The MEDAWARE Project

- **MEDA**
- **EUROPEAN COMMISSION**
  - **EURO-MEDITERRANEAN PARTNERSHIP**
- **Development of Tools and Guidelines for the Promotion of the Sustainable Urban Wastewater Treatment and Reuse in the Agricultural Production in the Mediterranean Countries**

- Greece (National Technical University of Athens and Prospect Systems)
- Cyprus (Agriculture Research Institute)
- Jordan (Jordan University of Sciences and Technology)
- Lebanon (American University of Beirut)
- Morocco (Chouaib Doukkali University)
- Palestinian Authority (Ministry of Environmental Affairs)
- Turkey (Istanbul Technical University and Middle East Technical University)
- Spain (CARTIF Technology Center)

Duration: 42 months

May 2003 – October 2006

Amman, 5th December, 2005

Task 1: Countries Profile (M 1-6)

- Geography and Population
- Climate and Water Resources
- Wastewater and the use of non conventional water resources
- Agriculture and irrigation practices
- Water related problems associated with health and environment
- Water policy and institutional environment

Task 2: Overview of the operation of UWTPs and of the effluent disposal practices with emphasis on the reuse in the agricultural production (M 5-10)

- Number and location of TPs (big cities, municipalities, population served)
- Presentation of the technologies applied in the wastewater treatment plants
- Existing effluent quantity and quality in selected plants
- Prevailing effluent disposal methods and practices
- Impacts caused by the operation of the plants
- Disposal practices applied
- Pollutant removal efficiencies of selected wastewater treatment facilities

Task 3: Analysis of Best Practices and Success Stories (M 7-11)

- Current situation on wastewater treatment and agricultural reuse in the Mediterranean region
- Success stories on agricultural reuse of urban wastewater in Mediterranean countries
- Other good examples on agricultural reuse of wastewater all over the world
- Problems associated with reclaimed water reuse projects
- Good reuse practises
- The cost of wastewater reclamation and reuse

Task 4:Development of specifications for UWT technologies/systems (M 11-21)

- Wastewater treatment
  - Types of reactors
  - Flow regimes
  - Process selection

- Unit processes and operations of wastewater treatment
  - Preliminary, primary, secondary, tertiary, advanced treatment

Task 4: Development of specifications for innovative UWT technologies/systems (M 11-21)

- Analytical Fact Sheets
  - Description of the process
  - Available options
  - Comparison of available technologies
  - Design criteria and parameters
  - Effluent characteristics
  - Cost

Task 5: Technical Guidelines on Wastewater Utilisation (M 21-26)

- The Ww Reuse regulatory status
  - California Regulation
  - U.S. EPA Guidelines
  - WHO Guidelines
  - Standards applied in various countries
- Pathogens and public health (survival, risks, safety measures, diseases)
- Restrictions on types of crops irrigated with wastewater
- Irrigation methods

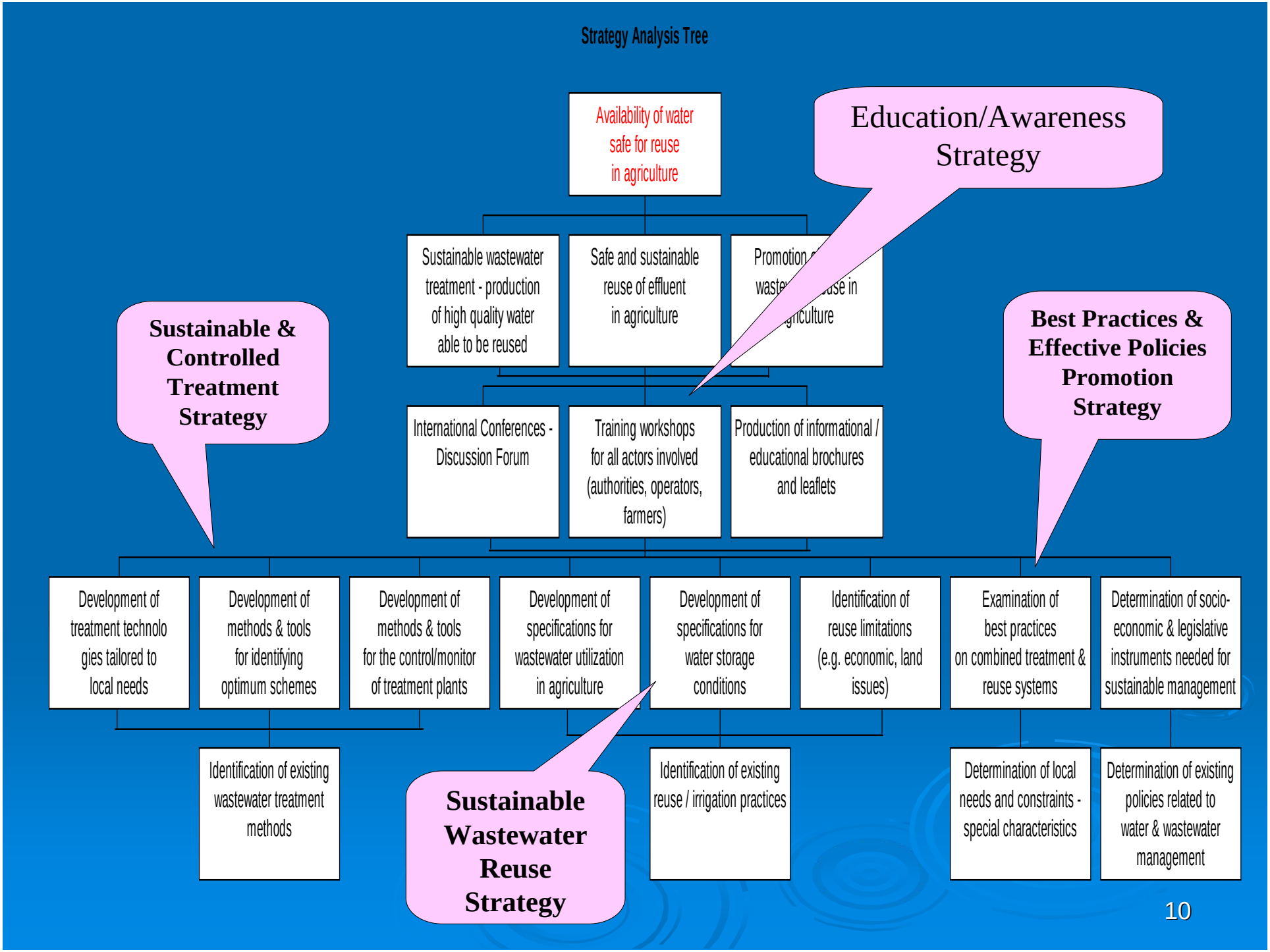
Task 6: Development of a methodology and database for the control and monitoring of the UWTPs (M 26-30)

- *a methodology for the dynamic control and monitoring of the wastewater treatment plants* (incl. quality control methods)
- *guidelines for sampling/analyses/equipment*
- *software database for the control and monitoring of wastewater treatment plants*

Task 7: Development of a multi-criteria / guiding support software tool for the assessment and valuation of safe wastewater agricultural reuse (M 31-42)

- to apply a scoring system for existing wastewater facilities based on the potential of safe reuse of the final effluent

- to guide the responsible authorities in the development and operation of a wastewater treatment facility, where the final effluent will be safely reused, taking into account the geographical, economical and social barriers of the specific area


Strategy Analysis Tree
Availability of water safe for reuse in agriculture
Education/Awareness Strategy
Sustainable wastewater treatment - production of high quality water able to be reused
Safe and sustainable reuse of effluent in agriculture
Promotion
International Conferences - Discussion Forum
Training workshops for all actors involved (authorities, operators, farmers)
Production of informational / educational brochures and leaflets
Sustainable & Controlled Treatment Strategy
Best Practices & Effective Policies Promotion Strategy
Development of treatment technologies tailored to local needs
Development of methods & tools for identifying optimum schemes
Development of methods & tools for the control/monitor of treatment plants
Development of specifications for wastewater utilization in agriculture
Development of specifications for water storage conditions
Identification of reuse limitations (e.g. economic, land issues)
Examination of best practices on combined treatment & reuse systems
Determination of socio-economic & legislative instruments needed for sustainable management
Identification of existing wastewater treatment methods
Sustainable Wastewater Reuse Strategy
Identification of existing reuse / irrigation practices
Determination of local needs and constraints - special characteristics
Determination of existing policies related to water & wastewater management

Work Ahead

The highest priority in the wastewater management sector has to be given to setting up an effective wastewater management system which will include:

- Maximization of collection of wastewater
- Upgrading the existing wastewater collection systems
- Rehabilitation or upgrading of existing wastewater treatment plants or the construction of new treatment plants
- Establishment of proper standards for influent and effluent wastewater quality
- Continuous education of the farmers

Momentum Build Up through the MEDAWARE project

- Establishment of a **network** (among all stakeholders involved including scientists, researchers, authorities, union of farmers etc)
- Development of **concise reports** on all relevant issues
- Training events – 1st international conference
- Promotion of knowledge and successful case studies

- *The project did not intend to develop new scientific insight rather to make known already developed knowledge on ww reuse*
- The network will continue to provide a platform for transferring information and organizing events

… Thank you

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