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MEDITERRANEAN ACTION PLAN

First Presentation Meeting of the Fuka-Matrouh
Coastal Area Management Programme

Matrouh, 18-19 September 1995

REPORT OF THE FIRST PRESENTATION
MEETING OF THE FUKA-MATROUH COASTAL AREA
MANAGEMENT PROGRAMME

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Introduction

1. In conformity with a decision by the Seventh Ordinary Meeting of the Contracting Parties (Cairo, October 1991), a Coastal Area Management Programme (CAMP) for the Fuka-Matrouh area was developed and an Agreement relative to the project was signed by the Government of Egypt and UNEP/MAP on 9 November 1992. The activities in the framework of this CAMP have been implemented since that date.
2. The first presentation meeting was organised by MAP, in cooperation with the Egyptian Environment Affairs Agency (EEAA), in Matrouh, on 18-19 September 1995, in order to:
 - present the results achieved so far on the on-going activities, and
 - conduct the necessary consultations with the Egyptian counterpart as well as between the various national, local and international consultants and experts of the various activities.
3. The list of participants is attached as **Annex I** and the Agenda of the meeting as **Annex II** to this report.
4. The meeting was conducted in English with a summary of the presentations in Arabic.
5. At the end of each presentation, questions were raised and answers were given by participants

Agenda Item 1- Opening of the meeting

6. The meeting was opened by Mr. Salah Hafez, Chief Executive Officer (EEAA). He welcomed the participants to the meeting and stressed the importance of the project for the Fuka-Matrouh area. He briefed the meeting on some of the activities being implemented by EEAA in relation to Coastal Zone management.
7. The meeting heard a welcome statement by Mr. Zahir Abdel Rabman, Governor of the Governorate of Matrouh. He outlined the main activities and projects being implemented in Matrouh Governorate. He expressed the readiness of his Governorate to continue its assistance, cooperation and coordination in the implementation of the various activities within the framework of the Fuka-Matrouh CAMP.

8. Mr. Ibrahim Dharat, Senior Programme Officer, MAP, welcomed the participants on behalf of the Executive Director of UNEP and the Coordinator of MAP, and expressed his gratitude to EEAA and the Governorate of Matrouh for hosting and organising the meeting. He pointed out that it is expected that all activities will be completed early in 1996 with a view to presenting the final results in a conference to be held in Matrouh around the middle of 1996.
9. Mr. S. Hafez (EEAA), Mr. M. Ayyad (University of Alexandria) and Mr. I. Trumbic (PAP/RAC) were elected unanimously as Chairman, Vice-Chairman and Rapporteur respectively. Mr. I. Dharat acted as the Technical Secretary of the Meeting.

Agenda Item 2- Coastal Area Management Programme of MAP

10. Mr. I. Dharat briefed the meeting on basic concepts, objectives and activities of the CAMP project for the Fuka-Matrouh area. The full statement is contained in **Annex III** to this report.

Agenda Item 3- Presentation of activities carried out in the framework of the Fuka-Matrouh Coastal Area:

Agenda Item 3.1- Systemic and prospective analysis including development-environment scenario for the area (BP/RAC)

11. Mr. A. Hoballah, Deputy Director of the Blue Plan/Regional Activity Centre (BP/RAC), and Mr. M. Ayyad, Mr. K. Fahmi and Mr. W. Gamaleldin (Consultants to BP/RAC) introduced this item, presenting structure, objectives and the results of this activity and pointed out the problems encountered.

They pointed out that three studies within the framework of this activity were completed, and a limited number of copies were distributed:

- a. A framework for Accumulating Consequential Data and knowledge
By: Mr. M. Ayyad - 1995
- b. Systemic and Prospective Analysis for an Environmentally Friendly Management
By: Mr. C.Aruoba - 1995

- c. Framework on Environmental Problems and Management (will be completed soon)
By: Mr. K. Fahmi

A fourth study is still being finalised. One of the main recommendations proposed within this activity is the need to establish a Matrouh database.

12. A short summary of this activity and copies of the transparencies used in the presentations are attached as **Annex IV** to this report.

Agenda Item 3.2 - Implications of climatic changes in the Coastal Area of Fuka-Matrouh (MED Unit)

13. Mr. A. Fanos and Mr. N. El-Fishawi (Consultants to MED Unit) introduced this item, presenting the structure, objectives and results of this activity and pointed out problems encountered. The latest report relevant to the activity was distributed to all participants (doc: UNEP(OCA)/MED WG.97/2)
14. A short summary of the activity with a few recommendations and copies of transparencies used in the presentations are attached as **Annex V** to this report.

Agenda item 3.3 - Integrated planning and management study for the Coastal Area of Fuka-Matrouh (PAP/RAC)

Agenda item 3.3.1- Integrated planning and management study

Agenda item 3.3.2- Geographic Information System (GIS)

Agenda item 3.3.3- Carrying capacity assessment for tourism

15. Mr. I. Trumbic, Acting Director (PAP/RAC), Mr. S. Moustafa and Mr. S. El-Kaffas (Consultants to PAP/RAC) introduced this item. It was pointed out that on the basis of the work done so far, the preparation for an integrated planning and management study would commence immediately. It is envisaged that a synthesis of the study would be ready for comments by all actors before it is finalised in an integrated planning and management study, to be presented to the Egyptian authorities around the middle of 1996.

16. It was pointed out that the various training courses were conducted as well as providing the Egyptian counterpart with the necessary software, and a core basis of experts has been created in Matrouh.

It was recommended that there was a need to complete the GIS system and undertake the necessary analysis of data gathered as well as to prepare a tourism master plan for the Fuka-Matrouh area.

17. A short summary of these activities and copies of transparencies used in the presentations are attached as **Annex VI** to this report.

Agenda Item 3.4- Development of environment legislations and institutional framework (MED Unit)

18. Mr. M. El-Gindy and Mr. H. Lutfi (Consultants to MED Unit) introduced this item, presenting the structure, objectives and results of the activity and pointed out problems encountered. The study entitled "A Legal Study of Environmental Legislations relating to the Fuka-Matrouh Area Project" was distributed during the presentation. It was recommended that there is a need for MAP to organise a training seminar on environmental legislations directed to local actors under the direction of Matrouh authorities and in cooperation with EEAA.
19. A short summary of this activity and copy of the presentations are attached as **Annex VII** to this report.

Agenda item 3.5- Protection and management of Specially Protected Areas and Historic Sites (SPA/RAC)

20. Mr. C. Rais, SPA/RAC expert and Mr. M. Ayyad (SPA Consultant) introduced this item, presenting the structure, objectives and results of the activity and pointed out problems encountered.

Four studies were undertaken and presented within the framework of this activity:

- a. The Terrestrial Ecosystems of Fuka-Matrouh Area (Egypt)
Status - protection and Management Measures
By: Mohamed A. Ayyad - 1993
- b. The Marine Ecosystems of Fuka-Matrouh Area (Egypt)
Status of species and habitats
By: Ali I. Beltagy - 1993

- c. Marine Turtles Conservation in the Mediterranean - Marine Turtles in Egypt (Phase I)
Survey of the Mediterranean Coast between Alexandria and El-Salum
By: Max Kasparek - 1993
 - d. Cultural Heritage Sites of the North-Western Coastal of Egypt
By: Feisal A. Esmael - 1995
21. During the discussion that followed the presentations of the studies and in particular on the issue of historic sites, it was recommended by the meeting to **"give more consideration to the historic sites, based on already achieved work by SPA, through the involvement of MAP's Network for Historic Sites located in the Atelier de Patrimoine, of Marseille"**
22. A short summary of this activity and copy of the presentation are attached as **Annex VIII** to this report.

Agenda item 3.6- Soil erosion and desertification (PAP/RAC)

23. Mr. I. Trumbic (PAP/RAC), Mr. F. Abdelkader, Mr. S. Carnicelli, Mr. S. Mustafa and Mr. S. El-Kaffas (Consultants to PAP/RAC) introduced this item, presenting the structure, objectives and results of the activity and pointed out problems encountered.
24. A short summary of this activity and copy of the presentation is attached as **Annex IX** to this report.

Agenda item 3.7- Water resources management study (PAP/RAC)

25. Mr. I. Trumbic introduced very briefly this item during which he pointed out that little has been done in relation to this activity. However, this issue has been tackled by most of other activities within this project.

During the discussion on this issue, the meeting was of the opinion that this issue should be considered by PAP/RAC in more detail due to its importance to the region. The Director of PAP/RAC promised to do so.

26. A short summary of the presentation is attached as **Annex X** to this report.

Agenda item 4- Remote Sensing for assessment of natural resources (ERS/RAC)

27. Mr. M. Raimondi, Director of ERS/RAC and Ms. S. Carnemolla, expert at ERS/RAC, introduced this activity, presenting the structure, objectives and results of the activity and pointed out problems encountered. Moreover, the Director of the ERS/RAC gave the participants a briefing on the structure, objectives and activities of the MAP remote sensing Centre of Palermo (Italy).

28. A document entitled "Assessment of Land Resources supported by Remote Sensing" was distributed during the presentation. The report identifies, in the study area, a system of land Units homogenous as for geomorphology, pedology and vegetation cover.
29. The Director of ERS/RAC expressed his willingness of extending the activities carried out by his Centre in the framework of this activity.
30. A short summary of this activity and copy of the presentations are attached as **Annex XI** to this report.

Agenda item 5- Other business

31. Mr. H.J. Regner, Director of QASER Rural Development project (Governorate of Matrouh), briefed the meeting on the objective and activities of the project. He pointed that the project is an Egyptian and German project which started in 1988 with a three year orientation phase. The project agreement was extended twice since then. The aims of the project were to increase incomes of the rural population in environmentally sound and sustainable ways, with special attention to the support of women and rural poorest population, through the improvement of the use of soil and water resources, increase plant production of fruit trees, cereals and vegetables and increase returns from animal production.
32. The project aims to support the Government's will and efforts for rural development of the entire North-Western coastal zone.
33. A brochure relevant to the project was distributed to all participants.
34. Mr. M. Kandel, Director of Reconstruction and Development Authority for the North-West Coastal Zone - Ministry of Reconstruction, briefed the meeting on the role of his organisation in the implementation of the various international projects in the area (QASR, LUPEM, World Food Programme, World Bank). He expressed his continued readiness to and support for the smooth implementation of the UNEP/MAP CAMP project. At the end of his briefing he suggested that all reports and studies pertaining to the CAMP project be translated into Arabic in order to make better use of them.
35. The meeting took note of the two statements and decided:
 - a. to pursue and strengthen the involvement of local experts in the CAMP project;
 - b. to ensure proper coordination between the CAMP project and the other on-going projects and activities in the area in order to come out with a real added value;

- c. to translate the documents into Arabic.

Agenda item 6- Conclusions and recommendations

36. At the end of the presentation phase, the meeting reviewed and adopted a set of general recommendations addressed to the Egyptian authorities and to UNEP/MAP.
37. The recommendations are attached as **Annex XII** to this report. A list of the main reports and documents related to the project is attached as **Annex XIII** to this report.

Agenda item 7- Closure of the meeting

38. The Chairman of the meeting thanked all participants for their contributions and expressed his appreciation to the local authorities for hosting the meeting in Matrouh.
39. Mr. I. Dharat expressed on behalf of MAP and its regional centres, his thanks and appreciation to all participants for their contributions to the meeting. He also expressed his thanks to the Egyptian Environmental Affairs Agency (EEAA), to the authorities in Matrouh and to the national experts from the University of Alexandria for their continued support, dedication and cooperation.
40. He pointed out that the meeting was able to review various studies and reports and to notice that good progress has been achieved so far in most of the activities within the framework of the Fuka-Matrouh CAMP project. However, certain activities were not progressed to the level of expectation. He expressed the hope that tangible progress would be made in order to complete the whole picture relevant to this project.
41. He pointed out that besides presenting the output of the various activities to the Egyptian authorities, the meeting has achieved another objective by giving the opportunity to MAP officials, international, national and local consultants to meet together and exchange views, information and data and to review progress achieved and problems encountered in the course of preparation of the various studies.
42. He pointed out that it was decided to shorten the duration of the meeting by one day in order to give the opportunity to various MAP officials and consultants to undertake individual consultations in Alexandria and Cairo on the future programme relevant to the project.
43. The Chairman declared the meeting closed on Tuesday, 19 September 1995 at 13.00 hours.

OBITUARY

While finalizing the report of the meeting, the sad and shaking news of the untimely death of **Dr. Nabil El-Fishawi**, Professor of Marine Geology at the Coastal Research Institute of Alexandria and prominent Consultant at UNEP/MAP, was received. Dr. El-Fishawi has been in a honorable duty of serving his Country in the Fuka-Matrouh CAMP project. His sudden death, due to a car accident while returning back from the Matrouh Consultation meeting, was a great loss for his family, the Egyptian Government, UNEP/MAP and all his colleagues.

God bless his soul

ANNEX I
LIST OF PARTICIPANTS

ANNEX I

LIST OF PARTICIPANTS

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Report of the first
Presentation Meeting
of the Fuka-Matrouh
Coastal Area
Management Programme

Matrouh
18-19 September 1995

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ANNEX II
AGENDA

ANNEX II
PROVISIONAL AGENDA

1. Opening of the meeting
2. Coastal Area Management Programme of MAP
3. Presentation of activities carried out in the framework of the Fuka-Matrouh coastal area:
 - 3.1 Systemic and prospective analysis including development-environment scenario for the area (BP/RAC)
 - 3.2 Implication of climatic changes in the coastal area of Fuka-Matrouh (MED UNIT)
 - 3.3 Integrated planning and management study for the coastal area of Fuka-Matrouh (PAP/RAC):
 - 3.3.1 Integrated planning and management study
 - 3.3.2 Geographic Information System (GIS)
 - 3.3.3 Carrying capacity assessment for tourism
 - 3.4 Development of environmental legislation and institutional framework (MED UNIT)
 - 3.5 Protection and management of Specially Protected Areas and Historic Sites (SPA/RAC)
 - 3.6 Soil erosion and desertification (PAP/RAC)
 - 3.7 Water resources management study (PAP/RAC)
4. The remote sensing for the assessment of natural resources in the coastal area of Fuka-Matrouh (ERS/RAC)
5. Other business
6. Conclusion and recommendations
7. Closure of the meeting

ANNEX III

**COASTAL AREA MANAGEMENT PROGRAMME FOR
THE FUKA-MATROUH AREA**



United Nations Environment Programme
Programme des Nations Unies pour l'environnement
Coordinating Unit for the Mediterranean Action Plan
Unité de coordination du Plan d'Action pour la Méditerranée

STATEMENT BY MR. IBRAHIM DHARAT
Senior Programme Officer

to the

FIRST PRESENTATION MEETING

MAP COASTAL AREA MANAGEMENT PROGRAMME FOR THE
COASTAL AREA OF FUKAH-MATROUH

Matrouh, 18-19 September 1995

Mr. Chairman, Ladies and Gentlemen,

First of all allow me to avail myself of this opportunity to welcome all of you on behalf of Ms. Elizabeth Dowdeswell, the Executive Director of UNEP and Mr. Lucien Chabason, Coordinator of the Mediterranean Action Plan (MAP) who due to unexpected event was not able to participate in this meeting.

May I also express on behalf of UNEP/MAP our gratitude to the Egyptian Environmental Affairs Agency (EEAA) represented here by its Chief Executive Officer, Mr. Salah Hafez and to the Governorate of Matrouh, represented by Mr. Zahir Abdelrahman, the Governor of Matrouh Governorate for hosting and organizing this meeting.

Before I deliver my brief introductory statement let me, Mr. Chairman, express my personal heart feelings not only as the Coordinator of the Fuka-Matrouh Coastal Area Management Programme (CAMP) but also as a Libyan citizen who was born, educated and spent a good part of his life in this beautiful city. This occasion gives me great pleasure and satisfaction.

Mr. Chairman,

During the first decade of the Mediterranean Action Plan (MAP), it was recognized that the bulk of MAP's activities has been focused on the monitoring of the state of the sea and interventions aimed at improving the state of the natural system. The emerging understanding that the sources of pollution are mostly (80%) land - based and the necessity for the harmonization of regional and global development with the reception capacity of the environment, which calls for a permanent process of integrated planning, as well as for a rational management of the limited resources available in the region, has led to the refocusing of MAP on activities carried out in coastal zones.

The refocusing of all MAP activities, within the framework of the Coastal Areas Management Programme (CAMP) launched in 1989, is viewed as the most concrete phase of Mediterranean cooperation.

Within this programme, the problems of environment and development are dealt with in an integrated way, i.e. a coastal area is approached from all its aspects and their mutual interdependence. Up to now twelve Coastal Areas Management Programme were selected in cooperation with the Mediterranean Coastal States. The Fuka-Matrouh project is one of these twelve projects. The philosophy behind these coastal projects is to help the states define, or redefine, the development of problem areas while respecting the environment; mobilize towards this end national investments and promote greater international cooperation. The financial interventions of the World Bank, and the European Investment Bank in other CAMP projects is a clear example.

With regard to the Fuka-Matrouh CAMP, the general strategy is based on the principle of sustainable development and integrated planning and management of coastal

resources. The thirteen activities which were embodied in the Agreement signed with the Egyptian Government should lead to the preparation of an environmental management plan, integrating all knowledge gained through individual actions, with an objective of protecting, rationally utilize and ensure sustainable management of natural coastal and marine resources, over a relatively long period of time and resolving the existing environmental conflicts and setting up the optimum paths of the future dynamic development, by integrating the environment in social and economic development and land-use policies.

The project is expected to provide the following benefits:

- **improve** the state of environment of the area;
- **protect** nature and protect and enhance sites and landscapes of ecological or cultural value;
- **incorporate** environmental considerations into development planning activities and decision-making process;
- **enhance** national and local capacities in solving various development and environmental problems (you will note from the forthcoming presentations that various training courses were organized for national and local experts);
- **transfer** of knowledge from developed countries, and relevant international organisations to the national and local institutions; and
- **create** conditions for responding to some accidental situations.

Mr. Chairman,

I do not want to continue further on this introductory statement, the outputs of the project will be presented in a final Presentation Conference to be convened in this city during June/July 1996. However, it is also envisaged that two or three important activities need to be followed up through adequate financial support of relevant international financial institutions or programmes.

During the three days of this meeting you will hear in more detail the progress achieved and problems encountered in each of the activities of the project through the various presentations by my colleagues from MAP system and from the national and local consultants. In this occasion allow me to extend my thanks and appreciation to all of them for their dedication and cooperation.

By the end of these three days we envisage to consider few preliminary recommendations to be submitted to the Egyptian side.

As for the coming period, it is expected that all activities would be completed by May 1996, with the submission of the final report.

Thank you Mr. Chairman, Ladies and Gentlement for your attention.

ANNEX IV

**SYSTEMIC AND PROSPECTIVE ANALYSIS INCLUDING
DEVELOPMENT-ENVIRONMENT SCENARIO FOR THE AREA**



PLAN D'ACTION POUR LA MÉDITERRANÉE
MEDITERRANEAN ACTION PLAN
CENTRE D'ACTIVITÉS RÉGIONALES DU PLAN BLEU
BLUE PLAN REGIONAL ACTIVITY CENTRE



FUKA-MATRUH CAMP

FIRST PRESENTATION AND CONSULTATION MEETING

BP/RAC CONTRIBUTION:

***SYSTEMIC AND PROSPECTIVE ANALYSIS
INCLUDING DEVELOPMENT/ENVIRONMENT SCENARIOS***

by: A. Hoballah, BP Team Leader
Prof.M. Ayyad, Consultant
Dr. K. Fahmi, Consultant
Dr. W. Gamaleldin, Consultant

**MATRUH
SEPTEMBER 1995**

FUKA-MATRUH CAMP
FIRST PRESENTATION AND CONSULTATION MEETING

*BP/RAC CONTRIBUTION:
SYSTEMIC AND PROSPECTIVE ANALYSIS
INCLUDING DEVELOPMENT/ENVIRONMENT SCENARIOS*

Considering the nature of our activity, and mainly the fact that we need to have the opinion of concerned decision-makers before making our results public, if the study is properly made, my presentation will go through some specific background concepts and methodology, then organisation and progress of the work and finally some questions for scenarios.

BACKGROUND

BP/RAC elaborates frameworks that show the interactive relationships between environment and development within and between countries of the Mediterranean basin. These frameworks are expected to make available for national and local authorities, as well as for decision-makers and planners, useful information that will assist them in the preparation and implementation of an environmentally sound development.

To build up these frameworks, BP/RAC applies the systemic and prospective approach, one of its outputs being scenarios. The results are an analytical combination of major dimensions (demography, international/regional context, development strategies,), main economic sectors (agriculture, tourisme, transport,) and key environmental components (soil, water, coast,). A coherent and realistic set of evolution hypothesis draws the path for the elaboration of scenarios over a period of 30-50 years. Deliberately contrasted, the scenarios are important tools for thought, dialogue and action.

The systemic and prospective methods, tools and products are mainly intended to assist local and national decision-makers in:

- better understanding the development/environment relationships,
- identifying key actors, actual and potential.
- identifying conflicting zones for use and management of resources, and potential/critical breaking points,
- identifying evolutions and trends, and
- drawing down future imagies for a sector and a region.

Considering the large scope of its analysis that would have to go through social. political and institutional questions. this exercise presupposes and requires a clear and resolute commitment from concerned authorities and should involve a multidisciplinary team of experts.

CONCEPTS AND METHODOLOGY

T1

Basically, the Blue Plan approach is structured on population, human activities, exploitation of resources and environment. Therefore, it takes into consideration the whole system of the bio-, socio- and techno-spheres, going through each of these sub-systems, looking at the interactions from one to another and analysing the impacts, feedback and looping effects, mainly related to depletion/degradation of resources.

T2

The system, to be considered for study and analysis, and in our case to analyse relationships between economic development and environmental impacts, is in fact an intellectual construction for a given purpose and constituted of chosen elements in dynamic interaction.

T3, T4, T5

The usefulness of a systemic and prospective approach depends upon the clear answer to the questions "for whom" and "why". This is not as easy as it may appear mainly when considering the interest evolution and the actors changing during the study period. Usually, the system's understanding is structured upon mapping outlines, relevant internal/external and influential/dependant parameters or variables, and major actors, all combined through a structural analysis so as to identify the most determinant parameters, the constraints, trends and processes. Then a relevant set of parameters' evolution hypothesis is worked out with concerned actors and experts before imagining a certain number of scenarios.

T6


Many scenarios could be elaborated but prerequisites of clearness, simplicity, probability, consistency, relevance, adequacy, practicability and usefulness have limited the study to five scenarios at the mediterranean level. For our region of Fuka-Matruh, three scenarios will be proposed: a reference/continuation trend one, an improved trend one and an alternative/sustainable development one.

For our study, the geographic reference unit is the Governorate of Matruh and not the limited project area eventhough this area will have to be considered when and where appropriate.

The difficulties facing the systemic and prospective approach are:


- clear objective with the necessary institutional support,
- constitution of a multidisciplinary team,
- identification of the system and sub-systems,
- selection of most pertinent parameters,
- identification of key actors and their strategies and "game",
- evolution hypothesis and their coherence,
- acceptance of future images as a planning and decision-making reference framework.

ORGANISATION AND PROGRESS



The Blue Plan team in charge of this activity is composed of three partners: an international consultant from Turkey (Prof. Aruoba) familiar with BP approach, a pluridisciplinary team of Egyptian experts (under the coordination of Prof. Ayyad and Dr. Fahmi) and BP experts.

After the launching mission in April 1993, we made two missions to Egypt (December 1993 and November 1994), mainly to Cairo where most of the key actors and the decision-making process are concentrated. We had interesting discussions with concerned persons from international, national and regional institutions (UNDP, WB, EC, USAID, CEDARE, EEAA, ETA, WRC, NWCDA,), and very knowledgeable persons such as Prof. M. Kassas and Dr. A. Bishay.



The combination of several factors, probably foreseeable from the beginning, have caused tremendous delay in the achievement of this activity. All directly concerned partners share responsibility in such a delay, with specific doses of time, availability, coordination, money, interest and willingness.

For the time being, three sets of reports were prepared:

1. Data and knowledge required for the CAMP, by Prof. M. Ayyad
2. Systemic and prospective analysis, national and regional, by Prof. C. Aruoba
3. Framework for trend and alternative scenarios, by Prof. C. Aruoba
4. Highlights on environmental problems and management, by Dr. K. Fahmi
5. Economic overview with reference to restructuring and adjustment, by Dr. W. Gamaldin
6. Economic future of the NW Coast, by Dr. O. El Hakim

Reports 1, 2 and 3 are more or less final; report 3 will be completed soon by an actors' game analysis and a more detailed scenarios description. Reports 4 to 6 have not yet been reviewed (just received). A 7th report on impacts on environment (from the previous reports' analysis) is under preparation.

All these reports will then need to be "combined" in order to have a proper understanding of the Egyptian and Regional (Matruh) systems, to identify a set of relevant and pertinent parameters, to identify a coherent set of hypothesis and to propose realistic (frameworks for) trend and alternative scenarios.

PRELIMINARY FRAMEWORK FOR HYPOTHESIS AND SCENARIOS

Major environment problems are:

- active soil erosion,
- loss of natural vegetation,
- wind erosion,
- water erosion,
- groundwater pollution,
- pollution of coastal waters,
- loss of natural landscape,
- destruction of limestone ridges, and
- eventually the impact of the planned nuclear energy plant for water desalinisation.

The future of the Matruh region will depend upon:

- nature and importance of settlement of bedouin population,
 - attraction of other national population,
 - development of tourism,
 - development of agriculture,
 - infrastructure and communication network,
- and also.
- relations with Lybia,
 - availability, quantity and quality of water,
 - impacts of major national restructuring and adjustment programs.

However, any development for this region will have to take into consideration:

- the limited comparative advantage for coastal international tourism,

- the increasing demand for national coastal tourism,
- the non availability of reliable sources of water,
- the relative soil infertility and vulnerability to erosion,
- the remnants of the second world war, and
- the institutional and administrative organization.

Major points or questions of interest are the following (not in order of importance):

- what increase of population is probable, possible and realistic,
- what is the Matruh Governorate environment carrying capacity, mainly from the points of view of water and soil regarding population, agriculture and tourism,
- what reasonable quantity of water could be made available from the different sources, that could satisfy increasing demand of population and economic activities,
- what are the fishing potentialities and sheep breeding for local consumption and exports,
- does an important port in Matruh present a comparative advantage to the ones of Port-Said, Alexandria and Benghazi,
- what are the opportunities and comparative advantages for transit, services and industrial activities,
- what would be the impact of the two irrigation canals diverting water from the Nile, in the north from Borg Al Arab to Daba'a and in the south to Rahah Al Nassiri where a huge sugar beat project is planned,
- could the water from Siwa Oasis and Qattara Depression be used for other purposes in the region,
- what the prospects for and impacts of oil and gas in the region,
- what would be the environmental impact of the destruction of the limestone ridges, in addition to dust pollution,
- to what extent can the January 1994 Law (forbidding any construction up to 200 m from the coastline) be implemented and ^{would} what be the impact on investments on secondary houses and tourism resorts.

For the scenarios preparation, discussions will be engaged with national, regional and local actors and decision-makers, individually and in multidisciplinary groups so as to confront theirs views and analysis, in order to come out with a realistic future image for the region.

These discussions will cover the previous questions, the selection of the most determinant parameters and the hypothesis that would be considered for the major dimensions 'population, national development

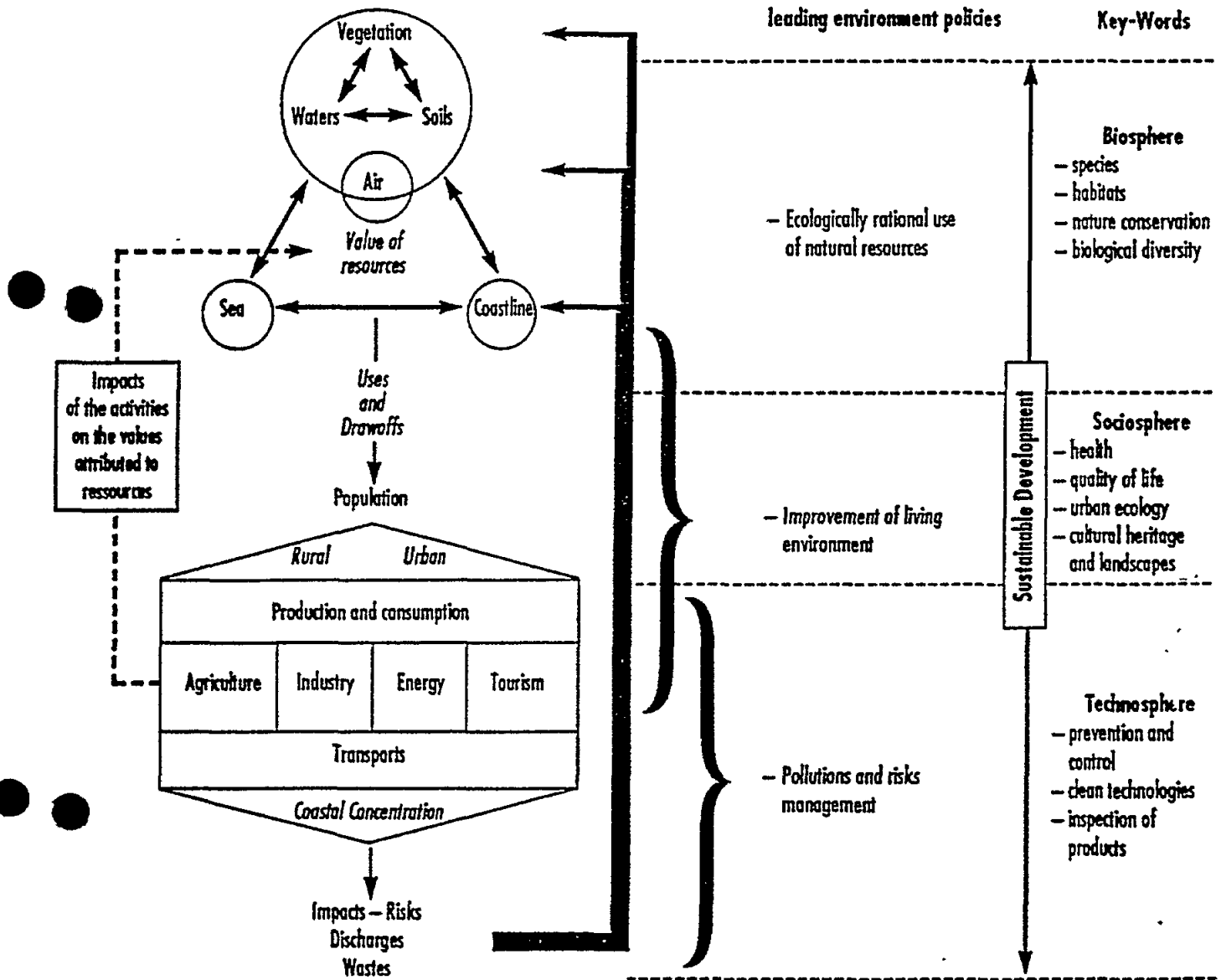
strategies, international economic and political context, land use management and environmental considerations)

FOLLOW-UP

The knowledge of the system is near to completion. A synthetic and analytical combination is missing. A preliminary identification of hypothesis and prospective images has been made by international consultants; review and completion will be done soon by Egyptian experts in coordination with Prof. Ayyad, Dr. Fahmi and EEAA responsables. Hopefully, trend and alternative scenarios will be represented graphically, using GIS. Finally, a debate seminar involving concerned actors, decision-makers and experts will be organized early 1995, so as to finalize this study, in any case, before May 1996.

A. Hoballah
BP/RAC Deputy Director

Relationships between environmental components and development activities ↔ Field of sustainable development



T 2

SYSTEM

AN INTELLECTUAL CONSTRUCTION
FOR A GIVEN PURPOSE AND CONSTITUTED OF
CHOSEN ELEMENTS IN
DYNAMIC INTERACTION

IN RELATION WITH PURPOSE

(IN OUR CASE TO ANALYSE RELATIONSHIPS
BETWEEN ECONOMIC DEVELOPMENT
AND ENVIRONMENTAL IMPACTS)

RELEVANT ELEMENTS ARE SELECTED AS

- KEY DIMENSIONS
- MAJOR ECONOMIC SECTORS
- MAIN ENVIRONMENT COMPONENTS

SYSTEMIC AND PROSPECTIVE ANALYSIS-SCENARIOS ELABORATION

OBJECT: CLEAR, FOR WHOM - WHY

SYSTEM UNDERSTANDING

MAPPING - VARIABLES - ACTORS/DECISION MAKERS

CONSTRAINTS - TRENDS - PROCESSES

PROSPECTIVE

HYPOTHESIS

DEVELOPMENT PATHS

CONFLICT ZONES AND BREAKING POINTS

FUTURE IMAGES - SCENARIOS

BLUE PLAN EXERCISE WAS BUILT ON:

T4

FIVE DIMENSIONS

INTERNATIONAL ECONOMIC CONTEXT
DEMOGRAPHY-POPULATIONS
NATIONAL DEVELOPMENT STRATEGIES
SPATIAL MANAGEMENT (LAND-USE,...)
CONSIDERATION OF THE ENVIRONMENT

FIVE SECTORS OF ACTIVITY

AGRICULTURE
INDUSTRY
ENERGY
TOURISM
TRANSPORT
(URBANIZATION - LITTORALIZATION)

FIVE ENVIRONMENTAL COMPONENTS

SOIL
WATER RESOURCES
FOREST
COASTLINE
SEA

FOUR LEVELS

GLOBAL-MEDITERRANEAN
NATIONAL
REGIONAL
LOCAL-COASTAL

SCENARIOS

T 5

STARTING POINT (RESULT OF KNOWLEDGE OF SYSTEM)

ASSUMPTIONS (CLEARLY STATED)

POSSIBLE PATHS (WITH CRITICAL POINTS AND DECISIONS)

● ● FINAL POSSIBLE IMAGES OR SITUATIONS

SCENARIOS MUST BE :

CLEAR / TRANSPARENT IN ORDER TO BE UNDERSTOOD BY ALL

PROBABLE WHICH DOES NOT EXCLUDE HAZARDS

● ● CONSISTENT BOTH INTERNALLY AMONG THEMSELVES AND AT ALL LEVELS

RELEVANT IN TERMS OF THE DESIRED OBJECTIVES AND

ADEQUATE i.e. SUFFICIENTLY LARGE IN NUMBER TO COVER A WIDE RANGE OF POSSIBLE FUTURES (

A SET OF SCENARIOS) BUT NOT SO MANY AS TO BE REDUNDANT OR PRODUCE MORE COMBINATIONS THAN CAN BE HANDLED.

BLUE PLAN SCENARIOS

TREND SCENARIOS

- T1 REFERENCE, CONTINUATION OF OBSERVED TRENDS
- T2 RECESSION, WEAK GROWTH AND NO POLICY CO-ORDINATION BETWEEN WORLD LEADERS
- T3 IMPROVEMENT, SUSTAINED GROWTH AND BETTER CO-ORDINATION OF POLICIES

TREND SCENARIOS ARE GENERALLY COSTLY FOR THE ENVIRONMENT

ALTERNATIVE SCENARIOS

- A1 MEDITERRANEAN, CO-OPERATION BETWEEN EUROPE AND SEMC, EEC DRIVING FORCE
- A2 REGIONAL, GROUPING OF SEMC AND STRENGTHENING OF CO-OPERATION

ENVIRONMENT AND LAND-USE POLICIES ARE BETTER INTERNALIZED IN PLANNING AND DECISION-MAKING PROCESS



PLAN D'ACTION POUR LA MÉDITERRANÉE
MEDITERRANEAN ACTION PLAN
CENTRE D'ACTIVITÉS RÉGIONALES DU PLAN BLEU
BLUE PLAN REGIONAL ACTIVITY CENTRE



**A Contribution to Fuka-Matruh
Coastal Area Management Programme**

**A Framework for Accumulating
Consequential Data and Knowledge**

by

**Professor Mohamed A. Ayyad
Consultant**

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May 1995

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CHAPTER VIII

DEVELOPMENT IN THE SOCIAL AND POLITICAL PERSPECTIVE

The evaluation of the impact of development on different social strata is extremely important. According to this impact, definable interests of each stratum could be defined. This relation, or rather reaction to the development process as an external motive will no doubt vary according to cultural and economic standards of the Bedouin population. In general, most Bedouin are hesitant to accept development projects for fear that the increasing immigration from the Nile Valley and Delta into the region could create a situation where the lands could be sold. In addition to a high rate of illiteracy, they realize that they are weak competitors on the labor market because of their limited experience confined mainly to sheep breeding and traditional agriculture.

In fact, the Bedouin population should be the prime beneficiaries of the development process that should in the first place undertake upgrading of their living standards, and secure their settlement in the area. In this respect the following remarks are to be taken into consideration while planning for development:

- Social characteristics should be considered as a base in planning for development.
- Setting up a clear policy for land tenure has a vital role in the settlement of population and also in their participation in development programs.
- Agricultural projects are of prime importance to the population of the region, and therefore, should be a tool to create confidence between the Bedouin and the State represented by the executive organizations and authorities.
- Industrialization of agricultural and animal products executed by local population should be considered as an important sector of development.
- The development process will never achieve its targets without the conscious, active participation of the local citizens, and their full approval of the intent of the authorities undertaking the development and reconstruction programs. They should be convinced that the ultimate goal of the said process is in the interest of the local citizens.
- Bedouin, often have doubts about the way the government will deal with the land tenure system in the area. There is an increasing doubt that land would be taken in a way or another for development projects that have nothing to do with them. Therefore, it becomes necessary to legislate tenure in a way that conforms with the

development programs, and to actively incorporate people in these programs, and to secure confidence between interested parties.

- On account of their day to day living in the desert environment, and their intimate knowledge of the particulars of their environment, the people who work in agriculture and grazing should be actively involved in the discussion and initiation of development projects.
- Some citizens have uninvited capitals. They have achieved optimum rate of return from trade and land speculation. This asset could be used as financial resources for the development projects.

The agriculture and grazing activities are the economic basis of development, therefore, they should take precedence in the region, because these activities are:

- the pole of the socio-economic life in the region, they represent the main sources of income, they engage more than two thirds of the population of the area, and finally, they provide population with the needed food;
- the activities that encourage population to settle in the area, and to show active participation in the development projects;
- the main activities that have enormous development potential due to the specific characteristics of the area;
- the main sectors that have numerous cross relations and interdependence.

Concerning the industrial activities, focusing should be on the manufacture of food, in addition to handicrafts expressing the existing environment. These industries require small space, limited financing, and simple production methods; and they complement the prime activities of agriculture and grazing. The projects of agriculture, grazing and handicrafts should integrate with the tourism activities, which are capital intensive, in the form of a cluster of touristic villages that will have agricultural surrounding, necessary for providing the tourists with food and folkloric souvenirs. Infrastructure projects that serve the different development projects, should be promoted.

The integration between the local, regional and national objectives should be fulfilled in the development programs. The local objectives are: upgrading the standards of living of the citizens of the region by securing a convenient level of services and job opportunities as for example - the lambs production, pasture development, handicrafts, household poultry, land reclamation projects and distributing a considerable share of these projects on small holders and cooperatives.

The choice between development strategies should take place in a clear pattern of defined authorities and parties that will cooperate in the process. Strategy depending basically on public and governmental investments are not expected to be

similar in philosophy, contents or dimensions to that which depends on individual initiative, or that which depends on foreign investment and joint ventures. It is conceivable that the comprehensive development process requires the corporate efforts of all these parties, but they are not expected to be all of the same relative importance in different economic sectors. Therefore, every economic sector will have to define the party that will lead the investment in its domain, a matter which should not limit the capability of the sector to change leadership from time to time according to the phased development of the sector.

The role of women must be carefully considered in the development programs. This role is discussed in some detail by El-Miniawy et al., (1992) in the report of El-Qaser Area Project. They conceive the Bedouin society as strictly patriarchal, and as hierarchical in terms of the privileges granted for age and position in the family. Once a male becomes adult his decisions supersede those of women. However, older women, may have a say in certain matters, but generally men have to approve most decisions, especially those involving outsiders (such as training) and matters of income (such as the undertaking of a new economic activity in the household). As women are responsible for the daily running activities of the household including the preparation of food, the making of carpets, and sometimes cultivating small patches of vegetables and breeding poultry, they are, at least, indirectly responsible for significant positions of the in-kind income of the family. Their contribution to cash income is, however, minimal. Older women in particular, have privileges in mobility and decision-making that are not normally given to younger women. For instance, an older woman, particularly the Sheika (wife of the head of household) can travel to Marsa Matrouh, is allowed to converse with men and can participate in some decision-making. In some instances, especially due to the death of the head, the Sheika may run the household.

CHAPTER IX

ENVIRONMENTAL PROTECTION AND CONSERVATION OF NATURAL RESOURCES

Marine Pollution

There are several sources of marine pollution in the western Mediterranean coastal region of Egypt: (a) off-shore oil exploration and exploitation, (b) oil resulting from shipping, and (c) harbour pollution from ships, shipyards and port facilities and traffic. Cities, mainly Marsa Matrouh do not discharge liquid effluent (mainly sewage) in the sea, but in sandy layers which absorb the in-flow.

Matrouh is one of the Governorates responsible for combating coastal pollution in the Mediterranean sea by supervising the industrial, commercial and housing activities which have direct effects on the quantities of organic liquid and solid waste loads discharged into the sea. Besides, the Governorate supports projects for protection against coastal erosion, and cleaning the beaches by getting rid of the solid wastes and oil pillets coming from the sea, as well as dead algae and other marine biota. The Ministry of Health is responsible for monitoring the degree of safety of coastal water especially during summer by examining water samples in its laboratories. Besides, the Ministry of Health samples fish and other sea food biota for analysis to make sure that they are safe for human consumption. The El-Alamain Port is used mainly by WEBCO Petroleum Company. But due to limited output (7000 b/day) of these fields, the activity of this port is low. The port is equipped with facilities for water treatment for separating the oil and discharging the treated water in the nearby depression.

Information about the levels of coastal pollution is scarce. There is no continuous monitoring plan, and therefore it is difficult to evaluate the situation. Nevertheless, there are some studies that might give useful indications. For example, samples were collected of oil pollutants in the beaches along the coast from Alexandria to Marsa Matrouh in 1974, by the National Research Council. It was found that most samples were affected by the climate, which indicates that they had reached the beach after a considerable time after they were discharged to the sea. Oil establishments always take the necessary precautions to avoid pollution as far as possible. But, in fact

it is not only the matter of having the facilities to do this, but also the good management needed for high efficiency of using them.

Air and Soil Pollution

Air and soil pollution in Matrouh Governorate has been trivial, as there has been no major polluting plants in the region, and the use of pesticides and fertilizers in the soil has been limited. However, two activities which started recently and that may cause pollution, particularly in the eastern part of the Governorate (from El-Hammam to Fuka) need to be assessed. The huge amounts of dust generated from the quarrying of limestone ridges for brick making, and the use of pesticides and fertilizers in irrigated agriculture with the extension of El-Nasr canal.

Land Degradation and Species Impoverishment

There are direct and indirect causes for ecosystem degradation and species impoverishment in the western Mediterranean region of Egypt. The direct causes are related mainly to the ways in which man has used and misused the natural resources of the region since its early history. It is known that the region has a more favorable moisture regime and a better biological potentiality than most of the Egyptian deserts. But the continued uncontrolled woodcutting, overgrazing and rainfed farming for cultivation of annual crops have dominated the region for many centuries. The net result has been the reduction of vegetation cover and the impoverishment of flora and fauna. This process has gone at a quicker pace in the nineteenth and twentieth centuries.

More recent land-use activities are even more devastating. Intensive irrigated agriculture which was started some twenty years ago in Burg El-Arab area, is to be extended further. The area between Marsa Matrouh and Salloum, witnessed during the last few years extensive clearing of natural vegetation for rain-fed cultivation of wheat, an activity which will have a very serious impact not only on the existing biota, but also on any future possibility for reversing the process of land degradation that has already started to take place. Other activities are taking place, which have more local effects on the vegetation of the region. For example, the obliteration of the limestone ridges for making bricks is endangering many chasmophytic species as well as diminishing the possibility of water-harvesting, and the occupation of large areas of the coastal dunes by summer resorts is endangering many psammophytic species. Environmental hazards caused by summer resorts can be summarized in the following points:

- Resorts are obstructing the view.
- Resorts are busy only during summer.

- No facilities for yearround accommodation.
- Shore erosion due to shoreline alternation.
- Degradation of sand dune to the booming touristic resorts and villages.
- Oil and garbage pollution of the coast.
- Pollution of the valuable ground water layer under the sand dunes due to wastewater seepage from the touristic resorts.
- Potential coastal water pollution due to the disposal of sewage and soil wastes.

Conceivably, beside the obvious deleterious effects of these activities on the floristic components of the ecosystem, these effects will extend to the fauna and the microbiota. Besides, the obliteration and fragmentation of habitats will have serious impacts on the process of speculation in the long run.

Restoration and Development of Rangeland

The causes of degradation of arid rangeland in the Mediterranean coastal region of Egypt, are mixes of environmental, socio-economic and socio-political effects. Therefore, remedies must be diverse and have to be tailored to the problems and needs of the inhabitants. At present, there is no range management policy for the region. Plans for grazing management in the past did not achieve their objectives, apparently due to: (a) lack of in-depth consultation with people directly affected by the plans and the reasons for the changes. The people felt the plans were developed and imposed on them from the outside. (b) Lack of genuine government support for the plans due to political pressures or to lack of appreciation and/or understanding of the problems facing the rangeland of the region. For example, there was no range management section and no staff was allocated specifically to supervise the implementation of these plans.

Three main lines may be suggested for the initiation of a long-term strategy for the restoration and development of degraded rangelands in Matrouh Governorate. Activities along these lines should be directed towards providing demonstration pilot experiments for application on a larger scale by decision-makers and land-users as a long-term strategy. The following are the three main lines of activities: (a) establishment of demonstration pilot areas for protection and controlled grazing in each of the main habitats and biotic communities; (b) initiation of a cooperative system for grazing management between the main social sectors (tribes); (c) formation of an extensive program for range improvement by the propagation of multipurpose species (mainly native species, but also a limited number of introduced drought resistant species); (d) Establishment of nature reserves.

It is necessary that the decision-makers and land-users participate in the planning and execution of the activities along these three lines, and that extension services and incentives be ensured in order to encourage their participation.

(a) Pilot Areas for Protection and Controlled Grazing:

Degraded land can simply be removed from utilization in demonstration pilot areas (grazing or cropping), completely or partially, and allowed to recover for adequate periods. The assignment of protected areas must be made in the first place, in agreement with the local inhabitants. The following plan may be suggested in order that the full advantages of protection may be achieved:

- (1) The objectives of establishment of areas for protection and controlled grazing are:
 - (a) demonstration of the merits of protection and controlled grazing to the inhabitants, in order to enhance the feasibility of a cooperative system of shifting or deferred grazing between tribes, (b) regeneration possibility for a seed reserve that could be useful for collection of seeds and propagules for propagation of species, and (c) furnishing the possibility for study of changes with time of ecosystem components (plants, soil, animals, microorganisms), population dynamics of species, and ecosystem functions.
- (2) One or more areas may be selected in each of the main habitats and biotic communities. It is to be decided in due time during protection whether full protection can be continued for some years, or an appropriate degree of controlled land-use should be decided at an early stage. The plot may be divided into a few sectors. One to be completely protected, and the other to be used for controlled grazing, in order to decide which would be better for a long-term strategy: controlled or deferred grazing.
- (3) An agreement then should be made with the inhabitants for selection of the protected area, and for the compensation or the incentives they may receive in return for removing the area from utilization.

(b) Cooperative System for Grazing Management

The idea of initiating a system for cooperative grazing management in the rangelands should be explored with the heads of tribes. It is important that the inhabitants be convinced to establish such system and that the initiative comes from them. Such system would be based on grazing demarkated areas of range. Families in the cooperative are to be granted a license to graze a certain number of sheep for a specified period of time within the assigned area.

Although the ownership of most areas of rangeland rests with the government, traditional tribal territories are well known. The traditional tribal system of sanctions

and rewards appears to be still effective in organizing and resolving the problem of resource allocations among families belonging to the same tribe or to different tribes. It involves demarcating the site using strips of barley plantations and spreading the word among the other breeders that the area is preserved for use in late spring and summer. On the other hand, there is no organization charged with the task of range administration, management, or extension. While there are adequate institutions and facilities for training in the areas of plant taxonomy, phytosociology and range ecology, virtually no range management and administration training institutions exist in the country. It is unfortunate, however, that at present there are no technically qualified range management practitioners to apply the results of the extensive research accumulated over the past 30 years. It is unfortunate, also, that virtually no coordination (financial or technical) is taking place among the researchers from the different organizations.

Grazing control could be achieved by dividing the zone into a number of grazing cooperatives on the basis of the traditional territories. Each cooperative would manage its own territory under the technical supervision of a "Rangeland Agency". The Rangeland Agency will explain to the users the reasons for the management scheme and will solicit their input into the plan, e.g. application of the traditional tribal system of rewards and sanctions in range management. The agency will assist the coops in formulating the details of the management plan (e.g. providing grazing capacity estimates, determining the boundaries of the grazing cooperatives). The agency will also assist in the future evaluation of rangeland condition. It is believed that the active participation of the users is the key to the success of the management plan. At first "a model" grazing cooperative should be established in an area where least resistance to grazing control is expected.

In addition the present system of universal, government subsidized, concentrated feed distribution has undoubtedly contributed to the present deterioration of rangeland, and should be stopped immediately and replaced with a system designed to aid in the efforts to conserve the rangeland resources. Subsidized feed distribution could be tied to the participation in the grazing cooperatives and possibly, to range improvement practices (e.g. forage plantation). The grazing cooperatives will implement range improvement measures within their respective territories with technical assistance from the Rangeland Agency.

It is proposed that range plants seed production cooperatives be established to supply the necessary seeds and transplants for range improvement. The Rangeland Agency is to assist in the establishment of nurseries through providing technical assistance and possibly through securing initial seed supply and necessary land.

The proposed rangeland agency would have the authority to restrict barley cultivation in areas judged to be sensitive to erosion or marginal for barley production. The agency, at the same time, will assist the grazing cooperatives in implementing measures aiming at improving barley yield and forage production from barley fields (e.g. use of self-seedling legumes such as subterranean clover, medics and vetches).

The increase in the number of water points in the northern part of this region has contributed to the degradation of rangeland. The decision to clear or build new cisterns for animal use should be made by the proposed "Rangeland Agency" after consideration of range condition.

Success of the proposed system for grazing management is related to close attention to timing of grazing to match the seasonal and annual changes in there productivity of forage plants, to ensure that animals graze plants at their most nutritious stage, favors plants regeneration, and protect vegetation cover that bind the topsoil

The possibility for establishing some form of such cooperative system may seem extremely difficult to formulate and apply within the present sociopolitical structure, and in view of the absence of secure land tenure, as well as the modesty of extension services and incentives. But the idea itself deserves due attention and trial as a basis for a long-term policy for restoration and management of rangelands in the Mediterranean region of Egypt at large.

(c) Propagation of Multipurpose Species

Perhaps this is the most important practical and applicable line of activity to restore and develop the degraded rangelands in Matrouh Governorate. It is conceivable that the present land degradation in the region is the direct and immediate result of overgrazing, mechanical removal and uprooting of the woody plants together with ploughing out the herbaceous species. Therefore, beside protection and management of grazing through a cooperative system, it is of great importance that an extensive program be formulated and executed for the propagation of multipurpose species, (woody species in the first place, but also herbaceous species of grazing and other values), and essentially native species. (but also a few introduced multipurpose drought resistant species). The major objectives are to meet the basic needs of inhabitants for feed and fuel, and to release the over-utilization pressure on vegetation and soil.

Many high-ranking government officials perceive artificial reseeding as the only realistic large-scale measure to solve the problems of rangeland overgrazing and deterioration in the region. In other words, they view artificial reseeding as an

alternative to proper management. This attitude is extremely dangerous and could lead to wasting funds and efforts.

Artificial reseeding of introduced species cannot substitute for proper range management. In fact, open management is an essential prerequisite for the establishment and maintenance of a successful stand of an artificially seeded range. Without proper management, the introduced vegetation will disappear, even at a faster rate than the original vegetation which evolved over thousands of years under the harsh climatic and misuse conditions.

Range improvement through artificial reseeding in this region has been shown to be possible only in selected sites with favorable soil characteristics and additional soil moisture supply (e.g. overflow). The total area suitable for reseeding represents only 9% of the total area of rangeland, and most of that area is currently used for barley and horticulture crop production.

The average annual precipitation is too low to allow for successful reseeding using the currently available technology. A minimum of 250 mm of annual precipitation would be needed for effective and cost effective artificial reseeding.

Most of the species recommended for artificial revegetation require extensive preparation for successful establishment. This would result in the destruction of what is remaining of the highly adapted original vegetation and will render the soil more susceptible to erosion forces.

This however, does not mean that artificial revegetation with introduced species should be totally excluded as one of the means of range improvement. It was intended, however, to emphasize the limitations and requirement for that type of range improvement and put it in perspective for regional planning purposes. Artificial regeneration may be possible in specific sites: (a) Non-saline depressions and wadis with medium textured soils, receiving additional moisture from runoff water. These are found mainly in the coastal plain and in the wadis. The most promising species for such areas are *Oryzopsis milliacea*, *Phalaris tuberosa*, *Dactylis glomerata* var. *hispanica*, *Agropyron elongatum*, *Poterium sanguisorba* and *Atriplex numilaria*. Water conservation measures would improve the probability of successful establishment. Such measure may include waterspreading, contour furrowing, or small basins (e.g. 2 x 4 m in area. 5-10 cm in depth). (b) Deep sandy sites. These are found mainly in the Sidi Barrani and Dabaa regions. The main adapted species here are of the perennial grasses where surface stability is a problem. There are many methods available for this purpose, such as using mulch and polymers, and establishment of windbreaks using any plant material or residues that are locally available (e.g. common reed *Phragmytis communis*) is quite effective.

The main premises that should govern such program are:

- a) Promotion of the idea should be both at the level of the decision-makers, and at the level of land-users.
- b) Propagation of species should be carried out with the minimal disturbance of the natural system, (e.g. no eradication of natural vegetation except in the narrow stripes prepared for cultivation).
- c) Full participation of inhabitants at all stages of the program. Local groups can be selected, supervised and organized to execute the program.
- d) At the start, limited experiments should be carried out in pilot areas in cooperation with local families, in order to demonstrate the merits of the program.

The program should be centered around the following main items: (a) Seed collection; (b) establishment of seed banks; (c) established of nurseries; and (d) demonstration field experiments.

(d) Establishment of Nature Reserves

Another possible approach to range improvement beside artificial revegetation is natural recovery in nature reserves. Natural recovery involves manipulation of animal numbers and distribution in such a way that the vegetation, particularly the desirable species, is given the opportunity to retain its vigor and abundance and to restore its productive capacity. This procedure does not necessarily require complete protection from grazing during the recovery period. In fact, complete protection from grazing may slow down the recovery process. Downward adjustment of animal numbers is the initial and most important step. Animal numbers can then be gradually increased as range condition improves, to the appropriate carrying capacity. The process may be slow and may not be possible in areas where serious deterioration in vegetation and soil conditions has taken place. In most areas, however, this is the only avenue available for improvement because site and climatic conditions do not allow successful and cost effective artificial revegetation. Water conservation (e.g. contour furrowing, water spreading) in the appropriate sites would speed the rate of recovery and increase the productive capacity of the range.

Beside the objective of natural recovery of defrauded vegetation, it is conceivable that nature reserves would achieve several other important objectives, especially if these reserves have the configuration of "Biosphere Reserves" of UNESCO Man and Biosphere Program. Biosphere reserves differ from most conventional types of protected areas in so far as they have multiple functions (UNESCO, 1993). These are essentially the integration of the needs of people with nature conservation (protection of genetic resources, species and ecosystems) with the objective of promoting sustainable development and associated cultural values, and

providing a logistic tool for testing land-use problems through interdisciplinary research and monitoring. Thus, biosphere reserves must, at least to some extent, address itself to all these basic concerns and their synergistic combination (Batisse, 1990). On this basis, the biosphere reserve must have a pattern that fulfills these objectives. The simplest pattern consists of a "core area" devoted to more or less "strict" protection, surrounded by a delineated "buffer zone" where only activities compatible with the conservation objectives can take place, and this in turn surrounded by a more or less defined "transition area" where cooperation with the population and sustainable resource management can be developed. In reality this pattern of zonation is bound to be more complex in many cases where cluster of core areas and buffer zones may be needed.



PLAN D'ACTION POUR LA MÉDITERRANÉE
MEDITERRANEAN ACTION PLAN
CENTRE D'ACTIVITÉS RÉGIONALES DU PLAN BLEU
BLUE PLAN REGIONAL ACTIVITY CENTRE



**A contribution to
Fuka-Matruh Coastal Area
Management Programme**

**Systemic and Prospective Analysis
for an
Environment Friendly Management**

Report I : Systemic and Prospective Analysis of National Socio-Economic
Structure and Northwestern Coastal Region of Egypt

and

Report II : The framework of Northwestern Coastal Region Trend and
Alternative Scenarios

by

**Professor Çelik Aruoba
Consultant**

DRAFT

June 1995

HYPOTHESES FOR DEVELOPMENT/ENVIRONMENT SCENARIO
FOR NORTHWESTERN COASTAL REGION OF EGYPT

TABLE I

I. POPULATION DIMENSION

HYPOTHESIS	TREND SCENARIO	ALTERNATIVE SCENARIO
<u>Populations:</u>	Present growth trends will prevail both in Egypt and Matrouh	Growth rates will reduce in accordance with Government policy Higher growth rates in Matrouh
<u>Urbanization</u>	Rapid growth of Matrouh City	Slowed down of urbanization in Egypt as a whole Rapid growth of Matrouh City continues
<u>Migration</u>	Migration of both "investors and workers" from the Wadi continues	Better administration practices hasten the migration rate
<u>Employment</u>	Employment problem amplifies in Egypt Better employment opportunities in Matrouh	A more balanced employment structure in Matrouh Active private sector

TABLE II

II. NATIONAL DEVELOPMENT STRATEGIES

HYPOTHESIS	TREND SCENARIO	ALTERNATIVE SCENARIO
<p><u>Liberalization of the economy continues</u> <u>Intensifying of privatization efforts</u> <u>Investment</u></p>	<p>Higher private sector activity in Matrouh Region Slower tempo in rest of Egypt Rapid expansion in Matrouh</p>	<p>Higher private sector activity both in Egypt and Matrouh Faster tempo Higher expansion rates in Matrouh</p>
<p><u>Integration to world market</u></p>	<p>Weak-but stronger relationships with the Arab world Stronger relationships with Libya in Matrouh Sluggish</p>	<p>Stronger relationships with the Arab countries and the rest of the world Faster growth rates</p>
<p><u>Economic growth</u></p>	<p>Rapid growth in Matrouh Slower expansion of Arab and western tourism in Egypt</p>	<p>Fast economic growth in Matrouh Faster growth of all kinds of tourism</p>
<p><u>Tourism</u></p>	<p>Growth of touristic villages continues in Matrouh</p>	<p>Expansion of foreign tourism Integration of touristic villages to regional economy</p>

TABLE III

III. INTERNATIONAL ECONOMIC AND POLITICAL CONTEXT

HYPOTHESIS	TREND SCENARIO	ALTERNATIVE SCENARIO
<u>Geopolitical situation</u>	Uncertain and unreliable Possible protectionist measures following new trade agreement USA leadership continues EC, still uninterested	Harmonious and agreeable Liberalization, uncurbed markets International cooperation
<u>Egypt/Europe ties</u>		Accessible EC markets Stronger relationships with Italy and France
<u>Middle East</u>	Improving ties with Arab world	Very good accord with Arab world Full economic and political concord with Libya Sustained stability in Middle East
<u>International Organizations</u>	Present trends	Better and improving relations with IMF, IBRD, etc. Improving cooperation in environmental matters

TABLE IV

IV. LAND USE MANAGEMENT

HYPOTHESIS	TREND SCENARIO	ALTERNATIVE SCENARIO
<u>Institutional aspect</u>	Perpetuation of control and predominance of central government	Improvement of local control and decisionmaking Advancement of private sector weight
<u>Land use patterns</u>	Predominance of current economic priorities	Planning according to natural resource valuation practices Preservation
<u>Protected zones</u>	Lack of interest Underestimation of importance	Expansion to preserve typical and unique natural resources Planned property allocation
<u>Touristic villages</u>	Haphazard expansion Loss of agricultural land	Consideration for natural resource loss Better recognition
<u>Regional planning</u>	Loss of irreplaceable beaches Incomprehension of actual meaning	Implementation of proper framework for space management Landscape, specifically at the coast and limestone ridges, is considered as a resource
<u>Landscape</u>	Not taken in consideration	

TABLE V

V. ENVIRONMENTAL CONSIDERATIONS

HYPOTHESIS	TREND SCENARIO	ALTERNATIVE SCENARIO
<u>Role of FEMA</u>	Limited responsibility and financial means Very limited activity in Matrouh	Full concern for northwest coast
<u>Role of central and regional governments</u>	Economic and social policies abrogate environmental considerations	Importance of sustainable development fully conceived
<u>Natural resources management</u>	Short term production rise and profit making Continuing loss of limestone ridges and sand beaches Misallocation of land	Rational and patrimonial resource management Preservation of beaches and limestone ridges
<u>Quality of environments</u>	Comprehensive absence of awareness	Ecological quality is fully valued Efficient public participation Active NGOs



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A Contribution to Fuka-Matrouh CAMP

● ●
Highlights on environmental problems and management

and

Economic overview with reference to economic restructuring and adjustment

● ●
by

Dr. K. Fahmi and Dr. W. Gamaldine

Consultants

Fresh Water Resources

Quantity:	Total Available	Total Exploitable	Demand in 2000	Balance 2000
MCM/year	60,000	58,300	68,400	-10,000

Quality

- A total of 331 large industries generate 2.4 million/m³ of waste water per day.
- A total of 6.6 million/m³ of municipal waste water is generated per day, and the total capacity of existing treatment facilities is 2.8 million/m³ per day (waste water contains heavy metal and pesticides).

Impacts

	1994	2005
Health		
* Lives lost per year from lack of safe water/sanitation	7,000-10,000	4,000-6,000
* Years of life lost per year from diseases related to unsafe water and sanitation	80,000-100,000	50,000/75,000
Economic		
* Fish production has dropped by 70% lake Manzala and Mariut		
* One million ha of irrigated land suffer from salinization		

Source: World Bank, "Environmental Strategy for the Middle East and North Africa", 1994.

EGY

Land

Land Resources

- Only 4% is inhabited - Population Density 1,400 person/km²
- 3.4% is arable land.
- Low arable land - man per capita ratio (0.04 hectares per capita - for Israel 0.04 and 0.10 for Jordan)

Impacts of Development Activities

- 30% of arable land has been degraded by water logging and salinization and urbanization.
- 12,600 hectares lost annually because of urbanization and water logging.
- Water is the limiting factor for land reclamation.

Air Pollution

- A total of 62 large industrial facilities generate industrial air pollution problems in 9 governorates
- High concentrations of air pollutants in urban areas particularly in Cairo and Alexandria.
 - TSP in Cairo 6-10 times local and international standards
 - SO₂ in Cairo 3 times international standards
 - Lead in Cairo 2 times maximum safe levels
 - Smoke in Cairo increased 15-25% during last five years
 - Dust-fall over Cairo has doubled over the last 20 years

Health Impacts

- * In 1994 there were 15 million people exposed to excess air pollution (3-6 times WHO guidelines). In 2005 this number will be more than 20 million
- * Lives lost per year from excess air pollution (SO₂, TSP) are estimated at 15,000 to 20,000 in 1994 and 25,000 to 35,000 by the year 2005.
- * Years of life lost per year from respiratory illnesses (TSP) are in the order of 300,000 to 400,000 in 1994 and are estimated at 500,000 to 700,000 for the year 2005.
- * The social cost of lead pollution in the air is estimated at 100 million US\$ in terms of lost potential earnings for the year 1994 and will reach 200 million US\$ by the year 2005.
- * Health costs associated with air pollution in the two major industrial areas in Cairo are estimated at 40 million US\$ annually.





Solid Waste

- A total of 10 million tons of municipal solid waste is generated per year, 3 million are only collected.
- 50,000 tons of hazardous industrial waste is generated per year.
- A total of 97 thousand hospitals bed generate 11.7 thousand ton of infections and hazardous waste per day.

Size of the Pollution Problem Perceived Needs

Industrial Pollution:

- A Total of 331 Large Industries Generate 2,387,126 M³ of Wastewater Per Day
- A Total of 62 Large Industrial Facilities Generate Industrial Air Pollution Problems in 9 Governorates

Solid Waste:

- A Total of 10 Million Tons of Solid Waste Is Generated Per Year

Hazardous Waste:

- A Total of 50,000 tons of Hazardous Industrial Waste Is Generated Per Year

Hospital Waste:

- A Total of 96,699 Hospitals Beds Generate 11,604 tons of Infectious and Hazardous Waste Per Day

Municipal Wastewater:

- A Total of 6,631,793 M³ of Municipal Wastewater is Generated Per Day, and the Total Capacity of Existing Treatment Facilities is 2,840,000 M³ Per Day

Economics of Environmental Degradation in Egypt

Total Annual Social Cost of environmental degradation to the Egyptian Economy is estimated at US\$600 million and will increase to US\$1.1 billion by the year 2005. Twenty five percent of these figures are due to lost tourism.

Investment requirements for the next 10 years are estimated at US\$370 to 450 million annually (only 1% of GDP, 25% of defence spending). They could be break down as follows:

- Industrial sector clean up 130-170 (US\$ million)
- Provision of unleaded gasoline 40-50
- Provision of low sulfur fuel oil 50-60
- Provision of safe water and sanitation 150-170

Environmental Management -Key Constraints

1) Inappropriate Policies

- * lack of a comprehensive analytical framework for environmental policy/ no access to information - no evaluation of trade offs - inappropriate pricing of environmental resources - no coordination.
- * Legislation is partly inadequate, unrealistic and unenforceable. No adequate financial support - monitoring and enforcement.
- * limited participation in the decision making process.
- * Weak institutional coordination.
- * Public is empowered.

2) Ineffective Institution

- * lack of a systematic and uniform system for monitoring.
- * lack of awareness of environmental issues on all levels.

3) Private Sector Impediments

- * lack of economic incentives
 - * Barriers to competition
 - * Trade Barriers
- | | Market Size of Environmental Business | |
|--|---------------------------------------|------|
| | US\$ 430 million | 1992 |
| | US\$890-1,150 million | 1997 |

Steps Towards Sustainable Development

- * Addressing the environmental and developmental challenges will require:
 - minimizing the trade-offs and developing positive linkages between economic growth, poverty reduction and environmental sustainability.
 - The major task facing Egypt, and other countries of the Middle East, is to restore a private sector led Economic growth which is rapid (5 - 6 %), widely shared, and sustained environmentally i.e., a growth depending less on the rapidly declining oil, water and land resources base and more on the skills and capacity of the human resources.
 - Equally important is to open up the national economy to productive inter-regional trade, investment and technology sharing and cooperating on mutually beneficial international and regional projects.

Old and New Concepts for sustainable Development in Egypt

- | | | |
|---|---|--|
| Water is <u>free</u> | ■ | Water is <u>scarce</u> |
| Energy is <u>plenty</u> | ■ | Energy is <u>limited</u> |
| Public Enterprises are
<u>the engines of growth</u> | ■ | Private enterprises are new
<u>driving forces of growth</u> |
| Subsidies for all | ■ | The poor should be protected |
| Investment is the Key
issue | ■ | Policy reform is the Key issue |
| Environment is external
to the economy | ■ | Environment is an integral part
of the economy |
| Environment is the
responsibility of the
government | ■ | Environment is the
responsibility of all |
| Environment is costly | ■ | Environment is profitable |

5



Economic Restructuring and Adjustment Program (ERSAP)

ERSAP I

Main Components:

⇒ Restoring macroeconomic balance

⇒ Removal of subsidies and price controls

⇒ Privatization

⇒ Liberalization of foreign trade

⇒ Establishment of the Social Fund for Development
(SFD)

⇒ Financial sector reform

ERSAP II

⇒ Macroeconomic stabilization

⇒ Economic liberalization

● ●
⇒ Deregulation

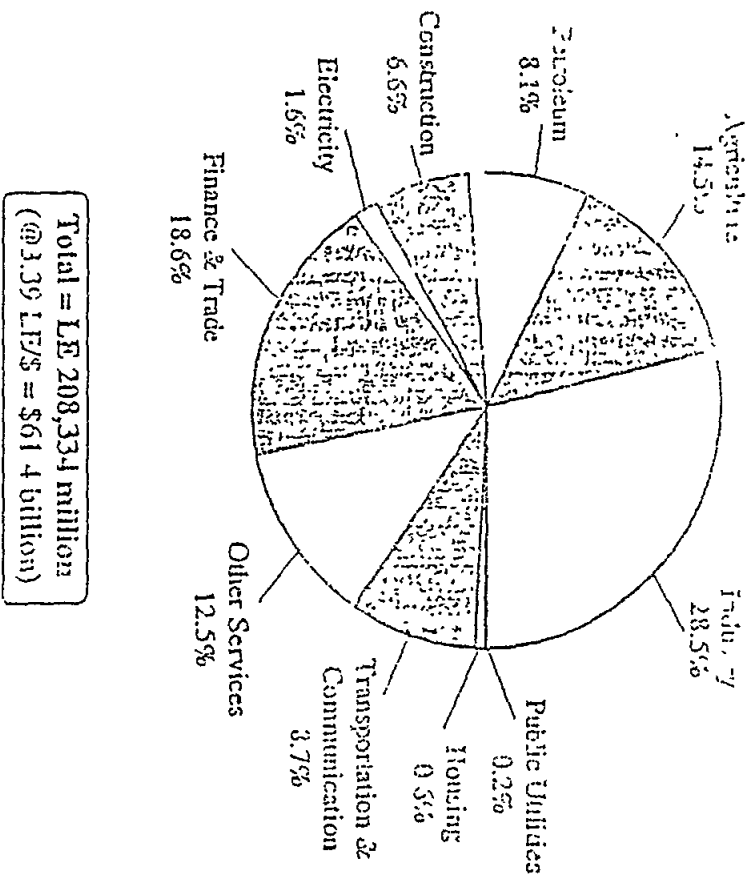
⇒ Trade liberalization

⇒ Privatization and public sector reform

⇒ Export enhancement

● ●
⇒ Environmental protection

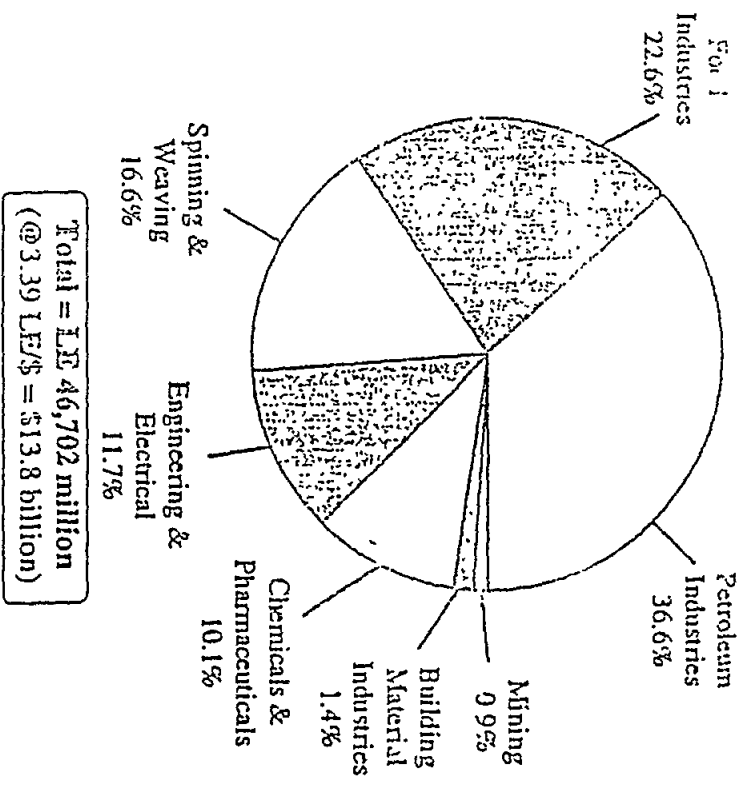
**Distribution of Economic Sector Production
(1991/92 current prices, million LE)**



Industry, finance and trade, and agriculture are the three largest areas of economic production, accounting for over 60% of total production.

Inflation adjusted growth in production has been greatest for petroleum (16% per year), electricity (5%), and transportation (2%), while the other sectors have had negative real growth.

**Industrial Output by Industry Segment
(1991/92)**



Within industry, petroleum, food, and spinning and weaving account for over 75% of industrial output, followed by engineering and electrical, and chemicals.

Inflation adjusted growth in output has been greatest for petroleum (16% per year), and mining (12%). All other industries have had negative real growth, with the smallest negative growth among chemicals (-1%), food (-2%), and spinning and weaving (-3%).

ECONOMIC FORECAST

1995 1996 1997 1998

Real GDP growth (%)	2.5	3.5	4.0	4.0
GDP (\$ bn)	50.5	52.0	53.9	58.1
GDP per head (\$)	850	857	869	913
Consumer price inflation (%)	7.3	6.0	6.0	5.5
Exchange rate / \$	3.75	3.90	4.00	4.10
Merchandise exports (\$ bn)	2.8	3.0	3.2	3.5
Merchandise imports (\$ bn)	-9.1	-9.8	-10.5	-11.3
Trade balance (\$ bn)	-6.4	-6.9	-7.3	-7.8
Current-account balance (\$ bn)	1.3	0.8	0.3	-0.2
Total debt (\$ bn)	36.8	36.4	36.2	36.0
Debt-service ratio (%)	15.9	14.6	13.3	12.4

Source: The Economist Intelligence Unit Limited (EIU), 1994

ANNEX V

**IMPLICATIONS OF CLIMATIC CHANGES IN
THE FUKA-MATROUH AREA**

IMPLICATIONS OF CLIMATE CHANGE FOR THE

COASTAL AREA OF FUKA-MATROUH

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IMPLICATIONS OF CLIMATE CHANGE FOR THE COASTAL AREA OF FUKA-MATROUH

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INTRODUCTION

Towards the end of the last decade it became almost accepted, that the concentration of greenhouse gases would affect the pattern and the balance of the solar radiation in the atmosphere to an extent that a rise in the global mean surface air temperature would take place in the next century. Consequently, the Second World Climate Conference, held in Geneva in 1990, has highlighted the long-term implications of climate change which were considered as major scientific, environmental socio-economic and political challenges. The conference consensus has put the expected global warming change in a range between 2 °C and 5 °C over the next century, if no effective action is taken to reduce gas emissions in the atmosphere. This would lead to a sea level rise estimated to be as much as 65± 35cm. With such alarming figures, many international and regional associations and organizations have set to work to establish an assessment for the possible impacts of the climate change and to explore ways and means to face it at the right timing.

The Mediterranean Action Plan of UNEP was one of the leading organizations to account for this threat and to guide and encourage the execution of several case studies within the Mediterranean basin. One of these studies is the present one, made on Fuka-Matrouh region of Egypt. The study programme for this area was planned to cover the climate, the geology, the hydrology, the ecosystem and the socio-economic aspects. Accordingly, a task team of experts was formed which match these disciplines in order to establish a framework for sound environmental management policy based on sustainable resource development and efficient land-use for the Fuka-Matrouh region.

AREA OF STUDY

The terrestrial part of Fuka-Matrouh study area is almost square in shape. It extends for about 72 km along the Mediterranean coast between longitudes 27° 55' and 27° 10'. (Fig. 1). It is located in the middle of the northern part of Matrouh Governorate, with an average width of about 70 km southward from the Mediterranean shoreline, till the elevated southern plateau (Fig. 1). The area is considered to be a virgin area with almost no major industrial activity in the time-being. So, it forms a good pilot study area for the north-western coastal zone of Egypt and which will become soon at the top of the country development agenda.

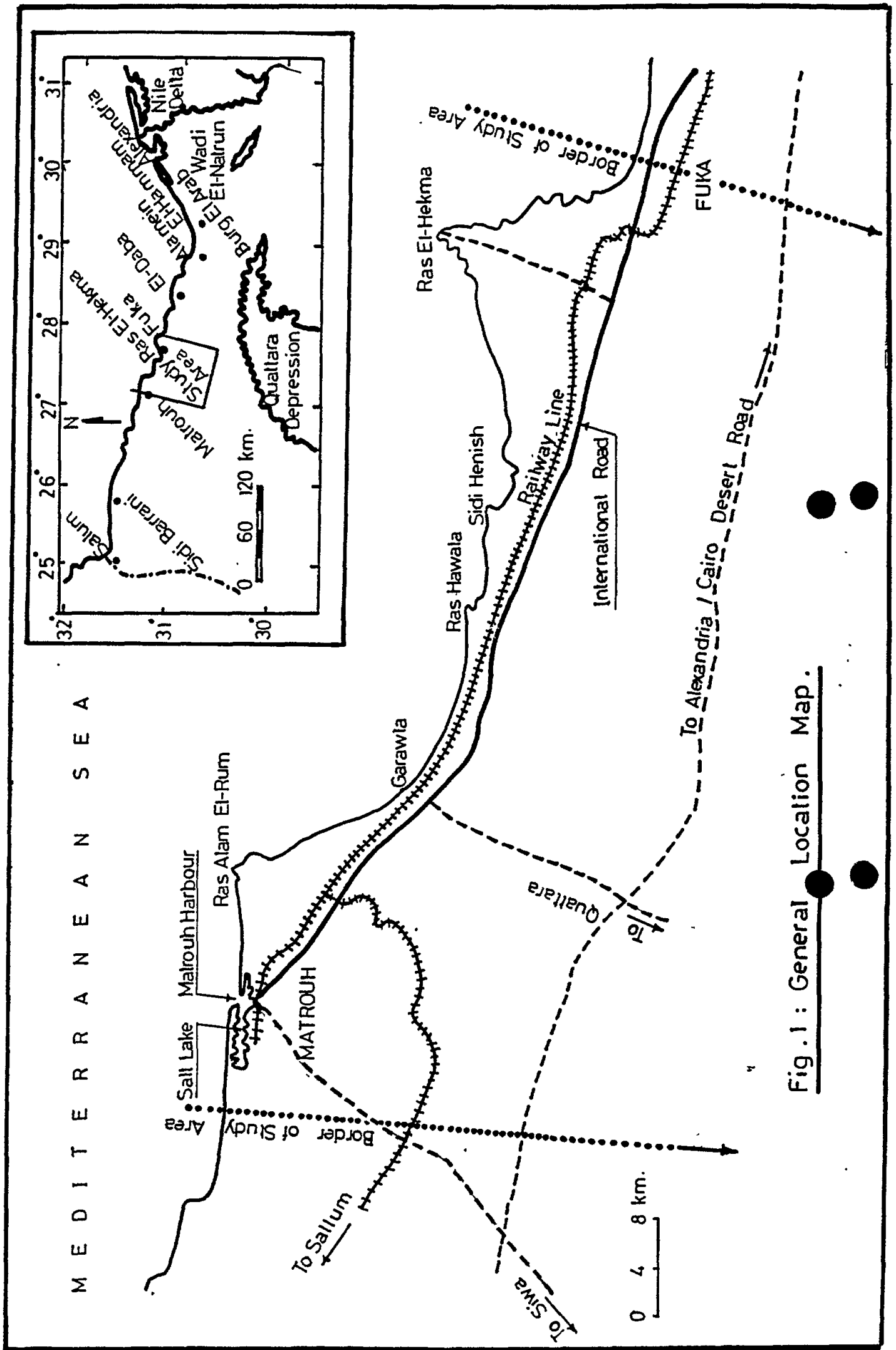


Fig. 1 : General Location Map.

PRESENT SITUATION

The climatic condition of the study area ranges between a semi-Mediterranean in the North along the coastal plain, to " arid" in the southern part. The summer season is warm and dry, with absolute maximum temperature around 35 °C and average maximum temperature of about 24 °C, against absolute minimum and average minimum temperature of 5 °C and 15 °C in winter, with about 19.3 °C as overall annual temperature average. The average annual rainfall is around 140 mm in the North and decreases rapidly southward. The rain falls during winter from mid-October to mid-March. The average relative humidity is about 70 percent during summer and could sometimes reach 90 percent while it decreases to about 50 percent during spring.

The study area is characterized by certain topographical and physiographical features. The sediments are derived from highly calcareous parent material (Fig. 2). The area can be divided into 3 main zones;(Figs 3 and 4):

1. recent coastal zone, which includes the coastal plains and consisting of various strips of different type formations and ranging between 1-6 km wide and extends up to a level of 60m high above sea level. Beaches, coastal dunes and ridges are the main strips of the area,
2. northern plateau; which is gently sloping plateau with shallow wadis and alluvial sediments of 10-13 km wide and 30-80 m in height, and
3. southern plateau; which extends to 60 km southward with elevation between 80-120 m.

Grazing and cultivation are the main income source of the natives . The cultivated land which constitutes 3.2 percent of the total land area is about 40,000 feddans and distributed between figs, olive, barley and wheat. Agriculture depends mainly on winter rainfall, whose total annual quantities vary from 350×10^6 to 400×10^6 m³, from which about 33×10^6 m³ is used for agricultural purposes. This water is harvested through a group of cisterns, dykes and sawani constructions. Some limited underground water is also used for human, agricultural and animal consumption. Figure 5 shows the agricultural areas distribution.

There is a relatively high number of mammals, birds, tables 1 and 2, and reptiles which occur in the coastal belt. The rainfall, (Fig.6), and moisture nurture the rich natural vegetation of the western coast. The estimated annual amount of fish catch landed at Matrouh between the years 1985 and 1992 varies between 211 and 758 tons, table 3. The suitable temperature and the abundance of solid substrate favour the growth of sponges. The mean number of sponge ranges between 52.42 and 64.49 individuals/km².

The present total population of the study area amounts to about 49,000 mainly concentrated in the coastal zone with average population density of about 12 person/km². This density is against a figure of less than one per km² in the Governorate of Matrouh as a whole. The average annual growth rate is about 3.2 percent of which 10 percent is due to migration. Figure 7 shows the breakdown of the economic activity on the area.

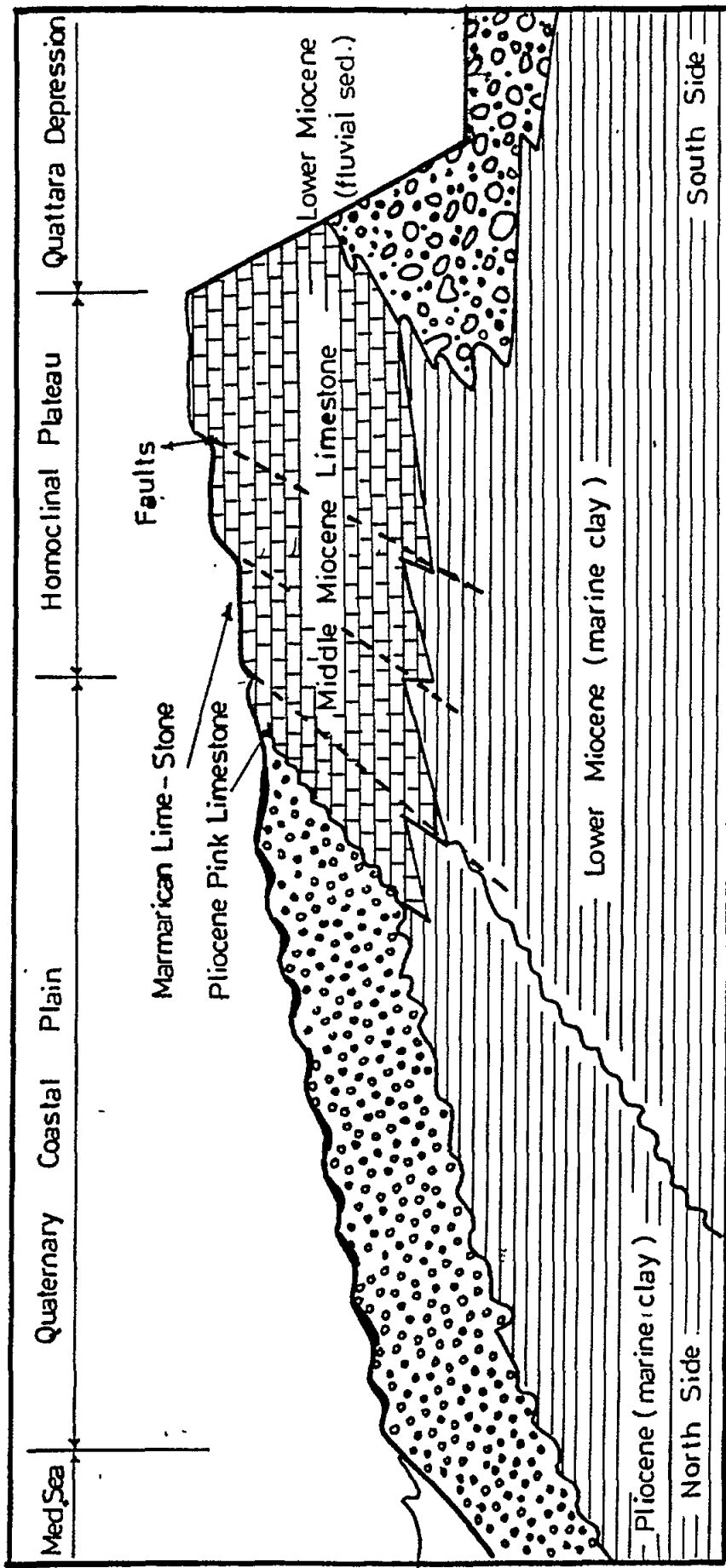


Fig. 2 : Schematic Cross Section from Mediterranean To Quattara Depression.

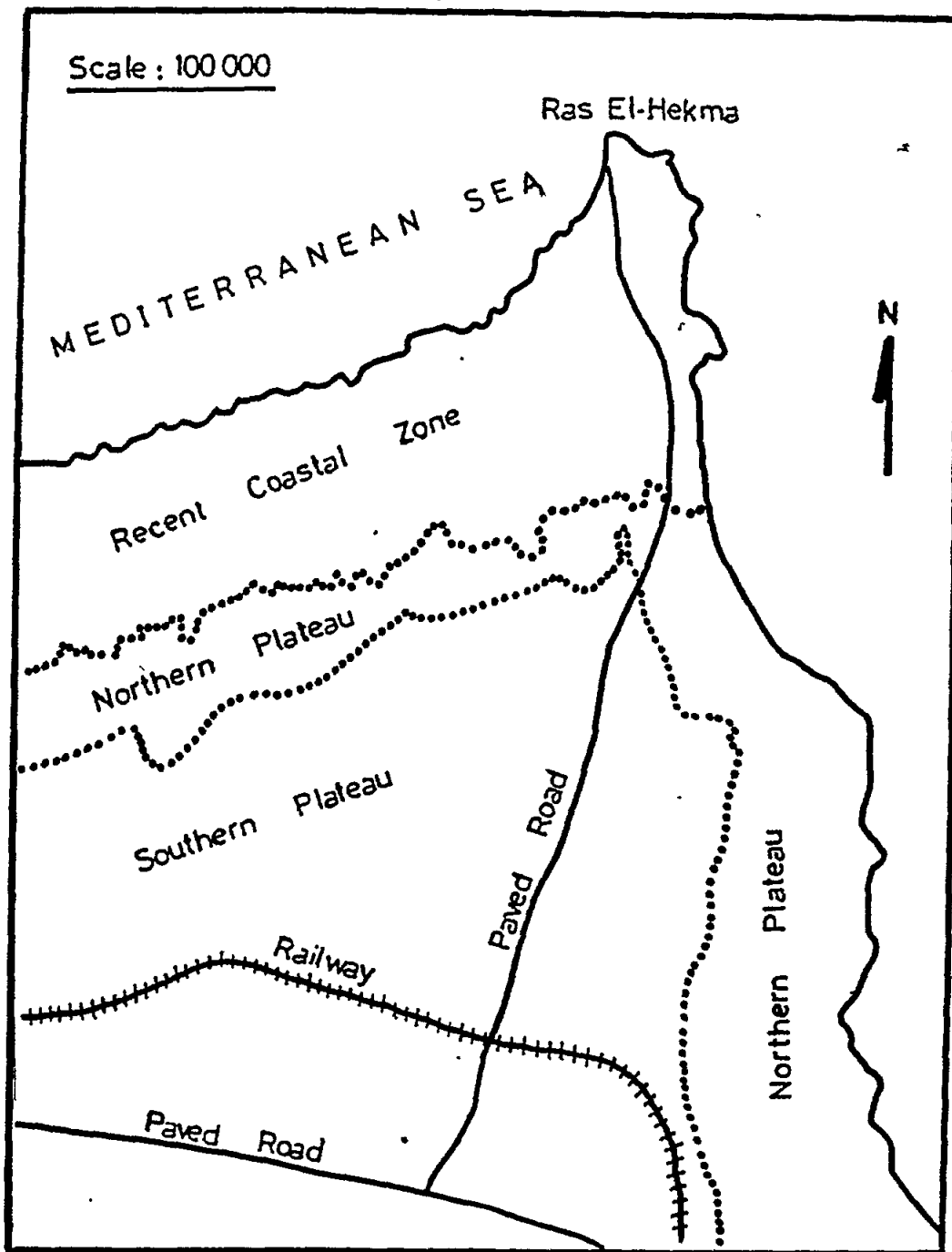


Fig. 3: Physiographic Zones of Ras El-Hekma Area.

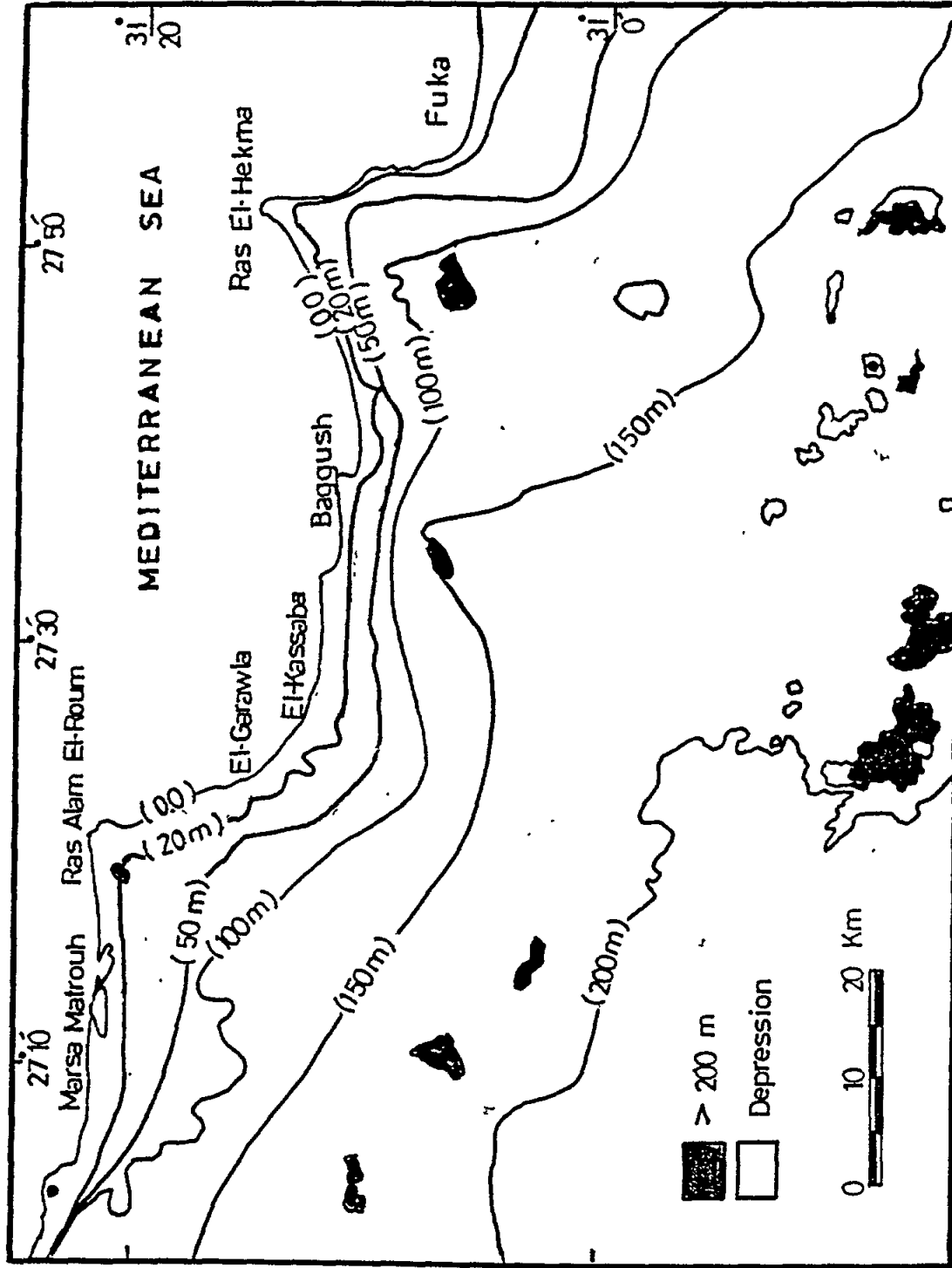


Fig. 4: Topographic Map Showing the Elevations Between Fuku and Matrouh .

Mammals Recorded by Osborn & Helmy (1980) in the
Coastal Belt Between Alexandria and El-Sallum

Hemichinus auritus libycus (Ehrenberg, 1833)

Paraechinus deserti deserti (Loche, 1858)

*Croidura suaveolens matruhensis** Setzer, 1960

This subspecies is endemic to the west Egyptian coast. Mersa Matrouh is so far the only locality where it has been found. It bears the name of Mersa Matrouh (Kasperek, 1993)

Lepus capensis rothschildi (De Winton, 1902)

*Gerbillus perpallidus** Setzer, 1958

This species is endemic to Egypt's north-western desert (Baha El-din, undated)

Gerbillus andersoni inflatus (Ranck, 1968)

Gerbillus gerbillus gerbillus (Olivier, 1801)

Dipodillus campestris wassifi (Setzer, 1958)

Dipodillus simoni kaiseri (Setzer, 1958)

Dipodillus amoenus amoenus De Winton, 1902

Dipodillus henleyi henleyi De Winton, 1903

Meriones shawi isis (Thomas, 1919)

Pachyuromys duparsi natronensis De Winton, 1903

Psammomys obesus obesus Cretzschmar, 1828

Spalax ehrenbergi aegyptiacus (Nehring, 1898)

Rattus rattus (Linnaeus, 1758)

Mus musculus praetextus (Brants, 1827)

Eliomys quercinus cyrenaicus (Festa, 1921)

Allacata tetradactylus (Lichtenstein, 1823)

Jaculus orientalis orientalis Erxleben, 1777

Jaculus jaculus Setzer, 1955

Canis aureus lupaster (Hemprich and Ehrenberg, 1833)

*Vulpes vulpes aegyptiaca** (Sonnini, 1816)

Foxes were recorded in the sand dunes and limestone ridges several times and also fox tracks were seen at a number of localities (Kasperek, 1993)

Poecilictis libyca libyca (Hemprich and Ehrenberg, 1833)

Herpestes ichneumon ichneumon (Linnaeus, 1758)

Felis chaus nilotica De Winton, 1898

*Acinonyx jubatus** (Schreber, 1776)

The most recent record is from 1964 (Kasperek, 1993)

Birds Recorded in the Area Between Fuka and Matrouh and
Their Status Within Egypt

Abbreviations:

- CB casual breeder
 MB migrant breeder
 RB resident breeder
 AC accidental visitor or vagrant (up to and including five documented records for the country)
 PV passage visitor
 WV winter visitor
 () abbreviation in parenthesis is used to indicate that the status is variable or irregular, e.g. (PV) means "irregular passage visitor"
 ? status uncertain, e.g. RB? means "doubtful resident breeder"
 O possible breeding in the area Fuka-Matrouh
 * probable breeding in the area Fuka-Matrouh
 + definite breeding in the area Fuka-Matrouh

(extracted from Goodman & Meininger, 1989)

<i>Falco tinnunculus</i>	RB	PV	WV	+
<i>Falco biarmicus</i>	RB	WV	*	
<i>Alectoris barbara</i>	RB	*		
<i>Chlamydotis undulata</i>	RB	WV	*	
<i>Burbinus oedicephalus</i>	RB	PV	WV	*
<i>Cursorius cursor</i>	RB	PV	WV	+
<i>Charadrius alexandrinus</i>	RB	PV	WV	+
<i>Charadrius leschenaultii</i>	PV	WV	CB?	
<i>Charadrius morinellus</i>	WV			
<i>Calidris alba</i>	PV	WV		
<i>Limosa lapponica</i>	PV	WV		
<i>Numenius tenuirostris</i>	(PV)	(WV)		
<i>Numenius arquata</i>	PV	WV		
<i>Tringa totanus</i>	PV	WV		
<i>Tringa ochropus</i>	PV	WV		
<i>Tringa glareola</i>	PV	WV		
<i>Actitis hypoleucos</i>	PV	WV		
<i>Arenaria interpres</i>	PV	WV		
<i>Stercorarius pomarinus</i>	PV	WV		
<i>Stercorarius parasiticus</i>	PV	WV		
<i>Larus fuscus</i>	PV	WV		
<i>Larus cachinnans</i>	RB	WV		
<i>Sterna caspia</i>	RB	PV	WV	
<i>Sterna hirundo</i>	PV			
<i>Sterna albifrons</i>	MB	PV		
<i>Pterocles coronatus</i>	RB			
<i>Columba livia livia</i>	RB	*		
<i>Tyto alba</i>	RB			
<i>Athene noctua</i>	RB	+	*	
<i>Asio flammeus</i>	PV	WV		
<i>Apus pallidus</i>	RB	MB	PV	*
<i>Alcedo atthis</i>	CB?	WV		

Table. 2. Cont.

<i>Coracias garrulus</i>	PV		
<i>Ammomanes cincturus</i>	RB	*	
<i>Alaemon alaudipes</i>	RB		
<i>Chersophilus duponti</i>	RB		
<i>Melamocorypha calandra</i>	WV		
<i>Calandrella rufescens</i>	RB	WV	O
<i>Galerida cristata</i>	RB	+	*
<i>Lullula arborea</i>	WV		
<i>Eremophila bilopha</i>	RB		
<i>Anthus campestris</i>	PV	WV	
<i>Motacilla flava pygnaea</i>	RB	WV	O
<i>Prunella modularis</i>	WV		
<i>Carcotrichas galactotes</i>	MB	PV	(WV) *
<i>Erithacus rubecula</i>	WV		
<i>Luscinia svecica</i>	PV	WV	
<i>Phoenicurus ochruros</i>	PV	WV	
<i>Phoenicurus phoenicurus</i>	PV	(WV)	
<i>Saxicola torquata</i>	PV	WV	
<i>Oenanthe isabellina</i>	PV	WV	
<i>Oenanthe oenanthe</i>	PV	(WV)	
<i>Oenanthe hispanica</i>	PV	(WV)	MB?
<i>Oenanthe deserti</i>	RB	PV	WV
<i>Oenanthe moesta</i>	RB		
<i>Oenanthe lugens</i>	RB	(WV)	O
<i>Oenanthe monacha</i>	RB		
<i>Turdus philomelos</i>	WV		
<i>Sylvia nisoria</i>	PV		
<i>Sylvia communis</i>	PV		
<i>Phylloscopus sibilatrix</i>	PV		
<i>Phylloscopus collybita</i>	PV	WV	
<i>Muscicapa striata</i>	PV	(WV)	
<i>Ficedula parva</i>	PV	(WV)	
<i>Lanius collurio</i>	PV	(WV)	
<i>Lanius excubitor</i>	RB	WV	*
<i>Corvus corax</i>	RB	+	
<i>Sturnus vulgaris</i>	WV	.	.
<i>Passer domesticus</i>	RB	+	
<i>Fringilla coelebs</i>	WV		
<i>Serinus serinus</i>	RB?	WV	
<i>Carduelis chloris</i>	RB	WV	
<i>Carduelis carduelis</i>	RB	WV	

Table . 3

Official Statistical Data of Fish Yield at Matrouh Governorate During the Last Few Years
 (- = no data)

Year	Total Fish yield (ton)	Aquaculture (ton)	Sea fishing (ton)
1983	-	-	-
1984	-	-	-
1985	304	304	-
1986	355	355	-
1987	304	304	-
1988	626	304	322
1989	211	75	136
1990	758	287	471
1991	497	238	260
1992	335	-	335

However, the mostly caught pelagic fish of the Fuka-Matrouh area are the following:

<i>Sardinella sp.</i>	sardine
<i>Trachurus sp.</i>	horse mackerel
<i>Seriola dumerilii</i>	amberjack
<i>Sphyraena sp.</i>	sea pike

On the other hand, the rocky bottom in Matrouh area is a suitable living place for a relatively rich fauna of demersal fish. This provides a good possibility for a profitable coastal fishery. The most important demersal fish are the following:

Bony fish

<i>Epinephulus sps.</i>	groupers
<i>Serranus sp.</i>	sea bass
<i>Pagrus sp.</i>	common sea bream
<i>Pagellus sp.</i>	red sea bream
<i>Lithognathus sp.</i>	striped sea bream
<i>Diplodus sp.</i>	two banded bream
<i>Chrysophrus auratus</i>	gilt-head bream
<i>Dentex dentex</i>	dentex
<i>Maena smarís</i>	picarel
<i>Synodus sp.</i>	lizard fish
<i>Mullus sp.</i>	goat fish
<i>Merlucius sp.</i>	hake
<i>Umberina sirosa</i>	croaker

Cartilagenous fish

<i>Myliobatus sp.</i>	eagle ray
<i>Raia sp.</i>	ray

Mollusca

<i>Sepia sp.</i>	cuttlefish
<i>Octopus sp.</i>	octopus

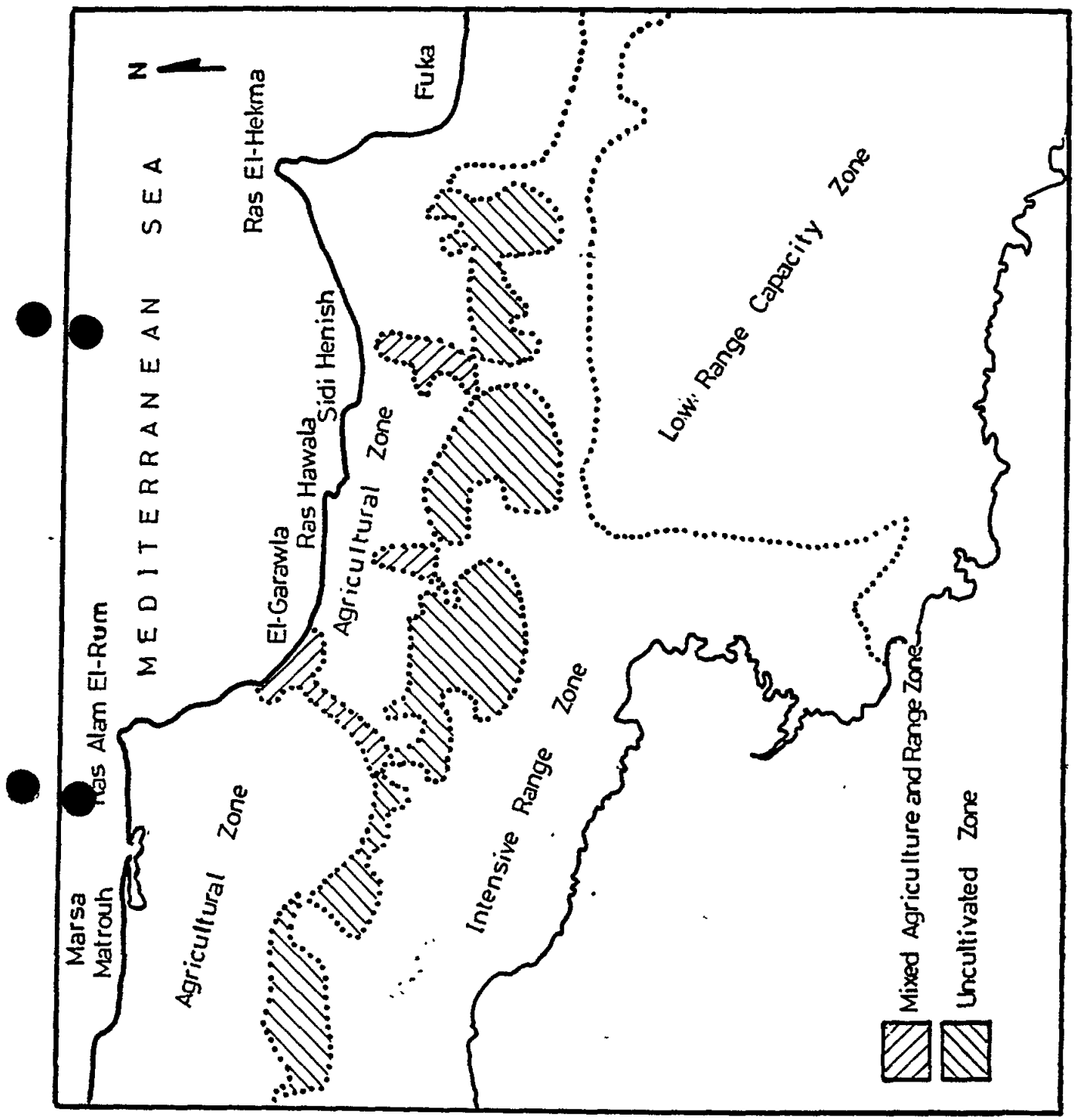


Fig. 5 : Agriculture Zones Fuka - Matrouh.

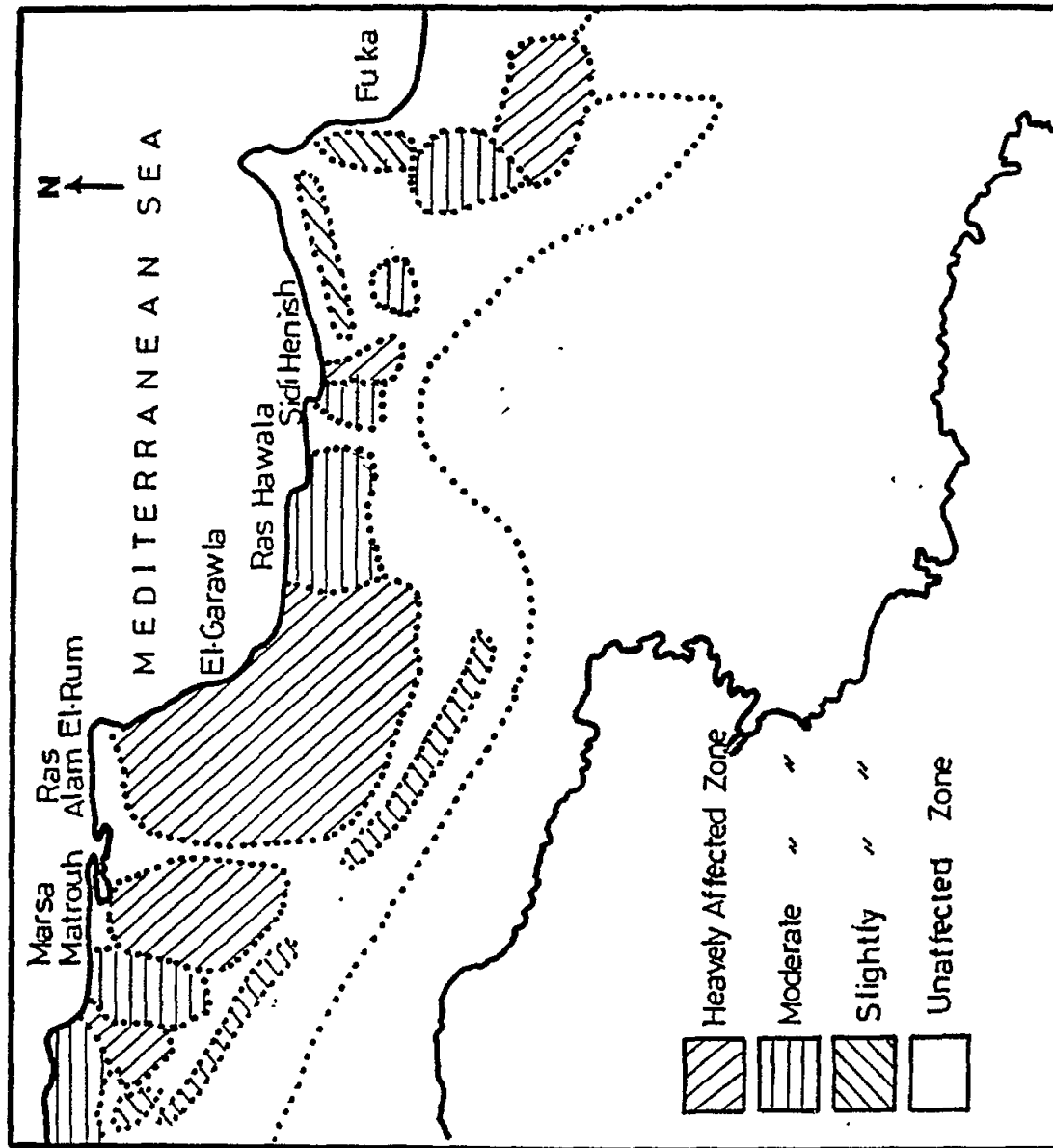





Fig. 6 : Water Flow Zones ; Fu ka - Matrouh .

-  Construction and Buildings = 5.2 %
-  Services Sectors = 5 %
-  Manufacturing Industries / Electricity = 0.9 %

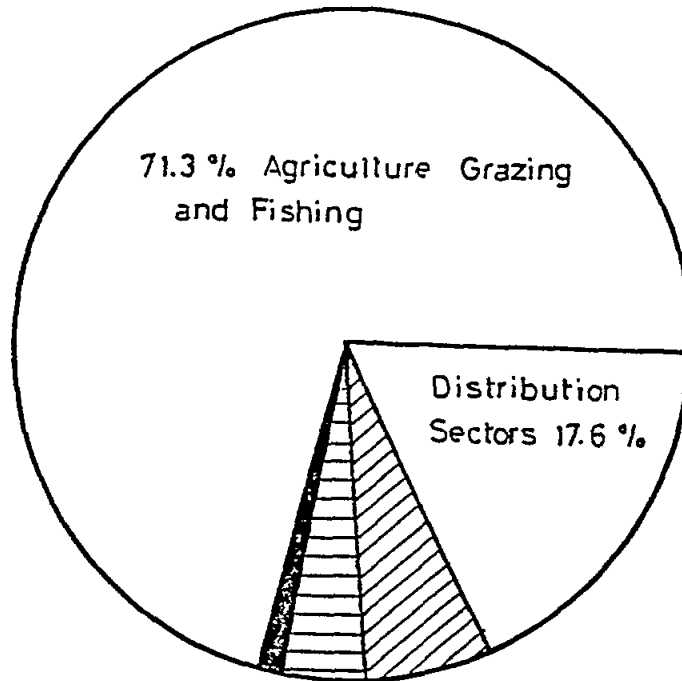


Fig . 7 : Breakdown of Employment on the Economic Activity Sectors.

The area is served by reasonable transport facilities, (Fig.8) the important ones being the Alexandria-Sallum highway, the Alexandria-Matrouh railway, the single way of Sallum-Alexandria-Cairo desert road and a group of unpaved roads.

CLIMATE CHANGE AND SEA LEVEL RISE

The scenarios of the global climate change, adopted in the present study are based on the work of Wigley and Rapper (1992) which takes into consideration, among others, the effect of sulphates and stratospheric ozone depletion. Two temporal horizons are considered in the study ;i.e. the years 2030 and 2100, while the conditions in the year 1990 are taken as base line for comparison.

For 1 °C global warming, the changes at the north-western coast of Egypt between Fuka and Matrouh would be as shown in table No. 4 .(University of East Anglia Report,Nov. 1993).

Table No.4: Seasonal and Yearly Temperature and Precipitation
Fuka - Matrouh

variation for

Annual	Temperature	0.8 to 0.9 °C
	Precipitation	0 to - 4 %
Winter	Temperature	0.7 to 0.9 °C
	Precipitation	- 5 to - 22%
Spring	Temperature	0.7 to 0.9 °C
	Precipitation	8 to 26%
Summer	Temperature	1.0 to 1.1 °C
	Precipitation	no rainfall
Autumn	Temperature	0.7 to 0.8 °C
	Precipitation	0 to - 14%

The operative scenarios of temperature ,precipitation and sea level rise for time horizons 2030 and 2100 for Fuka-Matrouh region would be as shown in table no. 5.

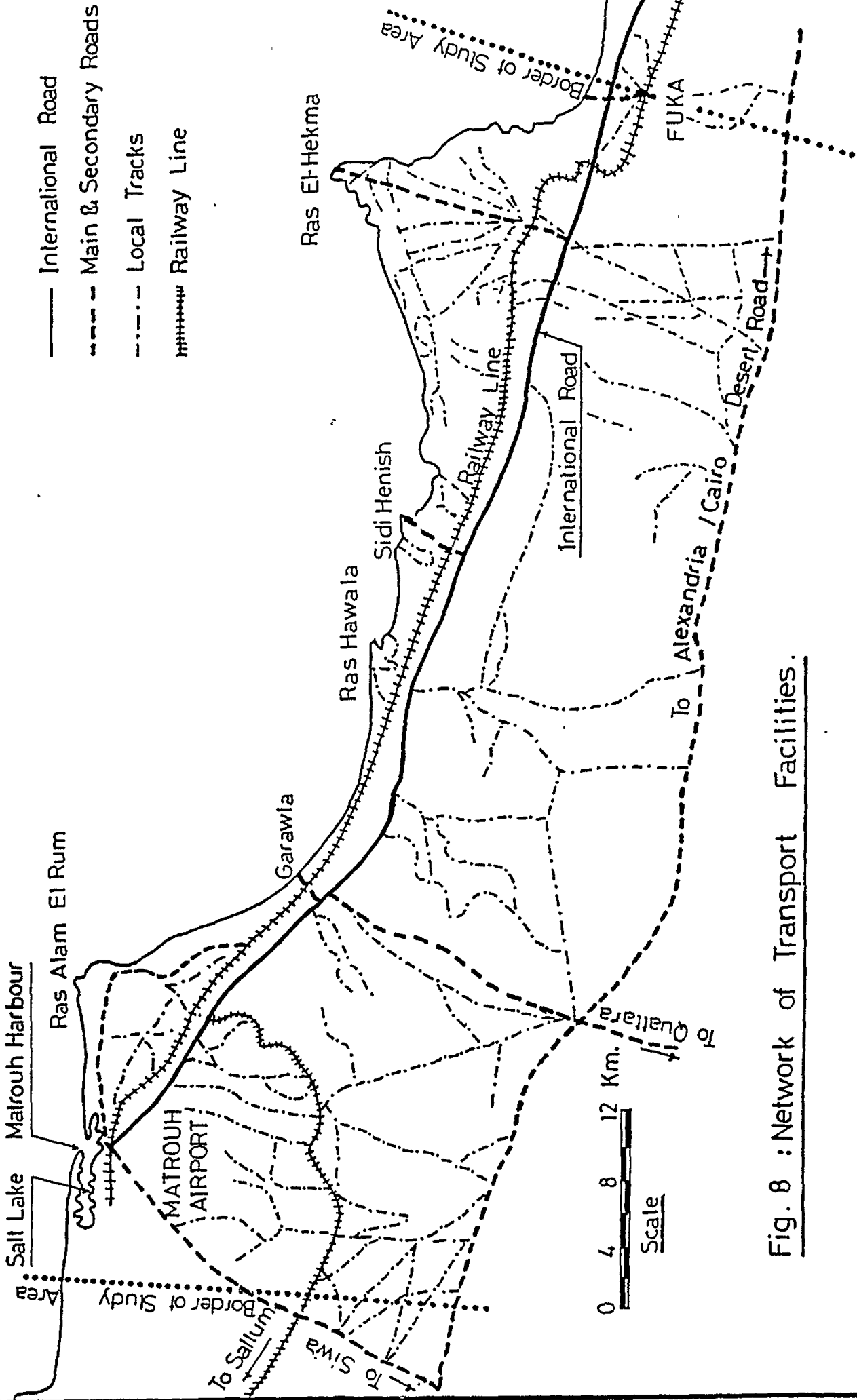


Fig. 8 : Network of Transport Facilities.

Table No. 5. Operative Scenarios of Temperature, Precipitation and Sea Level Rise

		Time Horizon	
		2030	2100
Annual	Temperature Precipitation	0.7 to 0.8 °C 0 to -4%	2.0 to 2.3 °C 0 to -10%
Winter	Temperature Precipitation	0.6 to 0.8 °C -5 to -20%	1.8 to 2.3 °C -13 to -55%
Spring	Temperature Precipitation	0.6 to 0.8 °C 7 to 23%	1.8 to 2.3% 20 to 65%
Summer	Temperature Precipitation	0.9 to 1.0 °C no rainfall	0.5 to 2.8 °C no rainfall
Autumn	Temperature Precipitation	0.6 to 0.7 °C 0 to -13%	1.8 to 2.0 °C 0 to -35%
Sea Level Change		16 cm	48cm

The time horizons 2030 and 2100 show an increase in temperature in all seasons from 0.6 to 1.0 °C and from 0.5 to 2.8 °C, respectively. The change is expected to be greater in summer. The annual precipitation shows a decrease of 0-4 percent for the year 2030 and 0-10 percent for the year 2100.

The rise of the mean sea level in the coming century, due to global warming, would be a substantial increase over the local rise that has taken place during the present century along the Mediterranean coast of Egypt. Several scenarios have been suggested to predict the rate of sea level rise in coming decades. The best-guess scenario, used in this study, is based on the work of Wigley and Raper (1992) which yields a rise of 16 cm by 2030 and 48 cm by 2100.

MAIN IMPACTS OF CLIMATE CHANGE

The present document reports on the results of a performed investigation into the potential impacts of the climate change including the sea level rise effects. The aim is to assess the impacts which the variation of the climate and the rising sea level may cause on each domain; ecosystem and human activities. The possible impacts were described qualitatively and wherever possible quantitatively, as well.

The most important climate change would be the northward shift of winter cyclonic patterns affecting the western Mediterranean coast in winter. There might be a decrease of cyclonic activity, more erratic rainfall, drier summers and higher evapotranspiration. Moreover, the increase in the length of the summer and the decrease of winter precipitation may lead to extension of summer aridity.

Due to rising sea level, the eastern part of the project area would be subjected to some coastal erosion and flooding of backshore areas and depressions. Whereas slight impacts are expected to take place at the western part owing to presence of wave-cut cliffs. As an estimation, the shoreline of Fuka-Matrouh would be retreated between 2 to 5 km² with capital losses of 454 and 1512 MLE by the years 2030 and 2100, respectively. In fact, the coastal ridges surrounding the coast at some stretches will partly play an effective role in stopping flooding and damage to the coast.

Small pocket beaches and small bays will be the first to experience the impact of a gradual rise in sea level. The instability and breakup of barrier islands could become frequent in the coming decades. Beaches in front of these barriers could be subjected to accelerated erosion. Low sandy coasts at the east would adapt to sea level rise as they have the capacity to reform themselves with the rising sea level by gradual migrating landwards.

A consequence of rising sea level would also be an increase in the occurrence of extreme events, like severe storms, waves, currents and high tides. Wind-generated wave heights can increase by 7.5 percent.

Increase of temperature is not expected to have an appreciable effect on the decomposition of organic matters in soils. Increase of air temperature will change the soil thermal regime. Higher temperature will reduce soil moisture and thus increase soil/wind

erosion, and soil salinity, while soil fertility would be decreased. Hence, it would accelerate land desertification.

The increase of rainfall by 2030 during spring seasons will be very low and of insignificant effect on runoff. Nevertheless, the winter rainfall decrease would cause a reduced ground water recharge and thus less thickness of fresh water layer in the plireatic ground water aquifers is expected. Therefore, the amount of potable water may become not sufficient for people and animals.

Due to the rise in annual temperature and decrease in precipitation, the nature flora of the inland may shift northwards. The flora of the present inter-dunal depressions may expand at the expense of the original endemic flora.

The decline in precipitation and increase in temperature may also lead to a shrinking in vegetation cover and hence decreasing the food available for herbivorous mammals and in turn decreasing their population and consequently the population of carnivorous mammal, too .

Global warming may alter the migration rhythm of the wintering migratory birds. The reptile community in the area may also undergo some alterations. The higher temperature may increase the probability of the appearance of jelly fish swarms in coastal waters, and in addition due to the higher salinity, may urge the lessepsian immigrants to inhabit the area.

Rainfall decrease and temperature increase will affect the pattern of cultivated crops. Change in rainfall and increase in evapotranspiration may lead to a reduction in the cultivated areas and agriculture is likely to change towards more intensive farms. A change in crop productions and decrease in soil productivity are expected. Some tropical and sub-tropical plant diseases will move northwards and the distribution of insects and pests will be altered.

The impact of temperature increase could be significant in important fish species. Migration pattern of pelagic fish, as well as their spawning area, could be changed.

Marine grass meadows are particularly sensitive to reduced water transparency. So they may be affected as a result of the increase of sediment loads in the water, as expected due to rising sea level. On the other hand, a rise in water temperature may be in the favour of sea grass meadows.

Temperature rise will increase energy demand for summer resorts services, e.g. air conditioning. More demand for energy is expected for the development in the regular industry sector and for the expanding touristic sector.

Temperature increase may also favour the consumption of beverage and may encourage their production in the area.

A relatively serious problem may be endangering the safety of some of the historical remains located in the area due to the rise in water table elevation.

Climate and subsoil water level change may affect the existing infrastructure of the area which would call for more upgradings.

Climate change will result in rapid corrosion of potable water supply pipes. Increased temperature will speed up the rate of anaerobic decomposition of the organic matter in the sewage system which may lead to dangerous levels of methane build-up and risk of explosion.

MEASURES TO ELIMINATE, REDUCE, MITIGATE AND ADAPT TO THE PREDICTED EFFECTS

The following measures are proposed to limit greenhouse gas emissions and to avoid, mitigate and/ or adapt to the predicted effects:

1. improving energy efficiency to reduce its demand and using cleaner energy sources to reduce CO₂ emissions. Solar, wind and wave energy can be used as clean energy source,
2. preparing designs of coastal protection measures for critical sites. Regarding the coastal dunes, suitable stabilisation methods (by using plants, wood fences, and

- stabilization by spraying.) should be undertaken to protect the foredunes and coastal dunes which act as natural barriers against sea attack,
3. controlling the underground water exploitation to avoid salt water intrusion in coastal areas,
 4. gradual landward transfer of the tourism projects which are already located at critical sites. The existing Environment Protection law has to be strictly implemented which stipulates leaving a distance of 200 m between the shore line and any construction,
 5. carry out extensive programs to upgrade awareness of water users with the scarcity of fresh water resources and to introduce cultural practices for water conservation,
 6. adopting well defined concept for land use based on expected changes in natural resources,
 7. select suitable draught tolerant crops, shrubs and forage plants to maximize the yield and to minimize adverse impacts,
 8. the laws protecting the wildlife have to be strictly implemented,
 9. improve the knowledge in the field of fisheries as aquaculture research is currently inadequate to encourage and to invest research in these fields,
 10. Matrouh airport terminal has to be upgraded to cope with the increase of the number of tourists and investors activities associated with the new developments,
 11. the whole infrastructure has to be improved starting with local roads that should be widened and paved and the railway line should be upgraded, and
 12. adoption of new safety elevations for drainage and sewerage systems.

SUGGESTION TO FOLLOW UP THE PRESENT STUDY

1. Constructing and operating a field station at the study area for data collection, surveying and data analysis.
2. Monitoring sea level variations and land subsidence.
3. Developing and enhancing mathematical models to predict the impacts on the area.
4. Preparing the best coastal protection plan according to integrated coastal zone management concept.
5. Evaluation of the coastal lands for various land use.

ملخص

تأثير التغيرات المناخية على المنطقة الساحلية مابين فوكا ومطروح

يتضمن برنامج دراسة المنطقة الساحلية مابين فوكا ومطروح اجراء تقييم للوضع الراهن من حيث المناخ وطبيعة المنطقة والشروات الطبيعية بالاضافة الى خدمات السياحة والطاقة بالمنطقة . كما تشمل عملية تقييم لتأثير التغيرات المناخية العالمية المتوقعة على المنطقة من حيث النوعية والكم ، وكذلك اقتراح الخطوات التي يجب اتخاذها لتجنب هذه التأثيرات أو تقليل أثارها مع التوسية بما يجب اتباعه ازاء الوضع الراهن .

تغطي الدراسة المنطقة الساحلية مابين فوكا ومطروح بطول يقرب من ٧٣ كم على ساحل البحر المتوسط وبعمق ٧٠ كم جنوبا . وبلغ تعداد سكان المنطقة مايقرب من ٤٩ الف نسمة ويستوطن معظم سكان المنطقة (٧٣%) بالجزء الساحلى . وترتبط منطقة الدراسة بباقي مدن الجمهورية بعدد من وسائل النقل منها الطريق الساحلى الدولى السريع وخط الحىك الحديدية وعده طرق فرعية أخرى .

وتعتبر الامطار المصدر الرئيسى للمياه بالمنطقة حيث يبلغ متوسط كمياتها السنوية مايقرب من ٣٠٠ - ٤٥٠ مليون متر مكعب يسقط معظمها فى فصل الشتاء ن وتقل هذه الامطار فى اتجاه الجنوب ، ويتم الاستفادة بهذه المياه عن طريق اقامة خزانات وسدود محلية بواسطة السكان البدو . وتعتبر الزراعة والرعى هما المصدران الرئيسيان للدخل بالمنطقة حيث تبلغ المساحة المنزرعة حوالى ٠٠٠ ٤٠ فدان وهو مايعادل حوالى ٣٣% من المساحة الكلية لمنطقة الدراسة يتركز معظمها فى الوديان حيث تتم زراعة اشجار التين والزيتون واللوز الى جانب القمح والشعير .

وبالرجوع الى بيانات التغيرات المناخية والارتفاع المتوقع فى مستوى سطح البحر خلال القرن القادم تبين ان هناك زياده سنوية متوقعه فى درجة الحرارة تتراوح مابين ٠,٤ - ٠,٨ د.م و ٠,٥ - ٠,٣ د.م بحلول عامى ٢٠٣٠ و ٢١٠٠ على التوالى . كما أنه من المتوقع ان تقل كمية الامطار السنوية بمعدل قد يصل الى ٤% و ١٠% خلال هذين الاجلين . وقد دلت البيانات بأن الظاهرة الكونية للاحتباس الحرارى قد تتسبب فى زيادة مستوى سطح البحر بمقدار ١٦ سم و ٤٨ سم فى نفس الاجلين المشار اليهما . ومن ثم وسوف تؤدى التغيرات المناخية الى تحرك نظام الزوابع المؤثر على المنطقة نحو الشمال ، الامر الذى يترتب عليه انخفاض نشاط العواصف المؤثرة على المنطقة وانخفاض معدل الامطار وزياده معدل جفاف التربة وزياده نسبة ملوحتها مما يؤدى الى نقص انتاجيتها . ومن المتوقع ان يؤدى ارتفاع مستوى سطح البحر الى تناقص الجزء الساحلى لمنطقة الدراسة مما يعرضه لنحر يتراوح مابين ٢ - ٥ كم بحلول نهاية القرن القادم ، كما ان الشريط الساحلى ومايحتويه من منخفضات قد يتعرض الى مخاطر الغرق الموسمى بمياه البحر خلال فصل الشتاء لتزايد ارتفاعات الامواج بنسبة حوالى ٧٥% . كما سوف يؤثر ارتفاع درجة الحرارة ونقص كميات الامطار الى نقص فى المساحة المنزرعة ومن ثم تقلص فى الغطاء النباتى للمنطقة واختلاف فى انماط امراض النبات ممايؤدى الى انخفاض انتاجيه الغذاء ، كما ان الغطاء النباتى الطبيعى سوف

يزحف شمالا مما ينتج عنه تغير مناطق الرعى وتقلصها الامر الذي يترتب عليه هجرة السكان .

ومن المتوقع ايضا ان تؤدي التغيرات المناخية الى التأثير على نمط هجرة طيور الشمال الى سواحل منطقة الدراسة خلال فصل الشتاء . وسوف تشهد المنطقة تغيرا في كلا من نمط هجرة الاسماك وحياه الزواحف الارضية واحتمال زيادة اعداد الهلاميات jelly fish swarms كما ان زيادة نسبة ملوحة مياه البحر قد تؤدي الى استيطان بعض الاصناف الزائرة في المنطقة .

كما أن ومن المتوقع ان تؤدي زياده درجة الحرارة الى تآثر البنيه الاساسية سلبا والى زيادة استهلاك الطاقة مما قد يكون مشجعا الى قيام بعض الصناعات الخدمية لمواجهة متطلبات تزايد احتياجات السكان والخدمات السياحية .

وتقترح الدراسة بعض الخطوات التي يجب اتخاذها لتجنب تلك التأثيرات أو تقليل آثارها ومن أهمها :

- ١- استخدام مصادر جديده للطاقة لتخفيض بها نسبة العوادم الغازية مع استحداث مصادر نظيفة للطاقة باستغلال قوه الرياح والامواج والطاقة الشمسيه .
- ٢- تصميم اعمال حماية الشواطئ في المناطق الحرجة مع تدعيم الكشبان الرملية وتثبيتها باستخدام الوسائل المناسبه لتكون درعا أمام طغيان مياه البحر خاصة في المناطق منخفضة المنسوب .
- ٣- الانتقال التدريجي المرشد للمشروعات وللقري السياحية القريبة من خط الشاطئ الى جنوب الطريق الدولي السريع لحمايتها من غمر مياه البحر مستقبلا .
- ٤- اعداد برامج توعيه موسعه لارشاد المواطنين الى حسن استخدام المياه بسبب ندرتها في المستقبل .
- ٥- احلال محاصيل زراعيه جديده تتحمل زياده نسبة ملوحة التربة في المستقبل مع الالتزام بالزراع المكثفه بسبب نقص مساحه الارض المنزرعه .
- ٦- يجب تطبيق قانون حماية البيئه الطبيعيه بحزم وكذلك مراعاة الحفاظ على حرم الشاطئ بعرض لا يقل عن ٣٠٠ متر .
- ٧- تشجيع التوسع في المزارع السمكيه بسبب انخفاض انتاجيه الاسماك البحريه في المستقبل .
- ٨- الاهتمام بالبنيه الاساسيه للمنطقه وتطوير مطار مطروح لمواجهة زياده حركه السياحه .

ANNEX VI

**INTEGRATED PLANNING AND MANAGEMENT STUDY
FOR THE AREA**

INTEGRATION VS. SECTORIAL APPROACH

Sectorial solutions "transfer" the problem

Managing complex systems requires integrated approach which can:

- ♦ **bring together multiple and overlapping interests of the coastal area;**
- ♦ **harness coastal resources for maximum social and economic benefit for present and future generations;**
- ♦ **bring together sectorial activities;**
- ♦ **"internalize" problems and conflicts.**

DEFINITION OF ICAM

Adaptive process of resource management for environmentally sustainable development of coastal areas.

ICAM is not a substitute for sectorial planning but focuses on the linkages between sectorial activities.



ICAM REQUIRES

- ♦ A MULTIDISCIPLINARY APPROACH
- ♦ PROBLEM SOLVING AND NOT PROBLEM TRANSFER
- ♦ PRIORITY TO PREVENTION RATHER THAN CURE
- ♦ A PRECAUTIONARY APPROACH



TYPES OF INTEGRATION:

- ♦ among sectors
- ♦ among institutions
- ♦ among plans
- ♦ vertical/horizontal



Effects \ Activities	Activities							Possible Preventive Actions
	Urbanization	Tourism	Industry	Energy Production	Fisheries & C Aquaculture	Transport	Agriculture	
Marine Pollution	↑↑ ↑↑	↑↑ ↑↑	↑↑	←	↑↑ ←	←	↑↑	Adequate facilities of effluent Collection and treatment. Restrictions on non-point sources
Freshwater Pollution	↑↑ ↑↑	↑↑ ↑↑	↑	↑	↑↑ ←	←	↑↑ ↑↑	As above and protection of water catchment areas Prevention of overpumping
Air Pollution	↑ ↑↑	↑↑	↑↑	↑↑		↑↑	←	Pollution abatement equipment Restrictions on fuels burned. Encouragement of public transport
Loss of marine resources	↑↑	↑ ↑↑	↑↑	←	↑↑ ←	←	←	Management of fisheries Designation of marine reserves Restrictions on extraction Encourage natural beach processes
Loss of land resources	↑↑	↑↑ ↑↑	↑↑	↑↑		↑↑	←	Designation of protected areas Protect open spaces Rehabilitate damaged open spaces Keep spatial options open
Loss of cultural resources	↑↑	↑↑ ↑↑	←	←		↑↑		Designation of sites, buildings & monuments Encouragement of new, compatible uses Restrictions on building height and materials Rehabilitation of stone damaged by corrosion
Loss of public access	←	↑ ↑↑	←	←	↑↑	↑↑		Regulations to guarantee public right of access Prevention of obstacles to access Clear definition of public and private rights to resources
Soil degradation	←		←	←			↑↑ ↑↑	Pollution abatement equipment Good farming practice to prevent soil erosion
Noise and congestion	↑↑ ↑↑	↑↑ ↑↑	↑↑	←		↑↑		Noise abatement equipment at source Acoustic building and acoustic barriers Restrictions on locations of noise sensitive activities

Table 1. MATRIX OF POSSIBLE INTERACTIONS BETWEEN ECONOMIC ACTIVITIES AND EFFECTS ON COASTAL RESOURCES

CONFLICTS

Typical conflicts occur over:

- ♦ proximity to the coastline
- ♦ incompatible uses
- ♦ right of access to the shoreline
- ♦ conservation vs. immediate economic gains
- ♦ adequate provision of environmental services, etc.

EFFECTS OF ECONOMIC ACTIVITIES ON COASTAL RESOURCES

marine pollution

freshwater pollution

air pollution

loss of marine resources

loss of land resources and visual value

loss of historical and archeological resources

loss of public access to the beach

noise and congestion

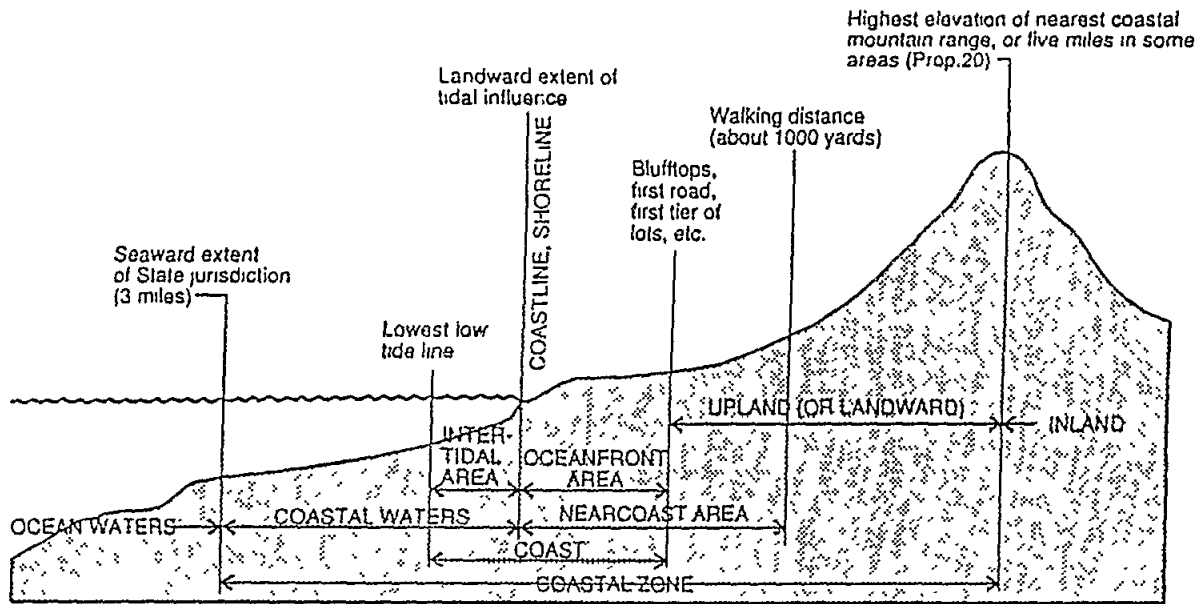
climatic changes

risks and hazards

WHAT IS COASTAL AREA?

- ♦ AREA OF INTENSE ACTIVITY
- ♦ AREA OF INTERCHANGE WITHIN AND BETWEEN PHYSICAL, BIOLOGICAL, SOCIAL, CULTURAL, ECONOMIC ETC. PROCESSES
- ♦ AREA COMPOSED OF MULTIPLE INTERACTING SYSTEMS (MARITIME, TERRESTRIAL, RIVERINE)
- ♦ ECOLOGICALLY SENSITIVE AREA: CHANGES GENERATE CHAIN REACTIONS
- ♦ AREA WHICH ATTRACT POPULATION FASTER THAN INLAND AREAS

HOW TO DEFINE THE COASTAL AREA?



PARTS OF THE COASTAL AREA

Source: California Coastal Zone Conservation Commissions (1975)

ECOSYSTEMS APPROACH

LONGITUDINAL/PERPENDICULAR AXES

WHAT IS COASTAL AREA?

COASTAL

SEA-LAND INTERFACE

COASTAL ZONE

- ◆ LAND AFFECTED BY ITS PROXIMITY TO THE SEA AND THAT PART OF THE SEA WHICH IS AFFECTED BY THE PROXIMITY OF THE LAND

● ● GEOGRAPHICALLY NARROW AREA

- ◆ PROBLEMS FELT IN THE COASTAL ZONE ARE THE CONSEQUENCE OF THE INTENSIVE USE OF PHYSICAL SPACE AND NATURAL RESOURCES

COASTAL AREA

- ◆ TRANSITIONAL AREA/ENVIRONMENT BETWEEN THE OCEANS AND TERRESTRIAL DOMAINS

● ● MANY DEVELOPMENT PROCESSES TAKE PLACE ACROSS THE WHOLE AREA

- ◆ GEOGRAPHICALLY BROADER AREA WHICH INCLUDES COASTAL ZONE, LARGE ECOSYSTEMS, TERRITORIAL WATERS (12 NM), AND EEZ (200 NM)
- ◆ MANY PROBLEMS ORIGINATING IN THAT AREA AFFECT THE PROCESSES AND ECOSYSTEMS OF THE COASTAL ZONE AND THE SETTLEMENTS LOCATED IN IT

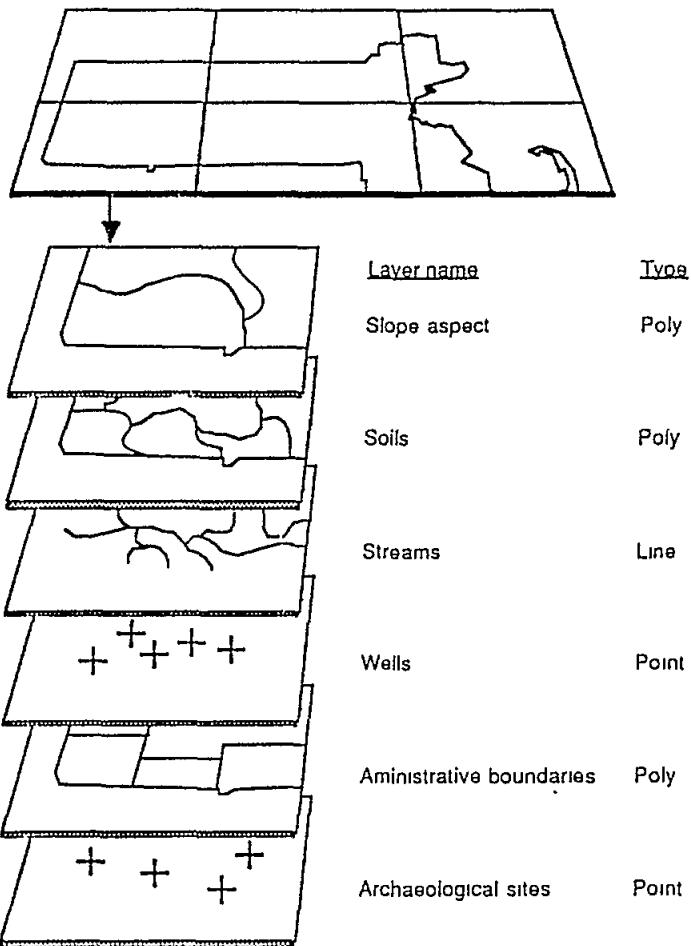
STRATEGIES FOR SUCCESSFUL IMPLEMENTATION OF GIS

- Strong leadership;
- Clear short- and long-term planning;
- Pilot study used;
- Realistic, problem-oriented applications;
- Dedicated and motivated personnel;
- Stable funding;
- Sufficient schedule.

GIS COSTS

- Data - collection and conversion;
- Software - system and applications;
- Personnel - training;
- Hardware - initial and maintenance;

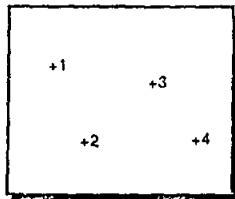
the layer concept



- each feature type for an area is stored in a separate coverage

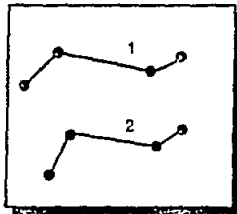
three basic feature types

- geographic features too small to have area become points



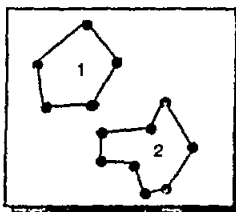
wells
telephone poles
archaeological sites

- geographic features having length but too narrow to have area become arcs



streams
streets
fault lines

- geographic features having area become polygons



soils
land use
waterbodies
administrative/political boundaries

- each feature is identified by a unique ID

four major GIS functions

■ data capture

- graphic data: digitized, converted from existing data
- attribute data: keyed in, loaded from existing data files

■ data storage and manipulation

- file management
- editing

■ data analysis

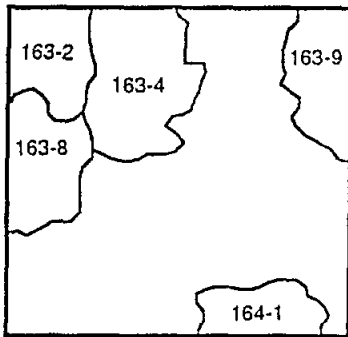
- database query
- spatial analysis
- modeling

■ data display

- maps
- reports

what is a geographic information system?

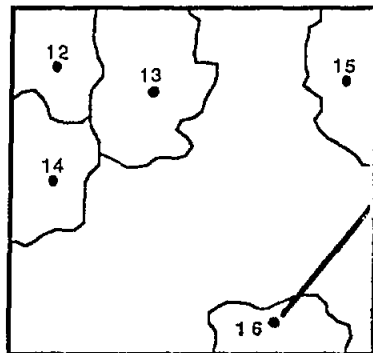
■ maps – graphic data



■ database – tabular data

STAND#	TYPE	AVG HEIGHT	HRVST.DATE
163-2	WP	50	1993
163-4	DF	30	1995
163-8	WP	80	1989
163-9	WP	65	1991
164-1	MX	35	1996

■ graphic data / tabular data integration



AREA	PERIMETER	STAND#	STAND-ID	STAND NO
205	1331	2	12	163-2
355	2022	3	13	163-4
320	1931	4	14	163-8
240	1402	5	15	163-9
220	1600	6	16	164-1

STAND NO	TYPE	AVG HEIGHT	HRVST DATE
163-2	WP	50	1993
163-4	DF	30	1995
163-8	WP	80	1989
163-9	WP	65	1991
164-1	MX	35	1996

GIS DEFINITIONS

- A computer system capable of holding and using data describing places on the earth's surface.
- An organized collection of computer hardware, software, data and personnel designed to efficiently capture, store, update, manipulate, analyze and display all forms of geographically referenced data.

BENEFITS OF A GIS

- Improved quality of information;
- Greater and faster access to data and information;
- More efficient information processing;
- Informed decisions;
- Maps, graphics and reports.

CAMP Fuka: Carrying Capacity Assessment Study for Tourism

Tourism in Egypt

Owing to rich attractions of Pharaonic, Christian and Islamic cultures, to Mediterranean and the Red Sea natural values as well as desert attractiveness, Egypt has established itself as a world famous tourist destination. This is why Egypt is certainly a prospective country of tourism in world terms. Moreover, on the level of Government policy, tourism is placed very high in development priorities. Namely, within the global process of transition and privatization, Egypt is one of the few countries which has in recent years tried to attract foreign and local investors in tourism. Stimulation process is developed within the sphere of taxation, tariff, pricing, investment policy and rights of repatriation of profits. Through the Ministry of Tourism, the State has founded Tourism Development Authority (TDA) which is responsible for planning, coordination and promotion of tourism investments.

Project Area

The Project Area, defined by the agreement of MAP and the Egyptian Government, belongs to the Marsa Matrouh Governorate and covers a 100 km long north-west Mediterranean coastal stretch of Egypt. It starts from the city of Marsa Matrouh, includes Fuka situated 210 km to the west of Alexandria and extends towards the east. The depth of the Project Area ranges from 10 to 15 km from the coast.

The whole Project Area is in a pioneer state of tourism development. There are virtually no tourist installations of any importance apart from those in Marsa Matrouh, the Siwa Oasis and newly built tourist settlement in the Sidi Abdel Rahman area. The most of the area is not on the priority programme of the Tourist Development Authority. This is because TDA does not own the land and because the access to the sea is considerably limited. However, various initiatives to build tourist settlements on the most attractive spots of the coast come from private and state companies.

Tourist development scenarios

In the context of the future tourist development three scenarios are possible.

The first one follows linear, uncontrolled and unplanned concept of high building density along the coast. Developers are local government companies and private entrepreneurs, focusing on real estate business.

The second scenario from the point of planning and management satisfies all modern development standards but only on an enclave concept of tourism destination development. It means that everything is brought out of the region and is oriented to create tourism oasis for foreigners. Both, first and second type of tourist development do not contribute enough to the economic, social and cultural advancement of the local population and they are short-term oriented.

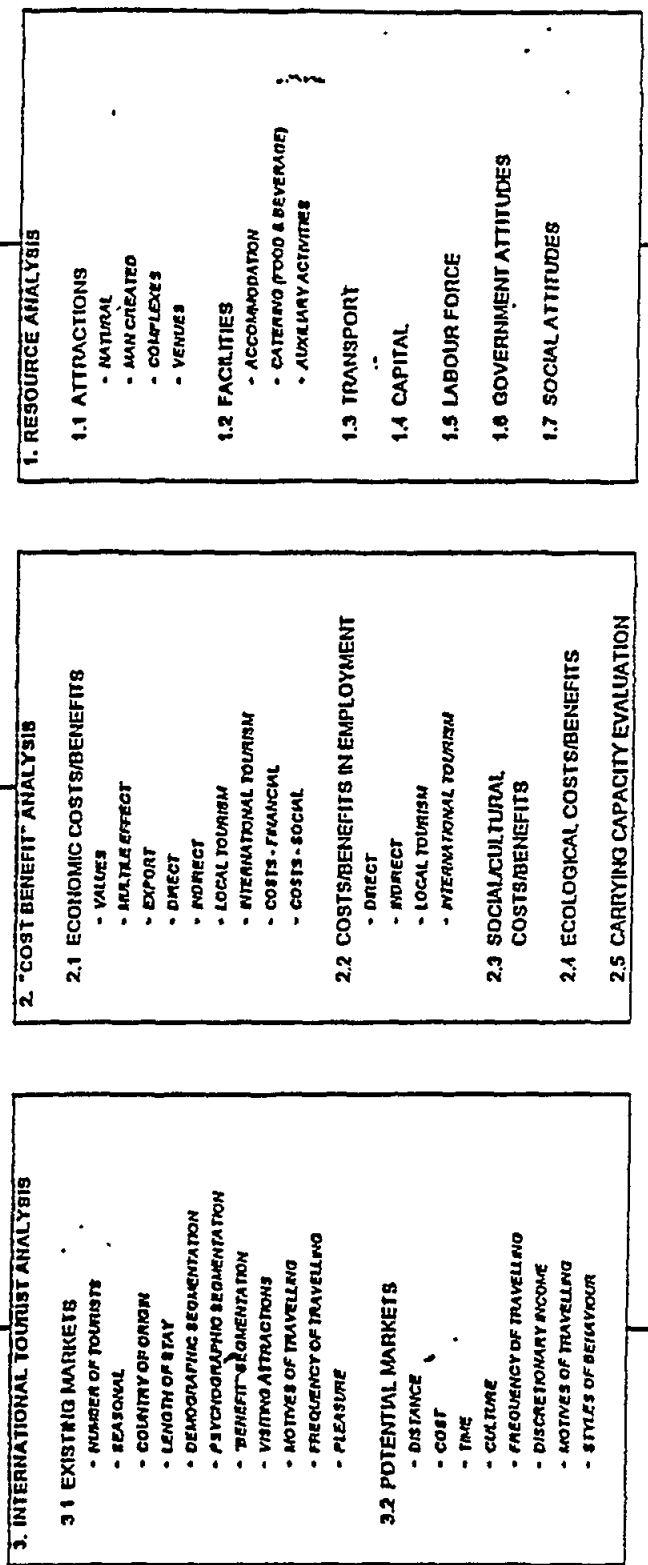
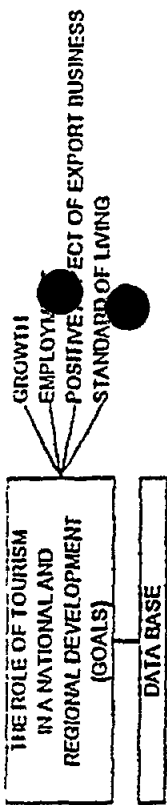
Third scenario presupposes a definition of clear objectives and development strategies in order to enable local population to take necessary responsibility in the tourism development process. It is based on the general understanding of tourism as a

multifunctional system development which should be guided by sensitive planning and management methods and techniques.

Findings and proposals

According to the target group-attraction analysis, Project Area is limited in number of tourist products it can offer. It is mainly a routine summer holiday type. It can attract tourists from Europe, the Near East and America mostly for the beauty of the coast but also for the sound sociocultural basis with possibility for special interests which can find places in the hinterland as well (water sports, hunting, excursions,...).

Regarding development scenarios the third one is the only one environmentally and socially sustainable in longer run giving the chance to broadest strata of population to share tourism development benefits. On the other hand this is the most difficult scenario for implementation. To this end, in dealing with complex interconnection of natural and anthropogenic features of the region, preparation of the Integrated Coastal Area Management Plan has been proposed with the Tourism Master Plan as its subdocument. Tourism Master Plan for the Project Area, based on the world relevant criteria, define itself according to available resources and attraction mix of the markets as well as programs and measures on the state, regional and local level. This document with ICAM Plan will attract local and international financial institutions, developers and private investors in the process of tourism development in the tourism development which has already begun. Both documents should prove furthermore, that this region is capable of carrying out the integral development concept which is different from the one preferred in other parts of the country. Good first step in this regard is intended preparation of Carrying Capacity Assessment for Tourism Development following the methodology offered in the relevant Guidelines prepared by PAP/RAC.



IDENTIFICATION OF THE PROFILE OF TOURISTS
AND SELECTION OF TARGET SEGMENTS

MAXIMUM REALIZATION OF GOALS
THROUGH THE MASTER PLAN

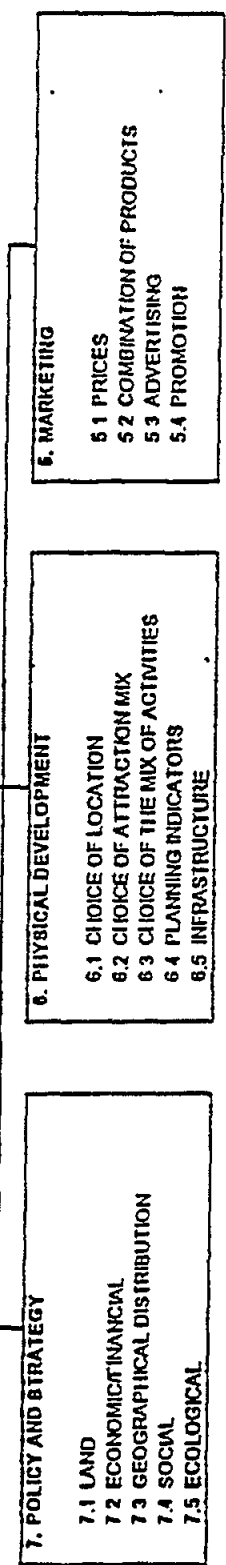
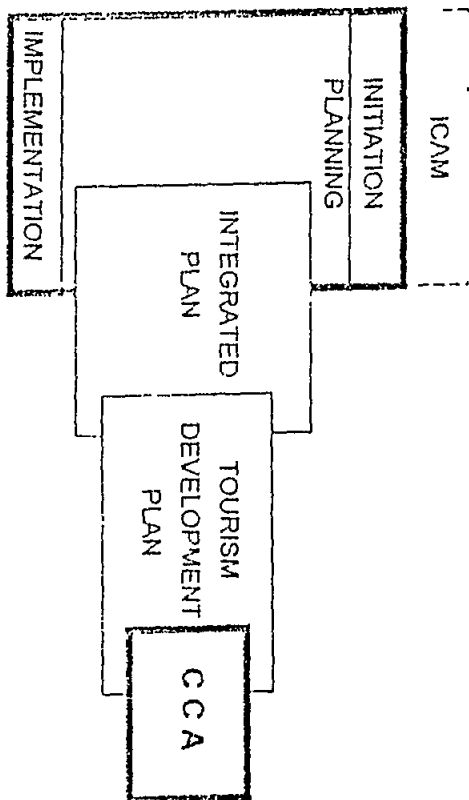


Figure 2. CCA as part of the ICAM process, integrated plans and tourism development plans



Source Authors' work

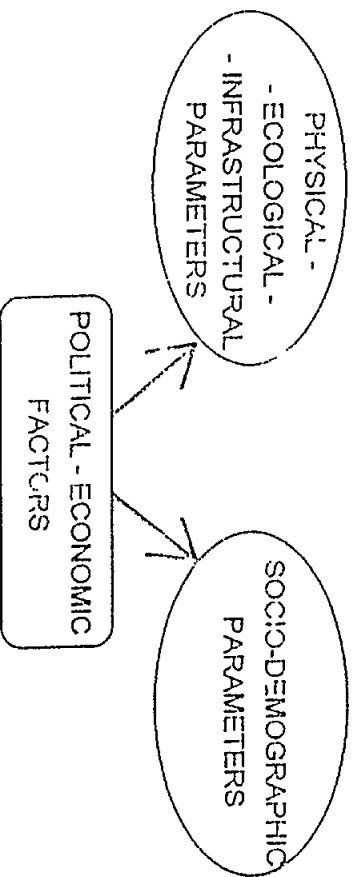
CCA phases

1. documentation
 2. analysis
 3. tourism development options
 4. CCA formulation
- part of the ICAM process: sectoral activity, linkages, integration with other sectors
 - outside ICAM process: tourism master plan, linkages necessary

Table 8. Elements of the carrying capacity in the Mediterranean countries that must be given a special attention due to the specific general and tourism features

Element	Reason of its particular importance	Possible negative consequences
eco-system	- increased sensitivity due to the specific climate	- disturbance of the natural balance, disappearance of rare wildlife species
attractive landscapes	- particular sensitivity of the most attractive areas (islands, protected areas)	- damage to the basis of the economy since tourist arrivals are motivated by the quality of the eco-systems
water supply	- shortage of water in summer; - soil permeability	- threat to the development of tourism, - threat to traditional activities, specially agriculture, - high prices of water
waste waters	- dry climate of summers - the Mediterranean basin is closed	- further deterioration of the already high level of pollution of the sea and land waters
traffic	- exaggerated traffic increase in the summer season, - narrow roads, especially in historic settlements; - sensitivity of cultural monuments to air and noise pollution	- traffic congestion; - high levels of air pollution in tourist settlements, - devastation of cultural monuments
economic issues	- lower degree of economic development than in the countries from which tourists come	- further increase of social differences; - decline of the traditional Mediterranean economy
cultural and historic heritage	- exceptionally rich cultural and historic heritage, - limited funds for conservation and improvement of the cultural and historic heritage	- devastation of cultural monuments; - diminished appeal of tourist areas due to the threatened historic heritage
socio-cultural issues	- specific traditional culture and norms of behaviour, - existence of a number of small specific closed communities with preserved local identity	- destruction of local culture; - conflicts between local population and tourists, - increase in criminal activities

Figure 1. Basic groups of parameters important for the carrying capacity assessment



Carrying capacity concept

- first origins: agricultural studies
- not only physical capacity of a particular site: maximum number of visitors (case of Rhodes)
- other parameters: socio-demographic, cultural, political, economic, environmental etc

definition:

the maximum number of people that may visit a tourist destination at the same time, without causing destruction of the physical, economic and socio-cultural environment and an unacceptable decrease in the quality of the visitors' satisfaction

PAP/MAP activities

- Blue Plan scenarios
- carrying capacity assessment guidelines
- studies: Rhodes, Vis, Fuka, Albania



1. MED Agenda 21

- special chapter on tourism
- common to all Mediterranean countries
- concentrated in the North 80%

requirements for harmonious development:

- impact studies
- tourist potential to be assessed in development studies;
- implement ICAM when allocating areas for tourism

2. MAP Phase II

- economically important
- major factor affecting the environment
- environment major factor for tourism

sustainable development objectives:

- assess, monitor and evaluate tourism activities
- promote environmentally friendly tourism
- assess carrying capacity
- raise the awareness of tourists for environment

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

نيابه عن زملائي العاملين فى محطة التخطيط واستغلال الاراضى والمتابعة

البيئية (LUPEM) والعاملين بجامعة الاسكندرية أود ان أشكر مستر /تورمبتش ومستر / راديليا والاساذ الدكتور/ محمد عز الدين الراعى و احب ان اوضح لسيادتكم الخطوات التى تمت حتى الان وهى تتلخص فى انه بالتعاون مع PAPIRAC قد تم تنظيم دورتين تدريبيتين كل منهما لمدة اسبوعين على اعمال نظم المعلومات الجغرافيه واستخدام برمانج ARC/INFO وقد كانت على النحو التالى :-

١-الدوره الاولى وقد عقدت بمقر محطة LUPEM والكائن بمبنى المشروعات الدوليه بمطروح وقد تمت فى يوليو عام ١٩٩٤ . وقد قام بألقاء المحاضرات السيد تونش راديليا وبحضور عدد ٦ متدربين منهم ثلاثه من محطة التخطيط ومتدرب من كلية الزراعة جامعة الاسكندريه ومتدرب من معهد البحوث والدراسات جامعة الاسكندريه ومتدرب من جهاز شئون البيئه وقد تركزت الدوره على شرح وتعريف نظم المعلومات الجغرافيه واهميتها وا استخدامها فى الاغراض المختلفه وكذلك على كيفية ادخال البيانات من الخرائط الطبوغرافيه مثل خطوط الكنتور والمعالم الاخرى مثل الطرق والابار والمساكل الموجوده على تلك الخرائط وكذلك تم نقل حدود القبائل من خرائط توزيع القبائل الى الحاسب الالى وتم ايضا تدريب العاملين على تصحيح الاخطاء الخاصه بنقل المعلومات من الخرائط الى الحاسب الالى وكذلك بجميع هذه البيانات فى ملف واحد (Coverage) ثم بعد ذلك تم عمل بعض التحليلات البسيطة لتعريف العاملين باهمية النظام مثل عمل Buffer حول الطرق وتحديد اقرب المساكن والابار الى الطرق الرئيسيه . كما تم تحديد الميول والانحدارات . وفى نهاية الدوره تم طباعة خرائط للقبائل وعليها بعض المعلومات المتاحه مثل الطرق والابار.

٢- هذا وقد عقدت الدورة الثانية فى شهر مايو عام ١٩٩٥ بنفس مقر محطة LUPEM وذلك بحضور ٤ من العاملين بالمحطة و ثلاثه من العاملين بمعهد البحوث والدراسات

بجامعة الاسكندرية وكذلك واحد من كلية الزراعة جامعة الاسكندرية وقد بدأت هذه الدورة بأستعراض ماتم خلال الدورة السابقة . وقد تم استكمال عملية نقل الخرائط القبلية الى الحاسب الالى وكذلك تم نقل حدود المجتمعات المحلية التى سيتم العمل عليها فى مشروع ادارة موارد مطروح الى الحاسب الالى ويتكون كل مجتمع محلى من عدة قبائل وكذلك تم تحويل النتائج المتحصل عليها عن طريق برنامج ERDAS وهى عبارة عن نتائج تحليل صور الاقمار الصناعية وتحديد تصنيف الغطاء الارضى الى نتائج يمكن تحويلها للتعامل معها على برنامج ARC\INFO ثم تم بعد ذلك اضافة البيانات الخاصة بالسكان والتى تم تجميعها عن طريق المسح الميدانى وتخزينها على قائمة بيانات خاصة . وبناء على ذلك فأن البيانات التى تم التعامل معها تنقسم الى عدة بيانات وهى:-

- ١- بيانات مجمعة عن طريق المسح الميدانى (سكانية)
- ٢- بيانات مجمعة عن طريق تحليل وتصنيف صور الاقمار الصناعية (تصنيف الغطاء الارضى)
- ٣- بيانات نقلت من الخرائط الطبوغرافية (خطوط كتور- طرق- ابار-) هذا وقد تم وضع كل هذه البيانات فى طبقات مختلفة (Layers) وتحديد كافة البيانات المتاحة لكل مجتمع محلى يضم مجتمع قبلى . ومن هذا يتضح ان من اهم النتائج التى تم الوصول اليها خلال هاتين الدورتين الاتى:

١- تدريب مجموعه من العاملين على استخدام برنامج نظم المعلومات الجغرافيه الحديثه ARC/INFO

٢- بناء نظام معلومات جغرافى يحتوى على البيانات التى تم تجميعها والمتاحه والسابق ذكرها لمنطقة فوكه - مطروح

٣- اتاحة الفرصه للعاملين بالمحطه للتعامل مع مختلف انواع البيانات RASTER-VICTOR مما يساعد على الحصول على نتائج اكثر دقه من البيانات المتاحة

ومن المشاكل التى واجهت العمل فى المرحله السابقه :

١- اختلاف المتدربين من خارج المحطه فى خلال الدورتين

٢- قصر المده المحدده للدوره لتقابل المطلوب تحقيقه من اهداف

ومما سبق نستطيع ان نحدد ما هو مطلوب استكماله فى المرحله القادمه ونلخصه فى الاتى:

- ١- استكمال ما تم من اعمال خلال المرحله السابقه واستكمال بناء نظام المعلومات الجغرافى الذى قد تم يئائه بأضافة البيانات الاخرى والمتاحه مثل بيانات الارصاد الزراعيه وبيانات تحليل التربه .
- ٢- تحليل كاقه البيانات المتحصل عليها والحصول على النتائج الخاصه بالامكانيات المستقبليه للتنميه فى المنطقه فوكه - مطروح .

ANNEX VII

**DEVELOPMENT OF ENVIRONMENTAL LEGISLATIONS
AND INSTITUTIONAL FRAMEWORK**

Abstract of
The Legal Study of Environmental
Legislations Relating to
The Fuka Matrouh
Area Project

Counselor

Mohamed Abdel Aziz El-Guindi

The Fuka Matrouh area project plan raises a number of questions concerning the legislative rules which govern its development operations. these rules include:

- 20 international conventions enforced in Egypt including 7 concerning the environment of the Mediterranean Sea.
- Some of the domestic laws and national decrees concerning environment.

Egypt obligations during development of Fuka Matrouh area according to the international conventions:

1. Supervision, inspection and control of all kind of plants for prevention of spreading of disease and pests.
2. Establishment of integral national reserve areas and national parks.
3. To under take the necessary procedures to prevent the transportation and spread of pests and disease of plants and to promote the means of combating them.
4. To under take the necessary procedures for the conservation of fauna and flora species and to ensure the best methods for their use and development.
5. To prevent sea water pollution due to deliberate dumping of waste.

6. To take the necessary measures which protect the workers expaused to carcinogenic substances and agents.
7. To take preventive measures against occupational hazards originating from the air, noise and vibration pollution in work environment.
8. To take measures for the protection of human and environmental sanitation against detrimental effects which may cause a change in the Ozone layer.
9. Early notification of any nuclear accident.
10. Cooperation with neighbouring countries for presentation of assistance in cases of nuclear accidents or radiation emergency.
11. to determine the person responsible for nuclear damages who is the operator of the nuclear establishment.
12. To take measures to ensure non allowance of transportation of hazardous wastes.
13. conservation of the Mediterranean sea environment to combat pollution from ships, air craft or exploration operations.
14. Non utilization of environmental modification techniques for military purposes to destroy or inflict damage to any state which is a party here of.
15. To prevent ships from unloading their oil cargo or reduce in case of necessity.
16. To take all necessary measures for protecting the Mediterranean Sea area from pollution resulting from discharges from rivers or coastal establishments.
17. Cooperation between Egypt and France in the collection of relevant environmental data.

Egypt obligations according to domestic legislations

1. the 3rd part of low N°4 for 1994 which ensures protection of the marine environment from pollution.
2. Low N° 38 for 1967 and its amendments N° 31 for 1976, N° 209 for 1980 N° 177 for 1981 and N° 129 for 1982, concerning public hygiene, and Low N° 4 1994 concerning the environment.
3. Legislation concerning Hazardous substances and residues (1st part of low N°4 for 1994) and an administrative decree issued by the ministry of industry on 1958 concerning the conditions which must be available in the places which handle poisonous and non poisonous substances and their abstracts.
4. Legislations relating to noise: Low N° 45 for 1949 and amending lows 209 for 1980, 177 for 1981 and 129 for 1982 organizing the use of loud speakers, traffic low N° 66 for 1973 prohibits the installations of sirens or similar apparatus in cars.

Penal low N° 58 for 1937 article N° 379 penalyses any one causing noise at night.
5. Legislation relating to the protection of the natural environment Low N° 102 for 1983 relating to natural protectorates, the prime minister's Decree N° 671 for 1986 and the Matrouh Governorate decree N° 56 for 1982.
6. The lows and decrees which organize the utilization of lands: Low N° 143 for 1981 and low N°7 for 1991 which organize the utilization of desert lands. the prime minister's decree N°203 for 1982 relating to the definitions of desert governorates.

7. Legislation relating to Marine accidents: Law N° 79 for 1961 concerning marine catastrophes.

The administrative authorities charged with applying the environmental legislations environmental affairs Agency Matrouh Governorate.

- Environmental affairs Agency.
- Matrouh Governorate.
- Concerned administrative authorities each in its own field of competence.



دراسة قانونية للتشريعات
البيئية الدولية والوطنية
المتعلقة بمشروع تنمية
فوكة مطروح

تهدف هذه الدراسة الى بيان القواعد التشريعية البيئية التي ينبى الالتزام بها ومراعاتها في تنفيذ مشروع تنمية فوكة مطروح وبعض هذه القواعد تملية الاتفاقيات الدولية العديدة التي انضمت اليها مصر بشأن حماية البيئة والتي تكتسب قوة القانون الداخلى بعد قرار رئيس الجمهورية بالانضمام اليها وموافقة مجلس الشعب على هذا الانضمام تم التصديق عليها ونشرها فى الجريدة الرسمية وذلك عملاً نص المادة ١٥١ من دستور مصر الدائم.

وأما البعض الآخر فتوجيه التشريعات المصرية الخاصة بالبيئة أو التشريعات ذات الأبعاد البيئية .

وقد تطلبت الدراسة عرض الاتفاقيات الدولية الخاصة بالبيئة والنافذة فى مصر بعد الانضمام اليها والتصديق عليها ونشرها بالجريدة الرسمية وبلغ عدد هذه الاتفاقيات فى مجموعها عتسرون اتفاقية منها ثلاث عشرة اتفاقية تتعلق بحماية البيئة بوجه عام وأما السبع اتفاقيات الأخرى فتتعلق بحماية بيئة البحر الأبيض بوجه خاص.

الاتفاقيات التى تتعلق بحماية البيئة بوجه عام

- ١- المعاهدة الدولية الخاصة برقاية النباتات الموقعة بروما سنة ١٩١٩ .
- ٢- المعاهدة الخاصة بالمحافظة على الحيوان والنبات بحالتهم الطبيعية والبروتوكول المديلة به والموقع عليهما بلندن فى ٨ نوفمبر سنة ١٩٣٣ .
- ٣- الاتفاقية الدولية لوقاية النباتات الموقعة فى ٦ ديسمبر سنة ١٩٥١ .
- ٤- المعاهدة الافريقية للمحافظة على الطبيعة والموارد الطبيعية والتي وافق عليها مؤتمر القمة الافريقى فى اجتماعه بالحرائر بتاريخ ١٩٦٨/٩/٢٨ .
- ٥- الاتفاقية الدولية لمنع التلوث البحرى عن طريق القاء النفايات والمواد الأخرى الموقعة بتاريخ

١٩٧٢/١٢/٢٩

- ٦- الاتفاقية الخاصة بالوقاية والسيطرة على الاحطار المهنية الناجمة عن المواد والعناصر المستسة للسرطان والتي أقرها مؤتمر العمل الدولي بتاريخ ١٩٧٤/٦/٢٤ .
- ٧- اتفاقية حماية العمال من المخاطر المهنية الناجمة عن تلوث الهواء والعصواء والاهتزازات فى بيئة العمل الموقعة فى حنيف فى ١٩٧٧/٦/٢٠ .
- ٨- الاتفاقية الإقليمية للمحافظة على بيئة البحر الأحمر وحليح عدن والبروتوكول المرفق بها والموقعة بتاريخ ١٩٨٢/٢/١٤ .
- ٩- اتفاقية فيينا لحماية طقة الأورون الموقعة فى فيينا فى ١٩٨٥,٣/٢٢ .
- ١٠- اتفاقية بشأن التليغ المكر عن وقوع حادث بروى المرفعة فى فيينا فى ١٩٨٦/٩/٢٦ .
- ١١- اتفاقية تقديم المساعدة فى حالة وقوع حادث بروى أو طارئ إتماعى الموقعة فى فيينا بتاريخ ١٩٨٦/٩/٢٦ .
- ١٢- البروتوكول المشترك بشأن تطبيق اتفاقية فيينا واتفاقية باريس للمسؤولية المدنية عن الاضرار النووية والموقع فى فيينا بتاريخ ١٩٨٨/٩/٢١ .
- ١٣- اتفاقية بارل بشأن التحكم فى نقل النفايات الخطرة والتخلص منها عبر الحدود والموقعة بتاريخ ١٩٨٩/٣/٢٢ .

الاتفاقيات التى تتعلق بحماية بيئة البحر الابيض بالذات :-

- ١- الاتفاقية الدولية للحيثان الموقعة فى واشطن بتاريخ ١٩٤٦/١٢/٢ وقد انسحت مصر من هذه الاتفاقية فى ١٩٨٩/٥/٢٤ .
- ٢- اتفاقية روما ١٩٤٩ المعدلة فى ١٩٦٣/١٢/٣ ، ١٩٧٦/١٢/٩ بشأن اثناء مجلس عام لمصايد الأسماك فى البحر الأبيض المتوسط وقعتته مصر فى ٢٠ فبراير سنة ١٩٥٢ .
- ٣- اتفاقية حماية البحر الأبيض المتوسط من التلوث والبروتوكولين الملحقين بها التى أقرها مؤتمر الدول الساحلية فى البحر الأبيض المتوسط فى برشلوه فى الفترة من ١٢-١٦/٢/١٩٧٦ .

٤- الاتفاقية الدولية لحظر استخدام تقنيات التغيير في البيئة للأغراض العسكرية أو أية أغراض عدائية أخرى الموقعة في نيويورك بتاريخ ١٠/١٢/١٩٧٦.

٥- بروتوكول عام ١٩٧٨ الخاص بالمعاهدة الدولية لمنع التلوث من السفن لعام ١٩٧٣ الموقع في لندن بتاريخ ١٧/٢/١٩٧٨ ومرفق طيه المعاهدة الدولية لمنع تلوث مياه البحر بالزيت الصادره سنة ١٩٥٤ والمعدلة في ١٣/٤/١٩٦٢.

٦- بروتوكول حماية البحر الأبيض المتوسط من التلوث من مصادر برية الموقع في أتينتا بتاريخ ١٧ مايو سنة ١٩٨٠.

٧- الاتفاقية الخاصة بميادين وبرامج التعاون حول حماية السيدة بين الوراثنين المكلفتين بتثون السيدة في جمهورية مصر العربية وجمهورية فرنسا والموقعة بتاريخ ٣/٧/١٩٩٠.

وسوف نعرض فيما يلي للالتزامات التي تفرضها الاتفاقيات الدولية سالعة البيان عمد تنفيذ مشروع تنمية فوكة مطروح :

الالتزامات النابعة من الاتفاقيات الدولية والتي ينبغي مراعاتها في تنفيذ مشروع تنمية فوكة مطروح:

- ١- الاشراف والتفتيش والرقابة على كل أنواع النباتات للوقاية من انتشار الأمراض والآفات.
- ٢- استاء مناطق حرام طبيعية كاملة ومنتزهات قومية تشرف عليها هيئة عامة يجمع ويحرم فيها تخريما باتا أى نوع من أنواع صيد الحيوان أو السمك أو عمل من الأعمال الخاصة باستغلال العابات أو الزراعة أو التعدين أو الحفر أو الحث أو التقيب أو التقصيب أو الساء أو أى عمل من شأنه تغيير معالم التربة أو السات أو يضر بالحيوان أو النبات أو يقلقه.
- ٣- اتخاذ الاحراءات التشريعية والفنية والادارية اللازمة لضمان العمل المشترك الفعال للحيلولة دون انتقال وانتشار الآفات والأمراض التي تصيب النباتات والمنتجات النباتية والنهوض بوسائل مقاومتها.
- ٤- اتخاذ جميع الاحراءات الضرورية للمحافظة على العتائر النباتية والحيوانية وصمان أفضل الطرق لاستخدامها وتنميتها وأن تراعى عند وضع خطط التنمية العوامل الخاصة بالعلاقة بين الظروف البيئية والعوامل الاقتصادية والاجتماعية .

- ٥- مع تلوث البحر الساحم عن قلب (الطرح المتعمد) النفايات والمواد الأخرى التي يمكن أن تعرض الصحة البشرية للمخاطر أو تلحق الضرر بالموارد الحية والحياة البحرية أو تعطب مرافق الاستحمام أو تعرقل الاستخدامات أو مصصات أو مستآت صناعية أخرى مقامة فى البحر ويقصد بالبحر كل المياه البحرية من غير المياه الداخلية للدول
- ٦- اتحاد التدابير اللازمة التي تخمى العمائن الذين يتعرضون للمواد أو العناصر المسببة للسرطان أو تعرضوا لها فعلا أو يمكن أن يتعرضوا لها
- ٧- اتخاذ تدابير لرعاية من المخاطر المهنية الناحمة عن تلوث الهواء والصرصاء والاهتزازات فى بيئة العمل والحد منها .
- ٨- اتحاد كافة التدابير المناسبة من أجل حماية الصحة البشرية والبيئية من الآثار الضارة التي تنجم أو يرجح أن تنجم عن الأنشطة البشرية التي نتجت أو من المرجح أن نتجت تعديلا فى طقته الأوزون.
- ٩- الامناع المكرر عن أى حادت نووى.
- ١٠- التعاون الدولى لتيسير تقديم المساعدة الفورية فى حالة وقوع حادت نووى أو طارئى إبتعاعى لتقليل إلى أدنى حد من عواقبه .
- ١١- تحديد المسئول عن الصرر النووى وهو مشغل المنشأة النووية الواقعة فى أراضى طرف فى البروتوكول ويكون مسئولا عن الصرر النووى الذى يقع فى أراض طرف فى البروتوكول.
- ١٢- اتحاد التدابير اللازمة لصمان عدم السماح بنقل النفايات الخطرة أو النفايات الأخرى إلا موافقة مكتوبة من الجهة المختصة فى الدولة المستوردة .
- ١٣- المحافظة على بيئة البحر الأبيض المتوسط ومكافحة التلوث الساحم عن السفن وعن القاء الفضلات من السفن والظائرات أو عن التلوث الساحم عن عمليات استكتشاف الإفريز القارى وقاع البحر وطقات تربته الحوفية واستعمالها أو عن التلوث من كل المصادر البرية الأخرى والتعاون فى معالجة حالات التلوث الطارئة وصياغة وقرار الاحراءات المناسبة المتعلقة بتحديد المسئولية القابوية والتعويض عن الاضرار الساحمة عن تلوث البيئة البحرية بالمخالفة لصوص اتفاقية حماية البحر الابيض.
- ١٤- عدم استخدام تقنيات التغيير فى البيئة ذات الآثار الواسعة الانتشار أو الطويلة البقاء أو الشديدة لأغراض عسكرية أو لأية أغراض عدائية أخرى كوسيلة للاحاق الدمار أو الخسائر أو الاصرار نأية دولة

أخرى طرف في الاتفاقية .

١٥- منع السفن على وجه الخصوص ناقلات البترول من تفريغ حمولاتها من الزيوت أو الاقلاى من الالقاء فى حالة الضرورة كسلامة السفينة أو طاقمها أو الحمولة التى نقلها.

١٦- اتخاذ كفاة التدابير اللازمة لوقاية منطقة البحر المتوسط من التلوت الساحم عن التصريف من الانهار أو المنتآت الساحلية أو محارج المحارى أو الناجم عن أى مصادر أخرى واقعة فى أرضها سواء كان ذلك بصورة مباشرة عن طريق أنابيب التصريف فى البحر بالالقاء فى الساحل أو مه بصورة غير مباشرة عن طريق الانهار والقنوات أو المحارى المائية الأخرى بما فى ذلك المحارى المائية الباطنية أو الاسياب، ويعد تلوثا التلوت من مصادر برية تقع فى أرض الدولة أو مصادر برية متقولة عن طريق الجو والتصريفات الملوثة الناشئة عن المنتآت الصناعية والتحفيز من هذا التلوت ومكافحته والسيطرة عليه.

الالتزامات التى تفرضها التشريعات المصرية والتى ينبغى مراعاتها فى تنفيذ مشروع تنمية فوكة مطروح

أولا: فيما يتعلق بالتشريعات التى تكفل حماية البيئة المائية من التلوت:

نظم الباب الثالث من القانون رقم ٤ لسنة ١٩٩٤ فى شأن البيئة ،حماية البيئة المائية من التلوت وخصص الفصل الأول منه للتلوت من السفن . وانقسم هذا الفصل الى ثلاثة فروع تناول الفرع الأول منها التلوت من الزيت. وفى نطاق هذا الفرع حظر القانون على جميع السفن أى كات جنسيتها تصريف أو القاء الزيت أو المزيج الريتى فى البحر الاقليمى أو المنطقة الاقتصادية الحالصة . كما يحظر على الشركات والهيئات الوطنية والاجنبية المصرح لها باستكشاف أو استخراج أو استغلال حقول التترول البحرية والموارد الطبيعية البحرية الأخرى بما فى ذلك وسائل نقل الزيت تصريف أية مادة ملوثة ناتجة عن عمليات الحفر أو الاستكشاف أو اختبار الآبار أو الانتاج فى البحر الاقليمى أو المنطقة الاقتصادية الخالصة لجمهورية مصر العربية ويوجب عليها استخدام الوسائل الآمنة التى لا يترتب عليها الاضرار بالبيئة ومعالجة ما يتم تصريفه من نفايات ومواد ملوثة طبقا لأحدث النظم الفنية المتاحة وبما يتفق والشروط المصموم عليها فى الاتفاقيات الدولية كما أوجب القانون أن تجهز جميع موانى الشحن والموانى المعدة لاستقبال مياه الاتران غير النظيفة والمياه المتخلمة عن غسل الخزانات الخاصة بناقلات الزيت أو غيرها من السفن .

وأجب كذلك أن تجهز الموانى بالمواعين والأوعية اللازمة والكافية لاستقبال اخلفات والنفايات والرواسب

الريثة والمزيج الزيتي من السمس الراسية بالمياء .

وحظر الترحيص لأى سفينة بالقيام بأعمال التحس والتفريغ إلا بعد الرجوع الى الحنية الادارية المختصة لاستقبالها وتوجيهها الى أماكن التخلص من النفايات ومياه الإنتران غير العظينة .

وأوجب القاون على مالك سفينة أو ربان سفينة مسلحة بجمهورية مصر العربية وكذلك سمن الدول التي انضمت الى الاتفاقيه أن يحتفظ سحل للريت بالسفينة يدون فيه المسئول عنها جميع العمليات المتعلقة بالزيت .

أما الفرع الثاني من الفصل الأول فقد حصص لتتلوت بالمواد الصارة فحظر على ناقلات مواد الصارة القاء أو تصريف أية مواد صارة أو نفايات أو مخلوقات ينتج عنها صرر بالبيئة المائية أو نصحة العامة أو الاستخدامات الأخرى المشروعة للبحر

وحظر على السمن نتي تحمل مواد صارة متقوئة فى عوات أو حاويات شحن أو صهريج التخلص منها بالقائها فى البحر الاقليمى أو المنطقة الاقتصادية الخالصة للجمهورية .

وحظر كذلك القاء الحيوانات النافقة فيها .

وأوجب تجهيز جميع موانى التحس والتفريغ المعدة لاستقبال هذه الناقلات وكذا أحواص اصلاح السفن بالتسهيلات المناسبة لاستقبال المواد السائلة الصارة ونفاياتها .

وخصص الفرع الثالث من الفصل الأول من الباب الثالث للقاون رقم ٤ لسنة ١٩٩٤ لتتلوت بمخلوقات الصرف الصحى وقمامة فحظر على السفن والمنصات البحرية تصريف مياه الصرف الصحى الملوثة داخل البحر الاقليمى ومنطقة الاقتصادية الحائصة لجمهورية مصر العربية وأوجب عليها التخلص منها طبقا للمعايير والاحراءات التي تحدها اللائحة التنفيذية للقاون .

كذلك حظر على جميع السفن والمنصات البحرية التي تقوم بأعمال استكتشاف واستغلال الموارد الضيعية والمعدنية فى البيئة المائية لجمهورية مصر العربية وكذلك السفن نتي تستخدم الموانى المصرية إلقاء القمامة أو الفضلات فى سحر الاقليمى أو المنطقة الاقتصادية الحائصة للجمهورية .

وأوجب على السمن تسليم القمامة فى تسهيلات استقبال النفايات أو فى الأماكن التي تحدها الجهات الإدارية المختصة .

وأوجب تخيير جميع موانى الشحن والتفريغ والموانى المعدة لاستقبال السفن وأحواس السفن الثابتة أو العائمة بالتحيزات اللازمة والكافية لاستقبال مياه الصرف الملوثة، بفصالات السفن من النجاسة .

وفي الفصل الثاني من الباب الثالث من القانون رقم ٤ لسنة ١٩٩٤ حظر القايون على جميع المنشآت بما فى ذلك ائخال العامة والمنشآت التجارية والصناعية والسياحية والخدمية تصريف أو القاء أية مواد أو نفايات أو سوائل غير معالجة من شأنها إحدات تلوت فى الشواطئ المصرية أو المياد المتاحمة لهما سواء تم ذلك بطريقة ارادية أو غير ارادية مباشرة أو غير مباشرة .

كما اشترط للترخيص باقامة أية منشآت أو محال على شاطئ البحر أو قريبا مه يتح عنها تصريف مواد ملوثة أن يقوم طالب الترخيص باجراء دراسات للتأثير البيئى . ويلتزم بتوفر وحدات لمعالجة ائخلفات وأن يبدأ بتشغيلها فور بدء تشغيل تلك المنشآت .

وأناط القانون باللائحة التنفيذية تحديد المواصفات والمعايير التى تلتزم بها المنشآت البصناعية التى يصرح لهما بتصريف المواد الملوثة القابلة للتحلل .

كذلك فقد حظر القانون إقامة أية منشآت على الشواطئ البحرية لجمهورية لمسافة مائتى متر الى الداحل من حط الشاطئ إلا بعد موافقة الجهة الادارية المختصة بالتنسيق مع جهاز شؤون البيئة .

وحظر القانون اجراء أى عمل يكون من شأنه المساس بخط المسار الطبيعى للشاطئ أو تعديله دحولا فى مياه البحر أو احساراً عنه إلا بعد موافقة الجهة الادارية المختصة بالتنسيق مع جهاز شؤون البيئة .

كذلك ينظم القانون رقم ٩٣ لسنة ١٩٦٢ فى شأن صرف المتخلفات السائلة تصريف تلك المتخلفات للمجارى العامة فيحظر أن تصرف للمجارى العامة المتخلفات السائلة من ائخال العامة أو الصناعية أو غيرها التى يصدر تحديدها قرار من وزير الاسكان والمرافق دون ترخيص بذلك من الجهة القائمة على أعمال ائجارى وأوجب أن تكون تلك المتخلفات السائلة التى يرخص بصرفها فى حدود المعايير والمواصفات ائحددة .

كما ينظم القانون رقم ٤٨ لسنة ١٩٨٢ فى شأن حماية بهر النيل وائجارى المائية من التلوت صرف أو القاء ائخلفات الصلبة أو السائلة أو الغازية من العقارات وائخال والمنشآت التجارية والصناعية والسياحية إلا بعد الحصول على ترخيص من وزارة الري فى الحالات ووفق المعايير التى يصدر بها قرار من وزير الري بقاء على اقتراح من وزارة الصحة وقد حددت المادة الأولى من ذلك ائقانون مايعتبر من مجارى المياه لتنظيف أحكامه وهى :-

أ- مسطحات المياه العذبة وتشمل:-

١- نهر النيل وفرعيه وأحواض

٢- الرياحات والترع جميع درجاتها والحنايات.

ب- مسطحات المياه غير العذبة وتشمل

١- المصارف بجميع درجاتها.

٢- البحيرات

٣- البرك والمسطحات المائية المتعلقة والسياحات

ج- خزانات المياه الجوفية

وأناط القانون المذكور بوزارة الري تنفيذ أحكامه ومنح صفة الصطية القضائية لمهندسي الري بالنسبة للوقائع التي تقع باعثة لاحكامه.

وقد عدلت المادة ٨٩ من القانون رقم ٤ لسنة ١٩٩٤ العقوبات المقررة لمخالفة أحكام المواد ٢، ٣، ٤، ٥، ٧ من القانون ٤٨ لسنة ١٩٨٢ في شأن حماية نهر النيل والبخارى المائية من الملوث وذلك بتتديد العقوبات المقررة لها .

ثانيا: التشريعات المتعلقة بالنظافة العامة :

بييت المادة الرابعة من القانون رقم ٣٨ لسنة ١٩٦٧ في شأن النظافة العامة الاعمال التي يحظر ارتكابها من أجل الحفاظ على النظافة العامة كما أوضحت اللائحة التنفيذية للقانون المذكور الصادر بقرار وزير الاسكان والمرافق رقم ١٣٤ لسنة ١٩٦٨ الاشتراطات والمواصفات التي يجب توافرها بالنسبة الى المقالب العمومية أو الحصرية للتحلص من القمامة أو القادورات أو المتخلفات .

تم صدر القانون رقم ٤ لسنة ١٩٩٤ في شأن البيئة ونص على الترام المستآت الحاصعة لاحكامه في ممارستها لأنشطتها بعدم اسعات أو تسرب ملوثات للهواء كما يجاوز الحدود القصوى المسموح بها وحظر استخدام آلات أو محركات أو مركبات ينتج عنها عادم يجاوز الحاد التي تقررها لائحته التنفيذية.

وحضر كذلك القضاء أو معالجة أو حرق القمامة والمخلفات الصلبة إلا في الاماكن المخصصة لذلك بعيدا عن

المناطق السكنية والصناعية والزراعية والمحارى المائية .

والزم الوحدات الخلية بالاتفاق مع جهاز شئون البيئة بتخصيص أماكن النقاء أو معالجة أو حرق القمامة والمخلفات الصلبة .

وبصت مواد القانون المشار اليه على عقوبة أشد من العقوبات المقررة بالقانون رقم ٣٨ لسنة ١٩٦٧ فيكون قانون البيئة ٤ لسنة ١٩٩٤ هو القانون واجب التطبيق بعقوبته الأشد.

ثالثاً . التشريعات الخاصة بالمواد والنفايات الخطرة

حظر القانون رقم ٤ لسنة ١٩٩٤ فى الفصل الثانى من الباب الأول تداول المواد والنفايات الخطرة بغير ترخيص من الجهة الادارية المختصة - وأناط بالوزراء كل فى نطاق اختصاصه بالتنسيق مع وزير الصحة وجهاز شئون البيئة اصدار جدول بالمواد والنفايات الخطرة .

وحظر القانون إقامة أية منشآت بغرض معالجة النفايات الخطرة إلا بترخيص من الجهة الادارية المختصة بعد أخذ رأى جهاز شئون البيئة وأوجب أن يكون التخلص من النفايات الخطرة طبقاً للشروط والمعايير التى تحددها اللائحة التنفيذية .

ويحدد وزير الاسكان بعد أخذ رأى وزارتى الصحة والصناعة وجهاز شئون البيئة أماكن وشروط الترخيص للمتخلص من النفايات الخطرة .

وحظر القانون ٤ لسنة ١٩٩٤ استيراد النفايات الخطرة أو السماح بدخولها أو مرورها فى أراضي جمهورية مصر العربية كما حظر بغير تصريح من الجهة الادارية المختصة السماح بمرور السفن التى تحمل النفايات الخطرة فى البحر الإقليمى أو المنطقة البحرية الاقتصادية الخالصة للجمهورية .

وأوجب القانون على القائمين على إنتاج أو تداول المواد الخطرة أن يتخذوا جميع الاحتياطات بما يضمن عدم حدوث أى أضرار بالبيئة .

وينظم القرار الوزارى رقم ١٣٨ لسنة ١٩٥٨ من وزارة الصناعة استيراد وتداول والانتجار فى المواد السامة ومستحضراتها التى تستعمل فى الصناعة ويوجب القرار المشار اليه الحصول على ترخيص من مصلحة الرقابة الصناعية عند الانتجار فى تلك المواد.

كما حدد القرار الإدارى لوزارة الصناعة فى ٢٨ سبتمبر ١٩٥٨ الشروط الواجب توافرها فى المخلات والمخازن التى تتحرر وتداول فى المواد السامة وغير السامة ومستحضراتها التى تستعمل فى الصناعة.

رابعاً: التشريعات المتعلقة بالضوضاء

ينظم القانون رقم ٤٥ لسنة ١٩٤٩ المعدل بالقوانين ٢٠٩ لسنة ١٩٨٠، ١٧٧ لسنة ١٩٨١، ١٢٩ لسنة ١٩٨٢ استعمال مكبرات الصوت ويحظر تركيب أو استعمال مبكر للصوت في أحد المجال العامة أو الخاصة أو في المنازل أو في الفيلات بدون ترخيص

كما يحظر استعمال مكبر الصوت في غير العرض الذي صدر الترخيص من أجله وأرحب ألا يستعمل مكبر الصوت إلا في دحل مكان معد لذلك لا يقل مسطحة عن مائتي متر ولا يتجاوز صوته الحاصرين وأوجب التعاون على أصحاب المجال المعدة لتركيب مكبرات الصوت أن يتتوا من حصول صاحب الشأن على الترخيص باستعماله أو تركيبه

كذلك فإن القانون رقم ٦٦ لسنة ١٩٧٣ في شأن المرور يحظر تركيب سرية هوائية أو مايمانيا من أحيرة في المركبات وإلا حار مسطحتها والحكم بمصادرتها. كما حظر استعمال أحيرة التنبيه على وجه مخالف للمقرر في شأن استعمالها ويحكم بمصادرة الأحيرة المستخدمة في ارتكاب مخالفة .

كما حصر ذات القانون تسيير مركبة في الطريق العام تصدر منها أصوات مرعجة أو ينعت منها دحان كثيف أو رائحة كريهة أو يتطاير من حمولتها أو يسيل منها مواد قابلة للاشتعال أو مصرة بالصحة، أو مؤثرة على صلاحية الطريق للمرور أو يتساقط من حمولتها أشياء تشكل خطراً على مستعملي الطريق أو تؤذيهم

وبعاقب قانون العقوبات رقم ٥٨ لسنة ١٩٣٧ في المادة ٣٧٩ منه من يحصل منه في الليل لفظ أو ضحج مما يكدر راحة السكان

كذلك أرحب القانون رقم ٤ لسنة ١٩٩٤ في شأن البيئة على جميع الجهات والأفراد عمد مباشرة الأنشطة الانتاحية أو الحدمية أو غيرها وخاصة عند تشغيل الآلات والمعدات واستخدام آلات التشبيه ومكبرات الصوت أن يلتزموا بعدم تجاوز الحدود المسموح بها لشدة الصوت. كما أرحب على الجهات ماحة الترخيص مراعاة أن يكون مجموع الأصوات المنعثة من المصادر الثابتة في منطقة واحدة في نطاق الحدود المسموح بها والتأكد من التزام المنتأة باختيار الآلات والمعدات المناسبة لضمان ذلك.

خامساً: التشريعات المتعلقة بحماية البيئة الطبيعية

صدر القانون رقم ١٠٢ لسنة ١٩٨٣ في شأن المحميات الطبيعية فمرف الخمية الطبيعية بأنها مساحة من الأرض أو المياه الساحلية أو الداخلية تتميز بما تضمه من كائنات حية نباتات أو حيوانات أو أسماك أو

طواهر طبيعية ذات قيمة ثقافية أو علمية أو سياحية أو حمالية ويصدر بتحديدها قرار من رئيس مجلس الوزراء بناء على اقتراح جهاز شؤون البيئة .

ويحظر القانون المذكور القيام بأعمال أو تصرفات أو أنشطة أو اجراءات من شأنها تدمير أو إتلاف أو تدهور البيئة الطبيعية أو الاضرار بالحياة البرية أو البحرية أو النائية أو المساس بمستواها الحمالي بمصنقة المحمية .

ولا يجوز بعير تصريح من الجهة المختصة ممارسة أية أنشطة أو تصرفات أو أعمال أو تخارب فى المناطق المحيطة بمنطقة المحمية والتي يصدر بها قرار من الوزير المختص بناء على اقتراح جهاز شؤون البيئة إذا كان من شأنها التأثير على بيئة المحمية أو الطواهر الطبيعية لها .

صدر قرار رئيس مجلس الوزراء رقم ٦٧١ لسنة ١٩٨٦ بإنشاء محمية العميد بمحافظة مطروح .

كما صدر قرار محافظة مطروح رقم ٥٦ لسنة ١٩٨٢ يحظر صيد الحيوانات البرية بجميع أنواعها وخاصة الحبارى والأرانب البرية والغزلان فى محافظة مطروح فى المنطقة الواقعة جنوب الضرت الصحراوى الاسكندرية مطروح وحتى مدينة السلوم وكذلك المنطقة المحيطة بطريق مرسى مطروح . كما يحظر القرار اعطاء تصاريح صيد هذه الحيوانات فى المناطق المشار اليها وتصادد جميع أدوات الصيد المضبوطة مع المخالفين .

وقد نظم القانون رقم ٤ لسنة ١٩٩٤ فى شأن البيئة فى الباب الأول منه حماية البيئة الأرضية من التلوث فأوجب على الجهة الادارية المختصة أو الجهة المانحة للترخيص تقييم التأثير البيئى للمستأة المطلوب الترخيص لها ، وارسال صورة من هذا التقييم الى جهاز شؤون البيئة لاداء الرأى فيه وتقديم المقترحات المطلوب تنفيذها فى مجال التجهيزات والأنظمة اللازمة لمعالجة الآثار البيئية السلبية .

وأناط القانون بتسكات الرصد البيئى رصد مكونات وملوثات البيئة دوريا واتاحة البيانات للجهات المعنية .

وأوجب القانون المذكور أن تخصص فى كل حى وقرية مساحة لاقل عن ألف متر مربع من أراضى الدولة لإقامة منتل لانتاج الاشجار على أن تتاح منتحات هذه المتائل للأفراد بسعر التكلفة .

وحظر القانون رقم ٤ لسنة ١٩٩٤ بأية طريقة صيد أو قتل أو امسالك الطيور والحيوانات البرية التى تحدد أنواعها اللائحة التنفيذية كما حظر حيازة هذه الطيور والحيوانات أو نقلها أو التجول بها أو بيعها أو عرضها للبيع حية أو ميتة أو إتلاف أو كارها أو اعدام بيضها .

ويظم القرار رقم ٢٦٤ لسنة ١٩٩٤ الشروط والقواعد والاحراءات الخاصة بممارسة الأنشطة في مناطق المحميات الطبيعية وأيضاً القرار بحهار شئون البيذة التصريح بممارسة تلك الأنشطة في مناطق المحميات الطبيعية

سادساً: التشريعات التي تنظم استخدامات الأراضي

١- يظم القانون رقم ١٤٣ لسنة ١٩٨١ استخدامات الأراضي الصحراوية ويقصد بها أراضي المملوكة للدولة ملكية خاصة والواقعة خارج الزمام بعد مسافة كيلومتريين.

وقد أصدر رئيس مجلس الوزراء القرار رقم ٢٠٣ لسنة ١٩٨٢ بتأك تحديد اخطفت الصحراوية وبموحه اعترت محافظة مطروح محافظة صحراوية .

تم صدر القانون رقم ٧ لسنة ١٩٩١ في شأن بعض الاحكام المتعلقة بأملك الدولة الخاصة ونص على أن تكون اذرة واستعمال والتصرف في الأراضي الصحراوية الحاصصة لأحكام القانون ١٤٣ لسنة ١٩٨١ في شأن الأراضي الصحراوية وفقاً للاجراءات التالية :

(أ) يصدر رئيس الجمهورية قراراً بتحديد المناطق الاستراتيجية ذات الأهمية العسكرية من الاراضي الصحراوية التي لايجوز تملكها .

(ب) يصدر رئيس الجمهورية قراراً بتحديد المناطق التي تشملها حطة مشروعات استصلاح الأراضي أو مناطق إقامة المجتمعات العمرانية الجديدة أو المناطق السياحية .

وقد نص القانون رقم ٧ لسنة ١٩٩١ على أن تتولى الهيئة العامة للتنمية السياحية ادارة واستعمال والتصرف في الأراضي التي تخصص لأغراض إقامة المناطق السياحية وتتولى الهيئة العامة لمشروعات التعمير والتنمية الزراعية ادارة واستغلال والتصرف في الأراضي التي تخصص لأغراض الاستصلاح والاستزراع .

وتتولى هيئة المجتمعات العمرانية الجديدة ادارة واستعمال والتصرف في الأراضي التي تخصص لأغراض إقامة المجتمعات الجديدة .

وتمارس كل هيئة من الهيئات السابقة سلطات المالك في كل مايتعلق بالأملك التي يعهد بها إليها . وتباشر مهامها في شأنها بالتنسيق مع وزارة الدفاع وبمراعاة مانقرره من شروط وقواعد تنظلمها شئون الدفاع عن الدولة . كما تتولى وحدات الادارة ائلمية كل في نطاق اختصاصها

ادارة واستغلال والتصرف فى الأراضى المعدة للملكة لنها أو للدولة . والأراضى القابلة للإستزراع داخل الزمام .

وفيما يتعلق بالأراضى المتاخمة والممتدة حارج الزمام الى مسافة كيلومترين فيكون استصلاحها وفق خطة قومية تصعها وزارة استصلاح الأراضى وتتولى تنفيذها بنفسها أو عن طريق الجهات التى تحددها بالتنسيق مع المحافظة المختصة وتتولى الهيئة العامة لمشروعات التعمير والتنمية الزراعية ادارة هذه الأراضى واستغلالها والتصرف فيها .

ويحظر على أن شحص طبيعى أو معمرى أن يحوز أو يضع اليد أو يتعدى على أى حرة من الأراضى الحاصعة لأحكام القانون ١٤٣ لسنة ١٩٨١ .

ويقع باطلاً أى تصرف أو تقرير لأى حق عيبى أصلى أو تعى أو تأخير أو تسكن على تلك الأراضى بالخالفة لأحكام القانون المشار اليه ولا يحوز شهره ونزال وضع المد اختلف بالطريق الادارى .

وقد حدد القانون المذكور الحد الأقصى للملكية فى الاراضى الصحراوية الحاصعة لأحكامه وفقاً لما تحقده أساليب وطرق الرى من ترسيد واقتصاد . ويحظر القانون حفر أية آبار سطحية أو عميقة بالأراضى الصحراوية إلا بعد موافقة الهيئة العامة لمشروعات التعمير والتنمية الزراعية طبقاً للشروط والأوضاع التى تحددها وبعد أخذ رأى الجهات المختصة

٢- بصت اللائحة التنفيذية للقانون ١٤٣ لسنة ١٩٨١ على أن تتمتع مشروعات الاستصلاح والاستزراع التى تقام على الأراضى الحاصعة لأحكامه بذات القواعد والأحكام والتيسيرات والاعفاءات والاحراءات المصوص عليها فى القانون رقم ٥٩ لسنة ١٩٧٩ فى شأن المجتمعات العمرانية الجديدة أيا كانت الجهة أو الشخص الذى يقوم بها وهى اعفاءات صربية وحرورية .

٣- لما كانت الأراضى التى يجرى تنفيذ مشروع تنمية فوكة مطروح حاصعة لأحكام القانونين ١٤٣ لسنة ١٩٨١ ، ٧ لسنة ١٩٩١ فإنه يبنى التحقق من الأراضى التى تقع فى نطاق المشروع ليست من المناطق الاستراتيجية ذات الأهمية العسكرية التى يشملها قرار رئيس الجمهورية بتحديد تلك المناطق كما يبنى على القائمين على تنفيذ المشروع التعامل مع الجهة المختصة حسبما حددتها القواعد السابقة .

٤- أنط القانون رقم ٦٢ لسنة ١٩٧٤ المعدل بالقانون ١١٣ لسنة ١٩٧٥ بوزارة الاسكاك والتعمير وصع حطة للتعمير لنصحراء العربية ومحافظة سيناء ومدن القناة وأية منطقة أخرى يشملها اختصاص الوزارة مستقلا وذلك فى إطار حطة التسمية الاقتصادية والاجتماعية الشاملة للدولة . وقرر القانون لشركات المقاولات الأحسية والبيوت الاستشارية الأحنبية العاملة فى مشروعات التعمير الاعفاءات الصربية المقررة لرأس المال الأحنسى بمقتضى قانون استثمار المال العربى والأحنسى والشاطق الحرة . كما تتمتع بدات الاعفاءات العمليات التى تقوم بها شركات المقاولات أو البيوت الاستشارية المصرية بالتعاون مع شركات أو بيوت أحنبية فى المشروعات التى يكون التعاون فيها من مقتضيات التعمير ويصدر بتحديدها نقرار من وزير الاسكاك والتعمير . وتعفى الجهات القائمة بالتعمير من الضرائب الحمركية وغيرها من الضرائب والرسوم المتسحقة على الواردات من المواد والآلات والمعدات والأدوات ووسائل النقل اللازمة لمشروعات التعمير التى يصدر بتحديدها نقرار من وزير الاسكاك . وفى ضوء هذا القانون ينغى التحقق من أن مشروع تنمية فوكة مطروح يتفق وحطة تعمير الصحراء الغربية التى وضعتها وزارة الاسكاك والتعمير ولا يتعارض معها .

٥- يحدد القانون رقم ٥٩ لسنة ١٩٧٩ فى شأن المجتمعات العمرانية الجديدة المقصود تلك المجتمعات بأنها كل تجمع بشرى متكامل يستهدف خلق مراكز حصارية جديدة تحقق الاستقرار الاجتماعى والرحاء الاقتصادى (الصناعى والرعاعى والتجارى وغير ذلك من الأعراض) بقصد اعادة توزيع السكان عن طريق اعداد مناطق جذب مستحدثة خارج نطاق المدن والقرى القائمة . كما نص على أن تكون هيئة المجتمعات العمرانية الجديدة - دون غيرها - جهاز الدولة المسئول عن اشاء هذه المجتمعات العمرانية . ويحظر القانون اشاء المجتمعات العمرانية الجديدة فى الاراضى الزراعية . ويوجب القانون المشار اليه تخصيص مسافة من الارض لاتزيد على خمسة كيلومترات حول المجتمع العمرانى الجديد من جميع الجهات تحدها هيئة المجتمعات العمرانية الجديدة يحظر التصرف فيها بأى وجه من الوجوه أو استغلالها أو استعمالها أو ادخالها فى تقسيم أو اقامة أية مسآت أو مشروعات أو أبنية عليها بأى شكل من الاشكال إلا بموافقة الهيئة . كما تحصى مسافة من الأرض مقدارها مائة متر على جانبى وبطول الطرق العامة الموصلة الى المجتمعات العمرانية الجديدة تحصى لذات القيود السابقة . ونص القانون المذكور أيضاً على اعفاءات حمركية وصربية لهيئة المجتمعات العمرانية الجديدة وللأفراد والشركات المتعاقدة معها كما قرر اعفاءاً لشاعلى القيادات التى تقام بالمجتمعات العمرانية الجديدة من الضريبة على العقارات المسية ومن الضرائب والرسوم الاضافية المتعلقة بها لمدة عشر سنوات وكذا اعفاء الاراضى الواقعة فى نطاق المجتمعات العمرانية

الحديدية والتي يتم استصلاحها وزراعتها من ضريبة الأظاق والضرائب والرسوم الاضائية المتعلقة بها لمدة عشر سنوات من تاريخ جعل الأرض صالحة للزراعة.

٦- كذلك صدر القانون رقم ٣ لسنة ١٩٨٢ بشأن التخطيط العمراني فخص على أن تكون الهيئة العامة للتخطيط العمراني هي جهاز الدولة المسئول عن رسم السياسة العامة للتخطيط العمراني واعداد خطط وبرامج التسمية العمرانية على مستوى الجمهورية كما تباشر مسؤولية التحقق من تطبيق تلك الخطط طبقاً لاحكام القانون واناظ هذا القانون بالوحدات المحلية كل في دائرة اختصاصها اعداد مشروعات التخطيط العام للمدن والقرى يراعى في اعدادها أن تكون عامة وشاملة ومحقة للاحتياجات العمرانية وأن تكون قائمة على أساس من الدراسات البيئية والاجتماعية والاقتصادية والعمرانية وأن يراعى فيها وجهة النظر العسكرية ومقتضيات وسلامة الدفاع عن الدولة . كما يضم هذا القانون تقسيم الاراضى وحظر اقامة منان أو تنفيذ أعمال على قطع أراضى التقسيم أو اصدار تراخيص بالبناء عليها إلا بعد استيفاء الشروط المبينة بالقانون.

سابعاً: التشريعات الخاصة بالحوادث البحرية

أ- صدر القانون رقم ٧٩ لسنة ١٩٦١ فى شأن الكوارث البحرية والحطام البحرى وأوحد الاخطار عن أية اشارة استعانة أو العلم بأية كارثة بحرية الى أقرب ميناء فإذا تعذر فإلى السلطة اخلية . كما أوجب على السلطة المحلية التى تتلقى البلاغ أن تبادر فوراً بابلاغه الى إدارة أقرب ميناء .

ب- نص القانون رقم ٤ لسنة ١٩٩٤ فى شأن البيئة على أنه مع عدم الاحلال بأحكام القانون رقم ٧٩ لسنة ١٩٦١ يكون لممثلى الجهة الادارية المختصة أو للمأمورى الضبطة التصائى أن يأمرؤا ربان السفينة أو المسئول عنها باتخاذ الاجراءات الكافية للحماية من آثار التلوث فى حالة وقوع حادى لاحدى السفن التى تحمل الزيت يترتب عليه أو يحتمى منه تلوث البحر الاقليمى أو المنطقة الاقتصادية الحالية لجمهورية مصر العربية .

كما أوحد القانون المشار اليه على مالك السفينة أو رباها أو أى شخص مسئول عنها وعلى المسئولين عن وسائل نقل الزيت الواقعة داخل الموانى أو البحر الاقليمى أو المنطقة الاقتصادية الحالية لمصر أن يبادروا فوراً الى ابلاغ الجهات الادارية المختصة عن كل حادى تسرب للزيت فور حدوثه مع بيان ظروف الحادى ونوع المادة المتسربة والاحراءات التى اتخذت لايقاف التسرب او الحد منه وغير ذلك من البيانات المنصوص عليها فى الاتفاقية واللائحة التنفيذية للقانون .

وأجاز القانون ٤ لسنة ١٩٩٤ لمنتدى الجهة الادارية المختصة أو لمأموري الصبب التصائى أن يأمرؤا ربان السفينة أو المسئول عنها باتخاذ الاجراءات اللارمة للتقليل من آثار التلوت وذلك فى حالة وقوع حادت لاحدى السفن التى تحمل مواد ضارة يحشى منها تلوت البحر الاقلىمى أو المنطقة الاقتصادى الحاصلة لجمهورىة مصر العربىة .

الاجهزة الادارىة القائمة على تطبيق التشرىعات البىئىة :

عرضت الدراسة لىبذ الاجهزة الادارىة القائمة على تطبيق التشرىعات البىئىة وعلى رأسها جهار سذون البىئىة وبىنت 'احتصاصاته وظام ادارته. كما عرضت للأجهزة اخلىة متمثلة فى محافظطة مطروح وكذا الجهيات الادارىة المختصة كل فىما يخصه كوزارات الصحة والنقل السحرى والاسكاف والمرافق والتعمىر والرئ بالاصافة الى الجهيات الاخرى التى حدددها البند ٣٨ من المادة الأولى من القانون رقم ٤ لسنة ١٩٩٤ وهى :

- أ- جهار سذون البىئىة
- ب- مصلحة الموانى والمنائر
- ج- هىئة قساة السوس
- د- هىئة الموانى بجمهورىة مصر العربىة
- هـ- الهىئة المصرىة العامة لجمافاة الشواطئ
- و- الهىئة المصرىة العامة للسترو
- ز- الادارة العامة لشرطة المسطحات المائية
- ح- الهىئة العامة لتنمىة السىاحىة
- ط- الجهيات الأخرى التى يصدر بتحدىها قرار من رئس مجلس الورراء

ANNEX VIII

**PROTECTION AND MANAGEMENT OF SPECIALLY PROTECTED
AREAS AND HISTORIC SITES**

REGIONAL ACTIVITY CENTRE FOR SPECIALLY PROTECTED AREAS SPA/RAC

The Regional Activity Centre for Specially Protected Areas was established by the Contracting Parties to the Barcelona Convention with a view to provide assistance to the Mediterranean countries in the implementation of the SPA Protocol, adopted in 1982 in Geneva.

RAC/SPA provides direct assistance in the field of development of protected areas (identification, elaboration of the proper legislation to protect the identified site). RAC/SPA also provides assistance in the preparation of management plans for the protected areas.

RAC/SPA (Tunis Centre) is also in charge of the coordination and the implementation of three Actions Plans:

The Action Plan for the management of the Mediterranean monk seal which is a very endangered species;

The Action Plan for the conservation of Mediterranean marine turtles;

The Action Plan for the conservation of cetaceans in the Mediterranean Sea.

These actions plans are adopted as regional strategy for the conservation of these species.

Within the framework of the implementation of these action plans, the Tunis Centre carries out surveys to identify habitats and nesting sites for marine turtles.

It also organises training sessions and expert meetings to evaluate the status of the species and the implementation of the measures recommended by the Action Plan.

More information on the RAC/SPA activities are included in the document distributed in Arabic and English.

Coastal Area Management Programme for the Fuka-Matruh area

7.3.5 Specially Protected Areas

The main objective of the item 7.3.5 is on one hand to identify the sites of interest and sensitive species in need of protection and on another hand to propose measures for their conservation and/or management. These measures should give solutions to stop and if possible to reverse the degradation of the natural sites and the loss of habitats and rare species.

The proposed measures have to be harmonized with the existing and planned economic activities in the project area.

The activities conducted within this framework by the Regional Activity Centre for Specially Protected Areas are:

- Collection and analysis of data and documentation relevant to the marine and terrestrial ecosystems of the Fuka-Matruh area
- Establishment on the basis of the collected information of an inventory of recorded species in the area which need a particular protection including specific recommendations to preserve or to improve the protection for the endemic and endangered species with special reference to the marine turtles and marine vegetation.
- Selection of environmental sensitive sites on the area, and proposal of some general measures in order to preserve their biological and ecological value,
- Identification of the needed field investigation to improve knowledge on the ecosystems in the Fuka-Matruh area.

Two reports were produced:

Report 1: The marine ecosystems of Fuka-Matruh Area (Egypt).
(Status of species and habitats)

This report was prepared by Dr. Ali Ibrahim Beltagy, it includes general information on climate, geomorphology, bathymetry and describes the main components of marine ecosystems in the area. The report highlights the richness of the marine life in the Fuka-Matruh area and stress the need for conservation measures specially in three sites identified by the author: Rass ElHekma, Abu Hashafa bay and the Matrooh lagoon.

Report 2: The terrestrial Ecosystems of Fuka-Matruh area (Egypt) (Status, Protection and Management Measures)

This report, prepared by Dr. Mohamed Abdelgawad Ayyad, describes the seven main terrestrial habitats that can be recognised in the areas. The report includes also a list of plant species identified as rare or endangered by the consultant who indicated for each listed species, based on available knowledge, the following information: status, distribution habitat and ecology. As uncontrolled grazing is among the main causes of degradation of terrestrial ecosystems in the area, the report recommends to promote Pilot areas for grazing control.

In 1993, a survey of the western Mediterranean coast of Egypt was carried out for the assessment of marine turtle nesting occurrence. The survey was organised by RAC/SPA, Mediterranean Association to Save the Sea Turtles (MEDASSET) and the National Institute of Oceanography and Fisheries (NIOF, Alexandria). The coastline of the CAMP project area was assessed the beaches of Gulf of Hekma and the Abu Hashafa Bay were identified as potential sites for marine turtle nesting.

In order to ensure an appropriate integration of the cultural sites of interest in the conservation and management plan to be prepared for the area, RAC/SPA asked Dr. Feisal Esmaeal to carry out inquiries and field investigation to identify the main archaeological relics and other components of the cultural heritage existing in the project areas. The report produced within this framework provides an inventory of the major sites and proposes measures for their rehabilitation and/or protection taking into account the concepts of integrated development.

The data and information made available by the mentioned work of the consultants activated by RAC/SPA show the richness and also the sensitivity of the sites and species in the Fuka-Matruh area. The next step will be the elaboration on the basis of these data of an global management plan for the project area. Taking into account the environmental characteristics of the area and the social aspects, the management plan will outline the boundaries of the sites in need of protection and will propose guidelines in order to:

- Insure that the economic activities developed are sustainable and not affect the natural resources, landscapes and cultural relics.
- stop the loss of habitats and rare or endemic species by promoting the conservation of biological diversity.
- improve and allow regular updating of the knowledge on the fauna and flora species and habitats.

We hope also to finalize within the next step the preparatory work for the establishment of a protected area in Ras El Hekam.

برنامج ادارة المناطق الساحلية

لمنطقة فوكة - مطروح (جمهورية مصر العربية)

حماية المواقع الطبيعية والمحافظة على الانواع الحيوانية والنباتية

ان الهدف الرئيسي لهذا الجزء من الدراسة هو تحديد المواقع ذات القيمة الطبيعية والانواع الحيوانية والنباتية الحساسة التي هي في حاجة الى اجراءات خاصة لحمايتها والحفاظ عليها، كما تهدف الدراسة الى تقديم بعض المقترحات والحلول العملية التي تمكن من التصدي الى تدهور بعض مكونات المحيط الطبيعي في المنطقة.

في هذا الاطار عمل مركز تونس للانشطة الاقليمية للمناطق المتمتعة بحماية خاصة على القيام بما يلي :

- جمع وتحليل المعطيات والدراسات المتوفرة والمتصلة بالمنضومات البيئية بالمنطقة بما في ذلك المنضومات البيئية البحرية.

- وضع قائمة للانواع النباتية والحيوانية المهددة مع تقديم اقتراحات وتصوير اجراءات عملية لحمايتها.

- انتقاء أهم المواقع الطبيعية الحساسة التي يجب حمايتها حتى تحافظ على قيمتها الطبيعية.

وقد ساهم الدكتور محمد عبد الجواد، والدكتور علي ابراهيم البلتاجي في اعداد ما ذكر من دراسات وذلك بصياغة تقريرين هما :

- المنضومات البيئية البحرية بمنطقة فوكة -مطروح

- المنضومات البيئية البرية بمنطقة فوكة -مطروح

كما أجريت خلال صائفة 1993 وفي نطاق مسح للسواحل المتوسطية الغربية المصرية خصص لمعرفة مدى تواجد السلاحف البحرية ومواقع تعشيشها، دراسة مناطق عديدة من السواحل المدمجة في منطقة المشروع، وبينت هذه الدراسة أهمية شواطئ عديدة بالمنطقة كمواقع لتعشيش السلاحف البحرية.

وحتى تكون الخطة المزمع وضعها لتحقيق التوازن بين برامج التنمية الاقتصادية بالمنطقة ومتطلبات المحافظة على التراث الطبيعي شاملة، ونظرا لما يوجد من علاقة وطيدة بين التراث الطبيعي والتراث التاريخي، طلب من الدكتور

فيصل اسماعيل بالقيام بدراسة لاهم المواقع التاريخية بالمنطقة وقام باعداد تقرير في هذا الموضوع.

تفيد الدراسات والتقارير المذكورة والتي اعدت في نطاق هذا المشروع الى تواجد بعض المواقع التي يستحسن وضع خطة لحمايتها والحفاظ عليها ومن أهم هذه المواقع منطقة رأس الحكمة، كما تشير التقارير الى تواجد بعض الانواع النباتية السائرة في طريق الانقراض في المنطقة، ومن الممكن نفاذ انقراضها بوضع وانجاز برنامج يمكن من الحفاظ على بذورها ويؤمن التداول في مجال الرعي. كما تتفق هذه الدراسات على أن الخطر المتأتي من بعض النشاطات البشرية هو السبب الرئيسي لحالات تدهور البيئة الطبيعية المسجلة. مع العلم ان الحالة الطبيعية العامة بالمنطقة تعتبر جيدة. ستخصص المرحلة الاخيرة من هذه الدراسة الى اعداد خطة مندمجة لحماية وادارة التراث الطبيعي بالمنطقة وذلك بالاعتماد على المعطيات التي وفرتها الدراسات السالفة الذكر.



ANNEX IX
SOIL EROSION AND DESERTIFICATION



University of Alexandria
Faculty of Agriculture
Alexandria, Egypt.

Progress Report
CAMP-FUKA, Marsa Matruh Meeting, 18-20 September 1995.

Activity title: Soil Degradation and Desertification.
Subcontract: 55/PAP/94
Duration: One year: Jan. - Dec. 1995.
National team: Prof. Dr. Fawzy H. Abdel-Kader Dr. Mohamed H. Bahnassy
Dr. Ashraf M. Moustafa Dr. Abdel-Aziz B. El-Menshawy
PAP consultant: Prof. Dr. G. Ferrari and his colleagues, University of Firenze, Italy.

Analysis of the existing situation:

1. General workplan: The workplan envisages three groups of activity:

- a. Soil survey;
- b. soil degradation assessment; and
- c. rainfall simulator and wind transport of sand measurements.

2. Geographic coverage: Two pilot zones in the area of Fuka were identified:

- Wadi Qasaba, 20 km east of Marsa Matrouh, which is typical for wadi bottom agricultural use, and for soil conservation and water harvesting practices by stone dams across the stream.
- Fuka Basin, 80 km east of Marsa Matrouh, which stretches over an area of 17,000 ha and contains three distinctive geographical units: the lower coastal plain, the upper coastal plain, and the table land.

In pursuing the above activities, modern techniques have been applied using the material available at Soil Science Department, Alexandria University, such as: topographic maps, aerial photographs, existing soil and land use studies, geologic and geomorphologic maps and reports.

3. Reviewing of Previous Studies: Intensive reviewing of previous studies on Fuka and Qasaba, NWC has been carried out that involved: FAO 1970, Vol. 5: special studies, b. Land Master Plan 1986, and c. Technical published papers on NWC.

4. Equipments: The PAP purchased the following equipments, and were already received in Alexandria: 1 sieving kit, 1 top loading balance, 3 soil augers.

5. Training on Aerial photo interpretation:

Date and location: 11-25 March 1995, Matrouh.

Local personal: A. Moustafa, A. El-Menshawy, A. El-Monaem, W. Mahmoud

International Expert: S. Carnicelli, P. Martens, U. Galligani

6. Field and Lab Accomplishments: Field and laboratory for Wadi El-Qasaba pilot area work were completed. Field work for Fuka pilot area is now going on.

7. GIS Spatial Analysis: Topographic and geomorphological maps of Fuka, and Qassaba were digitized and analyzed using TERRASOFT GIS software. it included the features: contours, roads, wadi coarse, agricultural lands, well locations, houses, and elevation hights, and geomorphological units.

Results:

1. Geomorphological units

1.1. Fuka Sample area: Based on API of 1:50000, 1954 maps the following geomorphological units and subunits were identified: (Map 1):

Unit	Subunit
1- Coastal Dunes	1.1. Beachs 1.2. Dunes 1.3. Salt marshes (Lagoon)
2- Ridges	2.1. Coastal ridge 2.2. Discontinuous ridges 2.3. Continuous ridges 2.4. Intra ridge land
3- Inter ridges	3.1. Alluvial plain 3.2. Harvesed sand plain
4- Foot slop	4.1. Steep 4.2. Very steep
5- Low dissected plateau	5.1. Rocky hillock 5.2. Intra rocky hillock
6- High disected plateau	6.1. Rocky hill 6.2. Intra rocky hill
7- Escarpment	
8- Plateau	8.1. Rocky plateau 8.2. Stony plateau 8.3. Hummocky land 8.4. Shallow depressions (Spotted)
9- Wadi System	9.1. Wadi bottom 9.2. Alluvial fan (old, recent)

1.2. Qassaba sample area: Based on the API of 1:25000, 1970 map the following geomorphological units and subunits were identified (Map 2):

Unit	Number	Subunits
1- Coastal Dunes	1	Coastal Dunes
2- Coastal Lagoon	2	Salt march with high water table
	3	Higher land without water table above 1m
3- Ridges	4	Ridges
4- Inter Ridges	5	Hummocky deep land
	6	Harvesed sand plain
	7	Eroded hill
	8	Depressions
5- Dissected plateau	9	Rolling land
	10	Rocky hill
	11	Foot slope
	12	inter hill land
	13	Complex
6- Plateau	14	Rocky plateau
	15	Hummocky shallow land
	16	Accum. in drains
7- Wadi system	17	Wadi course
	18	Wadi Terraced
	19	Alluvial fan

2- Soil units of Wadi Qassaba

Through April-August 1995, field and lab. work were carried out to characterize the main soil units of wadi el-Qassaba. 29 profiles and 11 augerholes were described. The soil description was complied, and each soil horizon was sampled for laboratory analysis. In the lab, pH and electrical conductivity of saturation extracts were measured in each soil sample. The soil texture, total calcium carbonate, soluble calcium, magnesium, sodium, potassium, chloride, sulphate, carbonate and bicarbonate ions were determined. Organic carbon content and grain size distribution were determined in surface sample. According to the morphological features, and the physical and chemical properties (table 2), the Soils of Wadi El-Qassaba were classified into *Entisols* and *Aridisols* orders.

2.1. *Entisols*: Two great group were identified:

2.1.1. *Xeropsammets*:

Xeropsammets dominated the following geomorphological units: Coastal lagoon, Inter Ridges, and Wadi system (table 1). The soils have A/C profile (profiles 2, 3, 11, 13, 19, 25, 27 and 28). They are characterized by sandy texture to a depth of 1m, the absence of the diagnostic horizons and are not saturated with water. Main chemical and physical properties were reported. The pH values ranged from 7.4 to 8 and EC ranged from 27 to 64 ds/m. The total CaCO₃ varied from 49 to 23 % (table 2).

2.1.2. *Xerothents*:

Xerothents dominated the following geomorphological units (table 1): Dissected plateau, Complex, Wadi system, and Inter Ridges. The Soils represented by profiles (1, 7, 18, 21, 22, 23 and 26) have an ochric epipedon, loamy sand or sandy loam or sandy clay loam texture below a depth 25 cm and are not permanently saturated with water. The pH values ranged from 8 to 8.3, electrical conductivity (EC) ranged between 0.34 to 19.5 ds/m. The total CaCO₃ ranged from 8.9 to 29.8% .The sand content ranged between 41 % to 84%, clay content varied between 6 to 41 % (table 2).

2.2. *Aridisols*: Two great group were identified.

2.2.1. *Aquisalids*:

Aquisalids dominated the following geomorphological units (table 1): Coastal lagoon and Dissected plateau. The soils represented by profiles (8, 9, 17, and 29) have an ochric epipedon, loamy sand or sandy loam below 25 cm of the soil surface. The pH values varied from 7.1 to 7.9. The EC ranged between 1.46 to 120 ds/m. The total CaCO₃ varied from 8.2 to 19.8 %. The sand content varied between 44% to 86% and the clay content ranged from 9% to 34%.

2.2.2- *Petrocalcids*:

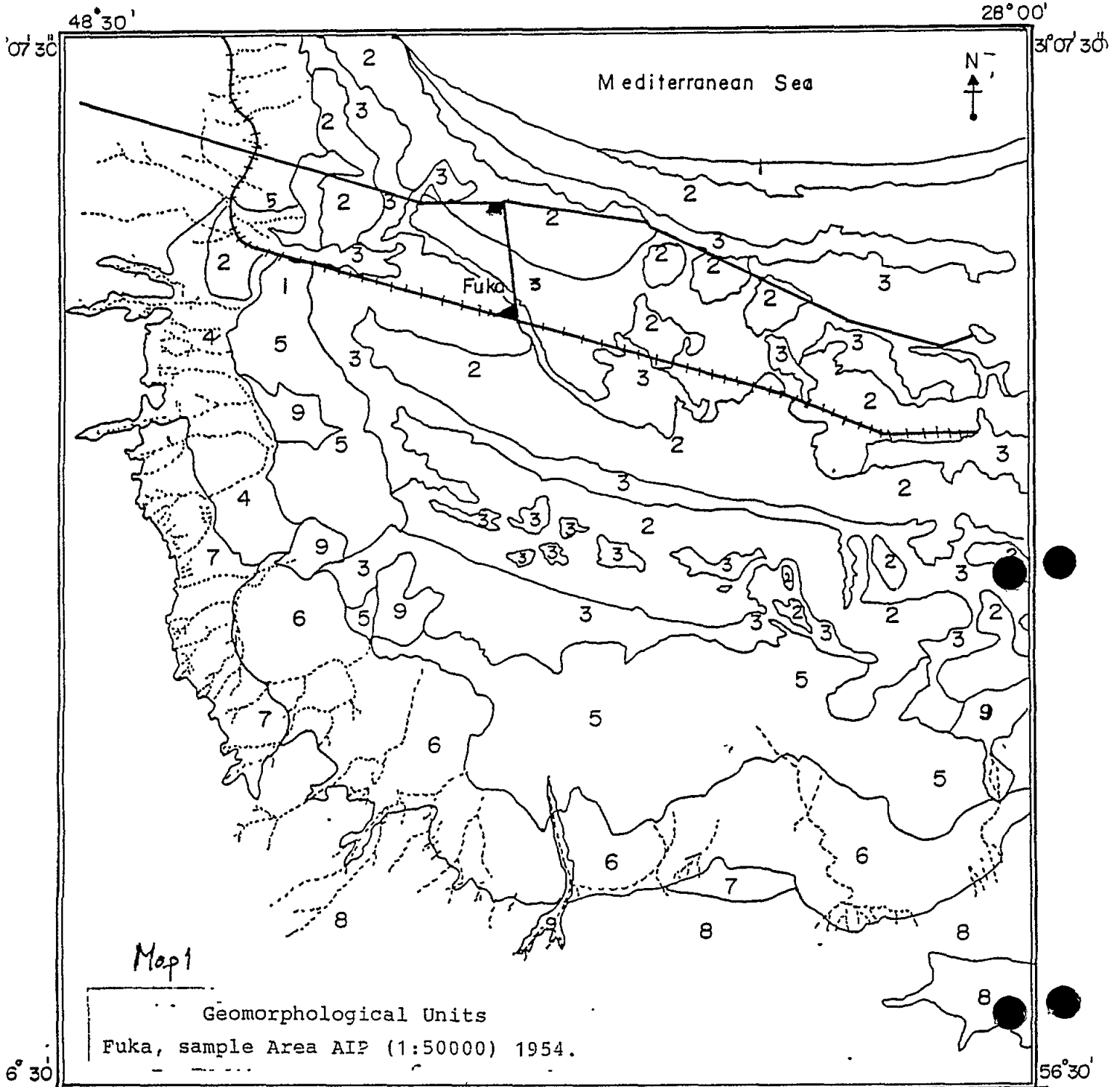
Petrocalcids dominated the following geomorphological units (table 1): Inter Ridges, Dissected plateau, Plateau, and Wadi system. The soils represented by profiles (4, 5, 6, 10, 12, 14, 15, 16, 20 and 24) were classified into *Petrocalcids*. They have petrocalcic horizon that has its upper boundary within 100 cm of the soil surface. They are characterized by pH values ranged from 7.3 to 8 and electrical conductivity from 0.36 to 41 ds/m. The total calcium carbonate ranged from 9.1% to 28%. The sand and clay contents varied from 44% to 86% and from 7% to 43% respectively (table 2).

3- GIS Spatial Analysis:

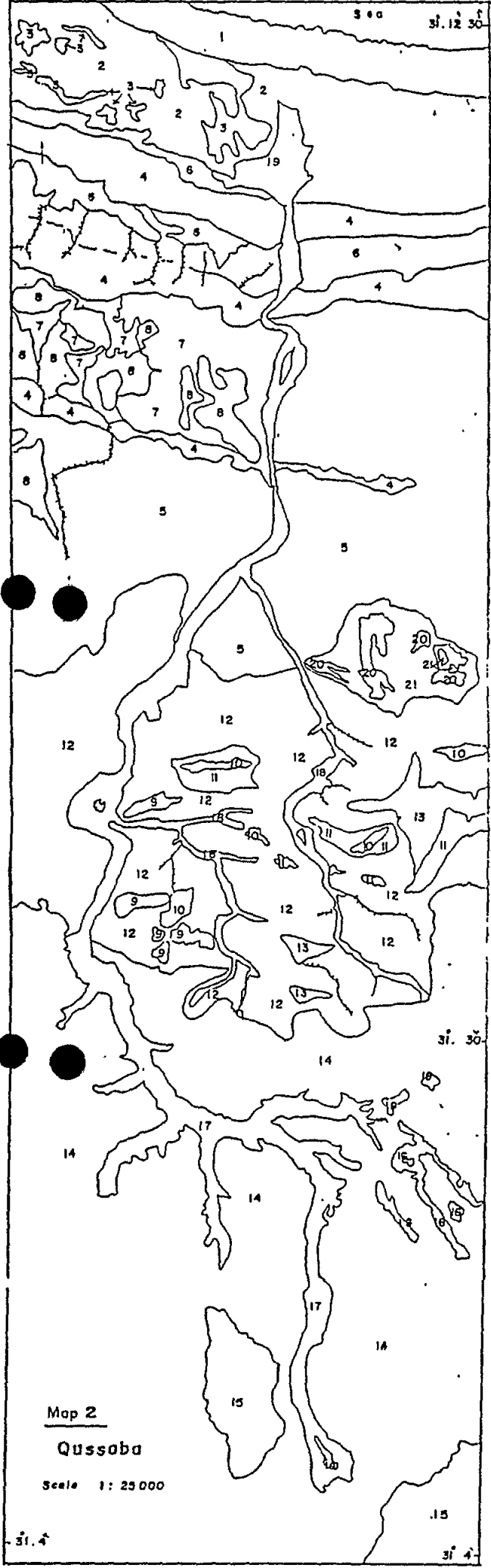
Topographic feature, contour, was used to generate Digital Elevation Model (DEM) for Wadi El-Qassaba and Fuka pilot areas. The DEM was used to generate Slope and Aspect maps. The areas of the geomorphological units were obtained after processing the vector theme of the geomorphology units. Cross operation was applied to the geomorphology map with DEM, Slope, and Aspect to determine the the topographic characteristics of each mapping unit, (tables 3 and 4). The geomorphology map of Wadi EL-Qassaba was reclassified to get the soil classification.

October - December 1995 Activities:

- 1- Soil erodibility maps.
- 2- Rainfall and wind erosivity data analysis.
- 3- Erosion hazard
 - Emperical model (USLE)
 - Predictive model (WEPP)
- 4- Setting up and monitoring of erosion field plots !
- 5- Setting up and monitoring of wind field sampler !



Unit	Subunit	Unit	Subunit
1- Coastal Dunes	1.1. Bechs	5- Low dissected plateau	5.1. Rocky hillock
	1.2. Dunes		5.2. Inter rocky hillock
	1.3. Salt marshes (Lagoon)	6- High dissected	6.1. Rocky hill
2- Ridges	2.1. Coastal ridge		6.2. Inter rocky hill
	2.2. Discontinuous ridges	7- Escarpment	
	2.3. Continuous ridges		
	2.4. Intra ridges land		
3- Inter ridges	3.1. Alluvial plain	8- Plateau	8.1. Rocky plateau
	3.2. harvested sand plain		8.2. Stony plateau
4- Foot slop	4.1 Steep		8.3. Hummocky land
	4.2 Very steep		8.4. Shallow depressions
		9- Wadi System	9.1. Wadi bottom
			9.2. Alluvial fan (old, recent)



4.2. Qassaba sample area

Based on the API of 1:25000, 1970 map the following geomorphological units & subunits were identified (Map 2):

Unit	Number	Subunits
1- Coastal Dunes	1	Coastal Dunes
2- Coastal Lagoon	2	Salt march with high water table
	3	Higher land without water table above 1-
3- Ridges	4	Ridges
4- Inter Ridges	5	Hummocky deep land
	6	Harvesed sand plain
	7	Eroded hill
	8	Depressions
5- Dissected plateau	9	Rolling land
	10	Rocky hill
	11	Foot slope
	12	inter hill land
	13	Complex
6- Plateau	14	Rocky plateau
	15	Hummocky shallow land
	16	Accum. in drains
7- Wadi system	17	Wadi course
	18	Wadi Terraced
	19	Alluvial fan

Table No. (1) : Land Units of Wadi El-Qassaba.

Geomorphological		Soil Unit	
Units	Sub Units	Taxonomic Name	Profile NO.
1-Coastal dunes	1- Coastal dunes	-	-
2-Coastal Lagoon	2-Salt March	<i>Aquisalids</i>	29
	3-Higher Land	<i>Xeropsamments</i>	28
3-Ridges	4-Ridges	-	-
4-Inter Ridges	5-Hummocky deep land	-	-
	6-Harvesed Sand Plain	<i>Petrocalcids</i>	4
	7-Eroded hill	-	-
	8-Depressions	<i>Xerorthents</i> <i>Petrocalcids</i> <i>Xeropsamments</i>	1 , 26 6 , 24 25
5-Dissected Plateau	9-Rolling Land	-	-
	10-Rocky hill	-	-
	11-Foot Slope	<i>Xeropsamments</i>	9
	12- Inter hill land	<i>Aquisalids</i> <i>Petrocalcids</i>	8 , 17
6- Plateau	13- Complex	<i>Xerorthents</i>	16 15,18
	14- Rocky plateau	-	-
	15- Hummocky shallow land	<i>Petrocalcids</i>	14
7- Wadi system	16- Accum. in drains	<i>Petrocalcids</i>	10 , 12,20
	17- Wadi course	<i>Xeropsamments</i>	11,2,3,13,19
	18- Wadi terraced	-	-
	19- Old alluvial fan	<i>Xerorthents</i> <i>Xeropsamments</i>	7,21,22 27
	20- Short Wadies	<i>Petrocalcids</i> <i>Xerorthents</i>	5 23

Table (2) : Main Chemical and Physical Characteristics of Wadi El-Qassaba.

prof. NO.	Depth cm	pH	EC dS/m	CaCO ₃ %	Sand%	Texture		Textural Class	O.M. %	Sand > 1mm %
						Silt%	Clay%			
1	0-20	7.70	0.75	15.90	84.00	5.00	11.00	L.S	0.10	4.26
	20-50	8.00	0.34	14.90	73.00	10.00	17.00	S.L		
	50-70	8.30	0.54	19.20	83.00	5.00	12.00	L.S		
	70-100	7.80	0.61	21.30	71.00	8.00	21.00	S.C.L		
2	0-30	7.60	0.45	14.90	81.00	5.00	14.00	S.L	0.25	7.05
	30-60	7.80	0.36	13.40	86.00	3.00	11.00	L.S		
	60-110	7.60	0.36	18.60	84.00	2.00	14.00	S.L		
3	0-20	7.60	0.68	12.80	91.00	3.00	6.00	S	0.12	1.20
	20-60	7.70	0.32	9.40	89.00	5.00	6.00	S		
	60-100	7.70	0.29	6.30	89.00	5.00	6.00	S		
4	0-30	7.80	0.82	9.50	78.00	8.00	14.00	S.L	0.06	4.71
	30-65	7.80	0.82	15.90	63.00	15.00	22.00	S.C.L		
5	0-15	7.70	0.42	19.80	86.00	3.00	11.00	L.S	0.17	3.23
	15-35	7.70	0.36	12.00	66.00	13.00	21.00	S.C.L		
	35-65	7.80	0.36	23.40	60.00	13.00	27.00	S.C.L		
6	0-30	7.90	0.39	23.40	70.00	10.00	20.00	S.C.L	0.03	9.00
	30-70	7.70	3.12	21.30	44.00	13.00	21.00	C.L		
7	0-20	7.70	0.59	12.70	79.00	5.00	16.00	S.L	0.19	6.75
	20-55	7.80	0.89	15.30	54.00	21.00	25.00	S.C.L		
	55-100	7.50	0.82	14.00	41.00	18.00	21.00	C.L		
8	0-25	7.40	4.63	19.80	86.00	5.00	9.00	L.S	0.22	6.06
	25-60	7.20	12.08	16.10	67.00	15.00	18.00	S.L		
	60-90	7.70	1.46	17.90	68.00	10.00	22.00	S.C.L		
9	0-15	7.60	64.00	23.10	85.00	5.00	10.00	L.S	0.96	7.80
	15-55	7.40	49.46	14.90	82.00	8.00	10.00	L.S		
	55-100	7.70	14.60	20.40	87.00	5.00	8.00	L.S		
10	0-20	7.70	0.82	28.00	80.00	10.00	10.00	S.L	0.13	8.45
	20-45	7.60	1.38	23.80	71.00	11.00	18.00	S.L		
11	0-15	7.70	0.47	1.00	82.00	5.00	13.00	L.S	0.46	6.84
	15-50	7.70	0.28	17.40	90.00	3.00	7.00	S		
	50-80	7.70	0.32	15.20	74.00	13.00	13.00	S.L		
12	0-30	7.30	41.00	22.60	80.00	10.00	10.00	S.L	0.13	2.69
13	0-30	7.90	0.77	18.90	92.00	0.00	8.00	S	0.14	1.89
	30-6	7.90	0.35	16.20	90.00	3.00	7.00	S		
	60-100	7.50	0.88	22.10	92.00	0.00	8.00	S		

Table (2): Cont.

prof. NO.	Depth cm	pH	EC dS/m	CaCO ₃ %	Sand%	Texture		Textural Class	O.M. %	Sand > 1mm %
						Silt%	Clay%			
14	0-30	7.90	0.45	9.01	80.00	10.00	10.00	S.L	0.20	7.80
15	0-10	7.70	0.64	14.10	85.00	8.00	7.00	L.	0.29	5.04
	10-40	7.90	1.53	11.20	74.00	13.00	13.00	S.L		
	40-65	7.60	7.09	13.80	61.00	16.00	23.00	S.C.L		
16	0-30	7.70	0.74	13.00	82.00	8.00	10.00	L.S	0.00	4.77
	30-65	8.00	0.63	20.90	61.00	13.00	10.00	S.C.L		
	65-95	7.90	0.42	19.40	61.00	13.00	26.00	S.C.L		
17	0-15	7.90	1.73	10.00	77.00	10.00	13.00	S.L	0.14	6.00
	15-55	7.90	19.14	8.20	71.00	16.00	13.00	S.L		
	55-100	7.20	48.00	13.10	80.00	13.00	17.00	L.S		
18	0-30	7.80	0.58	24.10	81.00	13.00	6.00	S.L	0.72	6.18
	30-70	7.30	12.60	25.30	60.00	18.00	22.00	S.C.L		
	70-100	7.50	11.40	8.90	63.00	18.00	19.00	S.L		
19	0-20	7.70	0.59	4.90	94.00	0.00	6.00	S	0.72	1.21
	20-50	7.60	0.48	11.20	94.00	0.00	6.00	S		
	50-90	7.60	0.27	8.20	94.00	0.00	6.00	S		
20	0-25	7.70	0.47	9.80	81.00	10.00	9.00	S.L	0.58	7.09
	25-50	7.60	4.58	13.70	73.00	13.00	14.00	S.L		
21	0-30	7.90	0.65	9.20	81.00	10.00	9.00	L.S	0.47	8.07
	30-65	7.50	16.35	12.10	70.00	16.00	14.00	S.L		
	65-110	7.30	19.50	20.70	83.00	8.00	9.00	L.S		
22	0-20	7.90	0.89	21.90	60.00	21.00	9.00	S.L	0.90	10.01
	20-60	7.90	0.44	15.60	49.00	21.00	30.00	S.C.L		
	60-90	8.00	0.63	29.80	44.00	24.00	32.00	C.L		
	90-110	8.30	0.60	28.30	54.00	16.00	30.00	S.C.L		
23	0-25	7.80	0.56	9.80	81.00	8.00	11.00	L.S	0.57	6.30
	25-60	7.80	0.37	16.50	60.00	13.00	27.00	S.C.L		
	60-85	7.70	0.39	18.10	57.00	13.00	30.00	S.C.L		
24	0-15	7.80	0.49	11.90	83.00	8.00	9.00	L.S	0.78	5.94
	15-35	7.50	5.24	13.80	70.00	10.00	20.00	S.C.L		
	35-55	7.30	3.41	15.80	65.00	10.00	25.00	S.C.L		
25	0-25	7.70	0.51	5.10	78.00	8.00	14.00	S.L	0.59	5.24
	25-60	7.70	0.35	7.20	70.00	16.00	14.00	S.L		
	60-90	7.80	0.28	11.30	58.00	15.00	27.00	S.C.L		

Table (2) : Cont.

prof. NO.	Depth cm	pH	EC dS/m	CaCO ₃ %	Texture			Textural Class	O.M. %	Sand > 1mm %
					Sand%	Silt%	Clay%			
26	0-15	7.60	0.40	13.40	76.00	10.00	14.00	S.L	0.55	6.23
	15-60	7.70	0.38	20.90	60.00	16.00	24.00	S.C.L		
	60-100	7.80	0.41	19.40	59.00	13.00	28.00	S.C.L		
27	0-15	7.60	0.61	18.90	88.00	5.00	7.00	S	0.45	3.13
	15-65	7.70	0.59	21.30	78.00	13.00	9.00	L.S		
	65-115	7.80	0.40	21.60	86.00	3.00	11.00	L.S		
28	0-15	7.50	2.03	10.30	91.00	3.00	6.00	S	0.41	7.99
	15-40	8.00	1.03	13.80	86.00	5.00	9.00	L.S		
	40-70	7.60	2.23	19.40	91.00	3.00	6.00	S		
	70-110	7.50	5.88	17.10	84.00	5.00	11.00	L.S		
29	0-15	7.20	120.00	15.60	74.00	11.00	15.00	L.S	1.22	12.75
	15-60	7.30	40.00	17.90	44.00	22.00	34.00	L.C		
	60-85	7.10	38.00	12.20	64.00	20.00	16.00	L.S		

Table (3): Main topographic characteristics of Wadi EL-Qassaba pilot area.

GEOMORPHOLOGY UNIT	AREA		ELEV RANGE		SLOPE		ASPECT	
	km2	%	m	%	range	%	range	%
WADI SYSTEM	6.46	6.17	11-141	7.83	flat	7.83	NE,N,NW,W	58.81
				42.09	1-2	42.09	E,SE,S,SW	41.19
				23.56	3-4	23.56		
				29.71	5-8	29.71		
				4.65	9-17	4.65		
PLATEAU	49.87	47.63	59-158	20.29	flat	20.29	NE,N,NW,W	54.64
				67.04	1-2	67.04	E,SE,S,SW	45.36
				6.64	3-4	6.64		
				4.91	5-8	4.91		
				1.12	9-17	1.12		
DISSECTED PLATEAU	12.36	11.81	41-120	6.36	flat	6.36	NE,N,NW,W	65.54
				37.25	1-2	37.25	E,SE,S,SW	34.46
				31.84	3-4	31.84		
				22.49	5-8	22.49		
				2.06	9-12	2.06		
INTER RIDGES	21.30	20.35	13-71	11.85	flat	11.85	NE,N,NW,W	58.00
				69.85	1-2	69.85	E,SE,S,SW	42.00
				17.02	3-4	17.02		
				1.28	5-8	1.28		
RIDGES	6.91	6.60	13-46	20.84	flat	20.84	NE,N,NW,W	56.48
				68.77	1-2	68.77	E,SE,S,SW	43.52
				10.39	3-5	10.39		
COASTAL LAGOON	6.35	6.06	5-20	26.92	flat	26.92	NE,N,NW,W	63.63
				56.50	1-2	56.50	E,SE,S,SW	36.37
				16.57	3-5	16.57		
COASTAL DUNES	1.44	1.37	5-10	65.38	flat	65.38	N,NW,W	78.31
				34.62	1-2	34.62	E,SE,S,SW	21.69

Table (4): Main topographic characteristics of Fuka Basin.

GEOMORPHOLOGICAL UNIT	AREA		ELEV RANGE		SLOPE		ASPECT	
	km ²	%	m	range	%	range	%	
COASTAL DUNES	3.37	0.98	1-5	flat	44.93	NE,N,NW,W	65.22	
				1-2	55.07	E,SE,S,SW	34.78	
RIDGES	66.35	19.24	5-100	flat	42.41	NE,N,NW,W	61.29	
				1-2	43.19	E,SE,S,SW	38.71	
				3-4	8.26			
				5-8	4.61			
				9-23	1.54			
INTER RIDGES	69.63	20.19	5-95	flat	40.91	NE,N,NW,W	57.82	
				1-2	44.15	E,SE,S,SW	42.18	
				3-4	9.10			
FOOT SLOPE	16.91	4.90	60-110	flat	19.14	NE,N,NW,W	39.32	
				1-2	54.42	E,SE,S,SW	60.68	
				3-4	12.85			
				5-8	7.30			
				9-17	5.81			
LOW DISS. PLATEAU	34.88	10.12	40-96	flat	28.47	NE,N,NW,W	51.97	
				1-2	52.30	E,SE,S,SW	48.03	
				3-4	15.65			
				5-16	3.58			
					0.49			
HIGH DISS. PLATEAU	32.69	9.48	52-126	flat	13.44	NE,N,NW,W	59.33	
				1-2	48.38	E,SE,S,SW	40.67	
				3-4	23.53			
				5-8	12.93			
				9-16	1.71			
ESCARPMENT	9.27	2.69	75-132	flat	31.46	NE,N,NW,W	52.21	
				1-2	63.26	E,SE,S,SW	47.79	
				3-4	4.37			
				5-11	0.91			
PLATEAU	105.02	30.46	56-150	flat	47.79	NE,N,NW,W	63.01	
				1-2	47.20	E,SE,S,SW	36.99	
				3-4	3.86			
				5-13	1.15			
WADI SYSTEM	6.08	1.94	45-108	flat	15.53	NE,N,NW,W	32.00	
				1-2	48.80	E,SE,S,SW	68.00	
				3-8	11.48			

ANNEX X

WATER RESOURCES MANAGEMENT STUDY

ANNEX X

In 1993 one mission on water resources management has been carried out by a reputed Egyptian expert. His task was to make an initial assessment of the problems in the area. However, little has been done since then. However, the issue of water resources has been tackled by most of other activities within CAMP, particularly one on soil erosion and degradation. With regard to future activities and the deadlines established in the finalization of CAMP, two possibilities will be explored: to undertake the activities providing the adequate "niche" be found (in order not to overlap with activities of other organisations active in the region) or to cover the issue of water resources by using results of other activities, therefore without undertaking any special action on the side of PAP/RAC.

ANNEX XI

**REMOTE SENSING FOR THE ASSESSMENT OF
NATURAL RESOURCES IN THE AREA**



CTM

CENTRO DI TELERILEVAMENTO MEDITERRANEO



UNITED NATIONS ENVIRONMENT PROGRAMME
MEDITERRANEAN ACTION PLAN



RAC/ERS

UNEP

REGIONAL ACTIVITY CENTER for ENVIRONMENT REMOTE SENSING

COASTAL AREA MANAGEMENT PROGRAMME FOR THE COASTAL AREA OF

FUKA - MATROUH

PRESENTATION OF THE INTERMEDIATE RESULTS

MATROUH, 18, 19, 20 SEPTEMBER 1995



CTM

CENTRO DI TELERILEVAMENTO MEDITERRANEO

Via G. Giusti, 2 - 90144 Palermo, Italy - Tel. (39 91) 342368-308512 - Fax (39 91) 342368



UNITED NATIONS ENVIRONMENT PROGRAMME
MEDITERRANEAN ACTION PLAN



RAC/ERS

UNEP

REGIONAL ACTIVITY CENTER for ENVIRONMENT REMOTE SENSING

COASTAL AREA MANAGEMENT PROGRAMME
FOR THE COASTAL AREA OF

FUKA-MATROUH

ABSTRACT OF THE
PRESENTATION OF THE INTERMEDIATE RESULTS
OF THE RAC/ERS' INTERVENTION

A chronological summary of the main events which led to the involvement of CTM RAC/ERS into the Fuka-Matruh CAMP is presented together with the main goals and benefits of the carried out work.

Then some outlines about the used methodology are illustrated, in particular as to the followed approach - which is an holistic and multidisciplinary one - the observation tools applied during the study, consisting in remotely sensed data and their validation and integration with in field direct controls.

As for the applied methodology, some descriptions about the main steps to be followed for its implementation are dealt with, stressing the usefulness and benefits of the various activities presented.

Afterwards the description of the carried-out work is proposed taking into account all the activities developed both in Italy satellite data processing - in Alexandria - satellite image interpretation - and directly in the field, in the region of Fuka-Matruh, where several observations have been made concerning the land forms and the geomorphological processes affecting the examined area, the natural vegetation distribution and classification, and the soil characteristics in properly made soil profiles. In particular as far as the image interpretation and the field survey phases are concerned, a group of four Egyptian experts has been trained and made able to carry out a similar work autonomously both in the same region in order to complete the field controls and in other similar areas.

Finally, some recommendations are proposed about the accomplishment of the work through the full involvement of the Egyptian experts and the possible integration of the acquired results with those produced by other RACs and the PAP/RAC in particular.

1) Background

From October 1992 (Agreement MAP-Egypt) to October 1993 (Antalya)

Conceiving, planning and setting up of RAC/ERS' intervention

1st Preparatory Mission to Egypt - June 1994

Consultations and cooperations - Starting of the works.

2nd Mission to Alexandria and Matrouh December 1994: Preparation of the Operations in Egypt

3rd Mission to Alexandria and Matrouh - June 1995: training-on-the-job and field survey.

2) Presentation of the activities

Description of the applied methodology

Implementation of the work

Processing and interpretation of the satellite data

Field survey

Training-on-the-job

3) Remarks and recommendations

Problems arisen in the carrying out of the activities

Further development of the works: cooperation with Egyptian experts, with Egyptian Organizations, with other RACs

Final expected results

Other activities of RAC/ERS in Egypt and possible synergies

1) Background - From October 1992 to October 1993

OCTOBER 1992 : AGREEMENT MAP - EGYPT

MARCH 1993: TWO-MONTH TRAINING COURSE FOR
TWO EGYPTIAN EXPERTS IN ITALY
(ROME/PALERMO)

OCTOBER 1993: AT ANTALYA (8TH ORD. MEET.) THE
CONTRACTING PARTIES ADOPTED THE
ESTABLISHMENT OF THE FIFTH RAC,
THE RAC/ERS

1) Background - Conceiving, planning and setting up of the intervention

OBJECTIVE: EVEN IF NOT INCLUDED IN THE AGREEMENT OF FUKA CAMP, RAC/ERS DECIDED TO COMMIT AT ONCE ITSELF IN THIS AND IN ALL THE OTHER PLANNED ACTIVITIES OF THE MAP

ACTION: RAC/ERS PROPOSED THREE FIELDS FOR ITS INTERVENTION IN THE FRAMEWORK OF THE FUKA CAMP, ACCORDING WITH THE MAIN ISSUES OF THE AREA

RESULT: THE ASSESSMENT OF LAND RESOURCES WITH REFERENCE TO SOIL EROSION AND DESERTIFICATION WAS SELECTED IN ACCORDANCE WITH MEDU AND EAAA

THE FEASIBILITY STUDY WAS RAPIDLY CARRIED OUT

1) Background - First preparatory mission to Egypt

JUNE 1994

A JOINT MISSION PAP/RAC - RAC/ERS
WAS ARRANGED.

THE SCOPE OF RAC/ERS WAS TO SET
THE TERMS FOR A DETAILED PLAN OF
ACTIONS. SYNERGIES WITH THE STUDY
OF SOIL PERFORMED BY PAP/RAC
WERE ALSO ANALIZED.

MEETINGS WITH EEAA, WITH THE
INSTITUTE OF GRADUATE STUDIES AND
RESEARCH AND WITH THE FACULTY OF
AGRICULTURE OF THE UNIVERSITY OF
ALEXANDRIA, WITH THE LUPEM
STATION, ALLOWED THE BEST
FRAMING OF THE RAC/ERS'
INTERVENTION.

1) Background - Consultations and cooperations: starting of the works

**FOCUSING OF
THE WORK**

A DETAILED EXECUTIVE PLAN WAS
DRAWN OUT, FOCUSED MAINLY ON A
TWOFOLD OBJECTIVE:
= CARRYING OUT OF A PILOT PROJECT
= TRANSFER OF KNOW-HOW AND
METHODOLOGIES THROUGH A
TRAINING-ON-THE-JOB

COOPERATION

AN AGREEMENT WITH IAO WAS SET UP

CONSULTATIONS

FURTHER CONTACTS WITH MEDU,
EEAA AND THE INSTITUTE OF
GRADUATE STUDIES AND RESEARCH
(SEPTEMBER)

**STARTING OF
THE WORKS**

SATELLITE DATA RELEVANT TO THE
STUDIED AREA WERE ACQUIRED AND
PROCESSED

1)Background - 2nd mission to Alexandria and Matrouh

DECEMBER 1994 2ND MISSION OF TWO EXPERTS FROM
RAC/ERS

OBJECTIVES PRESENTATION OF THE ACTIVITIES
AND OF THE METHODOLOGY

CHECKING OF THE COMPATIBILITY OF
HW/SW OF THE INSTITUTE
LABORATORY

APPOINTMENT OF THE TRAINEES

LOGISTIC AND ADMINISTRATIVE
ASPECTS

SURVEY OF THE AREA UNDER STUDY

PLANNING OF THE NEXT OPERATIONAL
MISSION

1) Background - 3rd mission to Alexandria and Matrouh

**THE 3RD MISSION PLANNED FOR JANUARY/FEBRUARY
1995, WAS DELAYED TO JUNE 1995**

TRAINING-ON-THE-JOB

FIELD SURVEY

OVERALL METHODOLOGY

AIMS OF THE WORK

IMPLEMENTATION OF A MULTIDISCIPLINARY STUDY FOR
THE ASSESSMENT OF NATURAL RESOURCES

PROVIDING THE EGYPTIAN AUTHORITIES WITH AN
EFFECTIVE TOOL FOR SETTING UP AND PLANNING
MEASURES DEVOTED TO "SOIL CONSERVATION"

TRASFERRING OF THE APPLIED METHODOLOGY TO
LOCAL EXPERTS THROUGH THEIR DIRECT
INVOLVEMENT IN THE ACTIVITIES

OVERALL METHODOLOGY

APPROACH

HOLISTIC APPROACH

(FROM THE GREEK OLOS = ALL COMPLETE)

LAND AS THE RESULT OF A DYNAMIC, INTEGRATED SYSTEM OF COMPONENTS, INCLUDING MAN AND HIS ACTIVITY

MULTIDISCIPLINARY APPROACH

APPLICATION OF DIFFERENT DISCIPLINES AND EXPERTISE DUE TO THE INTERRELATIONS EXISTING WITHIN THE NATURAL RESOURCES COMPLEX (ENVIRONMENT)

NO COMPUTER AUTHOMATIC CLASSIFICATIONS ARE MADE, THE INTERPRETATION OF THE REMOTELY SENSED IMAGE MUST BE MADE BY SKILLED SCIENTISTS SEPARATELY

OVERALL METHODOLOGY

LANDSCAPE GUIDED METHOD - ZONNEVELD ITC, ENSCHEDE (NL)

FOLLOWING THIS METHOD IN A STUDIED REGION, IT IS POSSIBLE TO IDENTIFY AREAS - LAND SYSTEMS - OF THE EARTH'S SURFACE SHOWING REPETITIVE LAY-OUT OF LANDFORMS AND/OR VEGETATION ASSOCIATIONS AND/OR SOIL USES

EACH REPETITIVE LAY-OUT REPRESENTS A SMALLER AREA CALLED LAND UNIT

ALL THE LAND UNITS OF A GIVEN LAND SYSTEM ARE LINKED TOGETHER ACCORDING TO GEOGRAPHICAL AND GEOMORPHOLOGICAL CRITERIA

OVERALL METHODOLOGY

OBSERVATION TOOLS

REMOTE SENSING AND/OR AERIAL PHOTOS

- ● ESSENTIAL TOOLS FOR THE APPLICATION OF THE USED METHODOLOGY
- THEY GIVE A KIND OF HOLISTIC IMPRESSION OF THE LAND REVEALING MUCH OF ITS TOTAL CHARACTERISTICS TO THOSE SCIENTISTS WHO HAVE FEELING FOR IT

FIELD SURVEY

- ● NO REMOTE SURVEY CAN BE CONSIDERED AN EFFECTIVE OPERATIVE TOOL WITHOUT THE DIRECT IN FIELD CONTROL OF THE INTERPRETED FEATURES

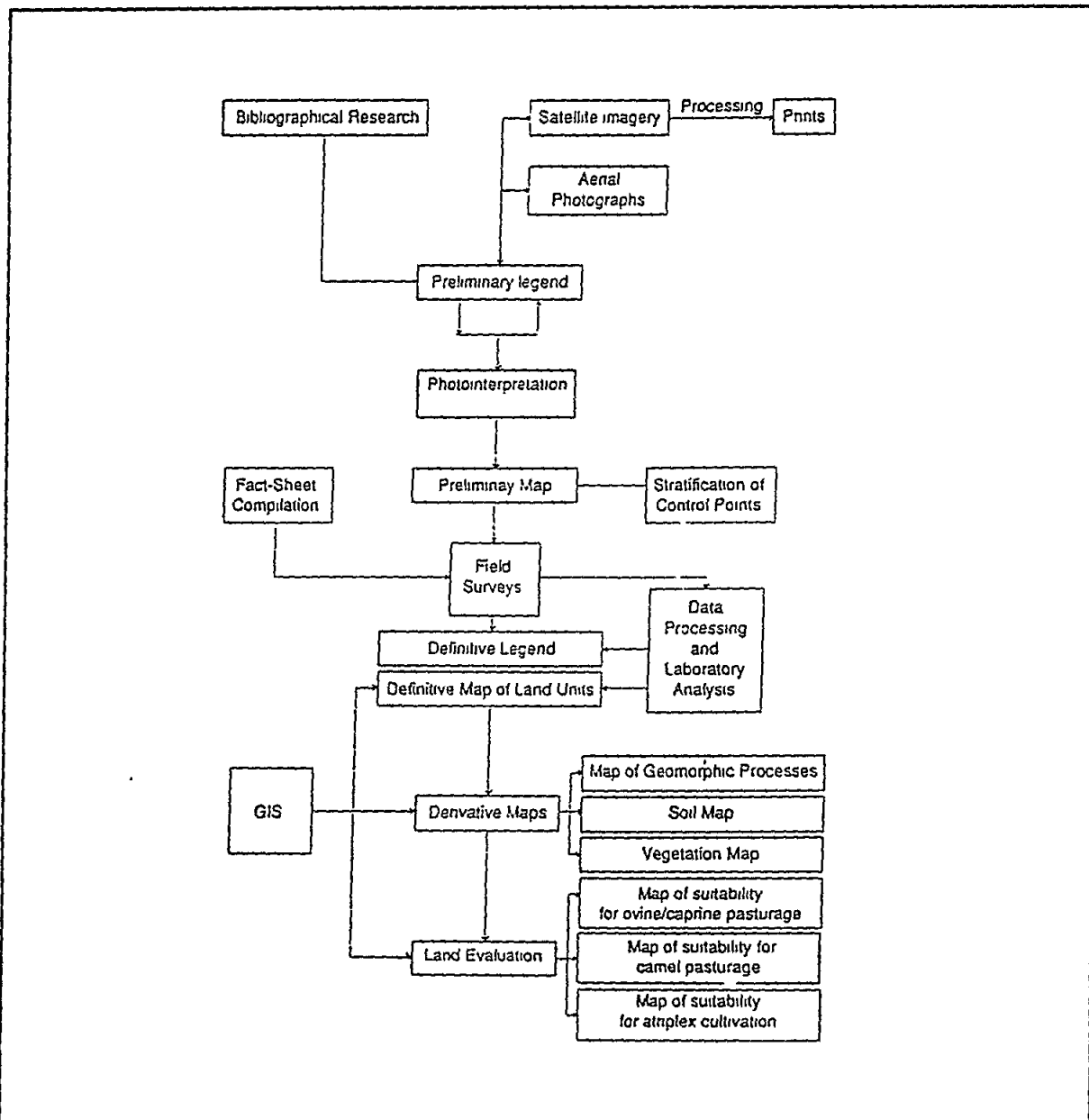


table 1 - block diagram of the implemented methodology

TRAINING COURSE

ATTENDANTS

FROM THE COLLEGE OF AGRICULTURE, SOIL AND WATER SC. DPT.

DR MOHAMED H. BANASSY

FROM THE INSTITUTE FOR GRADUATE STUDIES AND RESEARCH

DR KHALID MAHMOUD DEWIDAR

DR MAMDOUH MOHAMED EL HATTAB

DR AMED ZAKI SHALABI

LECTURERS

FROM THE ISTITUTO AGRONOMICO PER L'OLTREMARE

DR GIACOMO DELLI

DR MARIA LAURA VITI

FROM THE CTM RAC/ERS

DR SABINA CARNEMOLLA

TRAINING COURSE

STRUCTURE

THEORETICAL ASPECTS:

METHODOLOGIES FOR INTEGRATED SURVEY

EXERCISES

FIELD SURVEY

IN FIELD DATA MANAGEMENT AND PROCESSING

AIMS

TO PROVIDE MULTIDISCIPLINARY INFORMATION ON
THE FUKA-MATRUH REGION

TO GIVE SUGGESTIONS FOR IMPLEMENTING
OTHER DERIVATIVE MAPS AND FOR EVALUATING
LAND SUITABILITY FOR EXTENSIVE GRAZING

PROGRAMME OF THE COURSE

Alexandria

5-6 June 1995

METHODOLOGIES FOR INTEGRATED SURVEYS

The concept of Land Resource

Physical land resources (geomorphology, climate and water), physical-biological land resources (soil) and biological land resources (vegetation, fauna, man)

Reasons for land resources surveys and evaluation

The IAO Methodology: the holistic approach and the concept of Land System and Land Unit

Main steps in an integrated land resources assessment

Some practical application of the IAO methodology

7-12 June 1995

EXERCISES

Overview on the Fuka Matrouh natural resources: climate, geology and geomorphology, soil, water, present land use and vegetation (carried out by the students).

Integrated Natural Resources survey planning: definition of the aims, mapping scale definition and preparation of a preliminary legend.

Fact-sheet compilation.

Preliminary image interpretation: definition of the main cartographic units (one interpretation for each student) by visual observation and through the support of image processing.

Merging of the different image interpretations into one single sheet.

Stratification of ground checkpoints

13 June 1995

Transfer to Marsa Matrouh

Fuka-Matruh area

14-21 June 1995

FIELD SURVEY

Searching of the most representative point of the cartographic unit
Carrying out of the survey and compilation of the geo-morphological,
pedological, vegetational fact-sheets
Periodical meetings about the state of the work

21 June 1995

Transfer to Alexandria

Alexandria

22-24 June 1995

FIELD DATA MANAGEMENT AND PROCESSING

Revision of the image-interpretation
Building up of a data-base on natural resources of the Fuka-Matruh area
Data input and storage
Overview of the necessary steps in order to complete the work

PRELIMINARY LEGEND

COASTAL PLAIN

CODE	DESCRIPTION
C1	Beach and drifting oolitic sediments
C2	Foreshore ridge
C3	Ridges and inter-ridges areas
C4	Salt marshes
C5	Ridges and highly saline inter-ridges
C6	Alluvial plain formed by scattered alluvial fans
C7	Aeolian sand dunes
C8	Complex area with alluvial plain and long, branched wadies
C9	Alluvial plain covered by aeolian deposits
C10	Almost flat plain without drainage network

ESCARPMENT

CODE	DESCRIPTION
E1	Very steep slope and gentle slope escarpment
E2	Gentle slope escarpment

NORTHERN PLATEAU

CODE	DESCRIPTION
NP1	Undulating hills and depressions
NP2	Rocky plateau
NP3	Rocky plateau with aeolian deposits
NP4	Rocky plateau with shallow soils
NP5	Rocky plateau with depressions (sink holes)
NP6	Rocky plateau with wadies

SOUTHERN PLATEAU

CODE	DESCRIPTION
SP1	Southern plateau
SP2	Southern plateau darker in colour
SP3	Southern plateau with rocky outcrops

560000

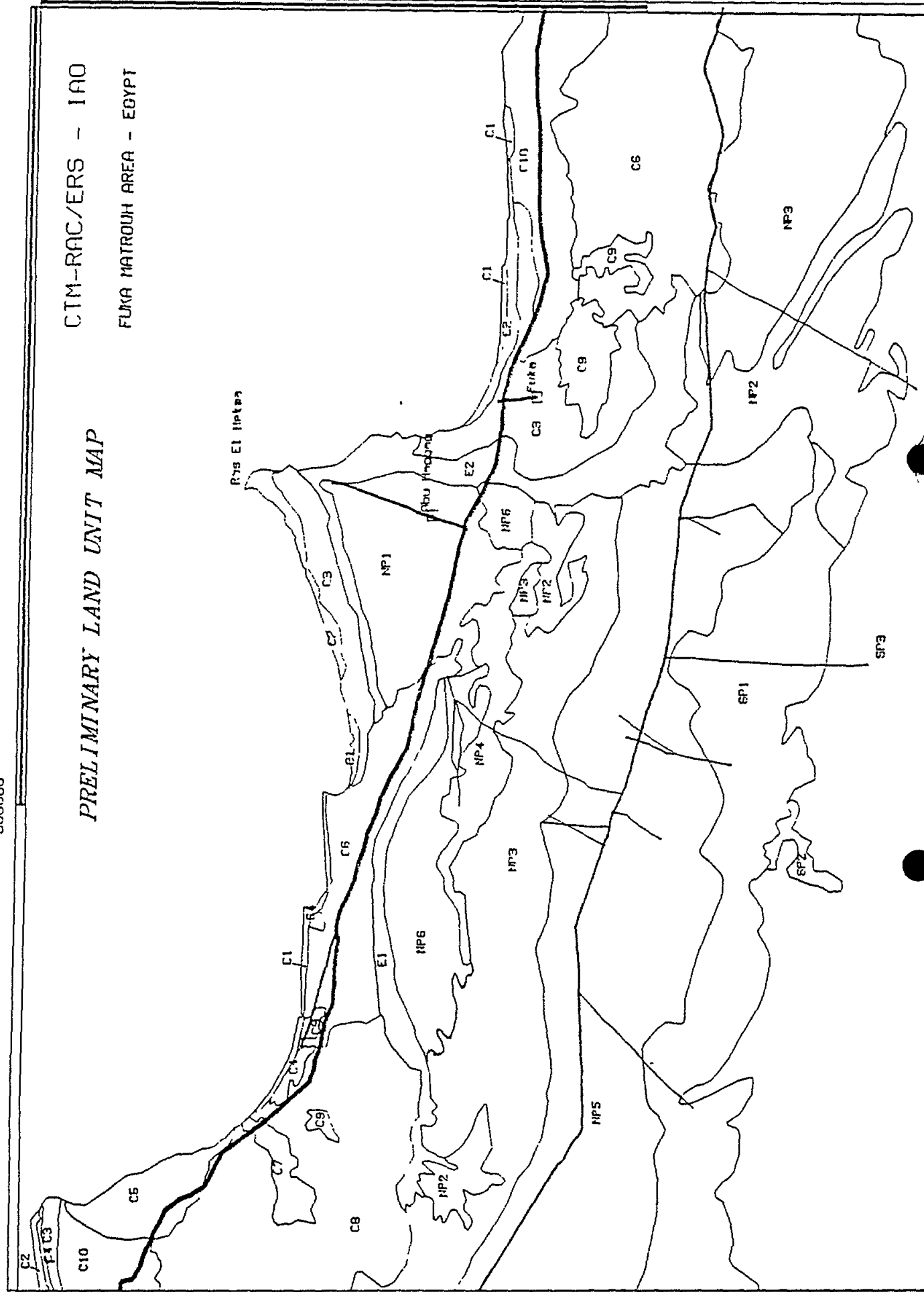
CTM-RAC/ERS - IAO

FUKA MATROUH AREA - EGYPT

PRELIMINARY LAND UNIT MAP

Ras El Hatan

Abu Haddad



3430000

figure 2

3430000

560000

SCALE 1/250000

0 km 7 km 14 km 21 km 28 km

560000

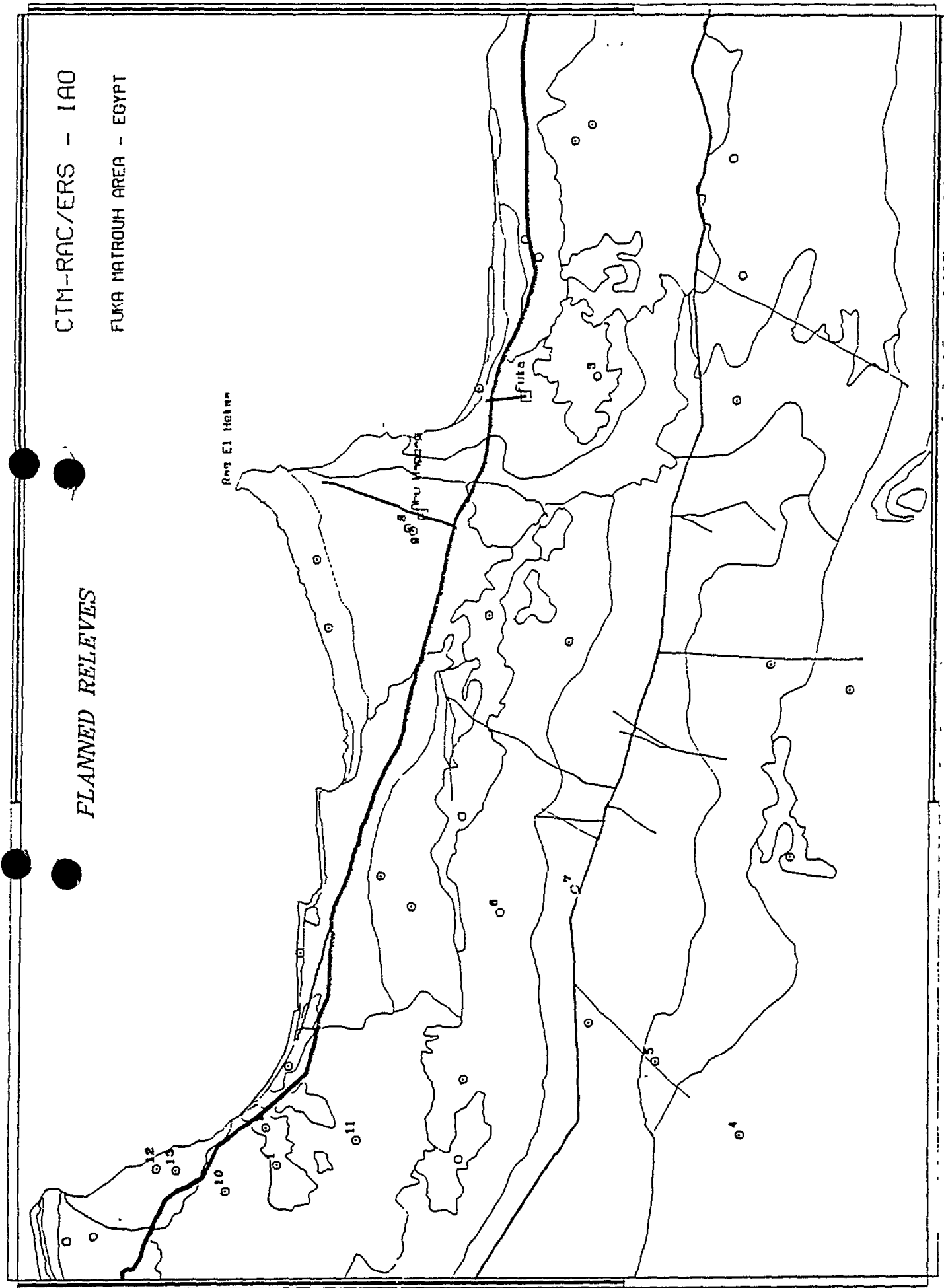
CTM-RAC/ERS - IAO

FUKA MATROUH AREA - EGYPT

PLANNED RELEVES

Ras El Helwan

El Helwan



3430000

280m

210m

140m

70m

0m

560000

0000000

figure 3

3430000

GEOMORPHOLOGY

RELEVE N.

COORDINATES N	<input type="text"/>	DATE	<input type="text"/>	SURVEYORS	<input type="text"/>
UTM (m)		LOCATION	<input type="text"/>		
E	<input type="text"/>	A. PHOTO N°	<input type="text"/>	TOPO MAP	<input type="text"/>
PRELIMINARY CODE	<input type="text"/>	FINAL CODE	<input type="text"/>	CARTOGRAPHIC CODE	<input type="text"/>

SITE DESCRIPTION			
ELEVATION (m)	EXPOSURE (°)	SITE POSITION	SKETCH SITE POSITION
<input type="text"/>	<input type="text"/>	<input type="text"/>	
SLOPE FORM	SLOPE GRADIENT (%)	SLOPE LENGTH (m)	
<input type="text"/>	<input type="text"/>	<input type="text"/>	
CREST FORM	VALLEY FORM	RELIEF INTENSITY (m)	SURF SOIL COLOUR
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
LANDUSE	VEGETATION	HUMAN INFLUENCES	PARENT MATERIAL
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
ROCK OUTCROPS	COARSE FRAGMENTS abund.	COARSE FRAGMENTS size	EFFECTIVE SOIL DEPTH (cm)
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

LAND FACET DESCRIPTION			
ELEVATION RANGE (m)	SURFACE/GROUNDWATER		
<input type="text"/>	SURFACE HUMIDITY	GW DEPTH (cm)	GW FLUCTUATION (cm)
RELIEF TYPE	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	WATER POINT TYPE	WP LATITUDE (UTM)	WP LONGITUDE (UTM)
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
ROCK	FLOOD		
LITHOLOGY	STRUCTURE	FREQUENCY	DURATION
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
		AREA	
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

EROSION					
EROSION TYPE	AREA	RATE	EXPOSED ROOTS HEIGHT (cm)	CONSERVATION PRACTICES	
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	PLAIN	
SHEET	AREA (%)	RATE		DRAINAGEWAYS	
<input type="text"/>	<input type="text"/>	<input type="text"/>		<input type="text"/>	
RILL	AREA (%)	DEPTH (cm)	SPACING (m)	AGE (y)	
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
GULLY	AREA (%)	DEPTH (cm)	SPACING (m)	AGE (y)	
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
RAVINE	AREA (%)	DEPTH (cm)	SPACING (m)	AGE (y)	
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
Mass Movement	AREA	TYPE	RATE	ZONES	
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
			AGGRADATIONAL TYPE	AREA	RATE
			<input type="text"/>	<input type="text"/>	<input type="text"/>

SYNTHESIS. geology, relief, geomorphological unit, active processes, etc..

SOIL

RELEVE N.

COORDINATES N
 -UTM (m)
 E

DATE

SURVEYORS

LOCATION

A. PHOTO N°

TOPO MAP

PRELIMINARY CODE

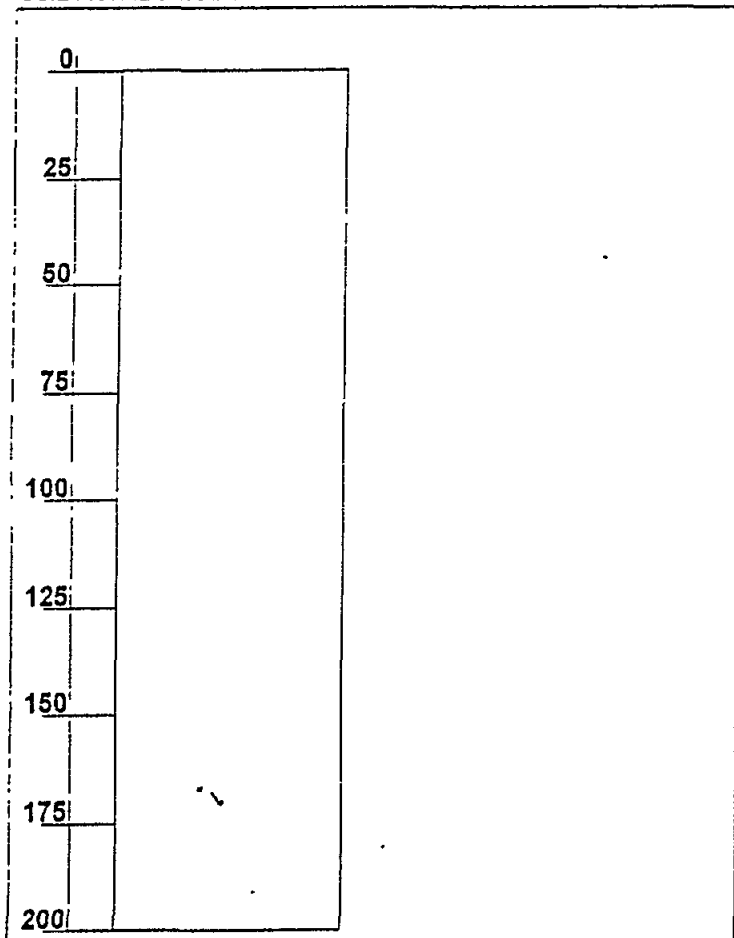
FINAL CODE

CARTOGRAPHIC CODE

SITE DESCRIPTION

ELEVATION (m)	EXPOSURE (°)	SITE POSITION	<small>SKETCH SITE POSITION</small>
			
SLOPE FORM	SLOPE GRADIENT (%)	SLOPE LENGHT (m)	
			
LANDUSE	VEGETATION	HUMAN INFLUENCES	PARENT MATERIAL
			
ROCK OUTCROPS	COARSE FRAGMENTS abund.	COARSE FRAGMENTS size	EFFECTIVE SOIL DEPTH (cm)
			

SOIL PROFILE DRAFT



SEALING -thickness- **SEALING -consistency-**

CRACKS -width-(cm) **CRACKS -distance-(cm)**

MICRO-TOPOGRAPHY

TYPE

HEIGHT

DRAINAGE

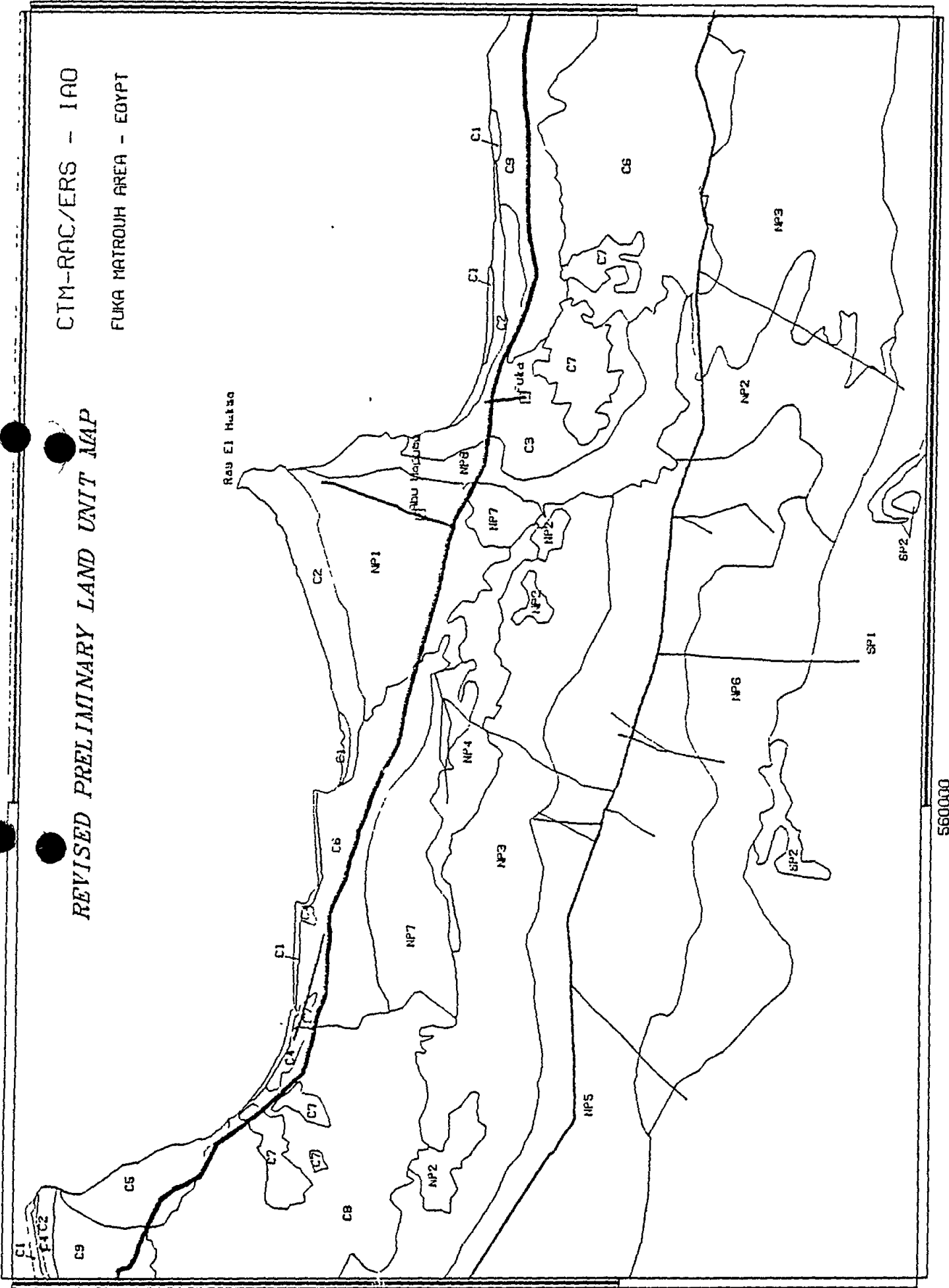
NOTES

560000

CTM-RAC/ERS - IAO

FUKA MATROUH AREA - EGYPT

REVISED PRELIMINARY LAND UNIT MAP



3430000

figure 4

3430000

560000

REVISED LEGEND

COASTAL PLAIN

CODE	DESCRIPTION
C1	Beach and drifting oolitic sediments
C2	Ridges and inter-ridges areas
C3	Discontinuous ridges and inter-ridges areas
C4	Salt marshes
C5	Ridges and highly saline inter-ridges areas
C6	Coastal plain with scattered alluvial fans
C7	Undulating area covered by aeolian deposits
C8	Deep wadies and inter-wadies areas
C9	Almost flat area without drainage network

NORTHERN PLATEAU

CODE	DESCRIPTION
NP1	Undulating hills and depressions
NP2	Plateau without aeolian deposits
NP3	Plateau with aeolian deposits
NP4	Plateau with cultivated fields
NP5	Plateau with shallow depressions
NP6	Transitional plateau
NP7	Dissected plateau with incised wadies
NP8	Dissected plateau with shallow drainage lines

SOUTHERN PLATEAU

CODE	DESCRIPTION
SP1	Plateau with rock outcrops
SP2	Plateau with higher vegetation cover

table 5

References

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- FAO, 1994 - *Water harvesting for improved agricultural production in Proceeding of the FAO Experts Consultation* - FAO Water Report n.3 Rome.
- GIORDANO A., 1989 - *Il telerilevamento nella valutazione delle risorse naturali* - Relaz. e Monogr. Agr. Subtropicale e Tropicale. n.106 - IAO Florence.
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- ??, 1993 - *Up-dated on-site report for the Fuka-Matruh Area, Egypt* - Fuka-Matruh CAMP, Egypt

3) Remarks and recommendations - Problems arisen

**DELAY OF THE
3RD MISSION**

IF CARRIED OUT AS SCHEDULED IN JANUARY 1995, THE RESULT OF THE SATELLITE DATA INTERPRETATION WOULD HAVE ALLOWED A MORE EFFECTIVE COOPERATION WITH PAP/RAC FOR THE FIELD SURVEY AND IN GENERAL A BETTER SYNERGY BETWEEN THE ACTIVITIES OF THE TWO RACS.

IN JUNE, THE IDENTIFICATION OF THE NATURAL VEGETATION IN THE AREA IS QUITE DIFFICULT

IN JUNE WEATHER CONDITIONS ARE NOT FAVOURABLE FOR FIELD SURVEYERS

**LOGISTIC
ASPECTS**

SOME TRANSPORTATION ISSUES IN THE AREA OF THE STUDY HAVE BEEN SOLVED THANKS TO THE COOPERATION OF LUPEM

3)Remarks and recommendations: Further development of the work

**THE EGYPTIAN
RESEARCHERS**

**SHOULD GO ON WITH THE FIELD
SURVEY AND WITH THE LAND
CLASSIFICATION**

**COULD INTEGRATE ALL THE OBTAINED
INFORMATION AND DATA INTO THE
DATA BASE SET UP BY PAP/RAC**

**EEAA AND THE
INSTITUTE G.S.R.**

**SHOULD ENCOURAGE AND SUPPORT
THE RESEARCHERS ALLOWING THEM
TO COMPLETE THESE ACTIVITIES**

3)Remarks and recommendations: Final expected results

RAC/ERS

IF THE ABOVE MENTIONED DEVELOPMENT BE AGREED UPON, RAC/ERS COULD PLAN ANOTHER MISSION TO EGYPT IN ORDER TO ASSIST RESEARCHER IN DRAWING UP THE LAND UNIT MAP OF THE WHOLE AREA OF THE CAMP

IS AVAILABLE TO STRENGTHEN FURTHER COOPERATION WITH EGYPTIAN ORGANIZATION FOR THE APPLICATION OF THE SAME METHOD IN AREAS OF INTEREST AND THE ARRANGEMENT OF TRAINING COURSES

3) Remarks and recommendations: Other activities of RAC/ERS in Egypt

**VISITED
EGYPTIAN
ORGANIZATIONS**

**INSTITUTE OF GRADUATE STUDIES AND
RESEARCH, UNIVERSITY OF ALEX.
PROF M. EL RAEY, DEAN**

**UNIVERSITY OF ALEXANDRIA , FACULTY
OF AGRICULTURE
PROF FAWZI H. ABDEL KADER**

**NATIONAL AUTHORITY FOR REMOTE
SENSING AND SPACE SCIENCES, CAIRO
PROF. M. ABDEL-HADY, PRESIDENT
DR. HUSSEIN A. YOUNES, V. PRES.**

**DESERT RESEARCH CENTER - CAIRO
PROF. M. A. ETMAN - PRESIDENT
PROF. M. SAMI SOLIMAN - HEAD OF
SATELLITE STATION**

**CEDARE
MR. KAMAL A. SABET, CHIEF TECHN.
ADVISOR
DR. ADEL FARID, INF. SERV. UNIT**

**LUPEM STATION
MR. SHERIF MOUSTAFA (OFF. IN CH.)**

CONTACTS

**GEO/MAP CONSULTANTS - CAIRO
MR. MOSHEN BADAWY, DIRECTOR
(SOIL AND WATER RESEARCH INST.
DR. NABIL EL MOWELHI, DIRECTOR)**

3) Remarks and recommendations: Other activities of RAC/ERS in Egypt

**PROJECT
DAPHNE**

**MULTITEMPORAL OBSERVATION OF
VEGETATED AREAS BY SATELLITE ALL
OVER THE MEDITERRANEAN COASTAL
COUNTRIES**

**RAIS
PROJECT**

**INVENTORY OF REMOTE SENSING
ACTIVITIES AND CENTERS IN THE
MEDITERRANEAN REGION**

**COSMOS
PROJECT**

**IDENTIFICATION OF ENVIRONMENTAL
ISSUES OF PRIORITY INTEREST FOR
THE MEDITERRANEAN REGION, AND
THE RELEVANT ENVIRONMENTAL
PARAMETERS MONITORABLE
THROUGH THE USE OF REMOTE
SENSING TECHNIQUES.**

**SUDDAN
PROJECT**

**MONITORING OF THE DYNAMIC OF THE
DESERTIFICATION IN NORTHERN
AFRICA.
TO BE SET UP IN COOPERATION WITH
OSS, CRTEAN, IMAGEO, SCOT CONSEIL,
IPI-UH - WITH THE PARTICIPATION OF
EGYPT, LIBYA, ALGERIA, MAURITANIA,
ALGERIA, TUNISIA.**

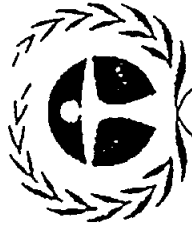


CTM

CENTRO DI TELERILEVAMENTO MEDITERRANEO



UNITED NATIONS ENVIRONMENT PROGRAMME
MEDITERRANEAN ACTION PLAN
RAC/ERS



REGIONAL ACTIVITY CENTER for ENVIRONMENT REMOTE SENSING



ANNEX XII
RECOMMENDATIONS

ANNEX XII

RECOMMENDATIONS

The following preliminary general recommendations are directed to the Egyptian authorities and to the Coordinating Unit for the Mediterranean Action Plan.

1. **Pursue and strengthen** the involvement of local experts in CAMP activities.
2. **Integrate** available data, information and reports, prepared so far through individual activities and identify gaps of knowledge, into a synthetic document to be the preliminary step towards the preparation of a Coastal Area Management Plan for the Fuka-Matrouh area.
3. **Give** proper consideration to LBS/monitoring, shoreline and marine ecosystems, as well as to solid and liquid wastes issues.
4. **Give** more consideration to the historic sites in the area, based on already achieved work by SPA/RAC, through the involvement of MAP's Network for historic sites located in the Atelier du Patrimoine, of Marseille.
5. **Ensure** proper coordination and cooperation through local and national experts, between CAMP project and existing on-going activities (QASR, LUPEM, WB, etc...) in order to come out with a real added value.
6. **Take** the necessary steps to organize a training seminar on environmental legislations directed to local actors, under the direction of Matrouh Authorities and in cooperation with EEAA.
7. **Take** the necessary steps to establish a Fuka-Matrouh Database and GIS, involving local, national and international expertise.
8. **Invite** all concerned partners in this CAMP to finalize their activities in view of presenting the final results around middle of 1996.
9. **Translate** the documents presented so far into Arabic in order to make them more useful to local actors.

ANNEX XIII

LIST OF REPORTS AND STUDIES

ANNEX XIII

LIST OF REPORTS AND STUDIES

MED UNIT

- Agreement relevant to the Coastal Area Management Programme for Fuka-Matrouh Area - 1992
- First progress report on the implementation of the Fuka-Matrouh CAMP (January - September 1993)
- Second progress report on the implementation of the Fuka-Matrouh CAMP (October 1993 - December 1994)
- A legal study of Environmental Legislations relating to the Fuka-Matrouh Area project - 1994
By: Mr. M. El-Gindi and Ms. M. Zuficar
- Report on the implications of climatic changes on the Coastal Area of Fuka-Matrouh - 1995

BP/RAC

- A framework for Accumulating Consequential Data and knowledge - 1995
By: Mr. M. Ayyad
- Systemic and prospective analysis for an environmentally friendly management - 1995
By: Mr. C. Aruoba
- Framework on environmental problems and management - 1995
- Framework on environmental problems and management - 1995
By: Mr. K. Fahmi

PAP/RAC

- Report concerning tourism carrying capacity study of the Fuka-Matrouh Area - 1993
By: Mr. M. Dragicevic
Mr. F. Surucu

- Report concerning soil erosion and desertification - 1994
By: Mr. G. Ferrari
- Guidelines for integrated management of coastal and marine areas (with special reference to the Mediterranean basin) - 1995
By: PAP/RAC - OCA/PAC

SPA/RAC

- The terrestrial ecosystems of Fuka-Matrouh Area - status, protection and management measures - 1993
By: Mr. M. Ayyad
- The marine ecosystems of Fuka-Matrouh Area - status of species and habitats - 1993
By: Mr. A. Beltagy
- Marine turtles conservation in the Mediterranean - Marine turtles in Egypt (phase I) - Survey of the Mediterranean coast between Alexandria and El-Salums - 1993
By: Mr. M. Kasperek
- Cultural heritage sites of the North-western coastal area of Egypt - 1995
By: Mr. F. Ismael

ERS/RAC

- Assessment of land resources supported by remote sensing for the Coastal Area of Fuka-Matrouh - 1995