

This questionnaire has been designed by a work team of the Technological Center CARTIF to obtain information about the wastewater treatment plant in the field of the MEDAWARE project - Development of tools and guidelines for the promotion of the sustainable urban wastewater treatment and reuse in the agricultural production in the Mediterranean countries

1 BASIC DATA OF THE WASTEWATER TREATMENT PLANT

Name: <u>Hesham Obeidat</u>	Position: <u>Plant manager</u>
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1. Where is your local wastewater treatment plant located?

Address: <u>Jordan- Mafrag</u> <u>W.W.T.P</u>			
City: <u>Mafrag</u>	County:	State:	Zip:
Telephone number	Fax number	E-mail address	

2. How many stages of treatment does your facility use?

Primary	<input checked="" type="checkbox"/>	<u>Bar Screen</u>
Secondary	<input checked="" type="checkbox"/>	<u>Waste stabilisation ponds</u>
Tertiary	<input checked="" type="checkbox"/>	_____
Other	<input type="checkbox"/>	_____

3. What is the capacity of the treatment plant?

Liters per day (average)	<u>1800 x 10³ l/day</u>
Number of People and/or Employees	_____
Peak Daily Flow Estimate	<u>2000 m³/day</u>

4. How is the sludge disposed of?

Burned	<input type="checkbox"/>	Landfill	<input checked="" type="checkbox"/>
Fertilizer	<input type="checkbox"/>	Other	<input type="checkbox"/>

5. Where does the treated wastewater go after it leaves the plant?

River or Stream
Ocean

Lake
Other Reuse

6. In what year was the plant built?

1988

7. Have there been any modifications of the plant in recent years?

In 1988 it was (stabilization ponds) until now (no modifications)

8. Are there any plans for additional improvements to the plant?

Yes very soon _____ there is a plan to update the plant (work automatically)

9. Wastewater analysis information (influent)

Wastewater BOD	<u>500 mg/l</u>
Wastewater COD	<u>1100</u>
Wastewater Suspended Solids	<u>344</u>

10. Treated water- Local government requirement - If known (effluent)

Wastewater BOD	<u>200</u>
Wastewater COD	<u>225</u>
Wastewater Suspended Solids	-

2 WASTEWATER TREATMENT INFORMATION

11. Primary Treatment Processes

	<i>Processes</i>	<i>Size (if know)</i>	<i>Main operational problems (if exists)</i>
<input checked="" type="checkbox"/>	Bar or bow screen	_____	_____
<input type="checkbox"/>	Grit removal	_____	_____
<input type="checkbox"/>	Primary sedimentation	_____	_____
<input type="checkbox"/>	Comminution	_____	_____
<input type="checkbox"/>	Oil / fat removal	_____	_____
<input type="checkbox"/>	Flow equalisation	_____	_____
<input type="checkbox"/>	pH neutralisation	_____	_____
<input type="checkbox"/>	Imhoff tank	_____	_____
<input type="checkbox"/>	_____	_____	_____
<input type="checkbox"/>	_____	_____	_____

12. Secondary Treatment Processes

	<i>Processes</i>	<i>Size (if know)</i>	<i>Main operational problems (if exists)</i>
<input type="checkbox"/>	Activated sludge	_____	_____
<input type="checkbox"/>	Extended aeration	_____	_____
<input type="checkbox"/>	Aerated lagoon	_____	_____
<input type="checkbox"/>	Trickling filter	_____	_____
<input type="checkbox"/>	Rotating bio-discs	_____	_____
<input type="checkbox"/>	Anaerobic treatment/UASB	_____	_____
<input type="checkbox"/>	Anaerobic filter	_____	_____
<input checked="" type="checkbox"/>	Stabilisation ponds	_____	_____
<input type="checkbox"/>	Constructed wetlands	_____	_____
<input type="checkbox"/>	Aquaculture	_____	_____
<input type="checkbox"/>	_____	_____	_____
<input type="checkbox"/>	_____	_____	_____

13. Tertiary Treatment Processes

	Processes	Size (if know)	Main operational problems (if exists)
<input type="checkbox"/>	Nitrification	_____	_____
<input checked="" type="checkbox"/>	Denitrification	_____	_____
<input type="checkbox"/>	Chemical precipitation	_____	_____
<input type="checkbox"/>	Disinfection	_____	_____
<input type="checkbox"/>	(Direct) filtration	_____	_____
<input type="checkbox"/>	Chemical oxidation	_____	_____
<input type="checkbox"/>	Biological P removal	_____	_____
<input type="checkbox"/>	Constructed wetlands	_____	_____
<input type="checkbox"/>	Aquaculture	_____	_____
<input type="checkbox"/>	_____	_____	_____
<input type="checkbox"/>	_____	_____	_____

14. Advanced Treatment Processes

	Processes	Size (if know)	Main operational problems (if exists)
<input type="checkbox"/>	Chemical treatment	_____	_____
<input type="checkbox"/>	Reverse osmosis	_____	_____
<input type="checkbox"/>	Electrodialysis	_____	_____
<input type="checkbox"/>	Carbon adsorption	_____	_____
<input type="checkbox"/>	Selective ion exchange	_____	_____
<input type="checkbox"/>	Hyperfiltration	_____	_____
<input type="checkbox"/>	Oxidation	_____	_____
<input type="checkbox"/>	Detoxification	_____	_____
<input type="checkbox"/>	_____	_____	_____
<input type="checkbox"/>	_____	_____	_____

Other comments

- * The plant is a natural one and there is no automatic control so in our opinion we recommended that should be work automatically
- * We hope know if we can use the sludge in agriculture as a fertilizer
- * We use the treated wast water in irrigation (agriculture) but we don't which crop is the best for this purposes
- * We wish more communication, workshops between the plant and these programs

3 CONTROL AND MONITORING SYSTEMS

15. Which are the most critical process parameters that may affect the efficiency of the wastewater treatment plant?

<i>Parameter</i>	<i>Process</i>	<i>Current Automatic Control?</i>	
<input type="checkbox"/> Wetwell levels	On-off pumping	Yes <input type="checkbox"/>	No <input type="checkbox"/>
<input checked="" type="checkbox"/> Sludge depth	Primary treatment	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
<input type="checkbox"/> Solids Retention Time (SRT)	Conventional activated sludge	Yes <input type="checkbox"/>	No <input type="checkbox"/>
<input type="checkbox"/> Dissolved oxygen concentration	Conventional activated sludge	Yes <input type="checkbox"/>	No <input type="checkbox"/>
<input type="checkbox"/> Return flowrate from the clarifier	Conventional activated sludge	Yes <input type="checkbox"/>	No <input type="checkbox"/>
<input checked="" type="checkbox"/> Internal recycle	Biological nutrient removal	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
<input type="checkbox"/> Methanol feed rate	Biological nutrient removal	Yes <input type="checkbox"/>	No <input type="checkbox"/>
<input type="checkbox"/> Air / solids ratio	Dissolved air flotation thickening	Yes <input type="checkbox"/>	No <input type="checkbox"/>
<input type="checkbox"/> Sludge depth	Gravity thickening	Yes <input type="checkbox"/>	No <input type="checkbox"/>
<input type="checkbox"/> Belt speed	Gravity belt thickening	Yes <input type="checkbox"/>	No <input type="checkbox"/>
<input type="checkbox"/> Chemical dosage rate	Chemical addition for water-solids separation	Yes <input type="checkbox"/>	No <input type="checkbox"/>
<input checked="" type="checkbox"/> Chlorine dosage rate	Chlorination	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
<input type="checkbox"/> _____	_____	Yes <input type="checkbox"/>	No <input type="checkbox"/>
<input type="checkbox"/> _____	_____	Yes <input type="checkbox"/>	No <input type="checkbox"/>
<input type="checkbox"/> _____	_____	Yes <input type="checkbox"/>	No <input type="checkbox"/>
<input type="checkbox"/> _____	_____	Yes <input type="checkbox"/>	No <input type="checkbox"/>
<input type="checkbox"/> _____	_____	Yes <input type="checkbox"/>	No <input type="checkbox"/>
<input type="checkbox"/> _____	_____	Yes <input type="checkbox"/>	No <input type="checkbox"/>
<input type="checkbox"/> _____	_____	Yes <input type="checkbox"/>	No <input type="checkbox"/>
<input type="checkbox"/> _____	_____	Yes <input type="checkbox"/>	No <input type="checkbox"/>
<input type="checkbox"/> _____	_____	Yes <input type="checkbox"/>	No <input type="checkbox"/>
<input type="checkbox"/> _____	_____	Yes <input type="checkbox"/>	No <input type="checkbox"/>

16. In your opinion, what are the main problems with the control system of the wastewater treatment plant?

There is no control system of the wastewater treatment plant so we don't have any ideas about the problems with the control system.

17. In your opinion, what treatment processes / parameters should be monitored / controlled automatically?

In our opinion, we think all processes/ parameters should be monitored/ controlled automatically since it safe more time and labours.

If you have any questions about this document, please contact us by e-mail at yolnun@cartif.es

Thank you for you collaboration.