

الجمهورية اللبنانية

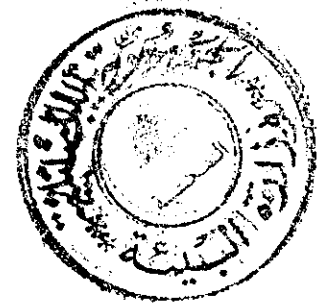
مكتب وزير الدولة لشؤون التنمية الإدارية
مركز مشاريع وقدراسات القطاع العام

2016

Workshop - Seminar

Protection and remediation of rivers and river landscapes in Lebanon

Republic of Lebanon
Office of the Minister of State for Administrative Reform
Center for Public Sector Projects and Studies
(C.P.S.P.S.)



Ministry of Environment Conference room 30.04 1998

REPUBLIC OF LEBANON

**Protection and Remediation of Lebanese Rivers
Background**

- Extension of human activities with impact on the environment
- Urban and industrial waste water effluent without treatment
- Waste disposal and dumping
- Extensive agriculture
- ⇒ Pollution of Rivers and River Landscapes
- ⇒ Implementation of a Program for Protection and Remediation

11/21/2015

REPUBLIC OF LEBANON

FICHTNER

Protection and Remediation of Lebanese Rivers

Main Objectives

- Formulation of General Guidelines for the management of the Lebanese Rivers
- Implementation of the Guidelines for the management of the Lebanese Rivers
- Data Collection and elaboration of a River Classification System
- Implementation of a waste water discharge register
- In-depth engineering program for the remediation of Nahr Ibrahim and upper Litani River

REPUBLIC OF LEBANON

**Protection and Remediation of Lebanese Rivers
Implementation**

PHASE 1: Formulation of General Guidelines

- Guideline for the Protection and Remediation of Rivers and River Landscapes in the Republic of the Lebanon
- Guideline for the Treatment of Urban Waste Water for the Republic of the Lebanon

REPUBLIC OF LEBANON

Protection and Remediation of Lebanese Rivers Implementation

FICHTNER

PHASE 2: Engineering Program for the Implementation
of the Guidelines

- Elaboration of a staged Implementation in Program
- Implementation of a River Classification System
- Implementation of a Waste Water Discharge Register
- Technical Assistance and Training of MoE's Personnel

REPUBLIC OF LEBANON

FICHTNER

Protection and Remediation of Lebanese Rivers Implementation

PHASE 3: In-Depth Engineering Program for the
Remediation of Nahr Ibrahim and upper
Litani River

- Detailed Site Evaluation
- Identification of individual Remediation Projects
- Engineering and Design of Remediation Projects
- Assistance in Controlling/Monitoring and Abatement of Pollutants (point and diffuse sources)
- Technical Assistance and Training in
 - Formulation of Regulations/Decrees
 - Licenses and Approval of Permitting Documents

REPUBLIC OF LEBANON

Protection and Remediation of Lebanese Rivers Requirements for Phase II

- Baseline Survey
- River Pollution Map
- Inventory of Landuse
- Waste Water Discharge Register
- Staged River Remediation and Protection Program

FICHTNER

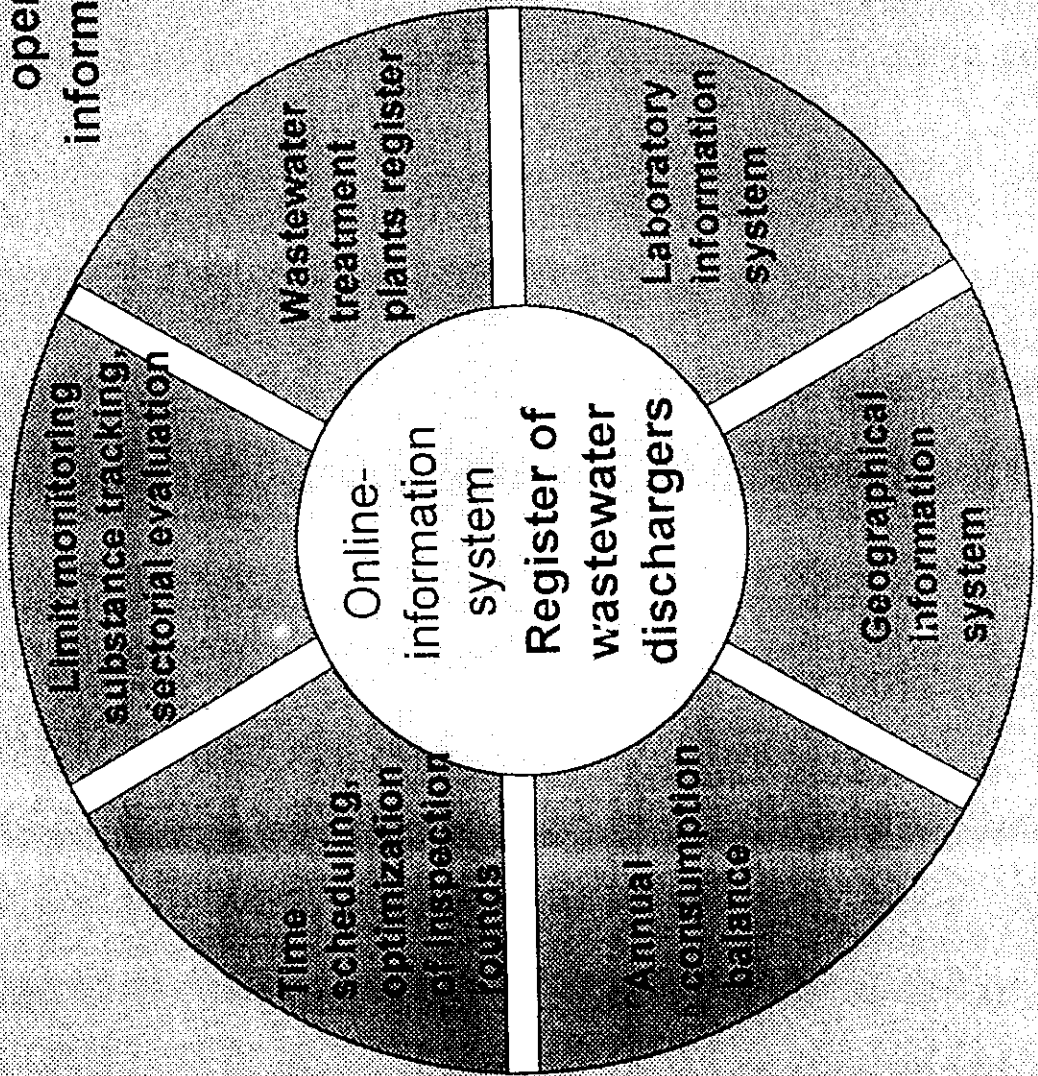
REPUBLIC OF LEBANON

**Protection and Remediation of Lebanese Rivers
Requirements for Phase III**

- Elaboration of Concept to rehabilitate the Nahr Ibrahim and upper Litani River
- Additional Site Investigation and Analysis
- Identification, Engineering and Supervision of Sub-Projects
- Technical Assistance to MoE's Personnel in
 - Formulation of Regulation (Decrees for Waste Water Discharge)
 - Approval of Permitting Documents for Erection/Operation
 - Formulation of Licenses for Discharge, Erection and Operation

REPUBLIC OF LEBANON
Protection and Remediation of Lebanese Rivers
Environmental and operating data information system

Environmental and
operating data
information system



REPUBLIC OF LEBANON

Protection and Remediation of Lebanese Rivers Waste Water Discharge Register - Procedure

FICHTNER

- Conceptual planning
- Initial survey of dischargers of possible wastewater relevance and first evaluation
- Survey to collect operating and production data, and final evaluation
- Implementation of the online wastewater register information system

REPUBLIC OF LEBANON

FICHTNER

Protection and Remediation of Lebanese Rivers

Waste Water Discharge Register - Characteristic

- Centralized Data Storage with the possibility to access from different locations
- Possibility to combine data of different areas
- Possibility to handle small treatment plants, cesspits and septic tanks
- Interfaces to existing systems (GIS, reports in MS Word, MS Excel)

REPUBLIC OF LEBANON

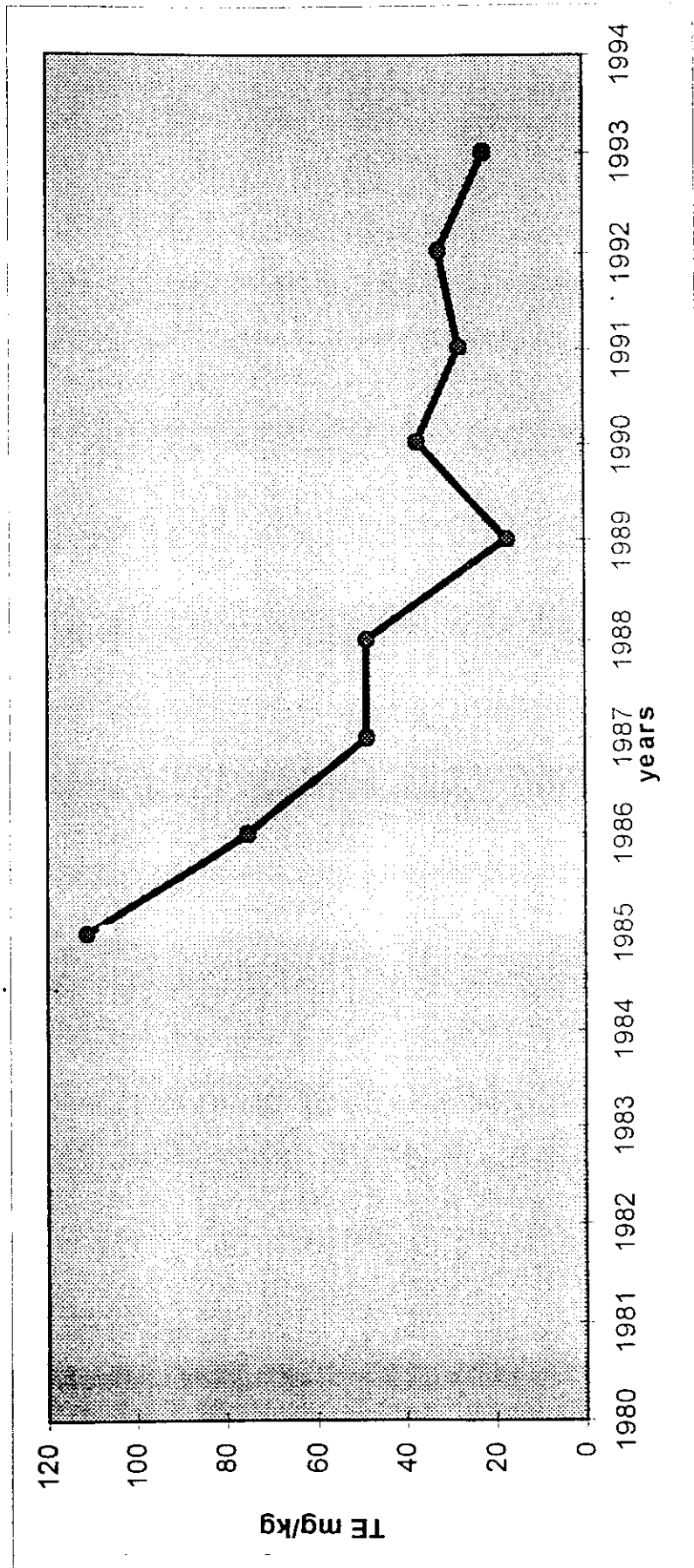
FICHTNER

Protection and Remediation of Lebanese Rivers Waste Water Discharge Register - Survey of Data/Evaluation

- Structuring of discharger data based on initial assessment
- Questionnaire survey
- Counseling and support of effluent dischargers
- Deciding on sampling locations
- Characterization of the general situation in manufacturing plants
- Evaluation and plausibility checks
- Establishing hazard potentials on the basis of an evaluation matrix
- Assignment to investigation classes
- Arranging for sampling and analysis
- Harmonization with disposal contracts as well as ensuring compatibility with other data and information
- Concluding appraisal and definition of monitoring frequencies and analysis programs
- Monitoring and updating of data

Implementation of a Register of trade effluent dischargers to sewer since 1984 Bremen, Germany

Reduction in pollutants in sewage sludge (for example dioxine and furane)



Register of effluent dischargers Potential and possible benefits

FICHTNER

- What measures are necessary for implementation of the projected limits?
- Which plants will be mainly affected, and where are the hot spots?
- What changes will there be to loadings of individual pollutants after the introduction of statutory limits?
- What is the potential for water saving measures and for recycling of wastewater?
- Which monitoring programs at which time intervals can be implemented depending on the existing or planned personnel strength and laboratory capacity?
- Training and counseling of industrial facilities in relation to the requirements and possibilities of environmental legislation and the resulting legislative possibilities.

مكتب وزير الدولة لشؤون التنمية الإدارية
مركز مشاريع ودراسات القطاع العام



Republic of Lebanon
Office of the Minister of State for Administrative Reform
Center for Public Sector Projects and Studies
(C.P.S.P.S.)