

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>Moh'd Edaily</u>	Position: <u>Plant manager</u>
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1. Where is your local wastewater treatment plant located?

Address: <u>Jordan</u>			
City: <u>zarqa</u>	County: <u>Hashimiyya</u>	State:	Zip:
Telephone number <u>05-3811120</u>	Fax number <u>05-38111937</u>	E-mail address	

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

- | | | |
|-----------|-------------------------------------|---------------------------|
| Primary | <input checked="" type="checkbox"/> | Bar Screen + Grit removal |
| Secondary | <input checked="" type="checkbox"/> | Waste stabilisation ponds |
| Tertiary | <input type="checkbox"/> | _____ |
| Other | <input type="checkbox"/> | _____ |

3. What is the capacity of the treatment plant?

Liters per day (average)	<u>230 x 10⁶ l/day</u>
Number of People and/or Employees	<u>45</u>
Peak Daily Flow Estimate	<u>250 x 10⁶ l/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 **6. In what year was the plant built?**1985**7. Have there been any modifications of the plant in recent years?**No

8. Are there any plans for additional improvements to the plant?New treatment plant is under construction now to replace the existing plant.

9. Wastewater analysis information (influent)

Wastewater BOD	<u>600</u>
Wastewater COD	<u>1700</u>
Wastewater Suspended Solids	<u>600</u>

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

Wastewater BOD	<u>140</u>
Wastewater COD	<u>500</u>
Wastewater Suspended Solids	<u>130</u>

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	_____	<u>Mechanical, accumulation of sand</u>
<input checked="" type="checkbox"/>	Grit removal	_____	<u>Grit pumps + accumulation of grit</u>
<input type="checkbox"/>	Primary sedimentation	_____	_____
<input type="checkbox"/>	Comminution	_____	<u>Mechanical, cutting tools</u>
<input checked="" 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	<u>30 ponds</u> <u>Volume 2.8 x 10⁶ m³</u>	<u>Over loaded- Accumulation of scum at top & sludge at bottom</u>
<input type="checkbox"/>	Constructed wetlands	_____	_____
<input type="checkbox"/>	Aquaculture	_____	_____
<input type="checkbox"/>	_____	_____	_____

13. Tertiary Treatment Processes

	Processes	Size (if know)	Main operational problems (if exists)
<input type="checkbox"/>	Nitrification	_____	_____
<input 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"/>	_____	_____	_____

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 type="checkbox"/> Internal recycle	Biological nutrient removal	Yes <input type="checkbox"/>	No <input 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 checked="" type="checkbox"/> Sludge depth	Gravity thickening	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
<input type="checkbox"/> Belt speed	Gravity belt thickening	Yes <input type="checkbox"/>	No <input type="checkbox"/>
<input checked="" type="checkbox"/> Chemical dosage rate	Chemical addition for water-solids separation	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
<input checked="" type="checkbox"/> Chlorine dosage rate	Chlorination	Yes <input checked="" 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?

The plant is a natural plant and we don't have any ideas about the problems that face the control system of the wastewater treatment plant.

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

In my opinion, I think all processes should be monitored automatically.

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

Thank you for your collaboration.