



UNITED NATIONS ENVIRONMENT PROGRAMME

*Environmental impact assessment
in the United Arab Emirates
A case study:
Ruwais and Zirku industrial areas*

UNEP Regional Seas Reports and Studies No. 87

Prepared in co-operation with



IMO



ROPME

PREFACE

The United Nations Conference on the Human Environment (Stockholm, 5-16 June 1972) adopted the Action Plan for the Human Environment, including the General Principles for Assessment and Control of Marine Pollution. In the light of the results of the Stockholm Conference, the United Nations General Assembly decided to establish the United Nations Environment Programme (UNEP) to "serve as a focal point for environmental action and co-ordination within the United Nations system" (General Assembly resolution (XXVII) of 15 December 1972). The organizations of the United Nations system were invited "to adopt the measures that may be required to undertake concerted and co-ordinated programmes with regard to international environmental problems", and the "intergovernmental and non-governmental organizations that have an interest in the field of the environment" were also invited "to lend their full support and collaboration to the United Nations with a view to achieving the largest possible degree of co-operation and co-ordination". Subsequently, the Governing Council of UNEP chose "Oceans" as one of the priority areas in which it would focus efforts to fulfill its catalytic and co-ordinating role.

The Regional Seas Programme was initiated by UNEP in 1974. Since then the Governing Council of UNEP has repeatedly endorsed a regional approach to the control of marine pollution and the management of marine and coastal resources and has requested the development of regional action plans.

The Regional Seas Programme at present includes ten regions^{1/} and has about 130 coastal States participating in it. It is conceived as an action-oriented programme having concern not only for the consequences but also for the causes of environmental problems through the management of marine and coastal areas. Each regional action plan is formulated according to the needs of the region as perceived by the Governments concerned. It is designed to link assessment of the quality of the marine environment and the causes of its deterioration with activities for the management and development of regional legal agreements and of action-oriented programme activities^{2/}.

During its fourth session in 1976 the Governing Council of UNEP approved the preparatory work for convening a Regional Conference on the Protection of the Marine and Coastal Environment of Bahrain, Iran, Iraq, Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates. Subsequently, on the basis of a fact-finding mission sponsored by UNEP and supported by several United Nations agencies, a draft action plan dealing with the scientific and socio-economic aspects for the protection and development of the marine environment of the region was prepared and reviewed by a

1/ Mediterranean Region, Kuwait Action Plan Region, West and Central African Region, Wider Caribbean Region, East Asian Seas Region, South-East Pacific Region, South Pacific Region, Red Sea and Gulf of Aden Region, Eastern African Region and South Asian Region.

2/ UNEP: Achievements and planned development of UNEP's Regional Seas Programme and comparable programmes sponsored by other bodies. UNEP Regional Seas Reports and Studies No. 1. UNEP, 1982.

series of technical meetings of Government-nominated experts. In April 1978 a Regional Conference of Plenipotentiaries was convened in Kuwait for the purpose of reviewing, revising and adopting the action plan and related legal instruments. The Conference adopted on 23 April 1978 the Action Plan for the Protection and Development of the Marine Environment and the Coastal Areas of Bahrain, Iran, Iraq, Kuwait, Oman, Qatar, Saudi Arabia and United Arab Emirates^{3/}. The Action Plan has subsequently become known as the Kuwait Action Plan.

Within this Action Plan, the Governments have approved a number of projects and assigned priority to some of them. UNEP has provided its technical backstopping and support for the implementation of these projects, in co-operation with a number of specialized agencies as appropriate.

In this context, the Government of the United Arab Emirates, through its Higher Environmental Committee, approached UNEP seeking its assistance to undertake an overall environmental impact assessment of two industrial complexes in Ruwais area and Zirku Island, with a view to eliminating or reducing any detrimental environmental effects which might be caused by the industrial and the related socio-economic activities at the two sites.

In response to the above request, UNEP organized a field mission jointly sponsored by UNEP/IMO and ROPME to undertake the assessment of the environmental impact of the Ruwais industrial complex, Jabel Dhanna and Zirku Island terminals. These coastal complexes share numerous similarities with major large scale complexes in the coastal areas of the KAP Region. Therefore, lessons learned from carrying out this assessment could be used in other parts of the Region, and the results obtained thereof should serve as inputs into KAP activities in the field of coastal area development and management on an environmentally sound basis.

The present report includes a full account of the UNEP/IMO mission and its findings, as well as a description of the results of a preliminary assessment undertaken and the relevant recommendations made by the mission.

^{3/} UNEP: Action Plan for the protection of the marine environment and the coastal areas of Bahrain, Iran, Iraq, Kuwait, Oman, Qatar, Saudi Arabia and United Arab Emirates. UNEP Regional Seas Reports and Studies No. 35. UNEP 1983.

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ENVIRONMENTAL IMPACT ASSESSMENT IN THE UNITED ARAB EMIRATES

Executive Summary and Recommendations

INTRODUCTION

A three-men UNEP/IMO mission visited Abu Dhabi during the period 22 March 1981 - 5 April 1981. The ultimate objectives of the mission were:

- (i) To make a preliminary assessment of the impact of the Ruwais and Zirku industrial complexes on their surrounding environments.
- (ii) Advise on appropriate measures for reducing or eliminating detrimental environmental effects.
- (iii) Recommend detailed steps for conducting full-scale environmental impact assessment of Ruwais and Zirku.
- (iv) Advise on long-term environmental impact assessment (E.I.A) and monitoring within the U.A.E, and the administrative and institutional structures within which it might be organized.

Environmental Impact Assessment (E.I.A.)

Before considering the individual sites and issues within the U.A.E., the report provides an introduction to the subject of E.I.A. This explains that E.I.A is a process of determining the direct and indirect environmental benefits and disbenefits of a proposed development, including alternative sites and processes, and presenting them in an ordered and logical manner such that government departments or developers take balanced decisions on whether, and how, development should proceed. The E.I.A. process considers matters of safety, human health and social acceptability, as well as the impact on the natural environment.

A major part of the E.I.A. process is the baseline assessment (desk and field studies) which will determine the pollutant arisings from the proposed development, the state of the environment prior to development and its ability to receive pollutants without unacceptable environmental consequences. The baseline field studies can be continued as monitoring after the commissioning of plant to keep the environmental effects of the development under continual observations.

Initial observations

It was observed that the environmental effects of development of Ruwais and Zirku have not been fully considered at the planning stage. Whilst some arbitrary effluent/emission standards have been applied to individual projects at Ruwais, the additive and synergistic effects of all the projects have not been considered.

It also appears that inadequate contingency plans have been made for handling major environmental disasters or hazard events. The problems of waste disposal and the transport of hazardous materials have also been accorded insufficient importance.

At Ruwais, most of these problems stem from the independent development of projects within the complex. At Zirku the expectation of adequate dispersion of air and water pollutants provided by the island situation has resulted in potential environmental problems being given scant

Major recommendations

It is recommended that the solution to many of the problems mentioned above could be effected through the medium of E.I.A of the two sites. This will involve the following activities:

- (i) Define study area/objectives.
- (ii) Establish an inventory of industrial processes and a material/product balance for both present and future plans.
- (iii) Carry-out a qualitative and quantitative analysis of pollution covering air, wastes, process water, losses, liquid effluents based on (ii) above.
- (iv) Review existing information on environmental conditions including meteorology, hydrography, geology, oceanography (biological, chemical, physical) and living resources.
- (v) Conduct a baseline assessment on environmental conditions according to needs established in (iv) above.
- (vi) Elaborate programme for baseline studies of pollution based on (iii) - (v) above*.
- (vii) Initiate and conduct the baseline study.
- (viii) Determine environmental policies and strategies.
- (ix) Establish guidelines for assessing proposed industries** including assimilative capacity of the environment.
- (x) Develop regulations, guidelines and legislation for controlling environmental quality and procedures for their reassessment and modification including intercalibration.
- (xi) Establish administrative and legal structures for enforcing regulations and legislation and for their modification as in (x) above.
- (xii) Establish and implement environmental monitoring network based on (i) through (v) above.
- (xiii) Implement environmental control regulations and the administrative structures for their enforcement and control.

The E.I.A. procedure will take approximately two years. This will require an ephemeral project team of six environmental scientists working for eight months and a field team of six environmental scientists working throughout the duration of the study. The latter team could continue their baseline studies in amended form as monitoring as long as necessary.

The conduct of E.I.A at Ruwais and Zirku could be best undertaken within the framework of the following recommendations (general recommendations are followed by specific proposals to the Higher Environmental Committee (H.E.C.) and the Abu Dhabi National Oil Company (ADNOC):

* This should include pollutants to be monitored (e.g. CO, SOX, NOX, Trace Metals, Oil, Chlorinated Hydrocarbons etc.) as well as sample type (e.g. stack gases, liquid effluents, sediments, dust, marine biota, etc.).

** e.g. World Bank guidelines contained in "Environmental, Health and Human Ecologic Considerations in Economic Development Projects".

- (i) Establish a technical branch within the Higher Environmental Committee.
- (ii) Expand the capability within ADNOC for implementing environmental impact assessment in present and planned development projects including those of subsidiary or associated companies.
- (iii) Determine and develop environmental policies and strategies of a federal level.
- (iv) Develop guidelines, regulations and legislation for environmental control within the U.A.E., the individual Emirates and in major industrial complexes.
- (v) Conduct within U.A.E. workshops and training courses on environmental impact assessment for government officials and industrialists.
- (vi) Formulate and adopt contingency plans for handling environmental disasters on a federal and local level.
- (vii) Consider the establishment of industrial area authorities for major complexes such as Ruwais.

The technical branch of the H.E.C. suggested in (i) above could have the following functions:

- (i) Formulate policies for key environmental activities which, from the evidence available, are felt to be actually or potentially damaging, such as:
 - (a) storage of hazardous materials;
 - (b) transport of hazardous materials;
 - (c) dumping of liquid and solid waste;
 - (d) the discharge of persistent pollutants;
 - (e) the use of radio-active materials.
- (ii) Formulate and co-ordinate at the most appropriate scale (national/Emirate/project) a number of contingency plans for:
 - (a) oil spills;
 - (b) explosion, gas release, etc. in major development complexes such as Ruwais and Jebel Ali;
 - (c) fire in major industrial complexes, including jetties and in urban areas.

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