

Training outline:

Course 1: Sewage treatment technologies (8 meetings; 48 hours)

Rationale

To enhance the capabilities of municipal staff in maintaining municipal sewage networks so as to prevent groundwater pollution.

Target audience

- Business licensing
- Environmental departments
- Water and infrastructure/water corporations
- Municipality engineers/staff

Time

9 a.m. – 4 p.m. (including a one hour lunch break)

Location

HWE office in Al Bireh

Day 1: Wednesday-November 21, 2007

Topic: Overview: Sustainability of shared water resources

Lecture	Lecturer	Overall Time (H)
<ul style="list-style-type: none">• Introduction about the project• Regional water resources• Mutual dependence and need for cooperation	Amjad Aliewi, PhD	2

Topic: Impact of pollution on water resources

Lecture	Lecturer	Overall Time (H)
<ul style="list-style-type: none">• Pollution of groundwater• Various sources of pollution• Pollutants in urban wastewater• Environmental impact	Majeda Alawneh	3

Day 2: Sunday-November 25, 2007

Topic: Waste Water Sampling and Analyses

Lecture	Lecturer	Overall Time (H)
<ul style="list-style-type: none">• Basic aspects of wastewater sampling and quality analysis• Prevention of run-off infiltration• Measurement of wastewater flow and strength• Monitoring and sampling of industrial influent	Sobhi Samhan	3

Topic: Waste Water Reuse

Lecture	Lecturer	Overall Time (H)
<ul style="list-style-type: none">• Reuse of treated wastewater	Mohammed Sbaih	2

Day 3: Wednesday- November 28, 2007

Topic: Industrial pre-treatment

Lecture	Lecturer	Overall Time (H)
<ul style="list-style-type: none">• Overview of polluting industries• Characteristics of industrial wastewater• Understanding influences of materials on the system• Processes and technologies of industrial pre-treatment• Prevention; waste minimization	Rana Habash	3

Topic: Advanced Technologies in Industrial Treatment

Lecture	Lecturer	Overall Time (H)
<ul style="list-style-type: none">• Introduction to Industrial wastewater treatment• Conventional treatment technologies• Advanced treatment technologies	Rana Habash	2

Day 4: Wednesday-December 5, 2007

Topic: Sewage pollution and treatment systems

Lecture	Lecturer	Overall Time (H)
<ul style="list-style-type: none">• Sources of municipal wastewater• Wastewater characteristics• Overview of wastewater treatment	Nael Tahseen	2

Topic: Municipal sewage & drainage networks

Lecture	Lecturer	Overall Time (H)
Municipal responsibility on influent quality <ul style="list-style-type: none">• Industrial sources and pollutants• Domestic sources and pollutants• Livestock pollutants	Nael Tahseen	2

Topic: Network maintenance

Lecture	Lecturer	Overall Time (H)
<ul style="list-style-type: none">• Sewage network maintenance and inspection plans• Inspections of pumping stations and other facilities• Network monitoring measures: wastewater loss etc.• Identification of system failures	Nael Tahseen	2

Day 5: Sunday-December 9, 2007

Topic: GIS applications in water resources, groundwater and wastewater

Lecture	Lecturer	Overall Time (H)
<ul style="list-style-type: none">• GIS Applications in real life	Jumanah Abu Sada	2
<ul style="list-style-type: none">• Application of GIS in water pollution and waste water	Jamal Zetawi	2

Topic: GIS applications with community contribution for vulnerability, risk, and hazard mapping

Lecture	Lecturer	Overall Time (H)
<ul style="list-style-type: none">• GIS applications in vulnerability, risk and hazard mapping	Jamal Zetawi	3
<ul style="list-style-type: none">• GIS and community contribution		

Day 6: Wednesday-December 12, 2007

Topic: Enforcement

Lecture	Lecturer	Overall Time (H)
<ul style="list-style-type: none">• Statutory overview in the PA	Mahmoud Al Jallad	2

Topic: Public Health Issues

Lecture	Lecturer	Overall Time (H)
<ul style="list-style-type: none">• Introduction to public health issues	Assia Issa	2
<ul style="list-style-type: none">• Overview of water contamination and water-borne diseases		3

Day 7: Sunday-December 16, 2007

Topic: Public Health Issues

Lecture	Lecturer	Overall Time (H)
<ul style="list-style-type: none">• Preventative measures against water-borne diseases• The role of municipalities in the protection against water-borne diseases	Majeda Alawneh	2 2
		Overall Time (H)
❖ Graduation ceremony	Amjad Aliawi and Khaled Rajab	1

Day 8: Study Tour (Field Trip)

- To be coordinated by Israeli side
- Date to be determined later