



***Environmental impact assessment:
sewage treatment plant for Port Said***

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PREFACE AND ACKNOWLEDGEMENTS

Environmental impact assessments (EIA) have been extensively prepared and used over the last 15 years. Their wide application clearly indicates a need to ensure that environmental considerations are included in the decision-making process. However, particularly in developing countries, the procedures established for EIA in developed countries have met much criticism.

Realizing the shortcomings of these procedures and responding to frequent requests for a simple and practical, but still adequate approach to EIA, the Oceans and Coastal Areas Programme Activity Centre (OCA/PAC) of UNEP has attempted to formulate procedures, supplemented with guidelines, which could be used in preparing EIAs for typical development projects in the context of legal agreements supporting the UNEP Regional Seas Programme.

The procedures and guidelines advocated by UNEP ^{a/} were tested through a series of concrete case studies. One of the first case studies and the way it was prepared is described in this document.

The analysis of the case study and the description of the procedures used in the environmental impact assessment (Part I and II of this document) were prepared by the Priority Actions Programme Regional Activity Centre of the Mediterranean Action Plan, with assistance of consultants (Messrs A. Baric and A. Jernelov). The guidelines for the preparation of the EIA document for the waste water treatment plant were originally prepared by Messrs A. Jernelov and U. Marinov, and modified for the specific situation in Port Said by Mr. A. Baric (Part III of this document).

The substantive part (Part IV) of this document was prepared by Mr. Mohammed Khaled Mostafa, Ministry of Development, New Communities, Housing and Public Utilities of Egypt. In the preparation of the document, he was assisted and guided by Messrs Y. Ahmad, A. Baric and A. Jernelov, consultants of the Priority Actions Programme Regional Activity Centre of the Mediterranean Action Plan and the Oceans and Coastal Areas Programme Activity Centre.

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PART I: ANALYSIS OF THE CASE STUDY

The preparation of the EIA document was largely the result of the efforts of one person from one agency and had therefore in itself a limited effect with regard to experience in interministerial and interagency collaboration.

Furthermore, with regard to technical documentation, the informal but existing procedures for assessment of technical feasibility and environmental consequences in Egypt, require more details than the approach advocated here. Thus the field where the requirements for this type of EIA document, according to the guidelines, brought forward additional information, was in the biological/ecological sections. As a function of what was available or deducible, however, the document remained less strong in the environmental sections than in the technical ones.

The most important part of the procedure turned out to be the evaluation meeting with intense discussions of fundamental aspects of the EIA procedure and the content of the EIA document. As a consequence of the heterogeneity of the group and the highly different background experience of the participants, however, a few points of large importance remained unclear as can be seen from the recommendation of the meeting, where it was suggested that the EIA document be supplemented with considerations of alternative locations and of costing. Should this recommendation be followed, some of the bases for a simple and practical approach would be lost, and a much more elaborated procedure would result.

The discussions of these points during and after the meeting indicate that the Port Said Sewage Treatment Plant may be a broader case to fulfil the criteria for a project to be assessed with the methodology described in this document. The project should "not be unique neither in size nor scope".

PART II: PROCEDURES USED IN THE ENVIRONMENTAL IMPACT ASSESSMENT

1. Background

The fourth ordinary meeting of the Contracting Parties to the Barcelona Convention (Genoa, September 1985), when considering the workplan of the Priority Actions Programme Regional Activity Centre (PAP/RAC) of the Mediterranean Action Plan, "stressed the interest to develop suitable methodologies for environmental impact assessment, with a view to their introduction in coastal zone development planning" ^{b/}. The same meeting adopted ten targets to be achieved as a matter of priority during the second decade (1986-1995) of the Mediterranean Action Plan (MAP). Among these targets were ^{a/}:

- establishment, as a matter of priority, of sewage treatment plants in all cities around the Mediterranean with more than 100,000 inhabitants and appropriate outfalls and/or appropriate treatment plants for all towns with more than 10,000 inhabitants; and
- applying environmental impact assessment as an important tool to ensure proper development activities.

In response to similar requests from other meetings convened in the framework of the UNEP Regional Seas Programme, UNEP has developed a simple and practical approach to the environmental impact assessment (EIA) ^{a/} which might be applicable in the context of the legal agreements supporting that programme.

In consultation between PAP/RAC and the National Focal Point of Egypt for the Mediterranean Action Plan, the preparation of an EIA for the sewage treatment for the city of Port Said was among the first case studies selected to test the new approach to EIAs.

This chapter of the present document describes, step-by-step the application of the general approach advocated for the EIA procedure ^{a/}.

2. Request for building of a sewage treatment plant for the city of Port Said

With the rapid growth of Port Said, the lack of a proper sewerage system and sewage treatment facility has become an ever-larger problem both from a public health and environmental point of view. The Ministry for Reconstruction therefore decided that a sewage treatment plant should be built for the city of Port Said.

3. Decision on the need for an EIA document

The Egyptian Environmental Affairs Agency of the Cabinet of Ministers decided that an EIA document was required.

4. Guidelines for the preparation of an EIA document

Building on the goals and principles of EIAs, adopted by the Governing Council of UNEP and endorsed by the United Nations General Assembly ^{d/} and on the procedures developed for a practical approach to EIAs ^{e/} the guidelines for the preparation of the EIA document for a sewage treatment plant were prepared by PAP/RAC with assistance of consultants (Part III of this document). The guidelines list the issues which were expected to be addressed in the preparation of the EIA document for the sewage treatment plant of Port Said.

5. Environmental impact assessment document

The preparation of the EIA document was entrusted to the National Organization for Potable Water and Sanitary Drainage (NOPSWAD), of the Ministry of Development, New Communities, Housing and Public Utilities of the Arab Republic of Egypt.

Several consultations were held between the staff of the organization and of PAP/RAC's consultants during the preparation of the EIA.

The information used for the preparation of the EIA consisted of the following:

- climatological, geological, hydrological, water quality, and aquatic communities data, which were obtained from earlier measurements, as well as through limited sampling during the preparation of the EIA.

The EIA document was prepared during a period of 3 months, from June to September 1989, and involved an estimated time of 1 m/m (man/months) of a scientist and of 1 m/m of a technical staff. The EIA document as submitted for evaluation is reproduced as Part IV of this document.

6. Evaluation of the EIA document

The draft of the EIA document was presented to the interregional workshop on the application of the environmental impact assessment procedure jointly organized in Cairo, Egypt, 19-22 November 1989, by PAP/RAC, OCA/PAC of UNEP and the Co-ordinating Unit for MAP, in co-operation with the Egyptian Environmental Affairs Agency of the Cabinet of Ministers.

The meeting was attended by 27 participants from 17 Ministries and Departments of the Egyptian government, 8 participants from private companies in Egypt and 1 participant from the Egyptian TV, 18 participants from governmental departments of 18 foreign countries, 2 participants from environmental NGOs and 4 staff members and consultants of UNEP (for a full list of participants, see Appendix).

The meeting was started by the presentation of the approach used in the preparation of the EIA and by the detailed exposition and discussion of the case study.

The main comments and suggestions offered at the meeting may be summarized as follows:

- (a) the general approach proposed by UNEP for the preparation of EIA's was considered as suitable in principle, although some amendments were introduced into the proposed procedures*;
- (b) the guidelines used for the preparation of the EIA were considered, with some amendments, as sufficient general guidelines for the preparation of EIA's related to sewage treatment plants, but they should be supplemented with more specific guidelines tailored to the concrete case studies;
- (c) the presented draft EIA was considered, after some modifications, as adequate for the decision-making process: the suggested amendments included the following:
 - the EIA should not only compare the existing situation and the proposed site and solution but also identify the various alternatives which must be studied in this EIA report;
 - the economics of the project and of alternative management of wastewater should be considered;
 - concern was expressed that a comparatively high level of phosphorus, nitrogen, detergents and heavy metals in the treated wastewater could adversely affect Lake Manzala;
 - data on the content of heavy metals in the sludge and the method of its disposal and utilization should be provided;

In addition the EIA document was evaluated and accepted by the Egyptian Environmental Affairs Agency.

7. Decision by the authorizing authority

The EIA as modified during the review and presented as Part IV of this document was accepted.

The first phase of the project is now in operation, while phase two is waiting for funding.

8. Monitoring of the impact of the sewage treatment plant

As the project is not yet completed only the part of the monitoring programme of relevance for Part I of the project can be executed.

9. Re-evaluation of the environmental impact assessment

Not yet applicable.

*The amendments suggested at the meeting are incorporated in the document listed under Note ^{a/}.

Notes

- ^{a/} UNEP: An approach to environmental impact assessment for projects affecting the coastal and marine environment. UNEP Regional Seas Reports and Studies No. 122, UNEP, 1990.
- ^{b/} Report of the fourth ordinary meeting of the Contracting Parties to the Convention for the Protection of the Mediterranean Sea Against Pollution and its related Protocols. UNEP/IG.56/5, Part I, para. 89. UNEP, 1985.
- ^{c/} Ibid. Part II, para. 17 (b) and (c).
- ^{d/} Decision 14/25 of UNEP Governing Council; 17 June 1987. UNEP/GC/14/26, Annex I.

PART III. GUIDELINES FOR THE PREPARATION OF AN ENVIRONMENTAL IMPACT ASSESSMENT DOCUMENT FOR A SEWAGE TREATMENT PLANT IN PORT SAID

1. Background

Sewage treatment plants are constructed to transform the raw sewage into an easier manageable waste and to retrieve and re-use the treated sewage water.

The end products of a treatment plant are sludge and treated sewage water. Both products may contain, in addition to organic biodegradable substances and micro-organisms, non-biodegradable and toxic substances due to the contamination of sewage with industrial waste waters.

From the environmental standpoint the most important aspect of a sewage treatment plant is the proposed disposal or use of the sludge and the treated sewage water.

The most common adverse environmental effects on coastal waters, connected with disposal or use of the sludge and the treated sewage water, are caused by: microbiological contamination, oxygen depletion due to high load of organic faecal matter, eutrophication caused by nutrients, and toxic and non-biodegradable substances originating mainly from contamination of sewage by industrial wastes.

Some treatment processes (e.g. oxygenation ponds, aerated lagoons) may lead, under the influence of wind, to the spread of pathogens through air transport over considerable distances.

Most sewage treatment and disposal processes are a serious source of offensive odour.

Improperly constructed or operated sewage treatment plants and improper disposal or use of sludge and treated sewage water may become a most serious public health problem. Therefore, whatever level of treatment and method of disposal and use is approved, it should strictly comply with national standards and internationally accepted environmental quality criteria, taking into account the recipient environment and the biological targets which may be affected, specifically man.

Elements specifically recommended for inclusion in the follow-up monitoring and re-evaluation programme are: regular compliance with methods approved for sewage treatment and disposal, including for use of treated sewage water; seepage of contaminants from the treatment plants or sludge disposal sites into freshwater aquifers or coastal waters; wind transport of pathogens originating from the treatment plant or sludge disposal site; elements recommended for monitoring of submarine sewerage outfalls (see section 4.5) if such an outfall is part of the project.

2. Description of the proposed project

The proposed treatment plant should be described, accompanied by plans on a scale of 1:2500*, including the following:

- Types of sewage to be treated (industrial, domestic, agricultural).
- Number of inhabitants to be served by the plant.
- Types of clients to be served, e.g. industrial, residential, commercial, hospitals.
- Quantity of sewage (cubic metres per day, per year).
- Quality of sewage to be treated, including suspended solids (mg/litre), settleable solids (mg/litre), pH, turbidity, conductivity, BOD (mg/litre), COD (mg/litre), nitrogen, ammonia, phosphate, oil, surfactants, and heavy metals such as arsenic, cadmium, copper, lead, nickel and mercury.
- Method to be used in treatment of sewage.
- Layout of the plant (including treatment facilities and service area).
- Use of effluents (agriculture, recharging aquifer, disposal to sea or to nearest river).
- Sludge quantity and quality.
- Method of sludge treatment and disposal.
- Chemical, physical and bacteriological characteristics of effluents such as suspended solids, settleable solids, pH, turbidity, conductivity, BOD, COD, nitrogen, ammonia, phosphate, oil, surfactants, and heavy metals such as arsenic, cadmium, copper, lead, nickel and mercury, total coliforms, faecal coliforms and faecal streptococci.

3. Description of the environment

预览已结束，完整报告链接和二维码如下：

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