

H2020 CB/MEP COURSE MODULE COVERING TRAININGS CONDUCTED ON ALL ASPECTS OF WASTEWATER MANAGEMENT

There were 15 major topics that could be identified among the courses given in the H2020 CB/MEP related to the Urban Wastewater Component co-led by UNESCO-IHE and ACWUA. The topics are isolated herein, edited, and sequentially sorted for easy reference. Duplication is unavoidable in some cases and access to each presentation is direct. With the **cursor on the desired presentation, press CTRL and left click on the mouse**, and you can download the presentation in zip format.

1. Background Governance Issues

- A. [EU Legislation, Mediterranean Frameworks and Projects](#)
- B. [Monitoring Cycle](#)
- C. [Policies, Instruments and Regulatory Framework](#)
- D. [Water Security Principles](#)
- E. [Water Quality Management](#)
- F. [Public Responsibility](#)

2. Wastewater Planning

- A. [WW Management in IWRM](#)
- B. [WW Master Planning and Prioritization Example - Jordan](#)

3. Design & Optimization

- A. [Wastewater Characteristics](#)
- B. [Options Analysis](#)
- C. [Technological Evolutions in WW Treatment](#)
- D. [Treatment Options Selection](#)

4. Centralization & Decentralization

- A. [Centralized Wastewater Treatment](#)
- B. [Decentralized WW treatment Benefits and Development](#)
- C. [Decentralized Wastewater Treatment](#)
- D. [Decentralized Sanitation](#)
- E. Small Scale Sanitation – Egypt
 - 1. [Esriss Challenges](#)
 - 2. [Esriss Nile Delta](#)
 - 3. [Esriss Questionnaire](#)
 - 4. [Fact Sheet for Small Scale Egypt](#)

5. Wastewater Treatment- Technical

- A. [Design of WWT Plants](#)
- B. [Sustainable Tertiary Reuse](#)
- C. [Annamox](#)
- D. [Anaerobic Advances](#)
- E. [Anaerobic Treatment](#)

- F. [Biological Denitrification](#)
- G. [Biological Phosphorous Removal](#)
- H. [Chemical Processes for Wastewater Treatment](#)
- I. [Innovative Nitrogen Removal](#)
- J. [Nitrification 1](#)
- K. [Nitrification 2](#)
- L. [Nitrification 3](#)
- M. [Biological Nitrification](#)
- N. [Organic Matter Removal](#)
- O. [Pathogen Removal](#)
- P. [Phosphorous Removal](#)
- Q. [Sulphate Reduction and Sani Process](#)

6. Wastewater Treatment Options

- A. [Treatment Options Selection](#)
- B. [WW Treatment Technologies Overview](#)
- C. [Constructed Wetlands](#)
- D. [MBR](#)
- E. [Soil-Aquifer Wastewater Treatment](#)

7. Wastewater Reuse

- A. Reuse Options
 - 1. [Reuse of Treated Wastewater in Agriculture](#)
 - 2. [BAT WWT and Reuse in Rural Areas](#)
 - 3. [Aquifer Recharge](#)
 - 4. [Case study of Reuse, Jordan](#)
 - 5. [Case Study of Reuse, Egypt](#)
 - 6. [Reuse Categories and Constraints](#)
 - 7. [Treated Wastewater Reuse in Agriculture and FAO Guidelines](#)
- B. Standards & Hazards
 - 1. [Post Treatment, Reuse, Recycle, and Disposal of Treated effluent](#)
 - 2. [Treated Effluent Disposal Standards](#)
 - 3. [Add WHO before Risk](#)

8. Sludge Treatment & Management

- A. Sludge Characteristics, Treatment and Stabilization
 - 1. [Sludge Characteristics](#)
 - 2. [Technology Overview and Design Principles](#)
 - 3. [Technical Evolution in Sludge Treatment](#)
 - 4. [Faecal Sludge Management Options](#)
- B. [Sludge Value and Economics](#)
- C. Sludge Reuse and Biosolids Applications
 - 1. [Biosolids Application to Agriculture](#)
 - 2. [Biosolids Disposal and Recycling Routes](#)
 - 3. [Land Applications of Biosolids - Technical Aspects I](#)

4. [Land Application of Biosolids – Technical Aspects II](#)
5. [Using Biosolids other than Land Spreading](#)
6. [Photo Presentation](#)

9. Operation and Maintenance O&M

- A. [Overview of WWTP Technologies Life Cycle](#)
- B. [Asset Management](#)
- C. [O&M instead of Control](#)
- D. [Process Operations 1](#)
- E. [Process Operations 2](#)
- F. [Relevance to Industrial Wastewater Treatment](#)
- G. [Efficient Management of Energy by Optimizing Components](#)

10. Project Economy and Preparation

- A. Project Economy
 1. [Financing Urban Infrastructure](#)
 2. [Project Bankability](#)
 3. [Rapid Pre-appraisal of Urban Wastewater Projects](#)
- B. Project Preparation
 1. [Issues in Project Management](#)
 2. [LFA Study Case Lembang-Assessment](#)
 3. [Logical Framework](#)
 4. [Role Play-Introduction](#)

11. Project Finance

- A. [Finance Instruments](#)
- B. [Financing Options](#)

12. Public Private Partnership PPP

- A. PPP Concept
 1. [Introduction to a PPP Course](#)
 2. [Role of PPP in Improving Sanitation](#)
 3. [Conventional Finance vs PPP](#)
 4. [Introduction to PPP Concept and Contractual Arrangements](#)
 5. [Project Bankability](#)
- B. PPP Project Details
 1. [PPP Project Preparation](#)
 2. [Financial Obligations, Guarantees and Securities](#)
 3. [Risks and Risk Sharing](#)
 4. [Role of Parties](#)
 5. [Reporting During Project](#)
- C. PPP Cases Studies
 1. [PPP Case Study, As-Samra](#)
 2. [Attracting investors to African PPP](#)
 3. [OECD Checklist Applications to Egypt and Lebanon](#)

4. [Lebanon PSP Assessment](#)
- D. PPP Success Stories
 1. [Jordan Experience: As-Samra Wastewater Treatment Plant](#)
 2. [Netherlands Experience: Wastewater Treatment in the Hague Region](#)

13. Models and Modeling

- A. [Rapid Assessment of Projects](#)
- B. [Inputs and Outputs of PP Models](#)
- C. [Samra Expansion](#)
- D. [Modeling WWTP as Management Tool](#)
- E. GIS Applications
 1. [GIS Theory & Application in Urban WW](#)
 2. [Model-based Evaluation](#)

14. Special Topics

- A. [Groundwater Vulnerability, Mapping Evaluation and Assessment-Case Studies](#)
- B. [Water Management in Karstic Zones](#)
- C. [Non-Conventional Water Resources. Water in Coastal Areas](#)
- D. [ICZM Protocol and Principles](#)
- E. [GW & Karst Basics, Methods, Exploration Techniques and Discharge](#)
- F. [Hazard in Karst and Chemical Pollution- Case Studies](#)
- G. [Interactions between waters in karstic areas and coastal zones](#)
- H. [Karst Springs - rainfall and runoff assessment](#)
- I. [Protection and Sustainable Use of the Dinaric Karst Aquifer System \(DIKTAS\)](#)
- J. [Sustainable development and regulation of karst aquifers](#)
- K. [Trans-boundary Water Management](#)
- L. [Vulnerability, Mapping Evaluation and Assessment-Case Studies](#)

15. Training/ Wastewater Management E Learning

- A. [Wastewater Management Questions](#)
- B. [Wastewater Management E Learning Models Outline](#)

[Appendix I List of Authors](#)

Appendix II Texts

- A. [Anaerobic Digestion. Wastewater Chemistry and Microbiology](#)
- B. [Calculating Bio-Solids Application Rate in Agriculture](#)
- C. [Chapter 10. Anaerobic Sludge Treatment in Hot Climate](#)
- D. [Chapter 12. Anaerobic Treatment for High Strong Waste](#)
- E. [Chapter 17. Anaerobic Treatment Solid Waste](#)
- F. [Chapter 20. Nutrients Recovery](#)
- G. [Chapter 22. Bio-Gas Upgrading with PSA](#)
- H. [Chapter 23. Guidelines for Reuse](#)

- I. [Check-List OCED PSP in Water](#)
- J. [Egypt PSP Assessment](#)
- K. [Enhanced Biological Phosphorous Removal](#)
- L. [Innovative Nitrogen Removal](#)
- M. [MBR](#)
- N. [Methodology to Test the Potential Viability of Urban Wastewater Projects](#)
- O. [Modeling of Activated Sludge](#)
- P. [Nitrogen Removal](#)
- Q. [Sanitation in Developing Countries-Innovations](#)

[H2020 CB/MEP Wastewater Modules \(quick reference\)](#)

