

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>Riyad Al-zoubi</u>	Position: <u>Operation of maintenance Director</u>
-----------------------------	--

1. Where is your local wastewater treatment plant located?

Address:			
City: <u>Ramth</u>	County: <u>Irbid</u>	State: <u>Jordan</u>	Zip:
Telephone number <u>02/7201000</u>	Fax number <u>02/7095114</u>	E-mail address <u>Rzoubi@just.edu.jo</u>	

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

- | | | |
|-----------|-------------------------------------|--|
| Primary | <input checked="" type="checkbox"/> | <u>Coarse screen, Grit channel ,primary. secondary tanks</u> |
| Secondary | <input checked="" type="checkbox"/> | <u>Rotating Biological contactors</u> |
| Tertiary | <input checked="" type="checkbox"/> | <u>chemical treatment (chlorination)</u> |
| Other | <input type="checkbox"/> | _____ |

3. What is the capacity of the treatment plant?

Liters per day (average)	2.100.000
Number of People and/or Employees	seven
Peak Daily Flow Estimate	65 m ³ /hr. at 11.603.m

4. How is the sludge disposed of?

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

The sludge is disposed to nearly landfill

5. Where does the treated wastewater go after it leaves the plant?River or Stream
Ocean Lake
Other artificial lake at the campus used for collection rain water and treated water**6. In what year was the plant built?**1985**7. Have there been any modifications of the plant in recent years?**During the development of the plant carried out at 2001, primary sedimentation tank and bleaching tank had been added**8. Are there any plans for additional improvements to the plant?**No

9. Wastewater analysis information (influent)Wastewater BOD 420 ppm
Wastewater COD 530 ppm
Wastewater Suspended Solids 240 ppm**10. Treated water- Local government requirement - If known (effluent)**Wastewater BOD 200 ppm
Wastewater COD 500 ppm
Wastewater Suspended Solids 150 ppmThis is according to Jordanian standards No. 893/2002 for reclaimed domestic treated water.

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>1.5 m², 2 units</u>	_____
<input checked="" type="checkbox"/>	Grit removal	<u>14 m³, 3 units</u>	_____
<input checked="" type="checkbox"/>	Primary sedimentation	<u>500 m³</u>	Bad odor is observed when the flow goes to low limits.
<input type="checkbox"/>	Comminution	_____	_____
<input type="checkbox"/>	Oil / fat removal	_____	_____
<input checked="" type="checkbox"/>	Flow equalisation	<u>1000 m³</u>	_____
<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 checked="" type="checkbox"/>	Rotating bio-discs	<u>6 units of 2400m² both sides</u>	<u>Cracking of R.B.C's shaft in welding joints, due to high loads</u>
<input type="checkbox"/>	Anaerobic treatment/UASB	_____	_____
<input type="checkbox"/>	Anaerobic filter	_____	_____
<input type="checkbox"/>	Stabilisation ponds	_____	_____
<input type="checkbox"/>	Constructed wetlands	_____	_____
<input type="checkbox"/>	Aquaculture	_____	_____
<input checked="" type="checkbox"/>	_____	_____	_____
<input type="checkbox"/>	_____	_____	_____

13. Tertiary Treatment Processes

	Processes	Size (if know)	Main operational problems (if exists)
<input checked="" type="checkbox"/>	Nitrification	Same as R.B.C shafts	_____
<input type="checkbox"/>	Denitrification	_____	_____
<input type="checkbox"/>	Chemical precipitation	_____	_____
<input checked="" type="checkbox"/>	Disinfection	<u>Through 100 m3 tank capacity (chlorination)</u>	_____
<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 checked="" type="checkbox"/> Wetwell levels	On-off pumping	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
<input checked="" type="checkbox"/> Sludge depth	Primary treatment	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
<input type="checkbox"/> Solids Retention Time (SRT)	Conventional activated sludge	Yes <input type="checkbox"/> No <input type="checkbox"/>
<input checked="" type="checkbox"/> Dissolved oxygen concentration	Conventional activated sludge	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> Return flowrate from the clarifier	Conventional activated sludge	Yes <input type="checkbox"/> No <input checked="" 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 type="checkbox"/> No <input checked="" 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"/>
<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?

- under overhands bad effluent parameters are observed
- lacke of disinfection willl cause pathogenic effluent.

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

- chlorination injection according to how rate?
- Sludge blanket level in the final clarifier.

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

Thank you for you collaboration.