (Ha)</b>	<i>0.1152</i>
<b>Cost of the Cubic meter (€/m<sup>3</sup>)</b>	<i>NA</i>

## Water Reuse Chain

<b>Treatment</b>	<i>2Lagoon,</i>
<b>Disinfection</b>	<i>Nano Filtration</i>
<b>Storage Capacity (m<sup>3</sup>)</b>	<i>Tank (3*24m<sup>3</sup> for irrigation), Lagoon (NA)</i>
<b>Irrigation</b>	<i>Dripp Irrigation</i>



# EXAMPLE-Description of the case study



- To give a Second life to water that is already used for domestic purposes and disposed, by appropriate treatment and management.
- Study of treated waste water potential for irrigation in Arid region
- Study accumulation of heavy metals and pathogens in soil & plants
- Train local practitioners to use tertiary treatment device, irrigation techniques with treated waste water
- Contribute to the definition of norms and standards for waste water reuse.

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## Can we successfully reuse raw or low treated waste water?

- Lettuce, potatoes, tomatoes, grow better with TWW. No mineral deficiency and intake of NPK and organic matter
- Salt sensitive plant (Lettuce) grow perfectly under brackish TWW (7g/L). Benefits of Treated WasteWater overcomes limiting effect of Salt (NaCl)
- No accumulation of heavy metals in plant nor soil
- No pathogen detected (to be confirmed)
- Drip irrigation limits contamination, water losses (evapotranspiration, spillage), enable safe farming practices
- 2-3 harvests are possible in arid area, under greenhouses



## Can we successfully reuse raw or low treated waste water?

- Nano filtration remove heavy metals, pathogenes and salt.
- Nano filtration can be a substitute of grownd water abstraction and limit impact on fossile reSSources, non-renouvelable.
- Nano Filtrated water can be used for germination and before harvest.
- Soil characteristic improvement thanks to supply of NPK & organic matter: enhance soil fertility,
- Potential to develop Agro park, urban green landscape, sustainable water valorisation in compound.

