

GOVERNMENT OF THE ARAB REPUBLIC OF EGYPT
COMMISSION OF THE EUROPEAN COMMUNITIES

**ST. KATHERINE PROTECTORATE
& BARDAWIL LAGOON
PROTECTED AREA**

FEASIBILITY STUDY (ADDENDUM INCL)

Sinai, Egypt

Final Report

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*Any views expressed in this report are those of the
consultants*

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A. EXECUTIVE SUMMARY

a. BACKGROUND

In 1993, the Government of Egypt and the Commission of the European Communities agreed on a project of technical cooperation to undertake a combined feasibility study for (1) «a management and protection programme for the Saint Katherine Natural Protectorate» and (2) «for the development of a protected area and a management plan for the Bardawil Lagoon». The results of these studies are presented in this document. Field work took place from the 15th of November to the 22nd of December 1993.

b. INTRODUCTION

Saint Katherine

The Saint Katherine Natural Protectorate, situated in the South Sinai, is unique in terms of mountain structural formations including the highest peaks in Egypt. It contains valuable vulnerable wildlife, several endemic plants and others of particular biogeographical interest. A reduced population of Bedouins live in the area. The area is famous mainly for its religious and cultural values. Tourists and pilgrims come to visit the monastery of Saint Katherine (the oldest Christian monastery in continuous existence) and to climb Gebel Musa, claimed to be Mount Sinai where Moses received the Tablets of Law.

The natural protectorate of Saint Katherine was established in 1988 but no further action has since been taken; even its size is unknown. A proposal for its designation as a World Heritage Site was put forward in 1989 with no results. A World Heritage property must not only meet one or more of the selection criteria (which should be extraordinary resources), but must also satisfy a number of "conditions on integrity" that include sufficient size, legal protection and adequate management. Moreover, present urban and tourism development in the town of Saint Katherine is posing a threat to the most sensitive part of the protectorate; some places are already spoiled.

Bardawil

Bardawil is the only remaining non polluted big Mediterranean lagoon in Egypt. (North Sinai). It is a shallow hypersaline embayment 90 km long connected with the sea by four channels. The lagoon is surrounded by saltmarshes, sandy bars and other coastal biotopes rich in biodiversity and of international importance for bird migration. It was designated as a Ramsar site in 1988. Many Egyptian protected animal species live in the area and already one Eastern section of it -Zaranik- was declared a Natural Protectorate in 1985.



Furthermore, the interest in Bardawil extends also to the salt exploitation and, particularly, to the fisheries operating in the lagoon, which are of vital importance to the region's economy. The European Union is currently implementing an artisan fisheries programme. The survival of the whole Bardawil system is endangered by a lack of coordination between the different activities in the area and, primarily, by the development of an ambitious land reclamation project in the North Sinai linked to the construction of the El Salam Canal. Upon completion, agricultural land south of the lagoon will be allocated, and about one million new settlers will take up residence in the North Sinai. Environmental impact assessments carried out on behalf of the World Bank underscore the considerable risk to the lagoon.

Saint Katherine & Bardawil

Although different in type, both areas are unique. They harbour important biological and cultural resources of great preservation value not only for local and national interest, but for mankind. They bear enough merit to be promoted as protected areas of the first order. Moreover, their present conservation status is still good. But there are problems and also a great potential for more problems if existing development projects and trends do not take into consideration their environmental consequences. Fortunately, it is not too late. If proper management is implemented and if coordination mechanisms between the different administrations involved are established, the longevity of these unique areas as integral units can be assured.

Actions to be taken are those normally applied to protected areas (planning, regulations, zoning, monitoring, law enforcement, habitat restoration, etc.) with their obvious individual characteristics. Bardawil is facing major threats as many different sectors are involved (fisheries, agriculture, industry, etc). The solution for its effective protection has to have an integrated approach and keep in mind a multi-use orientation.

Saint Katherine has fewer problems, but they are more concentrated in one single site which contains unfortunately the most significant and fragile resources (biological, cultural & spiritual). Efforts in Saint Katherine should therefore pay special attention to the Wadi Sheik area where the town, the monastery and tourism developments are situated.

c. BENEFITS

Benefits accrued by the conservation of Saint Katherine and Bardawil natural resources are to be linked with the concept of sustainable socio-economic development of local population. If properly protected, planned and managed, natural -and cultural- resources existing in both areas could substantially help improving the quality of life of their inhabitants, through the implementation of non impacting and sustainable income generating activities.



With regard to Bardawil Lagoon, the classification of this unique ecosystem as a protected area containing some natural reserve areas will entail, amongst others, the following benefits:

- Preservation of the economic value of fishing activity, improvement of fisheries;
- Social economic improvement of the population;
- Introduction of modern non impacting soft agricultural techniques;
- Public health benefits (avoiding the example and problems of Lake Manzala);
- Biodiversity preservation;
- Tourism attraction;
- International prestige of Egypt, and a leading position in natural resources conservation within the Arab World.

d. BARDAWIL CONSENSUS BUILDING

It is proposed that the Bardawil development proposal be implemented in two phases. A major goal of the first phase should be consensus building among the Natural Protectorates authority within the Agency for Environmental Affairs and the Northern Sinai Agriculture Development Project, Agriculture, Fisheries, Tourism, City Councils, Salt Company and other administrations involved.

To be efficient, this consensus should be built on the common assumption that Egyptian environmental legislation is the framework of reference for negotiation concerning Bardawil, and that accomplishment of environmental Laws and Decrees takes here precedence over all other considerations.

An outcome of this first phase of the project should be the settlement of potential conflicts of interest affecting the following conservation requirements:

- Future tourism development within the protected area and the construction and use of any access road to the sand bar have to be regulated, in order (1) to minimize its negative impact, (2) to safeguard the most fragile and valuable elements of Bardawil's ecosystems, and (3) to accomplish the Prime Minister's Decree 264/1994 with the Conditions, Rules and Procedures of Practising Activities in Natural Reserve Areas.
- Mitigation measures of the impact of Northern Sinai Agriculture Development Project on Bardawil's ecosystems should be adopted with regard to agricultural and irrigation techniques, crops cultivated, and pesticide use;
- A surface and ground water interception canal to drain the flows from NSADP Sectors III and IV is needed before agricultural development starts to the North of El Salam Canal;



- The limit of irrigated agricultural land in NSADP Sectors III and IV within the newly created protectorate should be situated at least 2 km away from the lagoon shore, and two ecological corridors should be allowed.

Implementation of the second phase of Bardawil project will depend on the results of an independent evaluation of consensus achieved during the first phase and, consequently, of the degree of harmonization of other activities with the Bardawil Lagoon conservation requirements.

e. PRECONDITIONS

If these preservation and management proposals for Saint Katherine and the Bardawil area are to be feasible, some previous measures should be taken by the Egyptian authorities before any project starts.

Saint Katherine

- A complementary decree to Ministerial Decree 613/1988, which established Saint Katherine protected area, has to be enacted in order to define the overall goals of the area and its limits.
- The recent and future allocation of land for tourism projects in Saint Katherine town must be transferred to Zeituna tourist development sector as soon as possible, before any construction work starts. Compensation rights for this permutation of plots would be paid for by the project through its "contingencies" budget.

Bardawil

- A decree declaring the Bardawil Lagoon and its surroundings as a protectorate according to Law 102/1983 must be enacted. Declaration must include an accurate description of (1) the limits and (2) the detailed zoning of the protected area that are proposed here. Declaration must establish the general goals of the new protected area and a single coordinated management system as well as the conditions for holding resources from the Environment Protection Fund (Law 4/1994) and provisions for the establishment of a consensus building and inter-administrative coordination body.

f. COMMON (ST. KATH & BARDAWIL) DEVELOPMENT PROPOSALS

Egyptian legislation should incorporate the international standard system of protected area categories recommended by the World Congress of National Parks, as approved by IUCN at its last General Assembly.



An "Environmental Cost Recovery Charge" should be set up and put into the Protectorates Fund, within the newly created Environment Protection Fund, established with the Agency for Environmental Affairs (AEA, Law 4/1994).

The Department of Natural Protectorates within the AEA should be given more human and financial resources, to be able to carry out the management of protected areas; sustainability of the Saint Katherine and Bardawil Lagoon protected areas will depend on it. The project should take in charge an institutional building programme for the Department of Natural Protectorates.

A common training programme for the Cairo staff of the Department of Natural Protectorates and the Saint Katherine and the Bardawil staff is proposed here. Aside from these courses, both protected areas should have their own specific training programmes (short specialization courses in each protectorate, assistance to long term courses abroad).

Other common development proposals are an environmental awareness & education programme (regional focus), and the setting up of a modern telecommunications network covering all the Sinai protectorates and connected to Cairo headquarters. Local population involvement should be encouraged.

g. SAINT KATHERINE DEVELOPMENT PROPOSALS

Saint Katherine should be re-classified as IUCN category II, National Park, with the following goals:

- i. To preserve biodiversity;
- ii. To promote sustainable socio-economic development in the area through a suitable use of its natural (and allied cultural) resources;
- iii. To preserve the mountain ecosystem of Southern Sinai and the traditional knowledge in the use of its natural resources;
- iv. To integrate the whole Saint Katherine area into a single functional management unit;
- vi. To facilitate the recreational, educational and scientific uses compatible with the conservation of the area.

In order that the proposed permitted uses in the protectorate be compatible with the differing capacities of the territory (and its resources) 4 zones have been established: Restricted Use Zone, Traditional Use Zone, Limited Use Zone and Special Use Zone.

Each zone has special regulations to optimize the uses assigned to it. A special case is the Special Use Zone which covers the main access wadi to Saint Katherine town and to the monastery. Most facilities (and problems) are concentrated there and, thus, it has been subdivided into several sectors to which different uses have been



assigned: urban development, Bedouin settlements, tourism development facilities, protectorate facilities, etc.

The Saint Katherine five-year Management Plan has thirteen operational objectives:

- i. Establish a management team for the whole area;
- ii. Distribute the existing and future activities in the area to make them compatible with the achievement of goals listed above;
- iii. Reduce the impact of possible negative human activities and facilities;
- iv. Rehabilitate degraded areas;
- v. Plan and reshape the town of Saint Katherine and its service areas in order to minimize its impact on the surrounding environment, upgrade living conditions and permit a rational growth until the carrying capacity of the area has been reached;
- vi. Improve the living conditions of the Bedouin;
- vii. Limit tourism development to the carrying capacity of the protected area;
- viii. Regulate free tourist access and safaris to wilderness areas;
- ix. Establish a comprehensive and organized visitor system to Wadi Beir Gebel Musa and the monastery of Saint Katherine;
- x. Provide the holy places with a peaceful environment;
- xi. Increase the knowledge about the natural, traditional and historical resources in the area;
- xii. Establish coordination with all relevant institutions in the area;
- xiii. Promote public awareness of the importance of conservation within the area.

h. BARDAWIL DEVELOPMENT PROPOSALS

The general goals for Bardawil Protectorate differ in some aspects from those of Saint Katherine, but are fully compatible with IUCN Category VI (Managed Resource Protected Area). They are as follows:

- i. To preserve biodiversity;
- ii. To promote sustainable socio-economic development in the area through a suitable use of its natural (and allied cultural) resources;
- iii. To provide an ornithological sanctuary for the East-Mediterranean migrant bird flyway;
- iv. To integrate the whole Bardawil natural system into a single functional management unit;
- v. To facilitate a compatible integration in the system of any possible agricultural development project;
- vi. To facilitate the recreational, educational and scientific uses compatible with the conservation of the area.

In order to guarantee the conservation of the Bardawil Protectorate, only some specific uses may be permitted within. These uses are defined and must take place in specific zones established by the zoning scheme of the area (Prime Minister's



Decree 264/1994). This zoning and its proposed limits must be incorporated into the Decree which declares Bardawil a protected area:

- Natural Reserve Zone, for strict nature preservation;
- Traditional Use Zone, for Bedouin traditional activities and traditional salt exploitation;
- Fisheries Zone, for traditional fishing techniques;
- Industrial Zone, for the present salt industry;
- Agriculture Zone, where that part of the NSADP which affects the protectorate will be situated;
- Settlement Zone, for existing settlements in the area.

The Bardawil five-year Management Plan has seventeen operational objectives:

- i. Assign the different uses within the protectorate to the zones established;
- ii. Assure that there is compatibility of permitted uses with conservation in the whole protected area, by establishing specific guidelines and controlling their application; monitoring the implementation of Prime Minister's Decree 264/1994 in the Natural Reserve Zone
- iii. Improve the quality of life of the Bedouin allowing them to keep their traditions;
- iv. Direct the expansion of the south-border settlements towards the exterior of the area and discourage where possible settlements not related to traditional uses;
- v. Spread the knowledge of the existence of the Bardawil protected area amongst the local inhabitants, with emphasis on the international concern about its conservation;
- vi. Evaluate and protect the archeological resources of the Protected Area;
- vii. Establish an integrated management unit linking all sectors involved;
- viii. Establish a unified system of patrolling and law enforcement for the whole area;
- ix. Plan public use of the Protected Area;
- x. Promote ornithological studies and monitoring within the Protected Area;
- xi. Elaborate an inventory of biodiversity in the area and a detailed map of habitats;
- xii. Restore degraded habitats;
- xiii. Restore endangered species, with a particular interest in the Kleinsmann Tortoise;
- xiv. Secure the free movements of the terrestrial fauna into and out of the Protected Area;
- xv. Eliminate bird hunting;
- xvi. Avoid or mitigate the harmful impact of permitted uses;
- xvii. Avoid or minimize activities or development projects with a negative impact in areas adjacent to the protectorate.

The Sabkhet El Sheikh Zwayed near Rafah is an important site for migratory birds and could add different wetland habitat types to the protectorate, so increasing the



attraction of Bardawil. This site is still well preserved, although under threat. This lovely small area should be urgently acquired and fenced. Birdwatching and ecotourism could be developed there with success.

i. ST KATHERINE & BARDAWIL PROTECTORATES' ADMINISTRATION

According to Law 4/1994, the Agency for Environmental Affairs is the Egyptian public body responsible for the Saint Katherine and the Bardawil protectorates (their financing -through the Environment Protection Fund and the Protectorates Fund- and their staffing).

The AEA would establish Area Management Units in Saint Katherine and in Bardawil. These Units would be headed by a General Manager, assisted by a Project Manager. The General Manager will be the administrative authority of the protectorate, being responsible for its management and for all activities taking place in it. The Project Manager would be provided by the European Union on the basis of a Technical Assistance.

In Saint Katherine, some staff and park facilities could be shared with other attached protectorates (Nabq, Abu Ghalum and Ras Mohammed) to configure a «South Sinai Conservation Sector». An Advisory Council is foreseen to help coordinate the Area Management with other authorities in the protectorate (City Council, monastery of Saint Katherine, Bedouins, etc).

The Bardawil General Manager should be enabled to better coordinate the activities of other administrations and institutions in the protectorate. In order to facilitate this integrated management, it has been suggested that a "Bardawil Consensus Group" be set up. However, other equivalent solutions might be tried. The Decree that will declare Bardawil a Protectorate should incorporate the best formula for consensus building and coordination of activities.

The suggested Bardawil Consensus Group should have one representative of each of the concerned administrations, such as: North Sinai Governorate, Military Authority, North Sinai Development Authority, Agriculture and Fisheries, New Settlements, Salt Company, Fishing Cooperatives, Local Councils (only one representative for all), Bedouins (only one representative) and the heads of the Reserve Zones. Each administration or group of interests participating should designate its representative.

j. ESTIMATED COST OF THE PROJECT

The cost for both the Management and Protection Programme for the Saint Katherine Natural Protectorate and the Development of a Protected Area and a Management Plan for the Bardawil Lagoon would be as follows:



**Cost estimates for St. Katherine & Bardawil Protectorates project
in ECU**

	St. Katherine	Bardawil	Total	%
Budget line for Bedouin life improvement	1.200.000	124.000	1.324.000	8,4
Equipment	720.000	398.097	1.118.097	7,1
Recurrent costs	290.100	233.880	523.980	3,3
Training	900.000	400.000	1.300.000	8,3
Short term T.A.	244.000	113.000	357.000	2,3
Long term T.A.	720.000	720.000	1.440.000	9,2
Works	5.418.082	1.741.400	7.159.482	45,7
Operating Costs	680.000	270.000	950.000	6,1
Contingencies	710.000	300.000	1.010.000	6,4
Total S. Katherine & Bardawil	10.882.182	4.300.377	15.168.559	96,8
Institutional Building			500.000	3,2
Total project			15.668.559	100,0



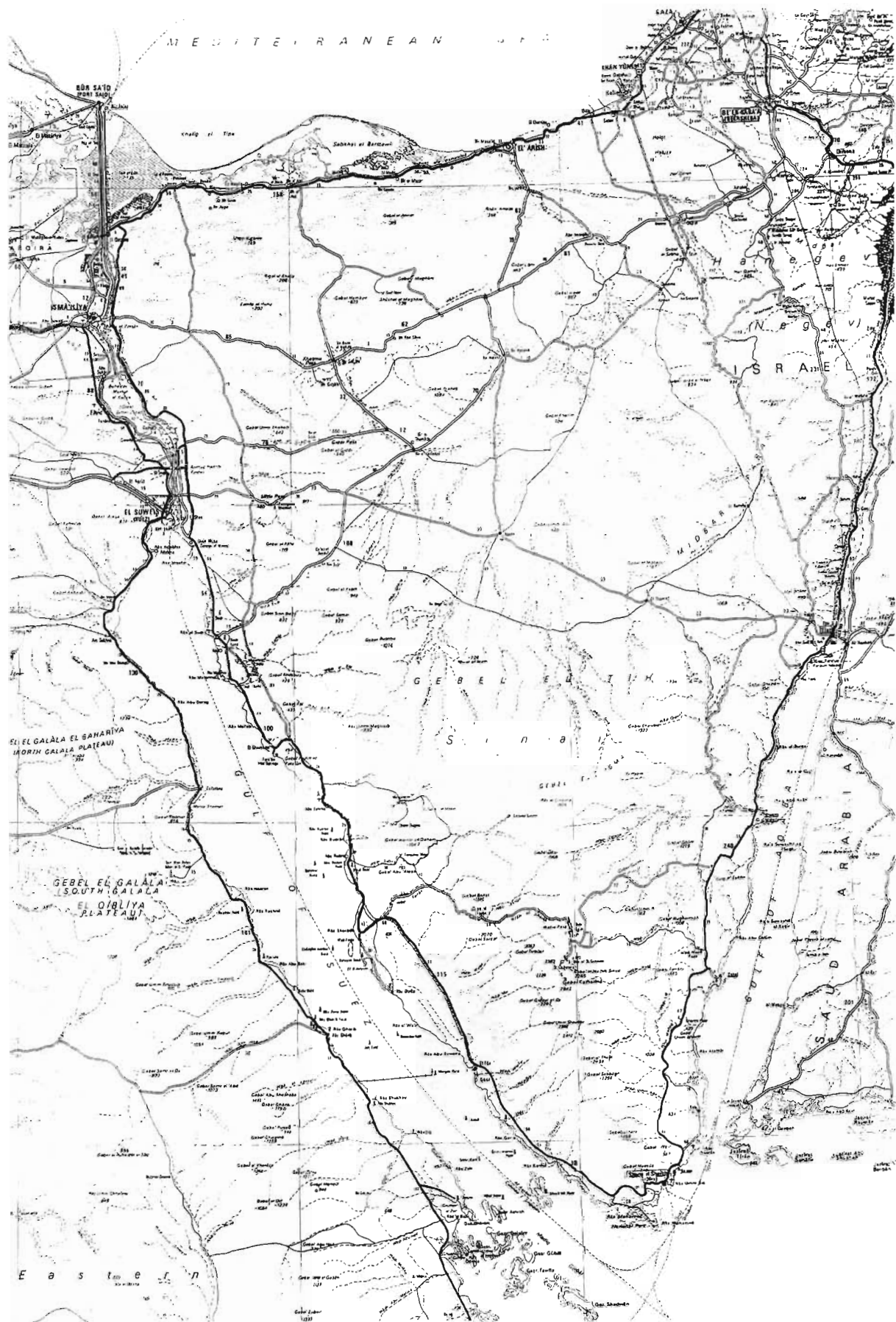


Fig. 2 THE SINAI PENINSULA: TERRITORIAL LINKS

Sinai
ST. KATHERINE NATURAL PROTECTORATE & BARDAWIL LAGOON PROTECTED AREA FEASIBILITY STUDY
Egypt

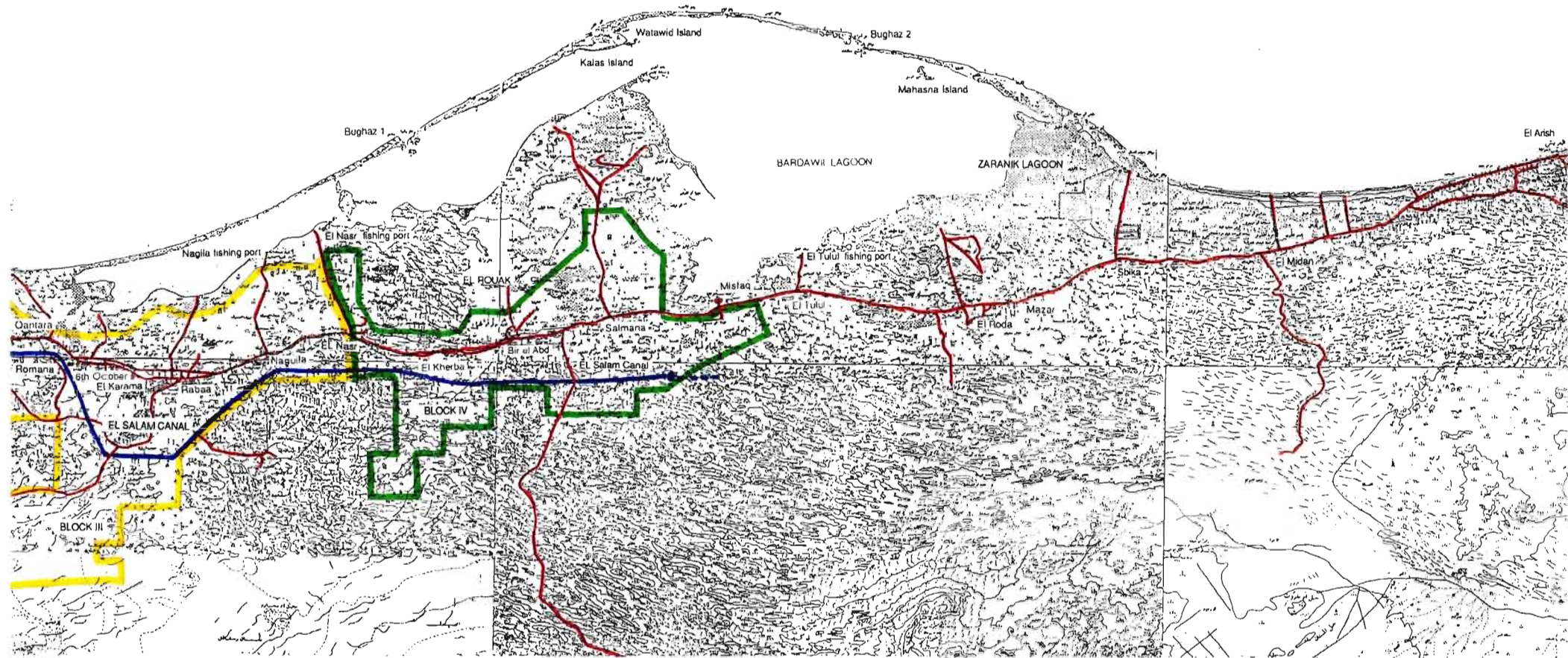
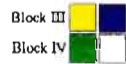


Fig. 3 BARDAWIL: NSADP BLOCKS III & IV IN THE STUDY AREA



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St. Katherine Natural Protectorate & Bardawil Lagoon Protected Area Feasibility Study
Egypt

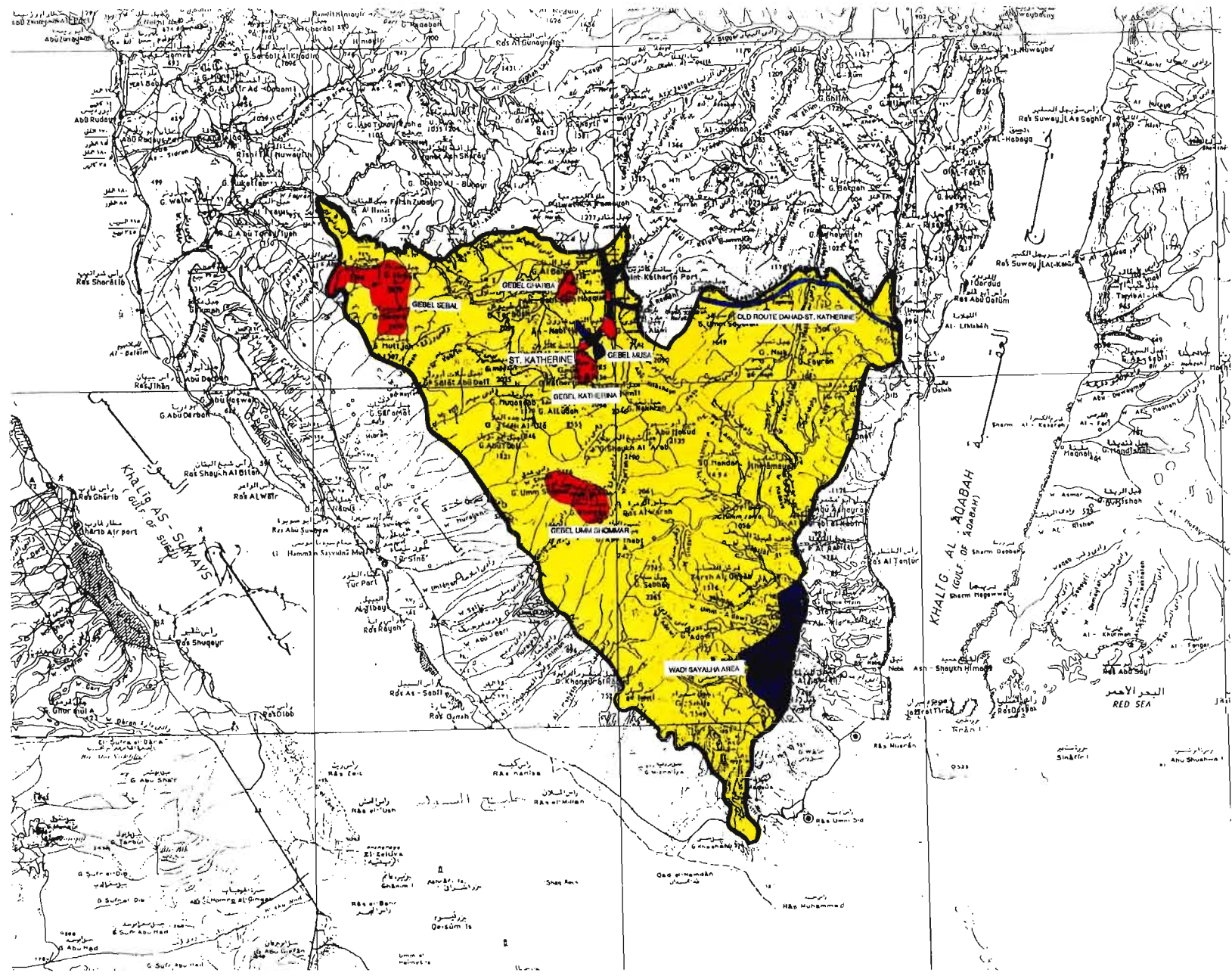


Fig. 5 SAINT KATHERINE: LIMITS & ZONING

Restricted Use Limited Use
 Traditional Use Special Use



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Sinai
 ST. KATHERINE NATURAL PROTECTORATE & BARDAWIL LAGOON PROTECTED AREA FEASIBILITY STUDY
 Egypt

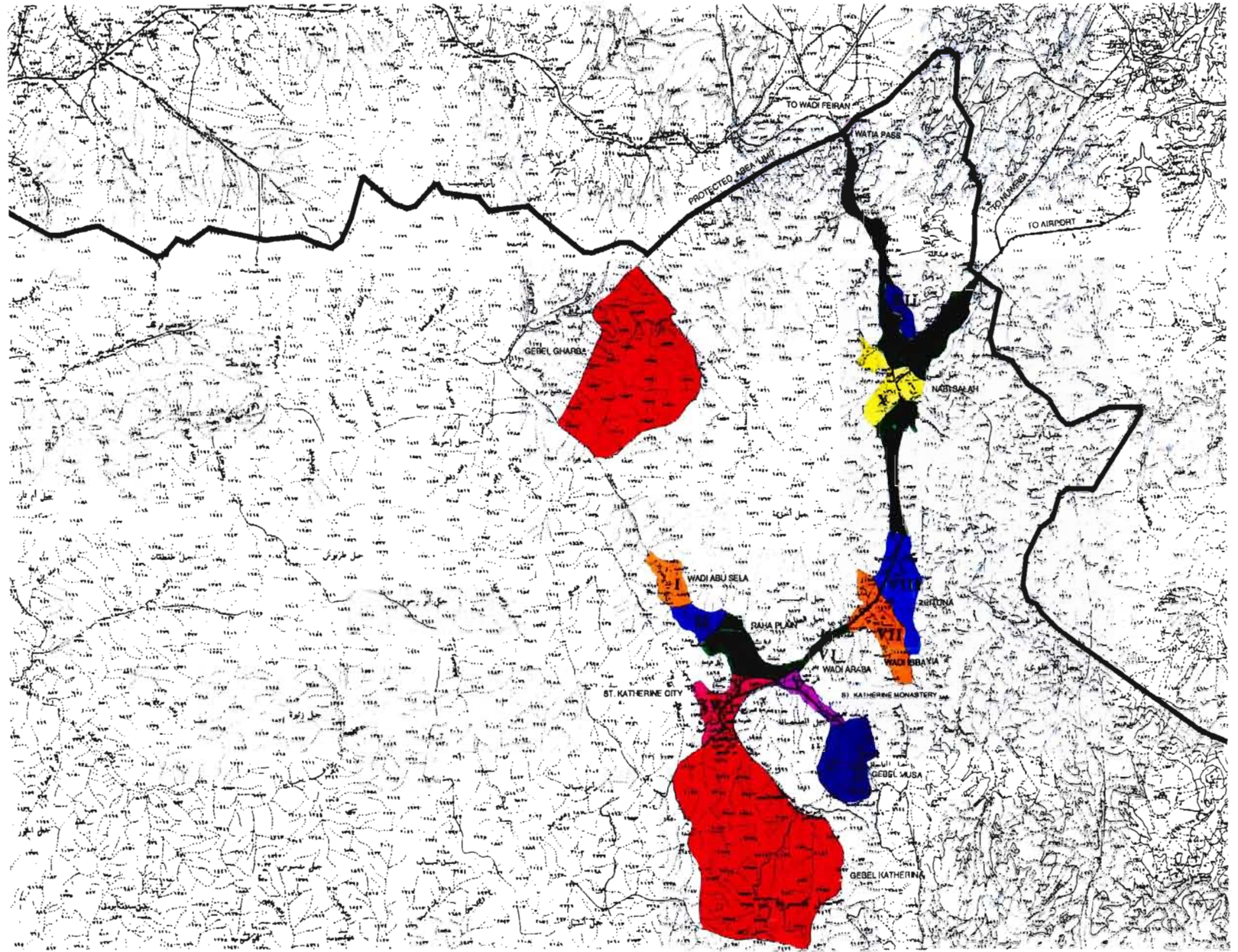


Fig. 6 S. KATH: SECTORS & USES OF THE SPECIAL USE ZONE



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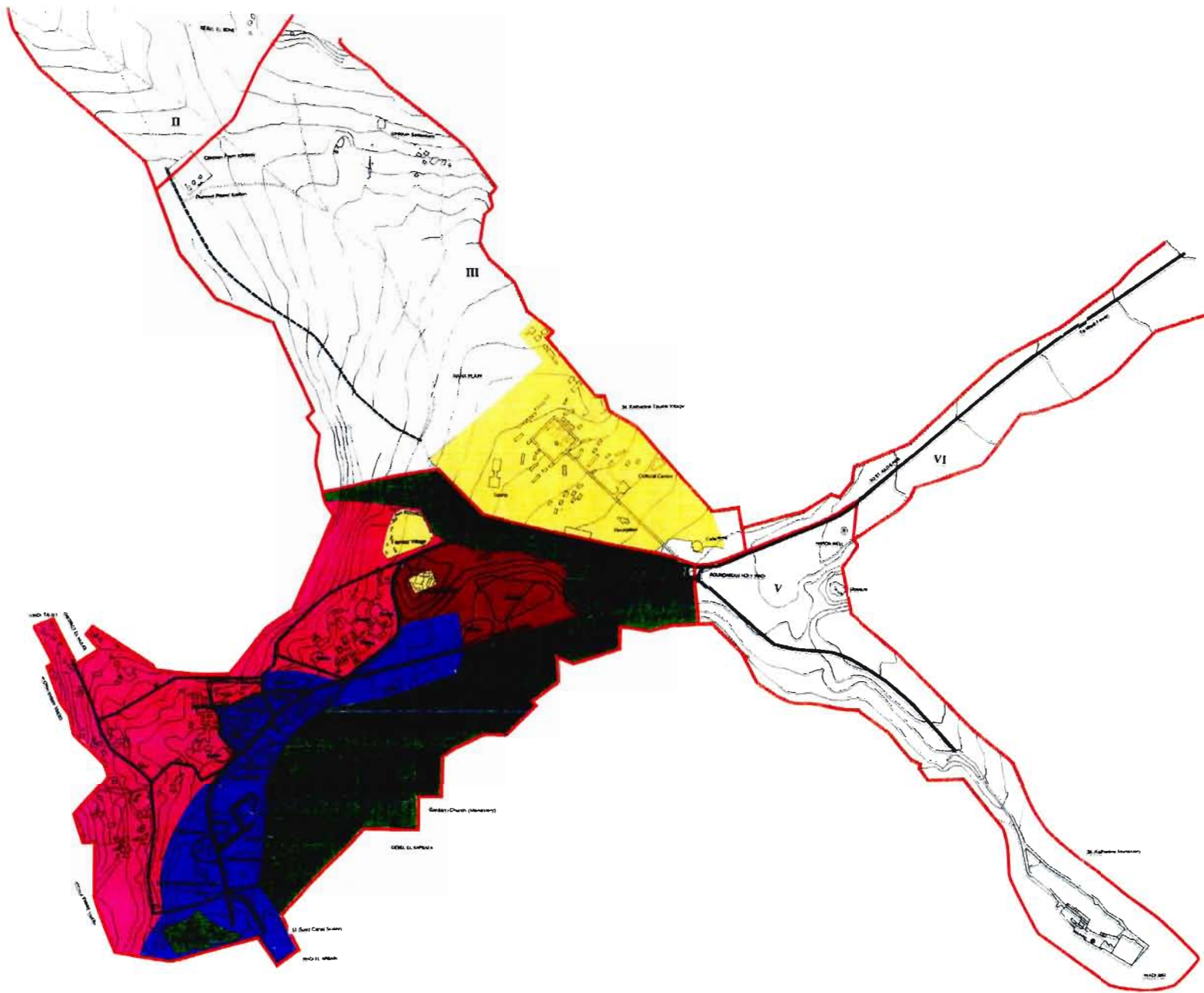
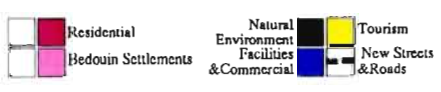


Fig. 7 SAINT KATHERINE TOWN: PROPOSED URBAN STRUCTURE AND ZONING



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