



# *The State of* Saint Katherine Protectorate *and World Heritage Site*

*An Evaluation of Management Effectiveness*



## Document Information

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# St Katherine Protectorate and World Heritage Site

## *An Evaluation of Management Effectiveness*

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## **Terms and Acronyms**

CG	Community Guard
CITES	Convention on the International Trade in Endangered Species of Wild Fauna and Flora
EEAA	Egyptian Environmental Affairs Agency
EIA	Environmental Impact Assessment
EIECP	Egyptian-Italian Environmental Cooperation Programme
EU	European Union
MPCP	Medicinal Plants Conservation Project
NCS	Nature Conservation Sector
NCSCBP	NCS Capacity Building Project (part of EIECP)
PA	Protected Area
PAMU	Protected Area Management Unit
RAPPAM	Rapid Assessment and Prioritization of Protected Area Management
SKP	Saint Katherine Protectorate
SKPDP	Saint Katherine Protectorate Development Project
SSG	South Sinai Governorate
SSRDP	South Sinai Regional Development Project
Shareholder	A person or group who has demonstrated an interest in SKP throughout financial or time donations. They are committed to the goals of the protected area.
Stakeholder	A person or group who derives social, economic or ecosystem service from the SKP
TDA	Tourism Development Authority
UNESCO	United Nations Educational, Scientific and Cultural Organisation
WHS	World Heritage Site

## Executive Summary

The national parks of Egypt contain the nation's most treasured natural assets. St Katherine Protectorate (SKP) is one of the country's most important natural protectorates; it was declared in 1986 and today encompasses the globally important St Katherine World Heritage Site. The SKP includes the highest mountains in the country and the world's oldest continuously-occupied monastery. Within the protectorate there are many natural and cultural characteristics that have made it a destination for international and local tourists and researchers.

This study is an evaluation of the status of the ecological and cultural values of St Katherine Protectorate and implementation of the management plan (see table below). Through discussions with the rangers, and input from stakeholders, the local community and visitors, this assessment provides insights about the main threats affecting the key values and the underlying causes of the threats. Actions are identified that should address the existing threats. Where possible, indicators have been described for monitoring and measuring changes in the condition of the protected area's values.

The table below summarizes the current situation in SKP. Management concern and actions should be primarily focused on addressing the most important threats, improving the conditions of the ecosystems and other values that are in a poor state, and on maintaining the values that are in a good state.

### Management Effectiveness in Egypt National Parks

In 2006, the Nature Conservation Sector Capacity Building Project, as part of the Egyptian-Italian Environmental Cooperation Programme, undertook a national level management effectiveness evaluation of Egypt National Parks (Fouda et. al., 2006, appendix 5). A recommendation of this national rapid assessment was to implement a pilot project to establish and test an approach for carrying out more detailed site level management effectiveness evaluations. The site level evaluation objectives (see part I) and process (appendix 6) were developed and the approach was tested at four protected areas in Egypt: Wadi El-Rayan, Qaroun, Ras Mohammed and Saint Katherine.

This work is in support of Egypt's commitment toward implementation of the Convention on Biological Diversity and the Programme of Work on Protected Areas (goal 4.2) to conduct management effectiveness evaluations in 30% of the nation's protected areas by 2010.

An assessment of management effectiveness is an important tool for politicians, senior managers and site level staff. With this, the financial needs can be properly rationalized from a strategic and operational perspective. The focus of budgets and work plans can be directed to the most important priorities. Openness and transparency can also garner additional support for management

## The status of Saint Katherine Protectorate

Value	Threat	Status
<b>Biodiversity / Natural Resources</b>		
High mountain ecosystem	M	I
Threatened gazelle population on el-Qaa Plain	M	W
Unique geological features	L	I
Acacia key species	M	I
<b>Cultural Values</b>		
World Heritage Site, cultural landscape	M	S
Monastery and monastic traditions	H	S
Historical and archaeological sites	L	S
<b>Recreational/Tourism Values</b>		
Mount Sinai and St Katherine's Monastery	H	W
Wadi Mandar	M	W
Eco-tourism infrastructure and opportunities	L	W
<b>Local Community Values</b>		
Bedouin local culture and heritage	H	I
St Katherine town	M	W

<b>Threat Today</b>		<b>Status Today vs. 5 Years Ago</b>	
Very High	VH	Improved	I
High	H	Stable	S
Medium	M	Worse	W
Low	L		

The assessment highlighted the following:

- The SKP is a large and complex PA to manage; a strong coordinating and controlling role is necessary with cooperation with the town council and stakeholders.
- The condition of the Dorcas gazelle population at El'qaa Plain has deteriorated over the last five years. A number of factors contribute to this problem including:
  - The area has been excluded from the buffer zone and the rangers have no jurisdiction to operate there;
  - Insufficient staff;
  - There has been no recruitment;
  - Police do not operate in the area;
  - The difficulty of controlling access due to the large size of the area.

- The condition Wadi Mandar and its surroundings have deteriorated because of the unwise placement of the main Sharm el-Sheikh waste dump inside the protectorate. The dump is poorly managed and contains large quantities of uncovered plastic garbage; the wind blows it about and it disfigures the surrounding area. The area is also the target of safari tourism operators due to its easy accessibility. The protectorate's visitor management plan for the southern range that was proposed over three years ago has not been implemented. Under this plan an estimated 150,000 tourists would have had to pay to enter the area, or simply to carry out their activities elsewhere, which would have contributed significantly to reducing visitor impact.
- Infrastructure and ecotourism facilitated have deteriorated for the following reasons:
  - Insufficient funds.
  - Slow replacement of rangers.
  - The number of garbage cleaners in the area has not increased over the last five years.
  - The protectorate's garbage collection tools, such as trucks and loaders have been inoperable for most of the last five years.
  - All operations in the SK garbage dump have ceased.
  - The protectorate's transfer station has not operated because it has been badly placed.
  - The protectorate's visitor management plans for both the Northern and Southern Ranges have not yet been implemented.
  - The protectorate's visitor center is not working to its full capacity up to today;
  - The largest garbage dump in Sinai that of Sharm el-Sheikh, is inside the protectorate. This is the single biggest threat to the protectorate's unique ecological and aesthetic values.
- The condition of the historical town of St Katherine, which is one of the most important cultural assets in the protectorate and in all of South Sinai, has deteriorated. The reasons include:
  - A lack of environmental awareness of municipal decision makers.
  - The cessation of all operations in the town's dump.
  - The non-operation of the transfer station because of its poor placement in populous area.
  - The visitor management plan for the protectorate's Northern Range has not, to this day, been implemented after five years since its authentication by the PA and UNESCO.
  - There has been insufficient funding for the protectorate as a whole during the last four years, which has resulted in the breakdown of all its garbage cleaning equipment (e.g., trucks and loaders).
  - There is insufficient control of development that does not conform to the distinctive architectural character of the town.
- There has been a demonstrable improvement in the ecological condition of the high mountain region, including the geological features and two of the protectorate's key species, i.e., the two species of Acacia trees represented in the area. This is an



important success for the protectorate, given the lack of sufficient funds, bureaucracy, changes in managerial systems from the EU to government systems, lack of replacement staff, etc.

- The condition of the world heritage/cultural landscape area and the St Katherine Monastery with its associated monastic traditions is considered to be stable. The condition of the 300 historical and archeological sites in the protectorate, including Mount Sinai, is also considered to be stable, compared to five years ago. The condition of such key resources is a success for the protectorate in the light of the problems of insufficient funding, shortage of staff, and other well known bureaucratic complications.

Arising from the examination of each of the 12 key values, presented in part III, 81 actions have been listed. A number of strategic considerations are described in part V of this report, several of which may apply to other protected areas in Egypt:

- The PA's of South Sinai should have a liaison office in the South Sinai Governorate to support improved dialogue and collaboration. This could help in understanding the exact conditions in which the governorate is planning to modify the existing Sharm El Sheik dump site. Sound management of the dumping area is necessary, not only because it is located in the PA, but also because it directly affects the condition of PA values.
- The poor condition of infrastructure and eco-tourism opportunities as well as the condition of Saint Katherine town can be substantially linked to the poor financing that the SKP has faced since the end of European funding in 2003. Despite the fact that the SKP started collecting visitor entrance fees in 2005, which has generated over 6,000,000 LE a year, the SKP's budget for the year 2006–2007 has not exceeded 350,000 LE. In order for the SKP to continue to generate this kind of revenue for the nation, it is important to increase its funding so it can solve its chronic problems and continue to protect its key values.
- Other problems such as poor staffing, lack of training for new recruits, and the slow process of hiring replacement staff, as well as the control of the SKP's relatively small budget by the St Katherine town council are problems that hamper management activities and cause them to be inefficient. A key priority for SKP management should be to improve the effective collaboration with the town's administration and leadership.
- The non-cooperative style of the management of the Medicinal Plants Conservation Project, which should have been integrated with the SKP, has led to the loss of many opportunities to improve the situation of the SKP. Until now, the project has failed to provide assistance for the SKP management and is reportedly seen by many people in the area as a major threat to the natural heritage of medicinal plants.
- For five years, the SKP has failed to implement its visitor management plans, either in the Northern or Southern Ranges for different reasons. Implementation of such plans is

of a paramount importance to reduce visitor impact in the area. Failure to implement the visitor management plan for the Northern Range, because of opposition by the town council, may lead to the delisting of the SK world heritage site by UNESCO, at great cost and embarrassment. Failure to implement the visitor management plan in the Southern Range will result in the eating away of major areas in the SKP to unlicensed tourism activities in the Southern Range. It will also create a situation of expansion of local settlements by Bedouins from outside the area, who will want to move into these areas inside the PA to be near lucrative tourism in Sharm el-Sheikh, and cheap fodder provided by the Sharm el-Sheikh non-sanitary landfill site.

- The improved ratings for community's local culture and heritage are an estimate by which to measure change and progress. In line with the Millennium Development Goals, a focus for SKP should include poverty reduction and community development.
- A strategic priority, therefore, is to ensure that clear objectives are established in the management plan with associated actions. To this end, annual reporting on the implementation of the management plan is recommended. Preparation of an annual work plan is a useful way to translate management plan actions into reality. Also, the management plan should include a section, or an appendix, that summarizes the actions (commitments) stated in the plan. This would assist the protectorate manager in preparing an annual report on implementation of the management plan.
- The management plan should be reviewed and updated, as it will reach 5 years age in 2008. As part of the management plan review, a long-range vision should be prepared for the management of SKP in 2020. The most important actions to achieve the vision (or to avert major looming problems) need to be specified.

This evaluation of management effectiveness focuses mainly on the threats, outputs and outcomes of management. However, as demonstrated above, there are many other essential facets related to planning, inputs and processes, which are also considered in this report.

تمثل شبكة المحميات الطبيعية نماذج من النظم البيئية الفريدة ذات الأهمية العلمية أو المهددة بمخاطر التدهور نتيجة للأنشطة التنموية. و تعتبر محمية سانت كاترين واحدة من أهم محميات مصر و التي تم إعلانها عام 1986 و التي تحتوي على موقع التراث الثقافي العالمي. وتتواجد فى منطقة سانت كاترين أعلى المناطق الجبلية فى مصر وأقدم دير مسكون فى العالم. وتحوى المحميات الطبيعية بمصر العديد من النماذج الطبيعية والثقافية التى تضعها فى مصاف البحث والسياحة على المستويين المحلى والدولى.

تتضمن هذه الدراسة تقييما لحالة الموارد البيئية والثقافية لمحمية سانت كاترين، وكذلك تقييما لتطبيق خطة إدارة المحمية (أنظر الجدول المرفق). وقد ألفت عملية التقييم الضوء على المهددات الرئيسة التى تؤثر على موارد المحمية وكذلك المسببات الفرعية لتلك المهددات، وقد تم كل ذلك من خلال الحلقات النقاشية مع باحثى المحمية والمدخلات التى تم الحصول عليها من الجهات ذات الصلة والمجتمعات المحلية وزائرى المحمية. وقد تم التعرف على الإجراءات الواجب اتخاذها حيال تلك المهددات. كما تم أيضا توصيف بعض المؤشرات الممكنة للرصد وقياس التغيرات الحادثة فى موارد المحمية.

ويلخص الجدول بأسفل الوضع الحالى لمحمية سانت كاترين، حيث يجب أن تركز الإدارة نفسها لإجراءات حازمة نحو المهددات الأكثر أهمية، وذلك لتحسين حالة الأنظمة والموارد البيئية المتدهورة وكذلك لصون والحفاظ على تلك التى فى حالة جيدة.

#### وقد أوضحت عملية التقييم الآتى:

- إن محمية سانت كاترين هى محمية كبيرة ومعقدة بالنسبة لعملية الإدارة، حيث يحوز الدور التنسيقى والرقابى أهمية كبرى لدى السلطات التنفيذية المحلية مثل مجلس المدينة والجهات ذات الصلة.
- تدهورت حالة عشائر الغزال المصرى على مدار السنوات الخمس الماضية فى منطقة سهل القاع، وذلك لعدة أسباب منها:
  - استبعاد المنطقة من حرم محمية سانت كاترين مما يسبب عدم مشروعية عمل باحثى المحمية فى المنطقة وبالتالي فقد السيطرة عليها
  - العدد الغير كافى من الحراس
  - عدم تعيين حراس أو باحثين جدد من قبل جهاز شئون البيئة
  - غياب السيطرة الأمنية
  - صعوبة التحكم فى الدخول إلى المنطقة نتيجة للطبيعة السهلية والمساحة الكبيرة.
- تدهورت حالة منطقة وادي مندر و ما حولها من جراء وجود مقلب قمامة مدينة شرم الشيخ العمومي بمنطقة وادي الخناصير المتاخمة مما يؤدي إلى تطاير القمامة و بصفة خاصة البلاستيكية منها إلى مساحة كبيرة في المنطقة. كما ساهم ازدياد أنشطة سياحة السفاري و العشاء البدوي فى هذا التدهور، كما أنه لم يتم حتى الوقت الحالى موافقة قطاع حماية الطبيعة على تطبيق خطة إدارة الزائرين للقطاع الجنوبى والتى تشمل جمع رسوم دخول من زائرى المنطقة والتى كان من المقرر لها أن تحد من التأثير السلبى للزائرين على المنطقة، حيث من المعلوم أن عدد الزائرين سنويا يربو على 150000 زائر.

الوضع الحالي للمهددات التي تتعرض لها المقومات الأساسية لمحمية سانت كاترين

المقومات الأساسية للمحمية	قيمة المهددات	الوضع الحالي مقارنة بخمس سنوات ماضية
<b>التنوع البيولوجي \ الموارد الطبيعية:</b> المنظومة البيئية للمنطقة الجبلية العالية عشائر الغزال العفري المهددة بمنطقة سهل القاع الملامح الجيولوجية النادرة أشجار الطلح (السيال) (كحجر زاوية للنظام البيئي)		
	متوسطة	تحسنت
	متوسطة	تدهورت
	منخفضة	تحسنت
	متوسطة	تحسنت
<b>الموارد الثقافية:</b> منطقة التراث العالمي \ اللاندسكيب الثقافي دير سانت كاترين و التقاليد المرتبطة به المواقع التاريخية و الأركيولوجية		
	متوسطة	ثابتة
	عالية	ثابتة
	منخفضة	ثابتة
<b>الموارد السياحية و الترفيهية:</b> جبل موسى و دير سانت كاترين وادي مندر البنية الأساسية و فرص السياحة البيئية		
	عالية	تدهورت
	متوسطة	تدهورت
	منخفضة	تدهورت
<b>مقومات المجتمع المحلي:</b> الثقافة و التراث البدوي مدينة سانت كاترين		
	عالية	تحسنت
	متوسطة	تدهورت

حالة المكون الرئيسي بالمحمية مقارنة بالوضع منذ خمس سنوات ماضية	قيمة المهددات
تحسنت	عالية جدا
ثابتة	عالية
تدهورت	متوسطة
	قليلة

- تدهورت البنية الأساسية و فرص السياحة البيئية بالمحمية نتيجة للأسباب التالية:
    - عدم كفاية الدعم المالي للمحمية
    - عدم زيادة عدد الباحثين لتعويض هؤلاء الذين تركوا العمل
    - عدم زيادة عدد عمال النظافة خلال فترة الخمس سنوات الماضية
    - عدم إمكانية إصلاح معدات النظافة مثل سيارات النقل و اللوادر الخاصة بالمحمية خلال فترة الخمس سنوات الماضية
    - توقف العمل بمقلب قمامة مدينة سانت كاترين
    - عدم تشغيل محطة فصل القمامة الوسيطة حتى الآن
    - عدم تنفيذ خطط إدارة الزوار الخاصة بقطاع المحمية الشمالي و الجنوبي حتى الآن و التي نتج عنها عدم تشغيل مركز زوار المحمية بكامل طاقته
    - و كان من أسباب التدهور أيضاً وجود مقلب قمامة مدينة شرم الشيخ داخل القطاع الجنوبي لمحمية سانت كاترين و الذي يمثل أكبر مصدر تهديد لخصائص المحمية الطبيعية و الجمالية
  - تدهورت حالة مدينة سانت كاترين و التي تعد من أهم المقومات الثقافية بالمحمية و بجنوب سيناء ككل للأسباب التالية:
    - غياب الوعي البيئي لدى صناع القرار بالمحليات
    - توقف العمل بمقلب قمامة مدينة سانت كاترين
    - عدم تشغيل محطة فصل القمامة الوسيطة حتى الآن بموقعها الغير مناسب فى منطقة تجمع سكنية
    - عدم تنفيذ خطط إدارة الزائرين الخاصة بقطاع المحمية الشمالي حتى اليوم برغم اعتمادها من إدارة المحمية و ترحيب اليونسكو وذلك لقلة الدعم المالي للمحمية مما أدى إلى توقف معدات النظافة الخاصة بها مثل اللوادر و سيارات النقل خلال فترة الأربعة سنوات الماضية.
    - غياب التحكم فى عملية التنمية و التي لا تتوافق مع طبيعة شكل للمدينة المميز
  - تحسنت بشكل واضح حالة كل من المنظومة البيئية لمنطقة الجبال العالية بالمحمية و ملامحها الجيولوجية النادرة وكذلك نوعان من أشجار الطلح (السيال) (كحجر زاوية للنظام البيئي)، مقارنة بالوضع منذ خمس سنوات مما يعد نجاحاً كبيراً للمحمية في تحسين حالة هذه الموارد المهددة بالرغم من قلة الدعم المالى المتوافر لديها و بالرغم من البيروقراطية و المعوقات الإدارية الأخرى التي سيرد ذكرها في هذا التقرير
  - ثبتت حالة كل من منطقة التراث العالمي و التراث الثقافي كما ثبتت حالة دير سانت كاترين و التقاليد المرتبطة به وكذا ثبتت حالة المواقع التاريخية و الأثرية (و عددها 300) متضمنة جبل موسى على مدار السنوات الخمس الماضية، مما يعد نجاحاً للمحمية في الحفاظ على هذه الموارد برغم ضعف الدعم المالى المتوافر لديها وقلة عدد العاملين و على الرغم من المعوقات الإدارية الأخرى التي سيرد ذكرها في هذا التقرير.
- ويتضح من تقييم الموارد الإثنى عشر والموضحة بالجزء الثالث من هذا التقرير أن هناك 81 إجراء قد تم حصرها ويجب ان تتخذ لتحسين عملية الحفاظ على تلك الموارد. كما أن هناك عددا من الاستراتيجيات التي يجب اتباعها قد وردت في الجزء الخامس من هذا التقرير حيث يمكن تطبيقها أيضا في عدد من المحميات الأخرى.

- لا بد أن يكون هناك مكتب اتصال لمحميات جنوب سيناء فى محافظة جنوب سيناء نفسها لدعم الحوار والتعاون مع أجهزة المحافظة، حيث يمكن أن يساعد ذلك على فهم موقف المحافظة من عملية التخطيط لموقع نفايات شرم الشيخ. حيث أن الإدارة الجيدة للموقع ضرورية جدا ليس فقط لوقوعه داخل نطاق محمية سانت كاترين ولكن لتأثيره أيضا على قيم وموارد المحمية
- إن ضعف حالة البنية الأساسية وفرص السياحة البيئية وكذلك حالة بلدة سانت كاترين يمكن ربطها جميعا بحالة ضعف التمويل والذي تواجهه محمية سانت كاترين منذ نهاية مشروع السوق الأوروبية فى 2003. وعلى الرغم من حقيقة أن محمية سانت كاترين قد بدأت فى تحصيل رسوم لدخول الزائرين منذ عام 2005، حيث يتم تحصيل حوالى ستة ملايين جنيه مصرى سنويا، إلا أن الميزانية الحكومية السنوية للمحمية لم تتعدى 350 ألف جنيه. ولكى تحافظ المحمية على توليد تلك النسبة من الدخل القومى فإنه لا بد من زيادة الميزانية السنوية المخصصة للمحمية حتى يمكنها حل مشاكلها المزمنة والنهوض بأعبائها لحماية مواردها المختلفة.
- وهناك عدد من المشاكل الأخرى تواجه المحمية مثل مشكلة نقص عدد العاملين وقلة فرص التدريب للعاملين الجدد ناهيك عن بطء خطوات التعاقد مع العاملين الجدد لاستبدال النقص الحادث من جراء ترك العديد من الباحثين محمية سانت كاترين للعمل لدى جهات أخرى. كما أن إدارة الميزانية السنوية المخصصة للمحمية من الناحية الحسابية تمثل مشكلة كبيرة للمحمية كعقبة أمام تأدية المحمية لدورها فى حماية الموارد الطبيعية، لذا فهناك أولوية لتحسين مستوى التعاون مع مجلس مدينة سانت كاترين.
- هناك نموذج غير متعاون ويتمثل فى إدارة مشروع النباتات الطبية والذي من المفروض أن يتكامل فى عمله مع محمية سانت كاترين، حيث أدى هذا النموذج إلى فقد الكثير من الفرص لتحسين حالة المحمية. وقد فشل هذا المشروع حتى الآن فى مساعدة المحمية بشكل مرضى لدرجة أن الكثير من الناس يرون فيه تهديدا للتراث الطبيعى والنباتات الطبية.
- فشلت محمية سانت كاترين ولخمس سنوات فى تطبيق خطة إدارة الزائرين فى من نطاقات المحمية الشمالى أو الجنوبى لأسباب عدة حيث أن تطبيق تلك الخطة يحوز أهمية عظمى فى تقليل الآثار السلبية للزائرين على المنطقة. وجدير بالذكر أنه لم يتم تطبيق خطة إدارة الزائرين فى القسم الشمالى للمحمية بسبب موقف مجلس المدينة والذي يمكن أن يتسبب فى استبعاد منطقة سانت كاترين من قائمة التراث العالمى. أما عدم تطبيق الخطة فى القسم الجنوبى فيمكن أن يتسبب فى فقد مساحات كبيرة من المحمية لأنشطة السياحة الغير مصرح بها، كما أن ذلك سوف يخلق نوعا من جلب التجمعات العمرانية البدوية من خارج المحمية وذلك للاستفادة من تجمعات السياحة بשרم الشيخ كما سيجعل البدو أيضا قريبين من مصادر غذاء حيواناتهم قرب موقع تجمع النفايات.
- إن التحسن فى مستويات الثقافة والتراث للمجتمعات المقيمة لهو خير بيان لقياس التغير فى تقدم تلك المجتمعات. أما بالنسبة لأهداف التنمية لهذه الألفية فيجب أن توضع برامج التنمية المحلية ومكافحة الفقر على أولويات أهدافها.
- وهناك أولوية استراتيجية يجب أن تولى للتأكيد على وضع أهداف واضحة لخطة إدارة محمية سانت كاترين تتفق مع إجراءات الإدارة. وعلى ذلك فإنه من المقترح إعداد نظام تقرير سنوى عن تطبيق خطة الإدارة على أن تتم ترجمة خطة الإدارة إلى عدد من خطط العمل السنوية كوسيلة مفيدة فى وضع إجراءات الإدارة موضع التنفيذ. كما يجب أن تحتوى خطة الإدارة على ملخص للإجراءات التى وردت فى الخطة مما يساعد مدير المحمية فى إعداد التقرير السنوى عن تطبيق خطة الإدارة.
- يجب مراجعة وتحديث خطة الإدارة عند بلوغها الخمس سنوات فى 2008. ويجب أن تجهز رؤية طويلة المدى لإدارة محمية سانت كاترين حتى سنة 2020 لترفق أثناء عملية تحديث الخطة، كما يجب أن تلحق الإجراءات الواجب اتخاذها لتحقيق تلك الرؤية.
- يركز هذا التقييم لفاعلية الإدارة على مهددات ومخرجات عملية الإدارة، حيث يبدو جليا كما بينا فى أول الملخص أن هناك عوامل رئيسية أخرى ترجع أساسا إلى عملية التخطيط والمداخلات وعملية الإدارة نفسها قد تم أخذها فى الاعتبار أيضا فى هذا التقرير.

#### تقييم فاعلية الإدارة في محميات مصر

في عام 2006 أخذ مشروع دعم قدرات قطاع حماية الطبيعة، الذي يعمل في منظومة برنامج التعاون البيئي المصري الإيطالي، على عاتقه عملية لتقييم فاعلية الإدارة لمحميات مصر. حيث خرج بتوصية تفيد بتطبيق مشروع لاختبار وتنفيذ نموذج لتقييم فاعلية الإدارة للمحميات في الموقع. وقد تم وضع أهداف عملية التقييم (أنظر الجزء الأول) و طريقة إجراء عملية التقييم نفسها (ملحق 6) كما تم تطويرهما واختبارهما في أربع محميات في مصر وهي محميات وادي الريان وقارون ورأس محمد وسانت كاترين.

ويدعم هذا العمل الهدف رقم 4.2 من استراتيجية مصر نحو تطبيق اتفاقية التنوع الحيوى وكذلك برنامج العمل لتقييم كفاءة الإدارة في 30% من محميات مصر بحلول 2010.

وتعتبر عملية تقييم فاعلية الإدارة أداة هامة للسياسة وصانعى القرار ومديرى المحميات وكذلك فرق العمل بتلك المحميات، حيث يمكن عندئذ تحديد الاحتياجات المالية من المنظورين الاستراتيجى والتشغيلى. كما يمكن توجيه الميزانية و خطة العمل نحو أولويات الإدارة. كما يحقق مبدأ الشفافية والمصارحة دعما أكبر لبرامج الإدارة حيث أنهما يوضحان الجهد والعناية المبذولة لتحسين كفاءة عمليات الصون والتنمية الاقتصادية.

## Part I. Evaluation Framework and Objectives

Many evaluation systems are based on the IUCN framework for management effectiveness (see figure; Hockings et al., 2000, 2006). The framework has three main areas of focus:

1. How appropriate is the site's design?
2. How appropriate are the management systems and processes?
3. Are management objectives met and values conserved?

Whereas the national RAPPAM evaluation examined the first two elements for Egypt's system of protected areas (i.e., context, planning, inputs, processes and to some extent, outputs), this site level evaluation aims to examine the third, with a focus on **outputs** (implementation of work programmes) and **outcomes** (state of the protected area's key values).



### Objectives for Site Level Management Effectiveness Evaluations in Egypt

Through the NCSCB project, an approach to site level management effectiveness evaluation is being developed in response to recommendations arising from the first national RAPPAM evaluation in January 2006. The following objectives for site level evaluations have been proposed (Paleczny 2006a):

- Assess the conservation status of Egyptian National Parks (ENP). Are the key values (ecosystems/resources, ecotourism/recreation, community well-being) declining, remaining stable or improving?
- Identify the threats affecting protected area values, the underlying causes and possible solutions.
- Examine the site level track record in implementing management plans (where they exist) and taking positive action toward achievement of conservation. Did the protected areas implement their programme? Were the actions effective in addressing conservation objectives?
- Examine the underlying problems and possible solutions affecting the delivery of effective management and develop priorities and actions for implementation and



integration into the protected area management plan or descriptive management plan.

- Disseminate information to managers and decision makers, stakeholders, collaborators and the public to improve awareness about the protected area and its management.
- Further advance a culture of transparency, learning and evaluation in the Egyptian NCS. Aim to enhance continuous improvement and effectiveness (includes monitoring, research, reporting).
- Establish the basis for site level monitoring plans.
- Identify gaps in knowledge that hinder an accurate assessment. Substantiate assessments, as much as possible.

These objectives support Egypt's obligations under the World Heritage Convention to identify, protect, conserve, present, and transmit to future generations, world heritage values. They also support Egypt's commitment toward implementation of the Convention on Biological Diversity and the Programme of Work on Protected Areas (goal 4.2) to conduct management effectiveness evaluations in 30% of the nation's protected areas by 2010.

## **Site Level Evaluation Process and Methods**

A four and a half-day workshop to initiate the evaluation of management effectiveness was carried out at the Suez Canal University Training Centre in St Katherine Town from March 18-21, 2007. In addition to the workshop, a meeting with the town mayor was held (which was deemed to be very valuable), the protectorate's visitor survey was compiled and used (appendix 4), and the national RAPPAM results were considered (appendix 5). Following the workshop, the authors continued to investigate topics and use available information as part of the evaluation in this report. The procedure, illustrated in the diagram (and described in more detail in appendix 6) included the following main steps:

- The main natural, cultural, recreational and socio-economic values for SKP were determined, and a description of these main values was prepared by the staff during the workshop. The values are characterized in terms of key attributes: (a) size, (b) condition, (c) landscape context and (d) threats (see threat assessment below).
- Potential indicators and measures of status were identified and examined.
- A diagram of the key threats and underlying causes affecting the main values was prepared, including possible actions.
- An evaluation of the management plan implementation and its impact was undertaken (appendix 2).
- Recommended actions were identified.

Threats were assessed as very high, high, medium and low for their geographical extent and severity, using the following definitions.

<b>Rank</b>	<b>Guideline for Severity (after TNC 2000)</b>
Very high	The threat is likely to eliminate the value.
High	The threat is likely to seriously degrade the value.
Medium	The threat is likely to moderately degrade the value.
Low	The threat is likely to only slightly impair the value.

<b>Rank</b>	<b>Guideline for Extent (after TNC 2000)</b>
Very high	Very widespread or pervasive for most of the value's area (>75% of the value's area).
High	Widespread area (40-75% of the value's area).
Medium	Localised area (10-40% of the value's area).
Low	Very localised (<10% of the value's area).

Extent and severity were combined to determine the overall magnitude of the threat. The calculation of the threat magnitude is summarized in the following table:

		<b>Extent</b>			
		<b>4-Very high</b>	<b>3-High</b>	<b>2-Medium</b>	<b>1-Low</b>
<b>Severity</b>	<b>4-Very high</b>	4-Very high	3-High	2-Medium	1-Low
	<b>3-High</b>	3-High	3-High	2-Medium	1-Low
	<b>2-Medium</b>	2-Medium	2-Medium	2-Medium	1-Low
	<b>1-Low</b>	1-Low	1-Low	1-Low	1-Low

The methods employed in this evaluation were informed by three key sources. Firstly, the procedure for examining the implementation of the past actions in the last three years was adapted from the World Heritage Management Effectiveness Workbook (Hocking et al., 2004). Secondly, the evaluation of protected area values was adapted from The Nature Conservancy's Enhanced 5-S process for measuring conservation effectiveness (outcomes) and analyzing threats (TNC, 2000; Salzer et al., 2003). The E5-S approach was expanded to include ecotourism-recreational resources and community well-being (socio-economic) with new worksheets and processes. Thirdly, the elements of the ecosystem approach

(Shepherd 2004, Smith and Maltby 2003) were examined and built into the respective worksheets and processes.

Completing all of this work is a large task, which at first may discourage staff from initiating this work. The key is to start with the priorities and build upon the system through future work. Salzer et al. (42, 2003) underline this point:

*“We envision the assessment of focal target viability to be an iterative process – it is not realistic to develop comprehensive lists of all key attributes, indicators, and a full set of indicator ratings for all focal targets as part of an initial viability assessment. However, it is important to start with at least one key attribute and indicator and the classification of that indicator into one of the 4 indicator rating categories with sufficient detail that someone else could determine whether that indicator had shifted to another category. We recommend that the viability assessment go deeper for those targets and key attributes where there are known threats delivering uncertain impacts to the conservation target or where priority conservation actions are being implemented to improve certain target’s viability status.”*

Accordingly, the assessments in the report focus on priority values (focal targets), using available information and experience. We acknowledge that some elements of this evaluation may not be rigorous in all respects; we accept the shortcomings as in interim step along the path toward improvement. For example, in some cases data presented is minimal and this should be kept in mind when drawing conclusions.

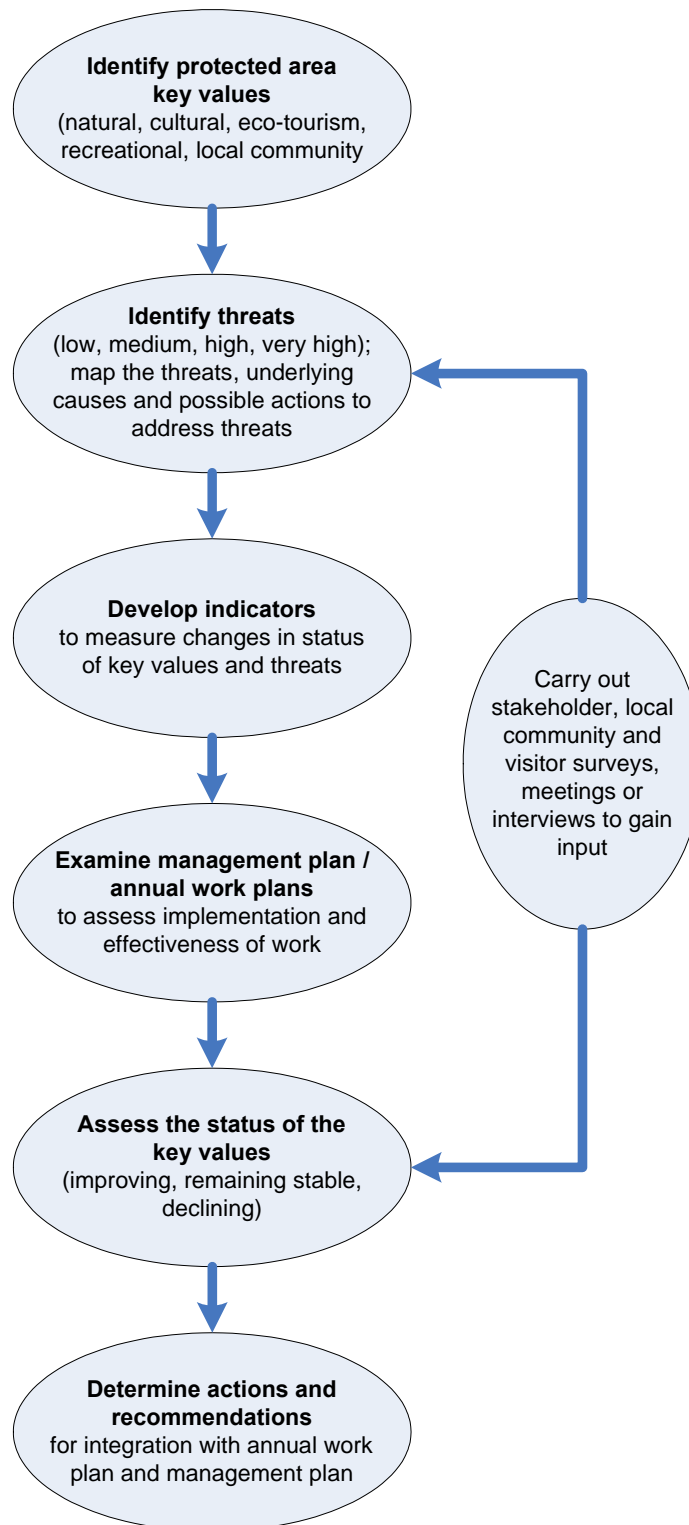
With the participation of SKP staff, we have aimed to provide a credible report using best available information and to make a start at measuring conservation success. We hope that this report will assist in identifying areas where more cooperation can be forged with research and technical institutions to improve the design and implementation of monitoring indicators and protocols.

### ***Key Inputs for this Evaluation***

Several key sources of information were used in the preparation of this evaluation and assessment of the state of SKP. These included:

- The results of the four and a half day workshop with SKP rangers and informal discussions.
- Meeting with the town mayor.
- The park management plan, 2003-07 (appendix 2).
- Results of the visitor survey (summarized in appendix 4).
- Findings of SKP staff input to the first national RAPPAM (appendix 5).

## Management Effectiveness Evaluation Process



## Part II. Current Context: Saint Katherine Protected Area

St Katherine Protectorate (SKP) was declared in 1986 and active management began in 1996. In 2002 the northern high mountain ring-dyke was declared by the UNESCO as a World Heritage Site. SKP covers 4350km<sup>2</sup>; the area encompasses the highest mountains in Egypt of which Gebel Katherina is the highest at 2642m above sea level. The area is best known as the home of the St Katherine monastery, the oldest monastery in the world that has been continuously occupied; it is also home to Mount Sinai, also known as Gebel Musa.

A key management challenge relates to the variety of agencies and stakeholders that operate inside the SKP, including the South Sinai Governorate (SSG), St Katherine town, the SSG quarry department, the Ministry of Tourism, Ministry of Culture, and the Ministry of the Interior represented in the SKP tourism police, as well as the environmental police.

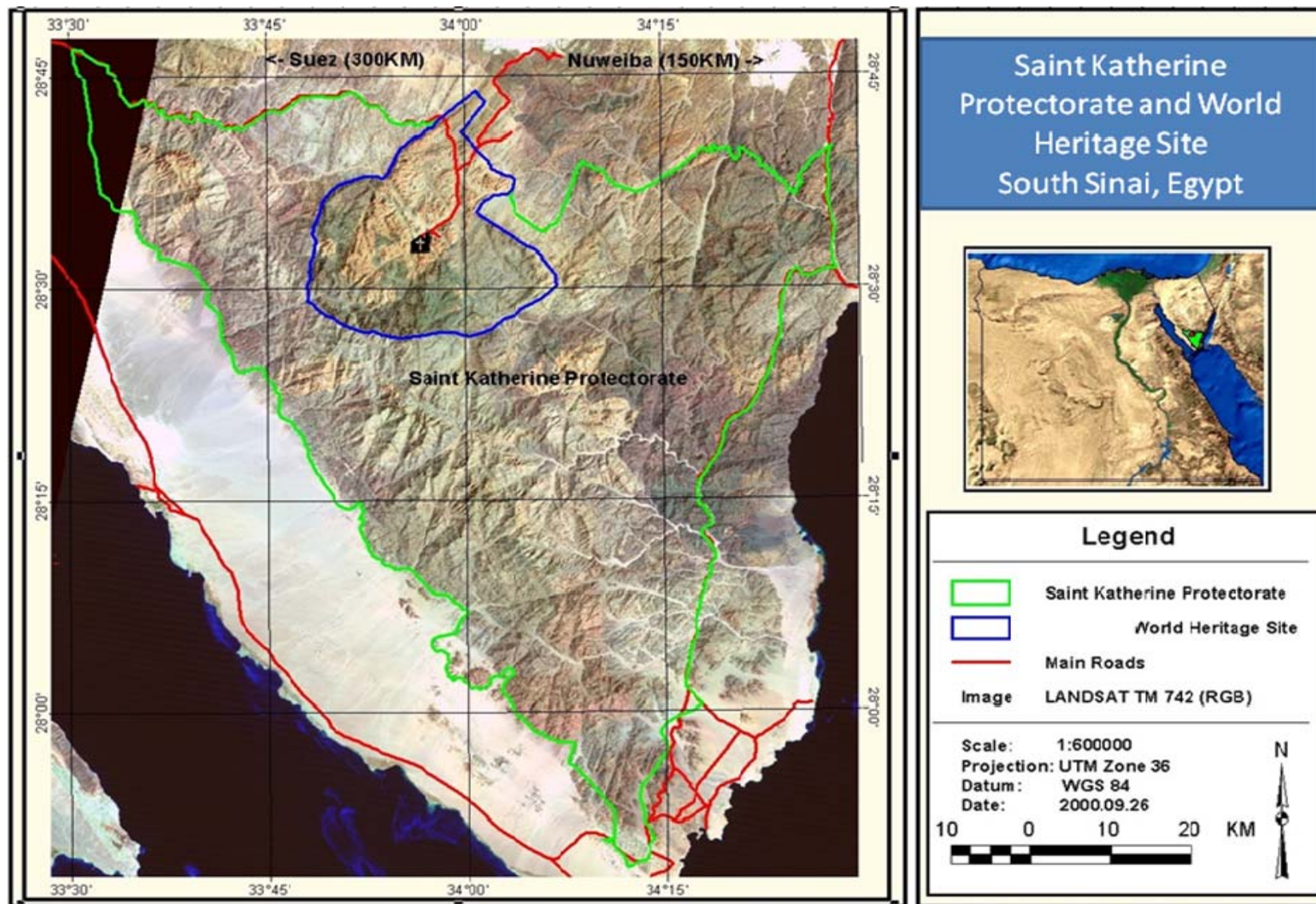
SKP has had a comprehensive management plan since 2002 that provides the most credible key reference for the protectorate. However, some of its data and structures are out of date and need adjustment. SKP has a sizeable staff by Egyptian standards and now exceeds 62 persons.

The Government of Egypt budget for SKP in 2005 was 270,000 LE (62 LE or \$12 per km<sup>2</sup>), making it one of the better funded protected areas in Egypt (Fouda *et al.*, 2006 [see Appendix 5]). SKP has been supported by a seven-year, EU-funded program that was called the St Katherine Protectorate Development Project (SKPDP), which was aimed at increasing management effectiveness, tools, infrastructure, and staff training. This was also to link conservation of the area's unique natural and cultural characteristics with the development of the local Bedouin community. A total financial input of \$9.5 million was invested for that purpose in the area between 1996 and 2003. These high levels of investment have resulted in an increase in infrastructure, which in turn requires higher levels of funding to maintain and operate the facilities.

The protectorate is uniquely characterized by the presence St Katherine town; the area also contains five hotels, four Bedouin Camps, and 40 Bedouin tent cafeterias in the area of Wadi Mandar. There are five active granite quarries, seven active gravel quarries, four active sand quarries, as well as about eight active small granite stone quarries and a single albite quarry. The largest landfill site in South Sinai is in the SKP Southern Range and represents the single largest ecological threat to the park's natural features.

The protectorate is home to 6000 Bedouin inhabitants, from seven different tribes, whose mounting need for land and natural resources for grazing and subsistence demand a greater intensity of public awareness, patrols and routine management.

In general, when finances are available, effectiveness improves. For example, vehicles can be maintained enabling staff to undertake routine patrolling and monitoring of resources. Since the European Union Program there has been a demonstrated reduction in activity, which is a direct result of inadequate financing.



*State of SKP and World Heritage Site: Evaluation of Management Effectiveness*



## Part III. Evaluation Results

This section of the report examines the current context, threats, achievement of management objectives, status and necessary actions related to the main values of SKP.

The following key values were determined by staff during the workshop:

### 1. Biodiversity/Natural Resources

- 1.1 High mountain ecosystem (medicinal plants, endemic plants, endangered plant and animal species, Sinai Baton Blue butterfly, Ibex)
- 1.2 Threatened gazelle populations in el-Qaa Plain
- 1.3 Unique geological features (Wadi Feiran, concentration of dykes)
- 1.4 Acacia key species (process, services, physiognomy)

### 2. Cultural Values

- 2.1 World Heritage Site, cultural landscape, including the monastery and monastic traditions
- 2.2 Historical and archaeological sites

### 3. Recreational/Tourism Values

- 3.1 Gebel Musa and monastery
- 3.2 Wadi Mandar
- 3.3 Eco-tourism infrastructure and opportunities (Sheikh Awad Eco-lodge, visitor centre, natural areas, hiking routes)

### 4. Local Community Values

- 4.1 Bedouin local culture and heritage (mountain gardens, traditional knowledge, use of medicinal plants)
- 4.2 St Katherine town

These key values of SKP are examined in the following sections.



## 1.0 Biodiversity/Natural Resources

### 1.1 High mountain ecosystem

#### 1.1.1 Description

Located in the north of the SKP, are the highest mountains and thus the coolest temperatures in Egypt; the area harbors medicinal plants, endemics, and endangered plant and animal species including the Sinai Baton Blue butterfly, Nubian Ibex and many valuable ecological features. (this section focuses on biodiversity while section 2 focuses on the cultural and historic values).



**(a) Size:** the high mountain ecosystem has about the same boundaries as the world heritage site (WHS), which is 641km<sup>2</sup> in area.

#### **(b) Condition**

Composition (presence or absence of native and exotic species, recruitment, etc.):

- More than 120 species of medicinal plants;
- Nineteen species of endemic plants; highest plant endemism in Egypt;
- Five endangered species of fauna; unknown number of Ibex, Sinai Baton Blue Butterfly, Rüppells Sand Fox, Blanford's Fox, Arabian Wolf, Verreaux's Eagle, Bonelli's Eagle, Hume's Tawny Owl;
- Fifty-one threatened species of flora;
- Three invasive species of fauna (feral donkeys, dogs, cats);
- Forty species of butterflies including one of the world's smallest butterflies, the Sinai Baton Blue.

Structure (ground cover/shrub/canopy vegetation, quality of habitat, etc.):

- Flora: no big trees (very few canopy trees); shrubs, herbs, mostly perennials;
- Habitats for endemic species and medicinal plants;
- Mountainous topography and soil/geology structure allow for high level of diversity;
- Plant life irrigated by rain, unpolluted;
- Fauna composed of Ibex in groups of 5–9; Rock Hyrax in large numbers, in groups of 8–25; owls living in the highest numbers near gardens; Red Foxes solitary; hyenas solitary, rarely seen;
- Old gardens in high areas.

Biotic interactions (competition, predation, disease, etc.):

- Domestic animals and feral donkeys compete with Ibex;
- The number of foxes has increased because of garbage/poor waste disposal system, preying on hyrax (decreased);
- Spiders, lizards, birds, ants prey on Baton Blue Butterfly;
- Feral dogs compete with foxes;
- Domestic animals feed on natural vegetation, medicinal plants;



- Skin diseases in wild mammals.

### (c) Landscape Context

Dominant regimes and processes (hydrology, water chemistry, geomorphology, climate, fire, other natural disturbances etc.):

- Highest mountains in Egypt, 700 million years old, granite, 10–15 million years old (St Katherine). Dissected with many dykes; parallel to Gulf of Aqaba (NE–SW);
- Temperature ranges from -22° to 32°C; coldest weather in Egypt;
- Flooding (February, March, April, November, December) has two main effects, one, to provide water and prepare areas for seeds, the other, large floods that flush the area, causing damage;
- Snow often falls during December, January, February, and March. Snow affects movement of animals (animals move to lower areas; use snow as source of water); provides moisture for dry seeds;
- Wind affects erosion of rocks, drying of soil.

Connectivity (species' access to habitats needed for their life cycle, fragmentation, etc.):

- Within SKP, there is a high degree of connectivity between habitats;
- Baton Blue Butterfly depends on *Thymus* sp. during its life cycle;
- Sinai Hairstreak Butterflies depend on *Rhamnus* sp.;
- Ibex are normally in disparate groups; in October, during breeding season, they congregate. They sometimes go down to wadi to feed/drink at Ranama spring.
- Rock Hyrax depend on crevices for reproduction;
- *Primula* sp. is endemic and depends on shaded water springs;

### (d) Threats

#	Threat	Extent (L, M, H, VH)	Severity (L, M, H, VH)	Threat Magnitude
1.	Hunting of Ibex, Hyrax, birds	Low	Medium	Low
2.	Over-collecting wood, medicinal plants; uprooting vegetation causing soil erosion (scientific collections, feral donkeys, camping sites, growing number of local people, traders).	High	Very High	High
3.	Overgrazing by domestic animals.	High	Low	Low
5.	Contamination of water (sewage, feral donkeys).	Low	High	Low
6.	Alien plant and animal species (e.g., feral animals: donkeys feeding on natural vegetation/competing/trampling plants, dogs, cats).	Medium	High	Medium
7.	Water harvesting by: <ul style="list-style-type: none"> <li>- tourism development;</li> <li>- gardens, (has been traditional use but numbers are increasing; invasive species require more water);</li> <li>- illegal irrigation (drugs);</li> <li>- feral donkeys consuming water.</li> </ul>	Medium	High	Medium
8.	Garbage (litter, waste management).	Low	Low	Low
9.	Tourism (trampling plants, off-road driving, damage to sites).	Medium	High	Medium
10.	Unplanned development (urbanization, in-migration to St Katherine town).	Low	High	Low
12.	Habitat fragmentation (road building, army buildings, quarries, settlements increasing).	Medium	Medium	Medium

### 1.1.2 Threat Analysis

Threat	Causes	Actions
Hunting of ibex, hyrax, birds.	<ul style="list-style-type: none"> <li>- Hobby</li> <li>- Lack of patrols</li> <li>- Subsistence</li> <li>- Medicinal reasons</li> </ul>	<ul style="list-style-type: none"> <li>- Public awareness.</li> <li>- Law enforcement.</li> </ul>
Over-collecting of wood, medicinal plants; uprooting vegetation causing soil erosion (scientific collections, feral donkeys, camping sites, growing number of local people, traders).	<ul style="list-style-type: none"> <li>- Scientific collection.</li> <li>- Cameleers collecting firewood and medicinal plants.</li> <li>- Feral donkeys.</li> <li>- Animal feeding.</li> <li>- Fuel.</li> <li>- Growing demand for medicinal plants.</li> <li>- Household needs.</li> </ul>	<ul style="list-style-type: none"> <li>- Firewood selling stations.</li> <li>- Public awareness.</li> <li>- Law enforcement.</li> <li>- Eradication of feral donkeys.</li> </ul>
Over grazing by domestic animals.	<ul style="list-style-type: none"> <li>- Cheap source of fodder for livestock.</li> <li>- Concentration of Bedouin communities around the monastery.</li> </ul>	<ul style="list-style-type: none"> <li>- <i>Hilf</i>.</li> <li>- Public awareness</li> <li>- Overgrazing study.</li> </ul>
Contamination of water (sewage, feral donkeys).	<ul style="list-style-type: none"> <li>- Feral donkeys.</li> <li>- Growth of town.</li> </ul>	<ul style="list-style-type: none"> <li>- Water analysis.</li> <li>- Sewage pits.</li> <li>- town sewage system.</li> <li>- eradication of feral donkeys.</li> </ul>
Invasive animals and alien plant species introduced by Town council (e.g., feral animals (donkeys feeding on natural vegetation/competing/trampling of plants; dogs and cats).	<ul style="list-style-type: none"> <li>- Town council decoration of town.</li> <li>- Lack of cultivated fodder to be given to livestock.</li> </ul>	<ul style="list-style-type: none"> <li>- Made a plan and presented it to the town council (unimplemented as yet).</li> <li>- Eradication of feral donkeys.</li> </ul>
Water harvesting by: <ul style="list-style-type: none"> <li>- Tourism development;</li> <li>- Gardens, (has been traditional use but numbers are increasing; invasive species require more water);</li> <li>- Illegal irrigation (drugs).</li> </ul>	<ul style="list-style-type: none"> <li>- Growing demand in the area by tour operators.</li> <li>- Swimming pools in the hotels.</li> <li>- Growing scale of drug cultivation.</li> <li>- Feral donkeys consuming water.</li> </ul>	<ul style="list-style-type: none"> <li>- Public awareness for the locals on the importance of not selling their precious water resources to tourist hotels.</li> <li>- Construction of new pools in the hotels of the area was banned.</li> <li>- Drug cultivation pipes were terminated.</li> <li>- Feral donkeys. eradication program has began in association with the MPCP.</li> </ul>
Garbage (litter, waste management).	<ul style="list-style-type: none"> <li>- Tourism.</li> <li>- Increased dependency on canned food by the locals.</li> <li>- Increased volume and population of the SK town.</li> <li>- Increased internal migration to SK town..</li> </ul>	<ul style="list-style-type: none"> <li>- Consultation on solid waste management was made and a garbage collection system for the town was put in place.</li> <li>- Garbage bins were distributed all over the town.</li> <li>- Landfill site and transfer station were built.</li> <li>- Garbage collection system on Mt. Sinai was put in place. 15 cleaners were contracted.</li> <li>- Major clean-ups including SK school children and authorities in</li> </ul>

Threat	Causes	Actions
		the area were carried out.
Tourism (trampling plants, off-road driving, damage to sites).	<ul style="list-style-type: none"> <li>- Increased demand on the area by international and local tour operators.</li> <li>- Lack of public awareness about how visitors should behave in the area especially by non local guides.</li> </ul>	<ul style="list-style-type: none"> <li>- Public awareness programs were put in place to include local Bedouin and non-local tourist guides.</li> <li>- Bedouin eco-guide certification programs have begun to give accreditation to the environmentally committed local guides.</li> <li>- Visitor center was built as a major public awareness site (needs regular hours). Increase efforts with town to increase use of VC, including implementation of visitor management plan (i.e., move parking to VC).</li> <li>- Non-Bedouin guides certification program will begin shortly to allow only trained guides to operate in the area.</li> </ul>
Unplanned development.	<ul style="list-style-type: none"> <li>- Lack of environmental awareness by most governmental decision makers.</li> <li>- Heavy tourism pressure.</li> </ul>	<ul style="list-style-type: none"> <li>- Working closely with town to develop and implement town plan.</li> <li>- Introduced a visitor management plan for the area.</li> </ul>
Habitat fragmentation.	<ul style="list-style-type: none"> <li>- Road building.</li> <li>- Army buildings.</li> <li>- Increased local and non-local settlements.</li> </ul>	<ul style="list-style-type: none"> <li>- Implement zoning plan for the area to keep ecologically fragile areas as 'impact free' areas.</li> <li>- Implement town plan.</li> <li>- Meetings with army and other local authorities.</li> </ul>

A threat map was not prepared for this value.

### 1.1.3 Indicators

More work is needed on developing indicators on the status of high mountain ecosystems, especially for endangered and endemic species.

Category	Key Attribute	Indicator	Indicator Ratings (current rating in <b>bold</b> )				Information Source
			Poor	Fair	Good	Very Good	
Condition	Naturalness	Percentage of vegetation cover in the valleys of the high mountain area (%)	<10%	<b>10–15</b>	15–20	> 20%	SKP GIS / Botanical Unit
Threat	Quarrying	Number of active quarries per month	> 30	<b>20–30</b>	10–20	< 10	SKP Southern Range Report
Threat	Littering	Number of loads of garbage per month	> 350	<b>250–350</b>	150–250	<150	SKP Financial Unit
Action	Waste Mgt	Number of garbage cleaners per year	<15	<b>15–25</b>	26–30	> 30	SKP Financial Unit

Category	Key Attribute	Indicator	Indicator Ratings (current rating in <b>bold</b> )				Information Source
			Poor	Fair	Good	Very Good	
Action	Human Wastes	Number of toilets in the whole area	<b>Less than 20</b>	20–25	26–30	Over 30	SKP Visitor Management Reports

Notes: need work to define measurement protocols (methods).

#### 1.1.4 Management plan objectives and actions taken

The first objective of the management plan provides for the conservation of mountain ecosystems, including all elements and processes. The overall status of the high mountain ecosystems today, compared to five years ago, is “improving.” This rating was given for the following reasons:

- The Medicinal Plants Conservation Project's (MPCP) is carrying out the feral donkey eradication program, which mitigates their negative ecological impact and competition with large mammals in the area over scarce water and food resources.
- The MPCP has cultivated over 50 Bedouin gardens with medicinal plants, which reduces impact on wild populations of native medicinal plant species.
- The tourism firewood selling station based at the Bedouin Back Country Tourism office of Sheikh Musa is still operating, which helps to minimize back-country tourists' dependence on local firewood.
- The alien plant problem is still contained within the town's current urban limits.
- The town has installed a sewage system which minimizes contamination of groundwater by sewage.
- Major tourism activities are still contained within their traditional ranges with garbage collection systems still in operation; however, there seems to be a problem with overflowing tanks of composting toilets on top of Mt. Sinai.
- There seem to be a problem with the cessation of use of the town's landfill site.
- There seem to be a problem, repeatedly reported by the Bedouins, of over-collection of medicinal plants for scientific purposes, particularly by the MPCP and the Egyptian University staff who stay at the Suez Canal Research Center.
- The results of many conservation projects such as the botanical enclosures program and other monitoring and grazing management program are paying off now.
- The town is receiving an ever-increasing quota of water which minimizes demand for local water.

#### 1.1.5 Recommended actions

Based on the foregoing evaluation of threats, achievements of management objectives and status, the following actions are recommended. These should be integrated into the management plan and annual work plans.

- Law enforcement has intensified and has become more effective in the area over time, but more patrols are needed and better training is needed for the new SKP recruits.

- A research-based visitor management plan was put in place and awaits implementation during the current year by a fund from the EU/SSRDP. The plan will help to significantly reduce visitor impact on the high mountain areas.
- An integrated public awareness strategy should be put into action to target tour guides, school children, local community and governmental organizations, and generally, all stakeholders.
- Bedouin eco-guide certification programs have begun to give accreditation to the environmentally committed local guides. Training of local guides and turning them into eco-guides is an essential step to seize business opportunities for the local inhabitants of the SKP and should be actively implemented.
- Non-Bedouin guides certification program will allow only trained guides to operate in the area; certification of guides is an essential step to minimize visitor impacts in a protected area.
- Cooperation with the MPCP on the feral donkey eradication program is continuing.
- The visitor center has not yet reached its full operational capacity. This world-class facility needs proper attention and planning to increase use. Implementation of the visitor management plan should be a priority during the next annual work plan, including the re-design of the visitor parking area and circulation system for the monastery and Gebel Mousa.
- Continue implementation of the protectorate's water analysis program to help determine contaminated sources of water and give warnings if necessary.
- Protectorate has adapted a zoning plan and kept high ecological sensitivity areas in the impact free zones. It is recommended that the zoning maps be printed, posted in the headquarters office, and training be carried out for the protectorate and town staff to better understand the zoning system and permitted uses.

## 1.2 Threatened Dorcas Gazelle population on el-Qaa Plain

### 1.2.1 Description

This ecosystem is located in the southwest range of the SKP and most of it lies outside the protectorate's core zone.

**(a) Size:** 2200km<sup>2</sup>; the current size of the Dorcas Gazelle population is about 100 individuals using about 1100km<sup>2</sup>.

#### **(b) Condition**

##### Composition:

- Threatened
- Found in groups composed of  $5 \pm 2$ ; each group has one male.
- Gestation period: 169–174 days.

##### Structure:

- Flora composed of large group of Acacia trees, large-scale canopy vegetation; shrubs, herbs, perennials.
- Soil/geology structure promoting the high level of diversity (Gazelle, Ibex, Fox, Hyena, Hyrax, Ornate Dabb Lizard, and Chalcides Skink).

Biotic interactions:

- Competition with camels.
- There is a relationship between the Gazelle and *Acacia* sp. (feeding about 60%, and shade).
- Other species for feeding (*Ochradenus baccatus*, *Citrullus colocynthus*, *Retama* sp., *Crotalaria* sp., *Zilla* sp.).
- Predation by Arabian Wolf and Hyena.
- Most common insect threat is *Schistocerca gregaria*, the Desert Locust, which has been reported from this area.

**(c) Landscape Context**

Dominant regimes and processes (hydrology, water chemistry, geomorphology, climate, fire, other natural disturbances, etc.):

- This is primarily to protect the habitats of the el-Qaa Plain, which is not part of the protectorate.
- The represented habitats are boulders, gravels and sand.
- Flooding (February, March, April, November, December) has two main effects, one to provide water and prepare areas for seeds, the other, large floods that flush the area, causing damage.
- The high average wind speed all year round affects erosion of rocks, drying of soil.

Connectivity: Gazelle depend on *Acacia* sp.

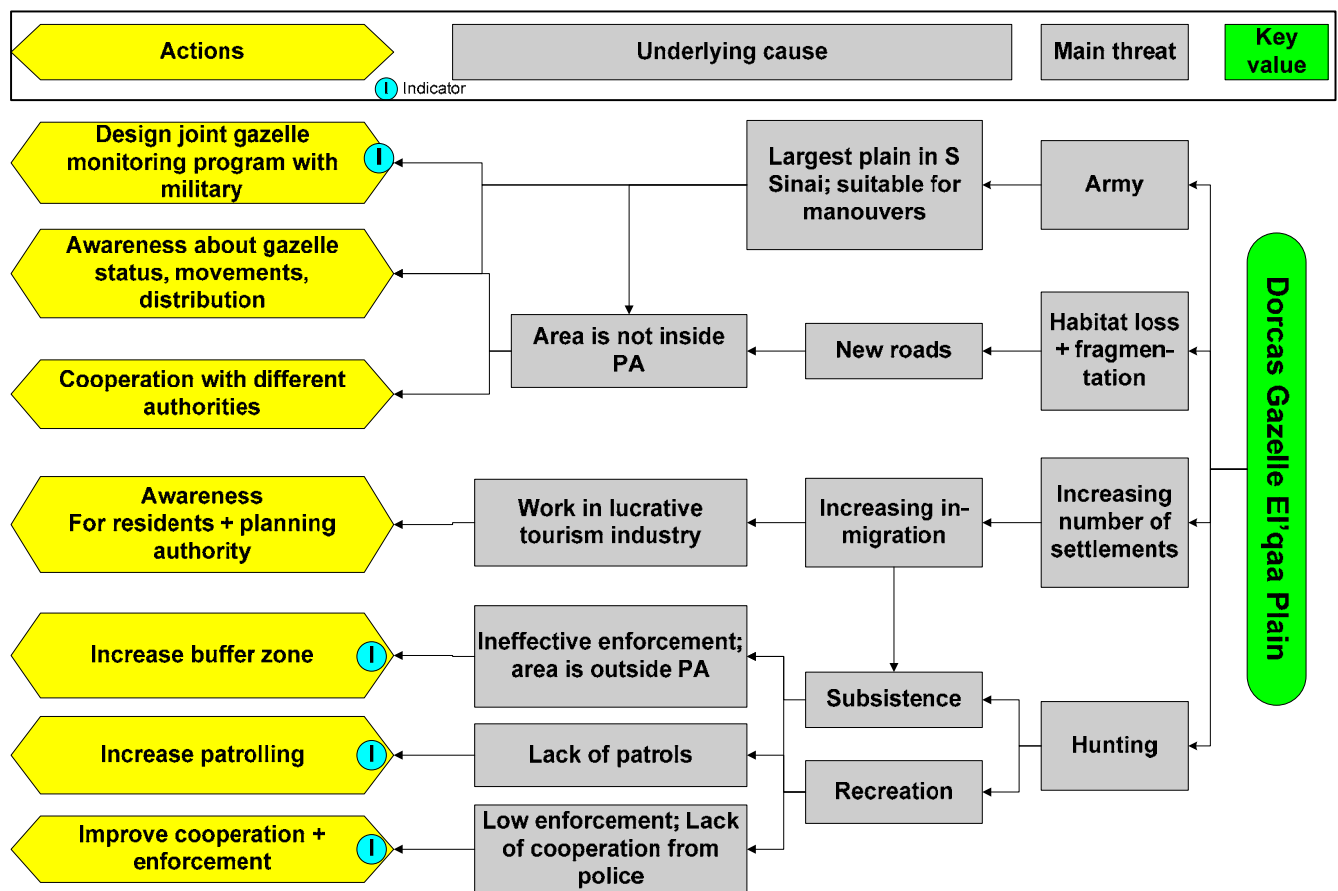
**(d) Threats:**

#	Threat	Extent (L, M, H, VH)	Severity (L, M, H, VH)	Threat Magnitude
1.	Army live ammunition maneuvers	Low	Very high	High
2.	Increasing number of inhabited localities; settlements increasing	Medium	High	Medium
3.	Habitat fragmentation (road building, army buildings, cutting of <i>Acacia</i> trees)	Medium	High	Medium
4.	Hunting	High	Medium	Medium

**1.2.2 Threat Analysis**

Threats	Causes	Action
Army live ammunition maneuvers.	The area represents the largest plains in South Sinai, and is thus suitable for such things.	- Coordination on the EEAA level with the Ministry of Defense.
Increasing number of settlements.	Increase number of local population.	- Awareness for planning authorities about natural values and recommendation to use other areas.
Habitat fragmentation (road building, army buildings, cutting <i>Acacia</i> tree, settlements increasing).	This area is not within the protectorate range.	- Cooperation with the different authorities. - public awareness.
Hunting.	- Subsistence. - Hobby. - The area is not within the	- Law enforcement. - Increase the buffer zone of the PA.

Threats	Causes	Action
	protectorate range. - Gap in patrol scheme. - Shortage of staff. - Lack of support from the police to create joint patrols. - Lack of cooperation with the police.	- Patrols by the protectorate.



### 1.2.3 Indicators

Category	Key Attribute	Indicator	Indicator Ratings (current rating in bold)				Information Source
			Poor	Fair	Good	Very Good	
Size		Distributed Gazelle population in el- Qaa plain area (%)	<30	30 – 40	40 – 60	>60	SKP Technical report; note 1
Condition	Biotic interaction	Gazelle habitat: Number of individuals of <i>Acacia</i> sp. in Gazelle territory (2200km <sup>2</sup> )	<300	300–500	<b>500–600</b>	>600	Monitoring reports, technical reports of SKP
Condition	Number	Number of Gazelle on el-Qaa Plain (2200km <sup>2</sup> )	<100	<b>100–1 20</b>	120– 160	>160	SKP Technical report and published paper
	Number	Number of violations (hunting cases per year)	> 8	5–8	<b>2– 5</b>	< 2	SKP monitoring reports &

Category	Key Attribute	Indicator	Indicator Ratings (current rating in bold)				Information Source
Threat							community guard reports
Action	Size	Size of the increasing area (buffer zone) km <sup>2</sup>	<b>1–5</b>	5–10	10–15	15–20	SKP technical report
Action	Number	Number of patrols per month	<b>1</b>	1–2	3–4	>4	SKP technical report

Notes: 1. Indicator is unclear and needs to be better defined.

### 1.2.4 Management plan objectives and actions

The fourth objective in the management plan is for integration of the protectorate into local development process and land use management to assist sustainable rural development and benefit local communities. In addition, part V of the management plan provides for an adjacent buffer zone as defined in Law 102 (article 3), and part VII prescribes a monitoring programme.

The overall status of the site today compared to five years ago is “worse”; this rating was given for the following reasons:

- Failure to implement the protectorate’s buffer zone. More assertive action and collaboration is warranted.
- The protectorate management has approached the police authorities in Sharm el-Sheikh and el-Tur many times over the last five years asking them for joint patrols in the area, a request that has always been denied by them.
- The offenders know by now the reality of the situation, which is that the protectorate’s personnel are not armed and that the police refuse to operate in their areas, This makes them more and more daring about committing offences and also makes them more aggressive about resisting arrest by protectorate personnel.
- Lack of coordination with the army chiefs to conduct their maneuvers away from the highly sensitive areas for gazelles.
- Failure to implement the monitoring programme for gazelle, as prescribed in section VII of the management plan.
- Very slow progress by the EEAA in hiring community guards to replace three community guards.
- Lack of EEAA-contracted park personnel and great reduction particularly among the environmental researchers (rangers) of the SKP throughout the last five years.
- However, in the last year, three zoologists were hired, one by the EEAA and the other two through the MPCP. The three were briefly trained by a former SKP environmental researcher. The new wildlife team is intensifying patrols and is re-conducting long-stopped large mammal surveys in the area.



### **1.2.5 Recommended actions**

Based upon the foregoing evaluation of threats, achievement of management objectives and status, the following actions are recommended. These should be integrated into the management plan and annual work plans.

- Implement a gazelle monitoring program (e.g., radio telemetry tracking) to study movements, use areas, etc., in cooperation with the Army. The management plan provides for gazelle monitoring, however this is not being implemented.
- Include the largest section possible of el-Qaa Plain within the SKP buffer zone, and give the rangers effective jurisdiction to operate within that area.
- Contact army chiefs for a meeting in which the situation will be explained to them, they will be asked to move areas of live ammunition maneuvers away from major and high-sensitivity areas for gazelle population.
- The whole area of el-Qaa Plain should continue to be a no-quarry area for at least the coming decade to minimize impacts on the very-stressed gazelle population.
- Large mammal surveys will be resumed by the protectorate's newly appointed zoological team after over three years of being halted.
- NCS and EEAA should hasten the hiring of replacement community guards for the areas currently without a community guard because of the firing of the guards for security reasons. This time it has to be a precondition that guards should be living within their own areas and that movement to other areas after being contracted will result in termination of contract.
- Meeting with the police force's senior officials in el-Tur by a high ranking EEAA official to sign a memorandum of understanding. The Environmental Police should be obliged to share with the protectorate's rangers in joint patrols in the area to arrest hunters.

## 1.3 Unique geological features (Wadi Feiran, dykes, oldest rocks in Egypt)

### 1.3.1 Description

- Saint Katherine high mountainous area is composed mainly of granite rocks (70 %).
- Wadi Feiran and el-Tarfa have occurrences of the most recent Quaternary sections in Egypt .
- A high density of dykes dissect the rocks; generally oriented northeast-southwest direction, parallel to the Gulf of Aqaba.

#### (a) Size

The current size of the area is 4350km<sup>2</sup>.

#### (b) Condition

Composition: The rocks are diverse granite rocks, which are subdivided into two main categories:

- Younger granites are rose colored and cover 70% of the protectorate; they can be distinguished by their high relief.
- Older granites are gray in color and cover 25% of the protectorate; they can be distinguished by their low relief.
- 5% of the rock cover is composed of the oldest rocks in Egypt (metamorphic rocks 1100 million years old).
- The ridges are separated by a network of wadis, which include wadi deposits that have amassed due to floods and wind action.

#### Structure:

- Wadi Feiran and el-Tarfa have Quaternary terraces represent one of the most recent Quaternary sections in Egypt
- 5% of the rock cover composed of the oldest rocks in Egypt (metamorphic rocks 1100 million years)
- The metamorphic rocks in Wadi Feiran are not represented in Egypt except in St Katherine Protectorate.

#### Associated ecological, cultural, eco-tourism resources or communities:

- The structure of the geology of St Katherine, in addition to the location, has led to the diversity of the environment, which in turn, has led to the presence of numerous endemic plant and animal species.
- The Bedouins used to build their houses in high places to avoid the flood hazard.
- The beautiful mountain scenery is one of the most important factors in attracting tourists for trekking, hiking and mountain climbing, which increases the local community's income.

#### (c) Landscape Context

Dominant regimes and processes (wind/water erosion, hydrology, geomorphology, climate, fire, other natural disturbances, etc.):

- Water erosion is a key process, due to a complete network of water channels in these rocks.
- Wind action particularly affects wadi sediments (transportation).

Connectivity (linkages to other geological/fossil sites, fragmentation, species' access to habitats needed for their life cycles, etc.):

- SK rocks are among the Red Sea rocks that were affected by the great African rift in all geological periods (Precambrian to present)
- Some endemic and endangered plant species like *Primula boveana* are related to specific geological habitats like caves that have water springs in them.
- *Thymus* sp. is the only known host plant for the larvae of the Sinai Baton Blue Butterfly (endemic and endangered); this plant grows in granite rocks in the high mountain region of Saint Katherine.
- *Calligonum comosum* in Wadi el-Kid grows among specific types of metamorphic rocks.

#### (d) Threats:

#	Threat	Extent (L, M, H, VH)	Severity (L, M, H, VH)	Threat Magnitude
1.	Quarrying	Low	Very high	Low
2.	Rock collection by researchers and local Bedouins	Low	Low	Low

### 1.3.2 Threat Analysis

Threat	Cause	Action
Quarrying.	<ul style="list-style-type: none"> <li>- Intense development.</li> <li>- Presence of ornamental stone.</li> <li>- Presence of ore materials (e.g., feldspar).</li> </ul>	<ul style="list-style-type: none"> <li>- Coordinating with Quarry Department in South Sinai Governorate.</li> <li>- Zoning plan.</li> <li>- Law enforcement.</li> <li>- Patrolling and monitoring.</li> </ul>
Rock collecting for souvenirs or for scientific purposes by researchers, local Bedouin and tourists.	<ul style="list-style-type: none"> <li>- These rocks have a very specific value (research and souvenirs).</li> <li>- Increasing income (local Bedouin).</li> </ul>	<ul style="list-style-type: none"> <li>- Public awareness (universities, research centers, locals and tourists).</li> <li>- Coordinating with universities and research center to specify how and where rock samples may be taken.</li> </ul>



Category	Key Attribute	Indicator	Indicator Ratings (current rating in bold)				Information Source
Action	Number	Quarry Waste Management (cubic meters)	<b>13000– 15000</b>	10000– 12000	5000– 9000	<5000	Expert Report Note 2

Notes: 1. Stone quarrying is underway in Wadi Mandar, Wadi Mear and Wadi el-Att el-Sharky. 2. Need to activate the quarry waste management plan.

### 1.3.4 Management plan objectives and actions

The first objective of the management plan provides for the conservation of mountain ecosystems, including all elements and processes. In addition, part VI of the management plan provides guiding principles, a policy and strategies for managing quarrying and mining. Part VII of the plan provides for monitoring.

The overall status of the site today compared to five years ago is “improving”. This rating was given for the following reasons:

- Quarrying has been contained over the last five years to its traditional range; no other ranges have been opened.
- Collection of rocks to be sold as souvenirs is basically done outside the protectorate, and is located in a very small area inside the protectorate. However, it is likely to continue as a source of income for Bedouin businesses and small children who sell rocks to tourists.
- Scientific collection of rocks in the area is, in most cases, carried on after informing the protectorate and complies with the rules, but has an insignificant impact on the area’s geological structure.

### 1.3.5 Recommended actions

Based on the foregoing evaluation of threats, achievement of management objectives and status, the following actions are recommended. These should be integrated into the management plan and the annual work plans.

- The protectorate should seek funding for its ambitious quarry waste management program through the business community.
- Quarry ranges should not be extended outside the current zones under any circumstances.

## 1.4 Acacia key species

### 1.4.1 Description

Most of this ecosystem is located within the Southern Range of the SKP.

#### (a) Size and species

The area is 2000km<sup>2</sup>. The species is *Acacia tortilis*. The current size of the population is more than 1000 individuals. The whole area is needed to sustain the population.

#### (b) Condition

Composition (presence or absence of native and exotic species, recruitment, etc.):

- *Acacia tortilis* is a key species.
- In recent years, many Acacia species have become endangered due to increasing aridity and human activities. The continuous overgrazing, over-cutting, and uprooting are leading to the disappearance of pastoral plant communities, a reduction in plant cover and soil erosion. In general, trees and shrubs of South Sinai are subject to severe deterioration. Decreased number of sprouting seeds recently.
- There is a great failure of *Acacia* to regenerate and to establish themselves as young trees (it is hard to find any seedlings of *Acacia*).
- 149 species associated with Acacia.

Structure (ground/shrub/canopy vegetation, quality of habitat, etc.):

- Flora: large group of Acacia trees, large-scale canopy vegetation; shrubs, herbs, perennials.
- The geomorphologic formations of South Sinai lead to a wider variation in climate and vegetation than elsewhere.
- Most of the represented flora species of this area are perennial.

Biotic interactions (competition, predation, disease, etc.):

- There is a relationship between the Gazelle, Camels and *Acacia* sp.
- There is extreme social importance of this tree for the Bedouins, who use it in almost all aspects of their daily life (feed for domestic animals, medicinal use, etc.).
- Only shade to be found in wadis.
- Most common natural death is caused by insects.

#### (c) Landscape Context

Dominant regimes and processes (hydrology, water chemistry, geomorphology, climate, fire, other natural disturbances, etc.):

- The represented habitats (mountains, hills, boulders, gravels and sand).
- Flooding (February, March, April, November, December) has two main effects, one to provide water and prepare areas for seeds, the other, large floods that flush the area, causing damage).
- The area is relatively hot.
- 

Connectivity (species access to habitats needed for their life cycle, fragmentation, etc.):

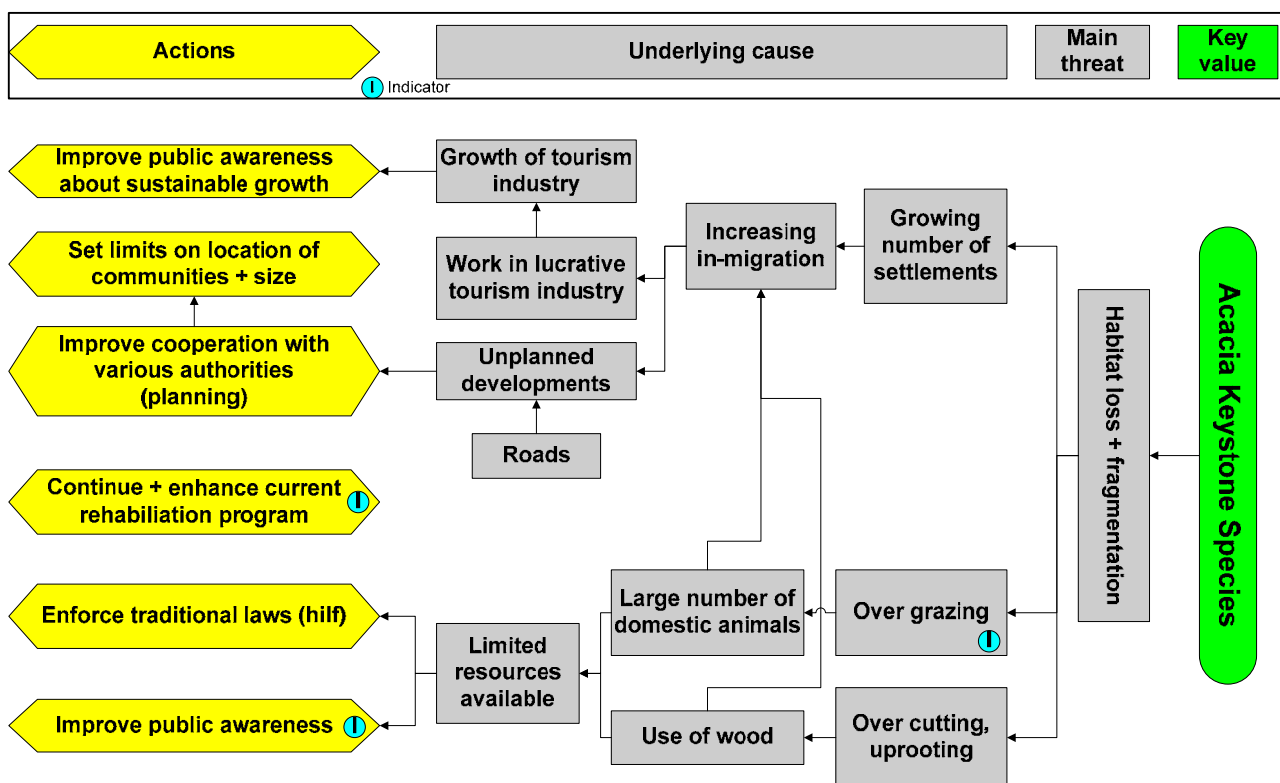
- Acacia is a keystone species; it is important for the life cycles of most fauna and flora.
- Acacia is the most edible species for wild and domestic fauna.

**(d) Threats:**

#	Threat	Extent (L, M, H, VH)	Severity (L, M, H, VH)	Threat Magnitude
1.	Overgrazing	H	H	H
2.	Increasing number of inhabited localities	M	H	M
3.	Habitat fragmentation (road building, settlements increasing)	M	H	M
4.	Over-cutting, uprooting	M	M	M

**1.4.2 Threat Analysis**

Threats	Causes	Action
Overgrazing	<ul style="list-style-type: none"><li>- Large number of domestic animals</li></ul>	<ul style="list-style-type: none"><li>- Public awareness</li><li>- Enforcement of traditional laws (traditional <i>Hilf</i>, etc.)</li></ul>
Habitat loss, fragmentation;	<ul style="list-style-type: none"><li>- Increase number of settlements and population</li><li>- Unplanned development</li><li>- Road building</li><li>- Tourism activities (off-road, firewood, etc.)</li></ul>	<ul style="list-style-type: none"><li>- Cooperation with the different authorities.</li><li>- Public awareness.</li></ul>
Over cutting, uprooting	<ul style="list-style-type: none"><li>- Bedouin, tourist activities</li></ul>	<ul style="list-style-type: none"><li>- Public awareness.</li><li>- Law enforcement.</li><li>- Enhancement of the currently operating rehabilitation program.</li></ul>



### 1.4.3 Indicators

Category	Key Attribute	Indicator	Indicator Ratings (current rating in bold)				Information Source
			Poor	Fair	Good	Very Good	
Condition	Size	Number of individuals of <i>Acacia</i> sp. in the South Range of SKP	<1000	<b>1000–2000</b>	2000–3000	>3000	SKP Monitoring reports, technical reports of SKP; M.Sc. Of Bialy Hatab
Condition	Number	Number of Gazelle on el-Qaa Plain (2200km <sup>2</sup> )	<100	<b>100–120</b>	120–160	>160	SKP Technical report and published paper
Condition	Number	Number of associated species of <i>Acacia</i> per annual survey	<100	100–130	<b>130–170</b>	>170	SKP Monitoring report, PhD in process by Bialy Hatab
Threat	Number	Number of domestic animals that feed on <i>Acacia</i> per year in the Southern Range of SKP	>5000	<b>4500–5000</b>	4000–5000	<4000	SKP technical report
Threat	Number	Number of <i>Acacia</i> saplings per year	<50	<b>50–80</b>	80–100	>100	SKP Monitoring reports, technical reports of SKP, M. Sc. Of Bialy Hatab
Action	Number	Number of public awareness campaigns per month	<b>0–1</b>	1–2	3–4	5	SKP reports



Action	Number	Rehabilitation rate of threatened population of <i>Acacia</i> sp.	<20	20–35	36–45	>45	SKP Monitoring reports, technical reports
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#### 1.4.4 Management objectives and actions

The management plan states (part II, threatened species): “*Acacia is a keystone species in South Sinai of vital ecological and cultural importance. In recent years Acacias have been subjected to overgrazing, cutting and other threats and recruitment to the population has been seriously compromised. A programme for the rehabilitation of this species was initiated in 1999 with the co-operation of local people. A two-phase strategy has been adopted, which involves the artificial propagation of seedlings and interventions to enhance natural regeneration. The programme has been proposed for continued support under the SSRDP.*”

Apart from this reference and the general objectives for protection contained in the management plan, no specific policies or strategies or monitoring is prescribed for *Acacia* in the management plan. This warrants more attention when the management plan is renewed.

The overall status of the site today compared to five years ago is “improving”. This rating was given for the following reasons:

- Public awareness and enforcement programs have started to pay off and the numbers of cases of *Acacia* tree cutting that SKP staff is aware of are very minor and are almost restricted to those cut for road building.
- The SKP’s eight-year-old *Acacia* Rehabilitation Program is beginning to restore the ecological balance in areas such as Wadi Mandar, Lethi, el-Kid and Umm Hashim, *Gazella* and Reem. Today, the survival rate for *Acacia* saplings is approximately 20% percent, which means that 7000 new saplings have been cultivated in the area.
- The *Acacia* Rehabilitation Program has concentrated its cultivation sites near Bedouin settlements in the target areas and this has minimized impact on distant wild populations of *Acacia*.

The SKP has employed 60 Bedouin men and women in the cultivation and irrigation process; another 165 families were also involved and have gained financial benefits during the propagation process. This has achieved a great deal of support among the locals by making them an essential element of the protection effort, which helps to improve the status of this key value.

#### 1.4.5 Recommended actions

Based upon the foregoing evaluation of threats, achievement of management objectives and status, the following actions are recommended. These should be integrated into the management plan and annual work plans.

- Include the area of el-Qaa Plain in the protectorate’s buffer zone. Establish new *Acacia* conservation sites on el-Qaa Plain.

- Increase public awareness among local communities and safari tour companies particularly in el-Qaa Plain and the surrounding area. In support of this, prepare a communication plan to relate key messages, target audiences, suitable methods of communication, and timing.
- Increased protectorate staff in the Southern Range to increase law enforcement efficiency by increasing patrols in the area.
- Provide the funds needed for the maintenance of old cultivation sites in the southeast of the SKP, as these sites have lately come under attack from Bedouins who come from outside the protectorate; some fences have started to rust and have become unusable.
- Encourage the application of traditional laws (hulf) to lessen the threat of overgrazing, cutting and uprooting.

## 2.0 Cultural Values

### 2.1 World Heritage Site, Cultural Landscape

#### 2.1.1 Description

##### (a) Size

- Current size of the area is 641km<sup>2</sup>.
- Period of history represented: 10,000 years (Prehistoric, Pharaonic, Greek, Nabataean, Byzantine, Coptic, Islamic).
- For related information, see section 1.1 concerning the high mountain ecosystem and section 3.1 concerning the recreational value of Mount Sinai.



##### (b) Condition

##### Composition/Significance:

The area is best known for St Katherine's monastery, the oldest continuously inhabited monastery in the world, and for Mount Sinai, which is sacred to the world's three great monotheistic religions. The area also contains numerous archeological sites. The Bedouins of the area have a culture that differs from that of most other Egyptians. It is a popular area both for pilgrims and tourists, and has been much visited by approximately 300,000 visitors annually during the last five years. Many of the area's tracks, such as those on Mt. Sinai, have historic significance.

##### Integrity and authenticity (quality of original characteristics/state of degradation, etc.):

The area is very authentic; the protectorate and the monastery work hard to maintain its integrity. Tourism, however, is posing a major threat to the natural and cultural characteristics of the area. State of degradation of the area is low.

##### Associated ecological, geological resources, resources or communities:

The area contains the highest plant endemism in Egypt, the highest mountains in Egypt, endangered fauna, medicinal plants, and the unique Bedouin culture of the Jebaliah Tribe.

### (c) Landscape Context

Dominant regimes and processes (hydrology, water chemistry, geomorphology, climate, fire, other natural disturbances, etc.):

- Highest mountains in Egypt; 700 million-year-old-granites; 10–15 million years old (Gebel Katherina). Dissected with many dykes; parallel to Gulf of Aqaba (NE)
- Ranging from -22°C to 32°C; it has the coldest weather in Egypt.
- Flooding (February, March, April, November, December) has two main effects, one to provide water and prepare areas for seeds, the other, large floods that flush the area causing damage.
- Snow (December, January, March). The snow affects animal movements (animals move to lower areas; use snow as source of water). Provides moisture for very dry seeds.
- Wind affects erosion of rocks, drying of soil.

### Connectivity:

Deir el-Banat monastery in Wadi Feiran, Deir Antoosh, Deir Ramhan, the Greek Orthodox Churches; connected with the three main religions of the Middle East. Closely linked to the Bedouin culture in the whole of the Sinai Peninsula and is considered to be the cultural epicenter of South Sinai. St Katherine Protectorate is connected to the other protected areas in South Sinai.

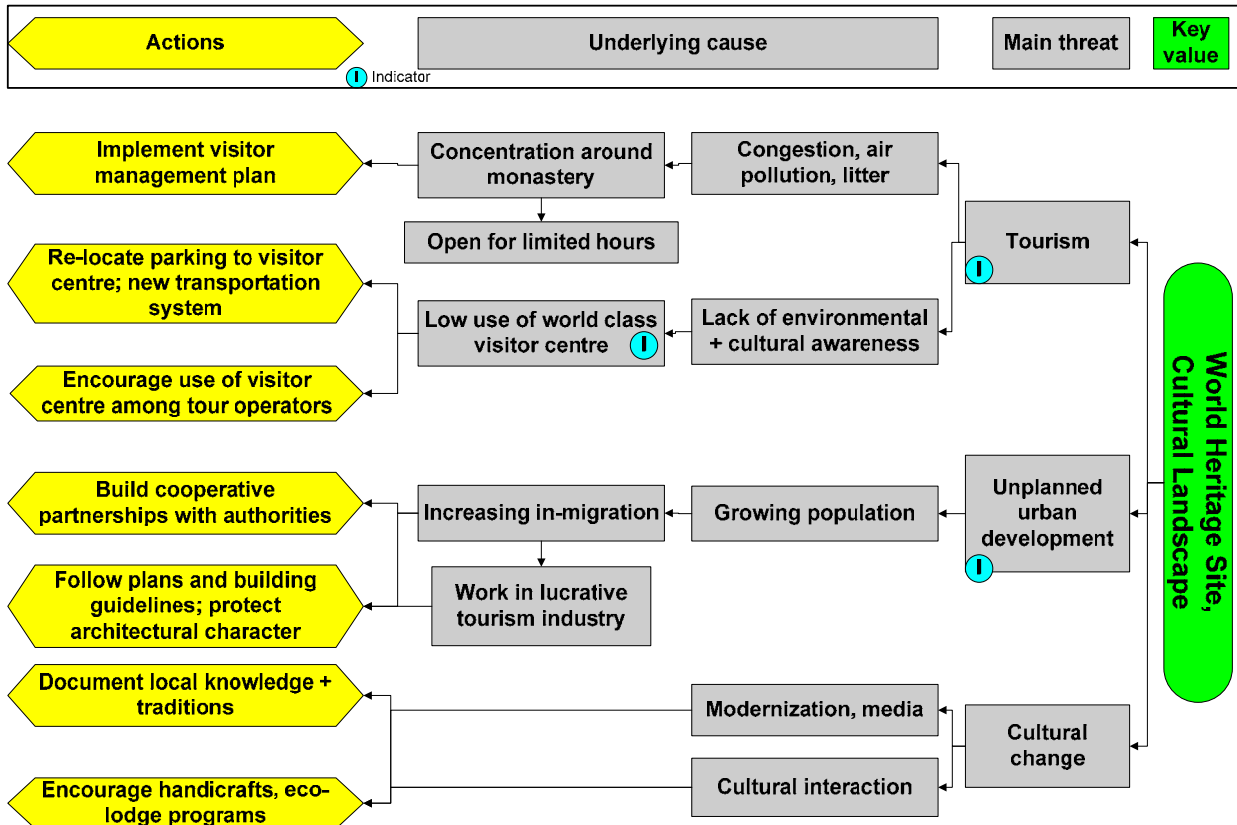
### (d) Threats:

#	Threat	Extent (L, M, H, VH)	Severity (L, M, H, VH)	Threat Magnitude
1.	Tourist pressure (littering, congestion at monastery, air pollution,, etc)	M	H	M
2.	Unplanned urban development	M	H	M
3.	Cultural change and loss of local traditional knowledge (from modernization, media attention, immigration, and cultural interaction)	H	M	M

### 2.1.2 Threat Analysis

Threat	Causes	Actions
Tourism pressure (littering, congestion at monastery, air pollution, etc).	<ul style="list-style-type: none"> <li>- High pressure on the area.</li> <li>- Concentration of tourism around monastery and Mount Sinai.</li> <li>- Lack of environmental &amp; cultural awareness.</li> </ul>	<ul style="list-style-type: none"> <li>- Compost toilets, trail maintenance, visitor center, visitor management plans, public awareness programs, firewood selling station, garbage bins, graffiti removal.</li> <li>- Re-design entrance road to begin at the Visitor Centre with a new transportation system to the monastery.</li> </ul>
Unplanned Urban Development.	<ul style="list-style-type: none"> <li>- Over–population.</li> <li>- Government policies.</li> <li>- Lack of environmental awareness of decision makers.</li> </ul>	<ul style="list-style-type: none"> <li>- Building partnerships with local authorities.</li> <li>- Initiating urban development plans.</li> </ul>

Threat	Causes	Actions
Cultural Change.	<ul style="list-style-type: none"> <li>- Modernization.</li> <li>- Media.</li> <li>- Immigration.</li> <li>- Cultural interaction.</li> </ul>	<ul style="list-style-type: none"> <li>- Spreading awareness of the importance of preservation of local culture.</li> <li>- Building cultural and visitor centers; improving use of existing visitor centre.</li> <li>- Handicrafts program.</li> <li>- Eco-lodge program.</li> <li>- Documentation of local knowledge such as traditional uses of medicinal plants.</li> </ul>



### 2.1.3 Indicators

Category	Key Attribute	Indicator	Indicator Ratings (current rating in bold)				Information Source
			Poor	Fair	Good	Very Good	
Size	Urban area pressure on WHS	Size of developed urban area compared to the total area of WHS (% of WHS)	>20	15–20	<b>10–15</b>	<10	SKP GIS Reports
Condition	Aesthetic values of WHS	Total number of visitors to the WHS	> 350000	<b>250000–350000</b>	200000–250000	< 200000	Based on SKP visitor management reports
Threat	Littering	Number of loads of garbage per month	> 350	<b>250–350</b>	150–250	< 150	SKP Financial Unit
Action	Littering	Number of garbage Cleaners per year	< 15	<b>15–25</b>	25–30	> 30	SKP Financial Unit
Action	Human	Number of toilets in the	<b>&lt;20</b>	20–25	25–30	> 30	SKP Visitor

	Wastes	whole area					Mgt Reports
Action	Visitor Centre	Number of visitors per month					To be developed

### 2.1.4 Management plan objectives and actions

The management plan contains thorough direction for the protection and management of the WHS.

The overall status of the site today compared to five years ago is “stable.” This rating was given for the following reasons:

- Number of visitors to the area has not increased dramatically during the last five years and has kept to approximately 300,000 visitors a year.
- Number of cleaners and cleaning system of the main visited area has been kept the same over the last five years.
- Management activities in the area are the same as five years ago.
- Quarries have been totally banned in the area since the declaration of the area as a World Heritage Site.
- SKP Visitor Management Plan has not been implemented yet, and the protectorate’s visitor center has not reached a quarter of its potential capacity; these points, if addressed, should assist in minimizing the negative impacts of tourism on the area.

There are, however, positive indicators that are on the horizon with the contribution of the EU SSRDP Program. Two major projects are planned for the area, one is the implementation of the protectorate’s visitor management plan and the other is transforming about 70 Bedouin gardens into small-scale eco-tourism accommodation. Such projects, if well implemented, have the potential to minimize tourism’s cultural and ecological impact on the area’s unique culture and ecological characteristics. In addition, the Jebilya have received a grant for ecotourism development and building a cultural village.

### 2.1.5 Recommended Actions

Based upon the foregoing evaluation of threats, achievements of management objectives and status, the following actions are recommended. These should be integrated into the management plan and annual work plans.

- The SKP visitor management plan should be implemented during the next annual work plan, which includes closing the existing access road to the monastery, opening new parking and a transportation system to the monastery, and operating the Visitor Centre.
- Number of cleaners in the high mountain area should be increased, as well as the financial resources of the protectorate allocated to such issue.
- Building of new Bedouin camps within the St Katherine town area should be totally banned to minimize chances for cultural change; new camps should be allowed in the Morgen Land area.
- More cooperation with the St Katherine town council should be exercised to guarantee their support for the protectorate’s conservation effort and to demonstrate the PA’s support for the town.
- The two SK landfill sites, as well as the transfer station, should be handed over officially to the St Katherine town council during the coming financial year, and if necessary

include the protectorate's two loaders in the deal (as the town council refuses to receive the two sites without the two loaders, the two lorries and the tractor).

- A site hardening plan should be adopted for the protection of the fragile archeological sites in the protectorate's World Heritage area; these sites are now unattended and could be severely damaged if not carefully managed.
- Public awareness programs should continue to target the area's stakeholders to raise awareness of the importance of preserving this unique World Heritage Site.
- Certification programs for local guides to become eco-guides and non-local guides become certified to operate in the area should continue. They represent a shortcut to the large number of visitors and can educate them on how they should behave to minimize their impact, and about the area's natural and cultural features. Trained guides can also help to assure quality and value for their services, thereby ensuring continued economic benefits.

## 2.2 Monastery and monastic traditions

### 2.2.1 Description

The Monastery of St Katherine is the oldest continuously occupied monastery in the history of Christianity. It was founded in A.D. 330; the monastery was built and fortified by the emperor Justinian to protect the monks from the attacks of the tribes that roamed the area at that time. It has long standing traditions and festivities and a close relationship with the Jebaliah tribe who were brought to the area by the Romans to protect the monks. The monastery, with its library, olive groves, associated archeological, religious, and cultural sites was one of the main reasons why the northern part of SKP was declared as a World Heritage Site by the UNESCO in 2002.



#### (a) Size and Age

Current size of the area: 1000m<sup>2</sup>. Age/period of history represented: from A.D. 330 to the present.

#### (b) Condition

##### Composition/Significance:

The main church (the Church of the Transfiguration), the Mosque (inside the monastery), the library, the museum, the Burning Bush, charnel house, olive groves. The monastery is also the home of the second most important library in the world and an internationally important museum of icons and other religious artifacts. The religious sites and tourism sites have a socio-economic value for the local community of the Jebaliah tribe.

##### Integrity and authenticity (quality of original characteristics/state of degradation, etc.):

The monastery is an authentic piece of living antiquity to this day; it stands as a wonder of the world despite the aridity and the rugged inhospitable surrounding landscape and environment. The place cannot be matched in the integrity of the buildings, the internationally important library, and culture. Despite all that, the monastery has begun to suffer new problems because of the introduction of tourists; these problems are likely to continue for a very long time including:

- Noise.

- Pollution.

### (c) Landscape Context

Dominant regimes and processes (wind/water erosion, hydrology, geomorphology, climate, fire, other natural disturbances, etc.):

- The monks have constructed five water wells to irrigate their own gardens.
- Cold weather: temperature (-5° to 32°).

Connectivity (linkages to other cultural/historic sites, etc.):

The monastery is a part of the Greek Orthodox Church; it also has links to the adjacent, but comparatively new, convent of Wadi Feiran, Deir el-Banat.

It is very closely linked to Mount Moses, Gebel el-Monagah, el-Raha and Wadi Arbaïen, el-Nabi Haroun, and the Golden Calf, in addition to the town of St Katherine.

Associated ecological, geological resources, ecotourism resources or communities:

- Bedouin population of the Jebaliah tribe.
- Receives around 1000 visitor a day.
- Bronze Age village exists close to the site.
- A surrounding ring dike 641km<sup>2</sup> area that makes up the boundary of the Saint Katherine World Heritage Site including the Monastery of St Katherine.
- The high mountain area of SKP with its ecological characteristics and its relatively high endemism and biodiversity.
- The museum at the monastery is high quality and professionally curated.

### (d) Threats:

#	Threat	Extent (L, M, H, VH)	Severity (L, M, H, VH)	Threat Magnitude
1.	Tourism (motor vehicles, pollution, noise, garbage)	VH	H	H
2.	Domestic animals	L	L	L
3.	Natural disasters ( floods)	L	L	L

### 2.2.2. Threat analysis

Threats	Causes	Action
Tourism.	<ul style="list-style-type: none"> <li>- Car pollution.</li> <li>- Noise.</li> <li>- Garbage.</li> </ul>	<p>Car pollution:</p> <ul style="list-style-type: none"> <li>- Moving the car park to the visitor center park;</li> <li>- Transferring tourists via electric cars or camels.</li> </ul> <p>Noise pollution:</p> <ul style="list-style-type: none"> <li>- Public awareness;</li> <li>- Implementation of the SKP visitor management plan (moving the current car park outside Wadi el-Deir).</li> </ul> <p>Garbage:</p> <ul style="list-style-type: none"> <li>- Public awareness through guides;</li> <li>- Increase distribution of garbage bins around the site.</li> </ul>

Threats	Causes	Action
Domestic animals	- Human/animal diseases	- Veterinary health care. - Fencing the camel park.
Natural disasters	- Floods	Supporting the existing dam on el-Aramzyah.

Refer to section 2.1.2 for threat map related to tourism.

### 2.2.3 Indicators

Category	Key Attribute	Indicator	Indicator Ratings (current rating in bold)				Information Source
			Poor	Fair	Good	Very Good	
Condition + Threat	Tourism impact (noise pollution)	Number of vehicles coming to the area per day	<b>40–50</b>	30–40	20–30	<20	Visitor management program
Threat	Camels working with tourists	Number of domestic animals per day	500	250–500	<b>200–250</b>	<200	Veterinary program

### 2.2.4 Management plan objectives and actions

The objective for the world heritage site, as stated in the management plan, is to conserve the area's universal and outstanding cultural, historical and natural values for future generations. The management plan provides thorough direction related to the monastery in the context of the world heritage site. Part V provides zoning, objective, strategies and guidelines for development and operation. The plan states: *“As World Heritage listing usually attracts more visitors to a site, the goal for the WHS special management area will be to manage tourism and associated development without compromising the World Heritage values of the site as defined when the site was nominated. In this regard the World Heritage Committee in its formal inscription of the Saint Katherine Area invited the State Party to: Prepare a visitor-management plan for the monastery and to implement the 1998 sustainable development plan for the town of Saint Katherine.”*

The overall status of the site today compared to five years ago is “stable.” Despite many sincere efforts that have been exerted by the SKP, such as public awareness, training of local guides, visitor center establishment, law enforcement, camel park transfer and others, together with the UNESCO's declaration of the area as a World Heritage Site, it appears that the status of the site has not changed compared to five years ago for the following reasons:

- Visitor numbers have not risen dramatically during the last five years and have kept at a steady rate of approximately 300,000 visitors a year.
- The protectorate has not yet managed to implement its visitor management plan because of the opposition of the South Sinai Governorate. A part of this plan is the important re-location of the parking area to the Visitor Centre and a new transportation system.



However, the plan might come into action very soon and is likely to reduce tourism's impacts on the monastery significantly.

### **2.2.5 Recommended actions**

Based upon the foregoing evaluation of threats, achievement of management objectives and status, the following actions are recommended. These should be integrated into the management plan and annual work plans.

- Implementation of the SKP visitor management plan should take place in the coming financial year. A St Katherine monastery-associated NGO has received €1.5 million in funding for the improvement of the whole area of St Katherine's monastery. The implementation of the SKP visitor management plan is a major part of this project.
- All cafeterias and vendors should be removed from the top of Mount Sinai as it is a holy site linked to the monastery; on it there is a church and a mosque. The summit should not look like a circus, as it does now. Mt Sinai is a holy site containing a mosque and a church; it should be treated as such.
- The number of cleaners and money allocated for cleanliness of the area around the monastery and Mount Sinai should be increased.
- Reprint the currently out of print brochures of the SKP and make them available in the monastery and the SKP visitor center.

## **2.3 Historical and Archeological Sites**

### **2.3.1 Description**

The historical and archaeological sites are the sites where ancient people and civilizations lived and settled. There are nearly 300 historical and archaeological sites within St Katherine Protectorate, some date back to prehistoric times, for example, the *Nawamis*. There is the Biblical route of the Prophet Moses and the remains of Nabataean villages, and there is Mount Sinai. Some are from the Greek and the Byzantine period such as the Monastery of St Katherine and its associated sites, some are from the Islamic era, and some modern sites that are a little over a century old including the Palace of Abbas Pasha (never completed) overlooking St Katherine on a high mountain summit in the area that still carries the name.

#### **(a) Size and Age**

Current size of the area: 4350km<sup>2</sup>.

Age/period of history represented:

- Prehistoric (c. 10,000 B.C).
- Neolithic (c. 3000 years B.C.).
- Copper Age (c. 2000 years B.C.).
- Bronze Age (c. 1000 years B.C.).
- Nabataean period (c. 2000 years).
- Byzantine period (c. 2000 years).
- Christian period (A.D. 1 to present).
- Islamic period (641 to present).

History

- Roman civilization (700 years)
- Islamic civilization (700 years)

### **(b) Condition**

Composition/Significance (the cultural features at the site, its special or unique qualities for the country or region, its popularity among the public/level of use, etc.):

These sites provide general information on how the ancient people lived in the area, their tools, their culture, traditions and customs.

They show that Sinai was a bridge between the three continents of Africa, Asia and Europe; all the old civilizations are represented in Sinai, and it is considered to be one of the places where the first people settled.

Some sites are famous among both scholars and tour operators, particularly Mount Sinai and the Monastery of St Katherine, they have both received approximately 300,000 visitors a year for the last five years. The rest of the sites are not known and are hardly visited by the huge tourism industry

Integrity and authenticity (quality of original characteristics/state of degradation, etc.):

Most of these sites are in the WHS and some are in the Southern Range of the park in Wadi Leithy and Wadi el-Kid.

The sites in the Northern Range are in much better condition and are better protected, thanks to the presence of the Monastery of St Katherine and the Jebaliah tribe in the area, which has helped to keep it in a good state of preservation. Unfortunately, many of the sites in the Southern Range are not so well preserved.

### **(c) Landscape Context**

Dominant regimes and processes:

- The majority of the archaeological sites are in the highlands, to protect them from hazards such as floods.
- Most of these sites are near water sources.

Connectivity (linkages to other cultural/historic sites, etc.):

The civilizations followed one after the other due to the nature of the place and the fact that Sinai is a bridge between three continents. Most of the sites in the World Heritage area are linked to the culture of the Jebaliah tribe. The people of this tribe were brought to the area by the emperor, Justinian (in the sixth century) to protect the monastery.

Associated ecological, geological resources, ecotourism resources or communities:

All these civilizations lived with climate changes in the area and the presence of water.

Most of them had a strong relationship with the hydrological network with certain rock types (ores) like copper.

The historical and archaeological sites are the principal attractions for eco-tourism in the area.

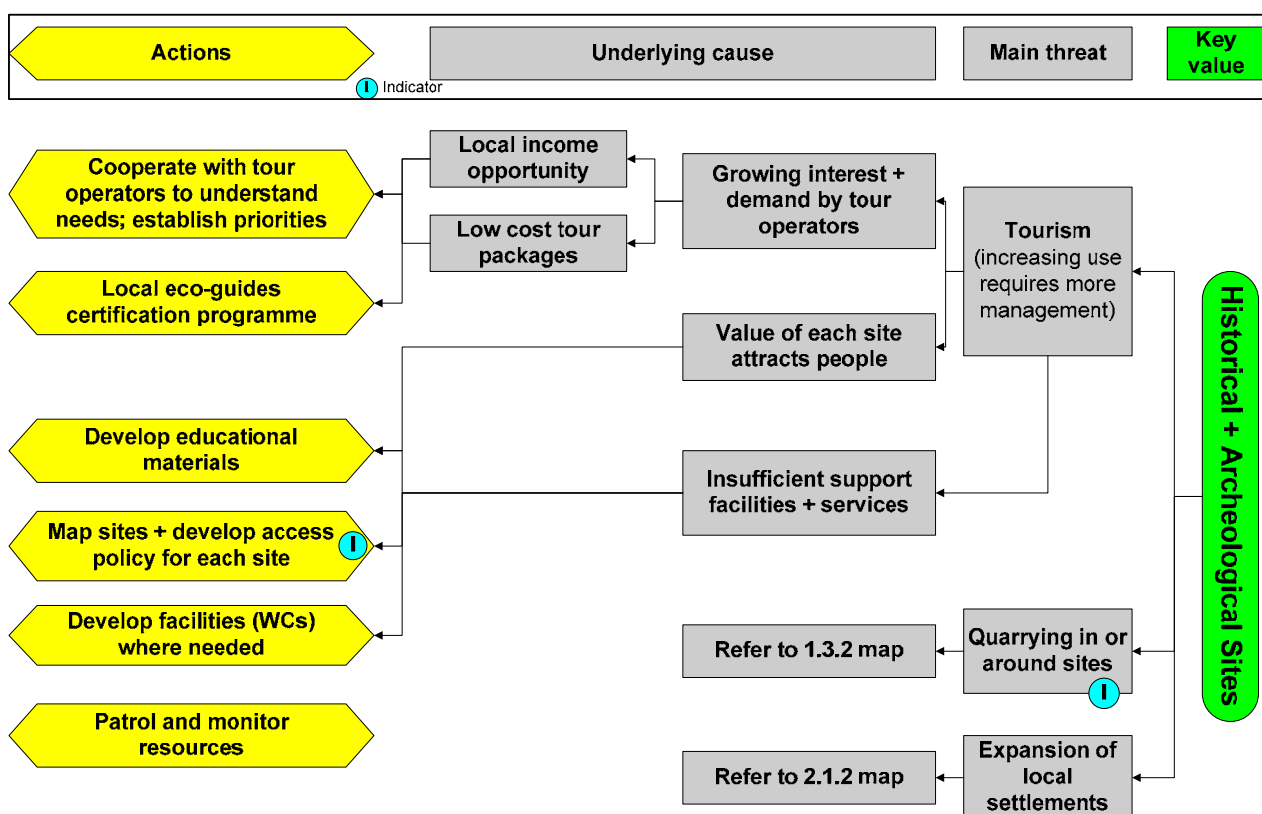
### **(d) Threats**

#	Threat	Extent (L, M, H, VH)	Severity (L, M, H, VH)	Threat Magnitude
1.	Tourism	L	VH	L
2.	Quarrying	L	VH	L

#	Threat	Extent (L, M, H, VH)	Severity (L, M, H, VH)	Threat Magnitude
3.	Expansion of local settlements	M	VH	M

### 2.3.2 Threat Analysis

Threat	Cause	Action
Quarrying (legal and illegal).	<ul style="list-style-type: none"> <li>- Rapid development activities in South Sinai increased demand on building materials such as sand, gravel and stone.</li> <li>- Presence of ornamental stone such as different types of granite.</li> <li>- Presence of ore materials in the area (e.g., feldspar).</li> </ul>	<ul style="list-style-type: none"> <li>- Coordinating with the Quarries Dept. in South Sinai Governorate (Done).</li> <li>- Zoning plan.</li> <li>- Law enforcement.</li> <li>- Monitoring Programs.</li> </ul>
Tourism.	<ul style="list-style-type: none"> <li>- Learning about ancient civilizations and seeing how people lived at that time.</li> <li>- Increased demand on the area by foreign and local tour operators (lack of facilities such as WCs or services such as education).</li> </ul>	<ul style="list-style-type: none"> <li>- Adopt site hardening strategy and where appropriate fence the most fragile sites, and the sites that are more likely to be targeted by tourists.</li> <li>- Increase public awareness among tourists and tour operators.</li> <li>- Law enforcement.</li> <li>- Patrolling and monitoring.</li> <li>- Local guards to be hired for major sites, particularly those sites that are more likely to be visited by tourists and that are in a fragile condition.</li> <li>- Certify non-local tour guides who will be admitted to the area.</li> </ul>
Expansion of local settlements.	<ul style="list-style-type: none"> <li>- Increasing numbers of people in local communities.</li> <li>- Migration of Bedouins from outside the protectorate to areas inside to be closer to the new development zones particularly near Sharm el-Sheikh and Dahab.</li> <li>- Migration of people from the Nile Valley to Sinai.</li> </ul>	<ul style="list-style-type: none"> <li>- The SKP should have a clearer policy about expansion of settlements.</li> <li>- Any land acquisition by any non-local groups including Bedouins from outside the protectorate should be forbidden.</li> <li>- Increase public awareness among locals.</li> <li>- Train local guides on how important these sites are for sustaining livelihoods dependant on tourism.</li> <li>- Law enforcement.</li> <li>- Monitoring.</li> <li>- Complete GIS mapping of the current size of settlements and regulate expansions.</li> </ul>



### 2.3.3 Indicators

Category	Key Attribute	Indicator	Indicator Ratings (current rating in bold)				Information Source
			Poor	Fair	Good	Very Good	
Threat	Number	Illegal quarrying in the 50 archaeological sites in southern range	3-10	<b>2-3</b>	1	0	Results of patrolling and monitoring Note 1
Threat	Number	Number of protected archeological sites according to the SKP surveys	<b>&lt;20</b>	20-100	100-200	>200	Monitoring and patrolling reports of SKP Geology program Note 2
Action	Protection	Percentage of known sites mapped with access policy established (%)	<b>&lt;50</b>	50-69	70-90	91-100	

#### Notes:

- Intensive patrolling schedule should be implemented, visiting of these sites should be a major part of the patrols, and reports on their safety should be regularly made.
- Run an annual survey and periodic patrols, particularly in endangered sites such as Wadis Leithy and Mandar, fencing sites which maybe damaged by people, tourists or locals, and where necessary closing them to public access.

### 2.3.4 Management plan objectives and actions

The first objective of the management plan provides for the conservation of the area's traditional cultural and religious values. In addition, part VI of the management plan provides guiding principles, a policy and strategies for managing archaeological protection zones.

The overall status of the historical and archeological sites in the Northern Range is “improving,” and the overall status of the historical and archeological sites in the Southern Range is “stable.” This is due to the following:

- Introduction of visitor entrance fee in the Northern Range helped to create more cautious tourism industry activities. The Southern Range does not have entrance fees.
- Feeling of ownership of the sites of the Northern Range by the local Bedouins of the Jebaliah.
- Access to the sites of the Southern Range is easier than to those of the Northern Range with its very rugged terrain.
- Concentration of sites in the Northern Range in a relatively densely inhabited area compared to the Southern Range.
- The Southern Range is facing a sudden wave of in-migration by Bedouins from Ras Sudr and Suez who claim acquisition of land to live closer to the major tourism activities of Sharm el-Sheikh and Dahab, and in some cases to be able to utilize the existence of the Sharm el-Sheikh dumping area and use some of its huge quantities of organic material as fodder for their large and unsustainable flocks.
- Lack of staff (currently two staff only) and financial resources allocated to the Southern Range. For four years, the Southern Range has not received more than LE 4000 a year; this kind of money is hardly enough to make primary vehicle repairs.
- Insufficient scope of public awareness programs in the Southern Range.
- Absence of a clear strategy to deal with settlement expansion and land acquisition by locals and non-locals.
- Lack of GIS data on the real size of current settlements makes it difficult to monitor their expansion.

### **2.3.5 Recommended actions**

Based upon the foregoing evaluation of threats, achievement of management plan objectives and status, the following actions are recommended. These should be integrated into the management plan and annual work plans.

- Set a clear strategy for expansion of settlements and land acquisition inside the SKP where genuinely local settlements can be increased to a certain limit, and non-local acquisition of land should be totally banned, combated and prosecuted. Declare all other areas to be “no settlement” zones and demolish any structure built inside them, before buildings spread within the protectorate due to the absence of a police force in the protectorate (particularly in the Southern Range). The settlement expansion issue threatens most of the values that the SKP stands for, including its uniquely valuable historical and archeological sites.
- A site hardening strategy should be adopted; where appropriate, fences may be erected or local guards for the most fragile sites and the sites that are more likely to be targeted by tourism.
- Increase public awareness programs particularly in the Southern Range of the SKP.
- Start collection of entrance fees in the Southern Range of the SKP, which will help to make tourism activities more cautious.
- Staff and financial resources for the Southern Range of the SKP should be increased.

- Rangers' police powers should be increased to provide effective and firm management of such high value resources.
- Regulate the current size of settlements using GIS and compare data to the fixed position of the archeological sites.
- Implement GIS mapping of archaeological site boundaries and features, and determine a policy for access for each (open or closed for visitors).
- Training and certification for local and non-local guides to become eco-guides should be an ongoing program of the SKP, as it does provide a shortcut to the increased number of visitors and locals.
- Intensify and regulate patrolling and monitoring programs to the historical and archeological sites in the area.
- Quarry zones within the SKP should remain the same; no new areas should be opened to this destructive activity. Any impact on archeological sites should lead to the quarrying being stopped immediately.

### **3.0 Recreational/Tourism Values**

#### **3.1 Mount Sinai and the Monastery of Saint Katherine**

##### **3.1.1 Description**

Mount Sinai is one of the most important religious and natural sites in Egypt with an altitude of 2282m. It is the place where it is believed that the Prophet Moses received the Ten Commandments of the Old Testament from God. Pilgrims and tourists can enjoy a majestic view of the sunrise and sunset from the summit of Mount Sinai. On the summit there is a church, a mosque, Moses' cave and the footprint of the sacred camel.

##### **(a) Size and Number**

The current size of the area is 5km<sup>2</sup>. Mount Sinai is the single, most-visited, natural site in SKP by over 150,000 people a year. It is the second most visited site in the SKP after the Monastery of St Katherine. The two sites together are far more famous than the SKP.

##### **(b) Condition:**

###### Naturalness (retention of the natural qualities)

- At the summit there is a church, a mosque, Moses' cave and the footprint of the sacred camel.
- The spectacular view from the summit is of a natural mountain ecosystem.
- Temperatures on the mountain's summit vary from -22°C to 25°C.
- At Eliza's Basin, below the summit, there is a natural water reservoir. Water quality is very good as it is away from any source of pollution.
- The mountain summit is covered by snow for most of the winter.

###### Clean and Safe (garbage, glass, excrement, pollution, hazards)

- Currently under stress because of the large number of tourists that visit it every year.
- There is a chronic problem of garbage including human bodily wastes and graffiti.
- Tourists take shortcuts that deform the landscape.
- The spiraling number of camels that Bedouins own for renting to tourists, who want to get to the top, is creating a problem of sanitation and an increased rate of accidents.

- The current pattern of hiking up the Mountain at night to see the sun rise (practiced by over 90% of the mountain's visitors) also results in an increased rate of accidents because of lack of visibility and because of severe cold for more than eight months a year (it is one of the coldest areas in Egypt).

**(c) Landscape Context:**

Impacts on conservation priorities: (key ecosystems, species)

- Wider scale impacts in the high mountain ecosystem are restricted as tourism is mostly focused on this single location of Mount Sinai.
- Cafeterias at the summit negatively impact the aesthetic value of the landscape.
- Tourism negatively affects the natural fauna and flora of the area.
- The large number of visitors, mostly concentrated at sunrise and sunset negatively affects the quality of the visit, taking away from any sense of this being a sacred holy site.

Impacts on adjacent land uses (positive and negative impacts)

- The Monastery of St Katherine lies at the foot of the mountain and the two form a cultural unity that also form the main tourism attraction for the Town of St Katherine. The monastery also includes the site of the Burning Bush, which is associated with the Biblical stories of Mount Sinai. The mountain is also linked historically to most of its surroundings, such as the Plain of el-Raha 500 meters away, where it was believed that the Israelites waited for the Prophet Moses when he went up the mountain to receive the Ten Commandments. The mountain is also linked culturally with the descendants of the Jebaliah tribe and their customs and traditions.
- Provides income to Bedouins of the Jebaliah tribe, (guides and cameleers, cafeterias).
- Religious value for three different religions.
- Significant archeological site.
- An important source of income for the country.

**(d) Threats:**

#	Threat	Extent (L, M, H, VH)	Severity (L, M, H, VH)	Threat Magnitude
1.	Tourism (garbage, bodily wastes, trail damage, disturbing fauna and flora)	VH	H	H
2.	Cafeterias (aesthetic impact, garbage)	L	L	L
3.	Accidents (caused by increased number of camels and by current visitation pattern)	L	H	L

### 3.1.2 Threat Analysis

Threat	Causes	Action
Tourism (garbage, trail damage, disturbing fauna and flora).	<ul style="list-style-type: none"> <li>- Increased demand on the area by local and international tour operators.</li> <li>- Lack of public awareness of particular types of visitors.</li> <li>- Increased number of visitors.</li> <li>- Poor cleaning of composting toilets leads to outside use.</li> </ul>	<p>Garbage:</p> <ul style="list-style-type: none"> <li>- Garbage bins;</li> <li>- Compost toilets need to be emptied more frequently; improved cleaning;</li> <li>- more public awareness particularly to Egyptians and guides;</li> <li>- Regular campaigns to clean up the mountain.</li> </ul> <p>Trail damage:</p> <ul style="list-style-type: none"> <li>- Regular maintenance for the trail;</li> <li>- Preventing visitors from using shortcuts; setting rules for guides.</li> </ul> <p>Disturbing fauna and flora:</p> <ul style="list-style-type: none"> <li>- Raise public awareness through distribution of the protectorate brochures at the cafeterias, putting signs on the trail.</li> </ul>
Cafeterias	<ul style="list-style-type: none"> <li>- Affect the authentic landscape</li> <li>- Garbage.</li> </ul>	<ul style="list-style-type: none"> <li>- Adopt local materials to build cafeterias to match the landscape.</li> <li>- Prevent the building of more cafeterias on the mountain.</li> </ul>
Accidents (fractures)	<ul style="list-style-type: none"> <li>- Snow</li> <li>- Climbing at night</li> </ul>	<ul style="list-style-type: none"> <li>- Revitalizing the rescue service on the mountain.</li> <li>- Encouraging climbing in the daytime.</li> </ul>

A threat map was not prepared for this value.

### 3.1.3 Indicators

Category	Key Attribute	Indicator	Indicator Ratings (current rating in bold)				Information Source
			Poor	Fair	Good	Very Good	
Condition	Mountain visitors	Number of visitors per year	>300000	<b>250000–300000</b>	150000–250000	<150000	SKP visitors' management report
Condition	Economic value	Source for the national annual income (millions LE)	<3	3–5	<b>5–6</b>	>6	SKP financial unit
Threat	Tourism impacts	Number of garbage sacks per day	>10	<b>8–10</b>	6–8	<6	SKP financial unit
Threat	Rescue status	Number of accidents per year	>15	<b>10–15</b>	5–9	<5	SKP health program
Action	Garbage collectors	Number of garbage collectors in the mountain per year	<9	<b>9–11</b>	11–15	15–22	SKP financial unit
Action	Garbage bins	Number of garbage bins in the mountains per year	<30	30–35	<b>35–40</b>	>40	SKP financial unit
Action	Expenses	The amount of money spent for maintaining the mountain trail per month	<b>800–1000</b>	1000–1500	1500–2000	>2000	SKP financial unit

### 3.1.4 Management plan objectives and actions

The objective for the world heritage site, as stated in the management plan, is to conserve the area's universal and outstanding cultural, historical and natural values for future generations.



The management plan provides thorough direction related to the monastery and Mount Sinai in the context of the world heritage site. Part V provides zoning, objective, strategies and guidelines for development and operation. Part VI provides management principles, policies and strategies for tourism development and mountain rescue.

The overall status of the site today compared to five years ago is “worse”. This rating was given for the following reason:

- Although the number of visitors did not increase dramatically during the last five years (was kept at an average of 300,000 visitors a year), some important problems have persisted, which accumulate over the years.
- Number of cleaners and trail maintenance operators in the area has not been changed in the last five years, despite identified needs. There is a chronic problem with them.
- Systematic garbage cleaning and public awareness programs as well as certification programs for eco-guides have continued since the EU project ended, though these are at levels below what is warranted for such an important resource.
- The Mountain Rescue as the service has completely stopped because of the inability of the government system to sustain this kind of operation (e.g., paying for mobile phone cards to operate the communication system). Therefore, the rescue station cannot call the park’s doctor; the service was also forced to stop because of the lack of trained staff and doctors to carry out this service.
- Failure of SKP to implement its visitor management plan up to now; the plan would have shared significantly in minimizing the current levels of tourist impact on the mountain. The visitor centre has not reached its full potential.
- Increased number of vendors and cafeterias on the mountain top, where they were previously not allowed.
- Two low quality WCs on the mountain top are expected to serve 150,000 visitors per year that congregate here especially at sunrise and sunset. Because of the low quality of facilities and low level of maintenance, people use the area outside and around the WCs; this is a serious environmental and moral responsibility of the protectorate, given that this is a holy site with high religious importance.

However, new hope for the area to improve the current status of Mount Sinai comes with the SSRDP, which will dedicate €1.5 million to improve the area of Mount Sinai and the monastery. The project is to include the long-anticipated implementation of the SKP visitor management plan.

### **3.1.5 Recommended actions**

Based upon the foregoing evaluation of threats, achievement of management plan objectives and status, the following actions are recommended. These should be integrated into the management plan and annual work plans.

- A solution to the WC problem on the mountain is urgently needed to solve the environmental pollution problem and moral responsibility. This should include improvements to the existing two WCs and possible expansion of the system, and importantly, a strict cleaning regime (e.g., continuously during the busy periods). An

incentive system should be considered to encourage clean facilities (e.g., voluntary use fee if facilities are clean).

- The visitor management plan should be implemented throughout the coming year.
- The Mountain Rescue Service of the SKP should be resumed by hiring and training new staff, particularly a second doctor, during the coming year.
- Number of cleaners in the area should be increased as well as the financial resources allocated for keeping the mountain clean.
- Training and certification programs for local and non-local guides should continue and should be a main part of the management plan, as they provide an excellent short cut to the increasing number of visitors.
- Cafeterias on the summit should all be moved down the mountain, and vendors should be banned from selling souvenirs at the summit.
- There should be a limit on the number of camels allowed to operate in the area of Mount Sinai, Camels should be ear-tagged, and regular checks on their numbers and health should be made by SKP veterinarians.
- Changing the pattern of visiting (to avoid night climbing) should be discussed with tour operators and enforced on all visitors to the protectorate.
- SKP should consider establishing a modest ranger and community guard outpost on the mountain with staff stationed here on a permanent basis. This is a high value natural, cultural and recreational resource with high levels of threats. Focused management attention is warranted. Educational programmes can be delivered as part of their responsibilities.

## **3.2 Wadi Mandar**

### **3.2.1 Description**

Located in the Southern Range of the SKP, in the area between Dahab to the north and Sharm el-Sheikh to the south, 30 km from the resort town of Sharm el-Sheikh. The area is a tourist attractions, it is the third most visited area around Sharm el-Sheikh after the Ras Muhammad National Park and el-Khoroum Area, the area receives more visitors annually than Nabq and Abu Galum PAs. The area has over 40 Bedouin cafeterias, which represent a major source of income for Bedouins from the Mezaina tribe who live inside and adjacent to the protectorate's Southern Range. This area is used for many tourist activities such as safaris, camel rides, Bedouin dinners and stargazing with telescopes.

#### **(a) Size/number**

- Current size of the area: about 30km<sup>2</sup>.
- Current number of visitors: Estimated to be at least 100,000 per year during the last five years.

#### **(b) Condition**

Naturalness (retention of the area's natural qualities):

- Natural quality for such an area is on an acceptable scale.
- This area has about 40 Bedouin cafeterias.
- Research shows that the area's key species of Acacia has been under heavy stress from the changed life pattern of local Bedouins who settled in the area two decades ago to be

near tourist developments. This is why the SKP launched its ambitious Acacia Rehabilitation Program some seven years ago, aiming to create new generations of Acacia trees in the area to correct the ecological damage.

Clean and safe (garbage, glass, excrement, pollution, traffic hazards, etc.):

- This area is moderately clean due to settlements' domestic animal feeding.
- The massive scale of tourism threatens the area with loss of its natural characteristics, although it is still within acceptable limits, given the area's size, and the limited time of visits, which does not exceed two hours before sunset.
- Ecological, economic and cultural impact of wind-blown debris from Sharm el-Sheikh dumpsite on the flora and fauna of the area.
- The area surrounding the landfill is large, approximately 40km<sup>2</sup> and it contains a rich assemblage of plant species. Over 60 species of plants were recorded in this area and are eaten by the local fauna and used by the the Bedouin community.

Poor management of the dumpsite is having the following effects on flora and the Bedouin community:

- This may lead to the loss of important herb species and accelerate the desertification process.
- Desertification has significant socio-economic impacts on the Bedouins who inhabit the area. Bedouins who depend mainly on their livestock to produce milk and meat, which are both important to their daily diet, do not realize that desertification means fewer areas available for grazing. This could result in a negative change in dietary habits for the Bedouins.
- Truck movements cause soil compaction which often leads to unsuccessful germination of seeds because of the compacted soil. It also deprives seeds deep inside the soil of natural light necessary for successful germination.
- Dust dispersion reduces the plants' ability to effectively photosynthesize and thus they produce fewer viable seedlings.
- The wind-blown litter gets stuck on plants and affects the pollination process.
- Low density of wild herbs would limit the ability of the Bedouins to keep track of their medicinal uses, which may lead to the disappearance of local traditional knowledge with a resulting decline in the medicinal plant trade.
- Unstable soil caused by the absence of plants and trees would result in more severe flash flooding and cause soil erosion which can lead to the natural seed bank being washed out.
- This will affect the local Bedouin community's future income from tourism.

Poor management of the dumpsite may have the following effects on fauna:

- Kills, or weakens plant communities that wild creatures depend on for food or shelter.
- The waste looks similar to natural food which can cause blockages in the respiratory and digestive systems with often fatal consequences.
- The location of the dumpsite area and associated access road in Wadi el-Khanaseir has had a significant impact on the fragile population of Dorcas Gazelle. The SKP wildlife team has proved, through camera trapping, that the two populations of Dorcas Gazelles in the South Nabaq area and the el-Qaa Plain migrate between the two areas for food.
- The presence of the dumpsite is making it difficult for these two almost isolated populations to cross through Wadi Leithy, the only natural corridor for them; they are

estimated at fewer than 50 individuals each. The effect of the populations being nearly isolated is that inbreeding will occur and they will be a weaker population.

Poor management of the dumpsite may have the following effects on coral reefs:

- Plastic waste in the sea significantly affects coral reefs ecosystems as it can result in coral loss due to the shade which inhibits photosynthesis of micro-algae living in symbiosis with the polyps which form the coral colonies. The loss of coral affects fish that use the reefs for shelter from larger fish and as a nursery grounds.
- Plastic bags in the sea are similar in appearance to jellyfish which are a natural food source for Leatherback turtles and dolphins. The plastic, when ingested, blocks the digestive tract.
- The overall effect would be a loss in revenue from tourism.

### **(c) Landscape Context**

Impacts on conservation priorities (on key ecosystems, species, etc.):

- The soil is formed mainly by mountain weathering and sedimentation, thus it is mainly granitic in origin.
- Annual rainfall is less than 50mm.
- Sixty-two species of flora recorded in the area.
- Key species of Acacia represented in the area.
- The SKP had launched an ambitious Acacia Conservation and Rehabilitation, which aims at conserving and rehabilitating Acacia trees in their native habitat to create a process of ecosystem restoration, as well as supporting the Bedouin inhabitants of the SKP. It also touched the importance of the project for the conservation of the Bedouin lifestyle in the area and created employment for the Bedouins in their own territory.

Impacts on adjacent land use (positive and negative impacts, etc.):

- Quarries are located upstream in the wadi and tourist activities take place downstream. The impact of these quarries is quite considerable and will take quite some time to be felt, stone quarrying in the area is expected to result in the worst impacts as it results in more severe flooding that takes away much of the sediment as well as seeds and small seedlings of herbs and trees. The stones, which are known to retain some of the soil moisture needed to grow herbs, will no longer be there to do that job. This will result in more and more aridity in the region, which will be less vegetated; roots that stabilize soil will no longer be there, which will result in greater loss of sediments.
- Stone quarries, although upstream, of Wadi Umm Adawy, impact the downstream part of the valley which is a natural seed bank. Truck movements, known to be very frequent in the case of stone quarrying, also impact tourism in two ways: first they cause more and more soil compaction, which makes it difficult for herbs to penetrate the soil. Second, they cause small dust storms that negatively affect photosynthesis in plants, as well as having an undesirable aesthetic effect. Granite block quarrying, despite being more destructive, is less likely to have similar impacts as it is often concentrated in areas where raw materials are economically easy to extract, and results in much slower and less frequent truck movements.
- Sharm el-Sheikh dumpsite effects:
  - o Reduces plants', particularly herbs', ability to photosynthesize and often leads to the loss of plants' ability to create viable seeds;

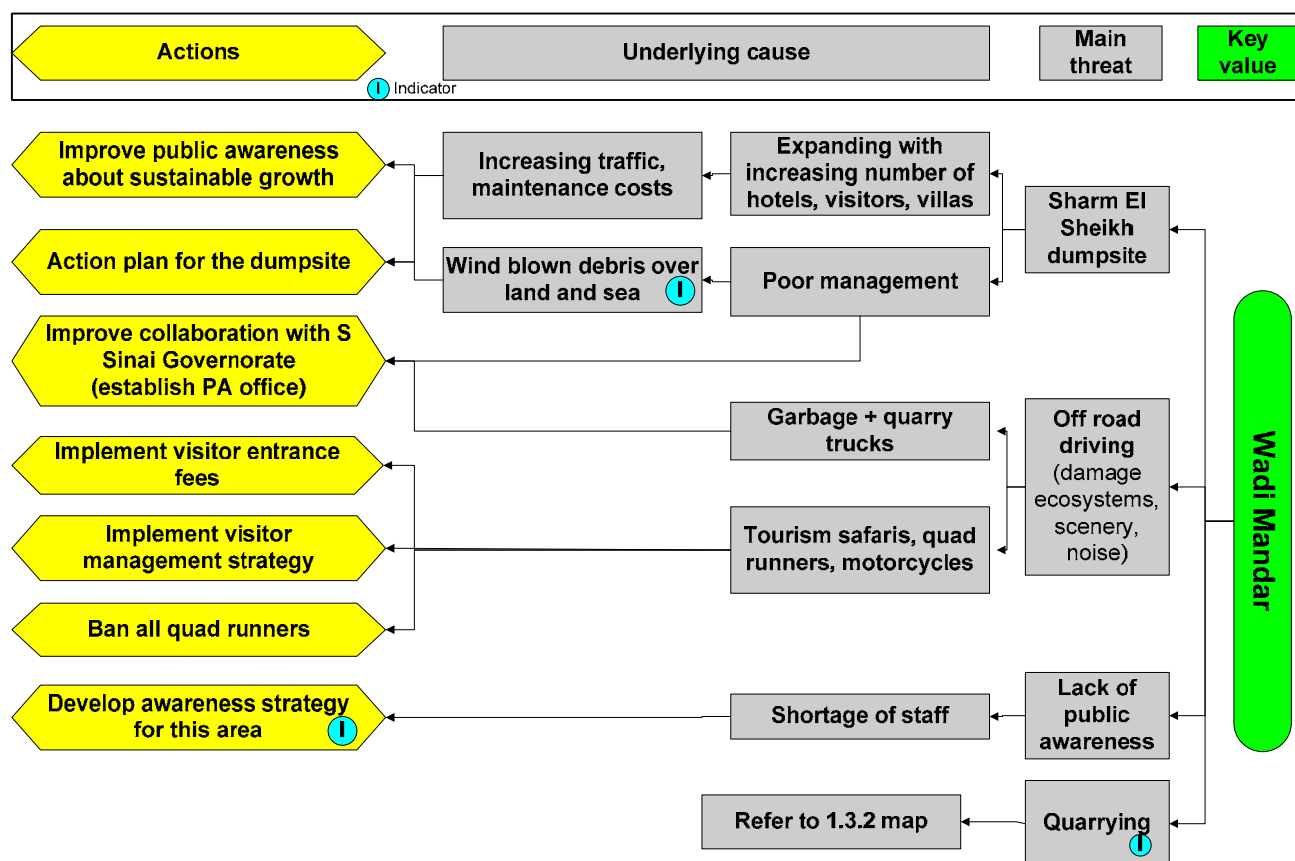
- o Low density of wild herbs would limit the ability of the Bedouins to keep track of their medicinal uses which may lead to the disappearance of local traditional knowledge with a resulting decline in trade of these plants;
- o Will affect the local Bedouin community's future income from tourism;
- o Kills, or weakens plant communities which wild creatures depend on for food or shelter;
- o Fine dust, due to truck movement, leads to visual impact on the area and adjacent areas.

**(d) Threats:**

#	Threat	Extent (L, M, H, VH)	Severity (L, M, H, VH)	Threat Magnitude
1.	Sharm el-Sheikh dumpsite (garbage, insects, smoke, etc.)	H	H	H
2.	Lack of public awareness	M	M	M
3.	Off-road driving	M	M	M
4.	Quarrying	M	H	M

**3.2.2 Threat Analysis**

Threats	Causes	Action
Sharm el-Sheikh dumpsite.	<ul style="list-style-type: none"> <li>- Increased number of hotels and visitors, poor management of the dumpsite.</li> <li>- Wind-blown debris.</li> </ul>	<ul style="list-style-type: none"> <li>- Action plan for such area (was done by the SSRDP, and awaits implementation).</li> </ul>
Lack of public awareness.	<ul style="list-style-type: none"> <li>- Shortage of staff.</li> </ul>	<ul style="list-style-type: none"> <li>- Promotion of public awareness.</li> </ul>
Off-road driving..	<ul style="list-style-type: none"> <li>- Truck movements for tourist activities.</li> <li>- Garbage truck movements in and out of the dump site.</li> <li>- Quarry truck movements.</li> </ul>	<ul style="list-style-type: none"> <li>- Introduction of visitors' entrance fees for the area.</li> <li>- Banning all quad runner businesses from operating in the area. (implemented action).</li> <li>- Law enforcement.</li> </ul>
Quarrying.	<ul style="list-style-type: none"> <li>- Increased demand for the area's natural building materials for the development of Sharm el-Sheikh.</li> <li>- The materials inside the protectorate were opened for quarrying before active management began in 1996.</li> </ul>	<ul style="list-style-type: none"> <li>- Zoning plan to be kept in active use.</li> <li>- Law enforcement.</li> <li>- Deciding firmly on when to eliminate stone quarries from the area, as sand and granite quarries will stop very soon when the material runs out.</li> </ul>



### 3.2.3 Indicators

Category	Key Attribute	Indicator	Indicator Ratings (current rating in bold)				Information Source
			Poor	Fair	Good	Very Good	
Size	Number	Number of tourists visiting Wadi Mandar per year (thousands)	> 130	100–130	<b>70–100</b>	< 70	SKP monitoring report
Condition	Number	Number of Bedouin cafeterias in Wadi Mandar	> 50	46–50	<b>40–45</b>	< 40	SKP monitoring report and technical report
Landscape / Management Context	Number	Number of species of plants represented in Wadi Mandar	< 60	60–70	70–90	> 90	SKP Monitoring report, PhD in process by Bialy Hatab
Threat	Number	Number of quarries in Wadi Mandar area	> 10	<b>8–10</b>	5–7	< 5	SKP Monitoring report
Threat	Size	Size of littered area of Wadi Mandar and surroundings (%)	> <b>10</b>	5–10	2–4	< 2	SKP Monitoring report
Action	Number	Number of public awareness campaign per month	0 - 1	<b>1–2</b>	3–4	> 4	SKP reports

### 3.2.4 Management plan objectives and actions

Wadi Mandar is addressed in the management plan in several places. It is a 'protected tourism zone' (part V) with an objective to "provide opportunities for easily accessible backcountry tourism that provides visitors with a rewarding natural experience and generates income for local people". It is also addressed in part VI with principles, policy and strategies for tourism development.

The overall status of Wadi Mandar compared to five years ago is "worse". This rating was given for the following reasons:

- There has been an increase in the total number of people visiting Sharm el-Sheikh (1.7 million international visitors in 2004 alone) which causes a heavy flow of tourism into the area, within increased supporting human or financial resources to manage this impact.
- The wadi is located very close to the largest dumping area in the whole of Sinai; the dump is very poorly managed and results in massive amounts of wind-blown debris.
- Increased number of Bedouin cafeterias in the area (40 of them in the 2006 annual tourism survey).
- The proposed visitor management plan for the Southern Range has not been implemented. The plan that proposed introducing visitor entrance fees into the area has been sent to the NCS many times without receiving a reply.
- Increased diversity of tourist activities in the area to include camel riding, Bedouin nights, camping, safaris, and stargazing.
- Absence of a clear strategy for when and how stone quarrying will be stopped.
- Increased number of local inhabitants and in-migration to be near the lucrative tourism, which results in cumulative impacts and greater utilization of the area's fragile resources.

However, there is new hope for the area with the beginning of the EU-funded SSRDP and its dedication of over €800,000 for waste management in South Sinai. The environmental impact assessment (EIA) for waste management in South Sinai was conducted in association with the South Sinai Protected Areas Sector in 1996, and still awaits implementation.

### 3.2.5 Recommended actions

Based upon the foregoing evaluation of threats, achievement of management objectives and status, the following actions are recommended. These should be integrated into the management plan and annual work plans.

- Implement the SKP Southern Range visitor management plan to introduce visitor entrance fees into the area of Wadi Mandar; the plan is expected to result in a considerable reduction in visitor impact.
- Lay down a strategy that ends the utilization of the adjacent Wadi Umm Adawy as a stone quarry, because of the anticipated severe impact of this type of quarrying.
- Ban the introduction and use of tourist quad runner activities inside the protectorate's Southern Range completely. This should be stated clearly in the protectorate's management plan.
- Restrict the number of Bedouin cafeterias allowed to operate in the area.
- Lay down a clear strategy to deal with the issue of local settlement expansion. The plan should lay down a maximum zone for current settlements, and ban building of settlements

in other areas. The plan should also ban in-migration to the area, whether the immigrant is a Bedouin from outside the area or a non-Bedouin.

- Major trails in the area should be clearly marked to minimize off-road driving.
- Increase both the number of staff in the Southern Range and the financial resources allocated for visitor management actions inside it.

### 3.3 Ecotourism infrastructure and opportunities

#### 3.3.1 Description

Eco-tourism infrastructure and opportunities including eco-lodge, visitor center, trails, natural areas.

##### (a) Size/number:

- Current size of the area: 4350km<sup>2</sup>.
- Current number of visitors: at least 400,000 a year.

##### (b) Condition:

Naturalness (retention of the area's natural qualities):

To a great extent the area has managed to keep its natural pristine condition except in the highly visited and utilized areas such as the monastery, Wadi Mandar and Wadi el-Khanasir.

Clean and safe (garbage, glass, excrement, pollution, traffic hazards, etc.):

The area is cleaner than most parts of Egypt, but in some places, including Wadi Leithy and Mount Sinai, Wadi el-Deir, there is garbage. The area is very safe, but could be safer with the reintroduction of the Mountain Rescue system on Mount Sinai.

##### (c) Landscape Context

Impacts on conservation priorities (key ecosystems, species, etc.):

Tourism has very little impact on key species, but has proved to have considerable effect on herbs especially in the high mountain. region and in the adjacent Wadi Leithy.

Impacts on adjacent land use (positive and negative impacts, etc.):

Positive impacts of eco-tourism activities:

- Employment of local people.
- Has lower environmental impacts than mass tourism.
- Spreads environmental and cultural awareness.

Negative impacts of eco-tourism activities:

- Garbage.
- Cultural change.
- Overuse of existing natural resources, particularly water.
- Over-demand for scarce cultural items.
- Creates conflict among local people over the benefits derived.



**(d) Threats:**

#	Threat	Extent (L, M, H, VH)	Severity (L, M, H, VH)	Threat Magnitude
1.	Garbage	L	L	L
2.	Cultural change	L	M	L
3.	Overuse of existing natural resources, particularly water	L	H	L
4.	Over-demand for scarce cultural items	L	H	L
5.	Conflicts among local people over benefits	L	M	L
6.	Seasonal fluctuations	L	L	L

**3.3.2 Threat Analysis**

Threat	Causes	Actions
Garbage.	<ul style="list-style-type: none"> <li>- Lack of financial resources.</li> <li>- Too few garbage cleaners.</li> <li>- Lack of systematic approach.</li> <li>- Too few garbage bins.</li> <li>- Work at the landfill site stopped..</li> <li>- Sorting station not working.</li> </ul>	<ul style="list-style-type: none"> <li>- Garbage bins.</li> <li>- Reactivation of recycling plant (never worked).</li> <li>- Landfill site (to be operational again).</li> </ul>
Cultural change.	<ul style="list-style-type: none"> <li>- Interaction with tourists.</li> <li>- Changed type of livelihood.</li> <li>- Education.</li> </ul>	<ul style="list-style-type: none"> <li>- Spreading awareness of the importance of preservation of local culture.</li> <li>- Building cultural and visitor centers.</li> <li>- Handcrafts program.</li> <li>- Eco-lodge program (el-Karm) revitalization of eco-lodge.</li> <li>- Expansion in eco-tourism programs (EU Project).</li> <li>- Documentation of local knowledge such as traditional uses of medicinal plants.</li> <li>- Proposed Bedouin cultural village in el-Oskof will also document Bedouin heritage.</li> <li>- EU will produce a book about Bedouin culture in association with the Nature and Heritage Conservation Association.</li> </ul>
Concentration of tourism activities in some famous areas.	Popularity of areas.	<ul style="list-style-type: none"> <li>- Walking trail guides.</li> <li>- Eco-guide program.</li> <li>- Marketing of walking trails.</li> </ul>
Over demand for scarce cultural items.	To be used as souvenirs.	<ul style="list-style-type: none"> <li>- Production of handcrafts.</li> <li>- Production of replicas of the original pieces by an EU project.</li> </ul>
Conflict among local people over benefits.	Human nature.	<ul style="list-style-type: none"> <li>- Regulation and separation of work among them.</li> </ul>
Seasonal	- Political situation in the	- Production and marketing of walking trails

Threat	Causes	Actions
fluctuations and political.	Middle East. - Climate. - Holidays. - Festivals	locally. - Production of natural history guides to let visitors know that the area has more to offer than monastery and Mt. Sinai. - Discounts for students.

### 3.3.3 Indicators

Category	Key Attribute	Indicator	Indicator Ratings (current rating in <b>bold</b> )				Information Source
			Poor	Fair	Good	Very Good	
Size	Scale of eco-tourism within PA	Percentage of eco-tourism area within PA (%)	< 10	10–20	20–25	> 25%	SKP Visitor Mgt Report
Condition	Naturalness	Percentage of vegetation cover in the whole PA (%)	<10	<b>10–15</b>	15–20	> 20	SKP GIS \ Botanical Unit
Landscape/management	Landscape Status	Number of active quarries per month	> 30	<b>20–30</b>	10–20	<10	SKP Southern Range Report
Threat	Littering	Number of loads of garbage per month	> 350	<b>250–350</b>	150–250	< 150	SKP Financial Unit
Action	Waste Management	Number of garbage cleaners per year	< 15	<b>15–25</b>	26–30	> 30	SKP Financial Unit
Action	Human wastes	Number of toilets in the area	< 20	20–25	26–30	> 30	SKP Visitor Management Reports
Action	Reducing local firewood consumption	Number of kilograms of firewood sold per month	< 50	<b>50–99</b>	100–150	> 150	SKP firewood selling station records

### 3.3.4 Management plan objectives and actions

The management plan addresses ecotourism resources in part V with the identification of ‘protected tourism zones’ and in part VI with management principles, policies and strategies for tourism development.

The overall eco-tourism infrastructure and opportunities in the SKP now compared to five years ago is “worse” for the following reasons:

- Severity of impacts on the area’s fragile natural resources; St Katherine Town and around the Wadi Leithy dumping area of Sharm el-Sheikh.
- The SKP visitor center is still operating far below its full capacity and is visited by a marginal number of visitors to the area because of the non-implementation of the SKP visitor management plan for the Northern Range.
- SKP-built eco-lodge is receiving fewer visits than in the first year, and is causing conflicts among locals who complain that one family is keeping all the profit to themselves.
- Cultural change because of allowing tourists camps to be built close to local settlements particularly in the town of St Katherine.

- Sharp increase in the number of visitors to the area, particularly the Southern Range, without a consequent increase in human or financial resources to manage impacts.
- Fragility of existing natural resources.
- Non-implementation of the SKP proposed visitor management plans either for the Northern or the Southern Range, for different reasons.

However, new hopes are arising with the dedication by the SSRDP project of €1.5 million for the implementation of the SKP visitor management plan in the Northern Range, and also the dedication of €0.8 million for solid waste management in South Sinai. The project has also dedicated a sum of one million Euros for the development of eco-tourism around Saint Katherine. All these projects, if well implemented, could result in greatly reduced impacts of tourism on the SKP's fragile resources.

### **3.3.5 Recommended actions**

Based upon the foregoing evaluation of threats, achievements of management objectives and status, the following actions are recommended. These should be integrated into the management plan and annual work plans.

- The implementation of the SKP proposed visitor management plans in the Northern and Southern Ranges.
- SKP should take a leading role in the management of the Sheikh Awad Eco-lodge; it is proposed to hire a ranger dedicated only for the management of that facility.
- Establish a clear strategy for dealing with the Bedouin settlement expansions in the area.
- Local eco-guides and non-local guides' certification programs should be a major part of the management plan as they provide an excellent short cut to the ever increasing flow of visitors and they help to generate business opportunities for the local community (programs have started already).
- The protectorate should set itself a certification scheme for eco-tourism establishments, which are going to increase in number during the upcoming period and should be in compliance with international standards (currently developed).
- Increase number of SKP staff.
- Increase financial resources allocated for visitor impact management and eco-tourism introduction and certification.

## 4.0 Local Community Values

### 4.1 Bedouin culture and heritage

#### 4.1.1 Description

The Jebaliah tribe arrived in St Katherine area in the sixth century; the emperor Justinian brought them from Montenegro to guard the monastery. They established a good relationship with the monks at the monastery and they now have rights as the only tribe that benefits from the monastery and the tourists that visit the area. The Jebaliah dominates the area of St Katherine. The Awlad Said tribe, which originated in the Arabian Peninsula, also forms a small community in the area. They are based in Wadi Sulaf, el-Rahabah and mainly in the Southern Range of the protectorate; i.e. Wadi Meir and Orayeg.

Other tribes in the Protectorate are Muzeinah, Alaiqat, Howeitat, Qarashah, Sawalha, Bani Wasel. These tribes originally came from the Arabian Peninsula. The Bedouin tribes share a unique heritage and support the protectorate's objectives.

#### (a) Size/number

Current geographic size of the area (inside PA): the area of St Katherine: 4350km<sup>2</sup>, 7000 persons.

Demographic characteristics (population, age structure, literacy, income levels, employment profile):

- The main source of income is tourism, farming (legal and illegal), herding.
- There are seven main tribes: Jebaliah (3000), Muzeinah (1000) Awlad Said (1500) Qarashah and Sawalha (600), Howeitat and Bani Wasel (250), Tarabin (100) non-Bedouins (600).
- Over 90% are illiterate, but literacy is spreading among teenagers who go to newly-built state schools, despite the fact that most of them drop out by the time they reach secondary level to work in the lucrative tourism industry.
- Income levels vary among those who live close to the main tourist spots such as St Katherine town and Wadi Mandar. They normally have higher incomes (US\$2400 plus, per capita per year) than those have no access to tourism and normally have much lower incomes, except when involved in illegal activities.

#### (b) Condition:

Economic benefits derived from PA (e.g. direct employment, indirect tourism):

- Direct employment, 70% of the PA staff are recruited from the Bedouin community.
- Health and veterinary services, which enable them to sell their domestic animals and save the prices of the medicine.
- El-Karm Eco-lodge, which provides an income for 20 families.
- Rock signs in the protectorate that make it possible for tourists to reach remote areas and benefit the local community.
- Rehabilitation of the Acacia trees which are a good source of fodder for domestic animals.
- Handcraft project that now benefits more than 500 women.
- Mt. Sinai trail with services that help to sustain tourism activities and increase tourist numbers.
- Trails in some of the valleys where there are Bedouin settlements

Productive system (small-scale agriculture, livestock):

- Bedouins have lived in the area for many centuries; they are familiar with the area and have unique indigenous knowledge that enables them to work as tour guides and cameleers for tourists. The pasture in the protectorate is suitable for grazing and livestock and most tribes that do not have access to tourism rely on herding.
- Other options include drying fruits and vegetable as part of the Bedouin traditional knowledge.
- Women work with traditional crafts and grazing.
- A small minority works for the government in various positions.
- In addition, there is illegal cultivation.

Use of natural resources (inside and outside protected area):

- Grazing, water sources, medicinal plants, firewood, landscape and a variety of wildlife that attracts tourists.

### **(c) Management Context**

Impacts of community on key conservation and ecotourism values (activities such as grazing, poaching or spin-off impacts such as invasive species in key ecosystems, species, boundary):

- Overgrazing and firewood collection especially in the areas that are close to the Bedouin settlements.
- Small-scale hunting of birds and animals, especially in the high mountain area.
- Introducing exotic species, such as Eucalyptus, which affects the water table in the Bedouin gardens.

Impact of protected area on the community:

- Providing source of income.
- Preserving the Bedouin culture through traditional craft programs and rehabilitation of the acacia trees that have cultural value in Bedouin traditions and are a main source of fodder for their livestock.
- Documenting the Bedouins' traditional knowledge.
- Providing health and veterinary services.

Involvement of community in PA management (current involvement, opportunities for participation, co-management, etc.):

- Managing the eco-lodge.
- Implementing the protectorate's management policy by providing firewood for safaris.
- Consulting sheikhs in instances of violations by Bedouins, and new recruits in the PA.
- The SKP was the first protected area in Egypt to adopt the principles of community-based conservation with local people representing over 70% of the SKP staff. The PA believes that it cannot do its job without the traditional knowledge of the local community and therefore has the community's opinions and needs among its first priorities.
- One Bedouin ranger, 21 community guards, four drivers and mechanics, one secretary, and 20 casual workers on Mt. Sinai, the landfill site and the visitor center, are currently working in the SKP.

#### (d) Threats

#	Threat	Extent (L, M, H, VH)	Severity (L, M, H, VH)	Threat Magnitude
1.	Cultural change	H	M	M
3.	Lack of economic resources	H	H	H
4.	Illegal cultivation (drugs)	H	VH	H

#### 4.1.2 Threat Analysis

Threat	Cause	Action
Cultural change.	<ul style="list-style-type: none"> <li>- Heavy tourism pressure in certain areas such as St Katherine and Wadi Mandar.</li> <li>- In-migration and settlement of non-Bedouins around the Bedouins particularly in St Katherine Town.</li> <li>- State-powered modernization.</li> <li>- Media.</li> </ul>	<ul style="list-style-type: none"> <li>- Raising awareness of methods of communication with tourists.</li> <li>- Construction of tourism infrastructure at a considerable distance from Bedouin settlements.</li> <li>- Raising awareness of the value of the Bedouin heritage's value through integrating indigenous knowledge into environmental education programs.</li> </ul>
Lack of economic resources.	<ul style="list-style-type: none"> <li>- Lack of job opportunities.</li> <li>- Aridity of the area.</li> </ul>	<ul style="list-style-type: none"> <li>- Providing more job opportunities.</li> <li>- Providing more education and training for the locals in new professions.</li> <li>- Generate business opportunities for the local community, as in the case of the local eco-guide training.</li> </ul>
Illegal cultivation (drugs)	<ul style="list-style-type: none"> <li>- Lack of job opportunities.</li> <li>- Quick profits.</li> </ul>	<ul style="list-style-type: none"> <li>- Promoting and marketing of cultivated medicinal plants, and encouraging cultivation of vegetables and fruits.</li> <li>- Providing more job opportunities.</li> <li>- Seize business opportunities for the locals.</li> </ul>

A threat map was not prepared for this value.

#### 4.1.3 Indicators

Category	Key Attribute	Indicator	Indicator Ratings (current rating in <b>bold</b> )				Information Source
			Poor	Fair	Good	Very Good	
Condition	Socio economic status	Percentage of the annual number of Bedouin men working in tourism	<40	40–50	<b>50–75</b>	>75	Personal estimation from CG Note 1
Condition	Socio economic status	Number of women working with handicrafts per year	<200	200–450	<b>450–500</b>	>500	FanSina company Note 2
Action	Health services	Number of patients managed by SKP per month	<250	250–400	<b>400–600</b>	>600	SKP Health Program Note 3
Action	Vet services	Number of animals managed by SKP per month	<50	50–60	<b>60–100</b>	>100	SKP Vet Program Note 3
Threat	Changing of Bedouin traditions	Percentage of Bedouins who have changed their traditions	<b>50–60</b>	40–50	20–40	<20	Yousria's Master's thesis Note 4

Category	Key Attribute	Indicator	Indicator Ratings (current rating in <b>bold</b> )				Information Source
Action	Raising awareness of environmental and cultural values	Number of school children per year	<200	200–300	300–400	>400	SKP environmental education program
Action	Health services	Percentage of well tended patients	<50	50–80	<b>80–95</b>	>95	SKP Health Program
Action	Vet services	Percentage of well serviced animals	<40	40–70	<b>70–90</b>	>90	SKP Vet Program

**Notes:**

1. Tourism is the main source of income for the local community.
2. Handcrafts are among the major sources of income for women.
3. Two important services of the protectorate Bedouin Support Program.
4. Preserving the Bedouin traditions is one of the main objectives of the protectorate.

#### 4.1.4 Management plan objectives and actions

Part V of the management plan identifies ‘traditional use zones’ with the objective “*to sustain and enhance traditional Bedouin lifestyles and practices.*” In addition, part VI includes a strategy for participatory management and a Bedouin support programme, with an objective “*to involve and benefit local people and to win their active support for conservation activities primarily through maintaining and extending the Bedouin Support Programme.*”

The overall status of the local community today compared to five years ago is “improving.” This rating was given for the following reasons:

- The local culture has supported the SKP’s objectives from the beginning.
- The incredible effort and financial resources that were spent in the area by the SKP, particularly at the time of the SKPDPEU-funded project. This attention helped many sectors of the community, particularly those who had a direct link, or employment, with the SKP, for example the women who worked on the production of handcrafts, and the men who worked in the eco-lodge, or in the dried fruit project, or as community guards, cleaners, or eco-guides. The attention helped all these clusters of people in the community to rediscover the uniqueness and value of their culture and the importance of preserving it.
- The attention the area receives from the government as a whole, as well as from foreign donor states or agencies like the EU and CARE.
- Interaction caused by modernization, mixing with non-Bedouins and tourists helped the community to see, through the eyes of outsiders, the importance of preserving its culture.
- The efforts of the community, backed by the PA, to create a cultural center in St Katherine to preserve Bedouin heritage.
- SKP and the Nature and Heritage Conservation Society activities to sponsor programs aiming at generating business opportunities within the community, and increasing the environmental awareness of the locals particularly in St Katherine.
- Effort of the SKP to preserve the nature of the area, which is a main component in the heritage of the Bedouins.

- The successful implementation of Fansina Art handicrafts programme.

#### **4.1.5 Recommended actions**

Based upon the foregoing evaluation of threats, achievement of management objectives and status, the following actions are recommended. These should be integrated into the management plan and annual work plans.

- SKP needs to set a clear strategy for in-migration outside the town as it threatens to undermine the uniqueness of the local culture.
- Certification of local eco-guides should be an essential part of the protectorate's management plan as it helps to raise the community's awareness.
- The PA should develop its own strategy for eco-tourism as this could have a considerable negative impact on the local community if goes off track. The necessary strategy should be in compliance with international standards and also be consistent with the SKP management plan.
- Building of new tourist camps should be away from the main settlements.

## **4.2 St. Katherine Town**

### **4.2.1 Description**

St Katherine town is located at the highest point in Egypt and has special characteristics:

- It is the only town that is in a protected area in Egypt.
- It is in a place that is holy for three of the world's main religions (Judaism, Christianity and Islam).
- It is close to the oldest continuously occupied monastery in the world.
- It is the core of the World Heritage Site declared in 2002.
- Saint Katherine includes many cultures, particularly those of the Bedouins and the migratory people from the Nile Delta and Valley (Delta culture and Upper Egypt culture).
- St Katherine town is part of a unique ecosystem that has nurtured a variety of animals and plants, including endemics.
- The town is the largest Bedouin settlement in the whole of South Sinai and has a population of 2600.

#### **(a) Size/number**

Current geographic size of the area (inside PA):

St Katherine town is about 20km<sup>2</sup>.

Demographic characteristics (population, age structure, literacy, income levels, employment profile):

**Population:** St Katharine town 2600 persons.

**Age structure:** ± 70% 25–50 years; 10% 50–65 years; 20% 1–25 years.

**Literacy:** Although the majority of Bedouin people in SK is illiterate, there is an increased rate of literacy among teenagers who go to school, but often drop out by the time they reach



secondary level to work in the lucrative tourism industry. Most non-Bedouin inhabitants of the town are, on the contrary, very literate and are known to keep sending their children to school, at least until they finish secondary level.

***Income levels:*** Due to tourism activity, most income is derived from various tourist services.

- Over two hundred women produce handcrafts which are a source of income for Bedouin families.
- Drying of organic fruits and vegetables under sanitary conditions.
- SKP contains medicinal plants that are used by locals as medicine.
- Women's major profession is herding until the age of marriage.
- A small portion of the Bedouins of SKP work in farming (legal and illegal).

**(b) Condition:**

Economic benefits derived from PA (direct employment, indirect tourism):

St Katharine town is close to numerous tourism sites, which attract about 300,000 tourists yearly from around the world.

Productive systems (agriculture, livestock):

- A series of Bedouin gardens that are the source of organic vegetables and fruits as well as olive oil, which is characteristic of St Katharine.
- The nature of the protectorate allows for the herding of livestock, which is why Bedouins still raise their livestock and herding continues to be the major profession for Bedouin woman until the age of marriage.
- FanSina company was established by the SKPDP to make handcrafts, which represents a source of income for hundreds of Bedouin families.
- Drying of organic fruits and vegetables under sanitary conditions.

**(c) Management Context**

Impacts of community on key conservation and eco-tourism values:

- Mass tourism pressure on resources (fauna and flora) and important sites (monastery).
- Development that does not follow the guidelines (as stated in the management plan).
- Some grazing of endangered plants by domestic animals.

Impacts of the PA on the community:

- The positive impacts are represented by declaration of the protectorate which runs many programs to serve the local communities such as visitor management, waste management and Mt. Sinai.
- However some minor negative impacts were reported due to the declaration of the protectorate such as a rise in the price of local building materials, and an increased volume of domestic insects in the town.

Involvement of the community in PA management:

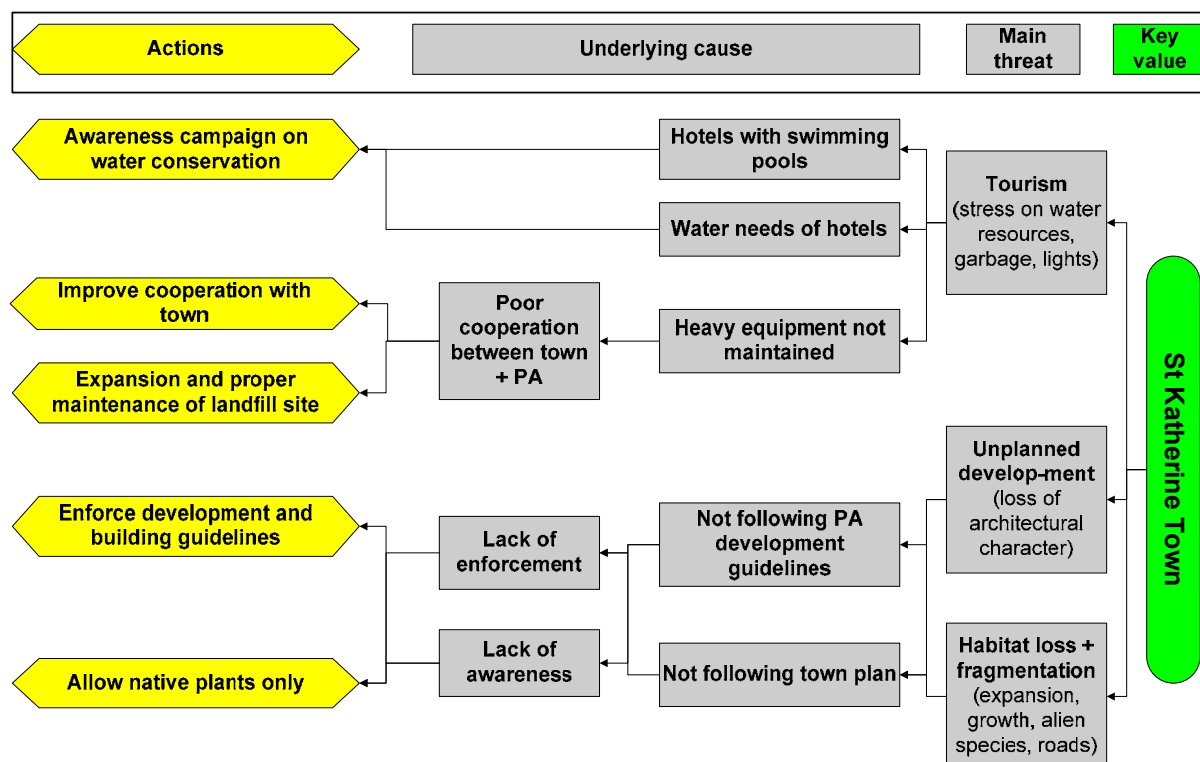
- The SKP was the first protected areas in Egypt to adopt the principles of community-based conservation with local people representing over 70 % of the SKP's staff. The PA believes that it cannot do its job without the traditional knowledge of the local community, and therefore has the community's opinions and needs among its first priorities.

#### (d) Threats:

#	Threat	Extent (L, M, H, VH)	Severity (L, M, H, VH)	Threat Magnitude
1.	Tourism (water, garbage)	H	L	L
2.	Lack of awareness (esp stakeholders)	H	H	H
3.	Unplanned development (not following PA guidelines)	M	M	M
4.	Habitat loss through development (expansion/growth)	M	M	M

#### 4.2.2. Threat Analysis

Threat	Cause	Action
Tourism (stress on water resources, garbage).	- Presence of important sites, e.g., monastery and Mt. Sinai.	- Public awareness. - Visitor center. - Visitor management plan. - Recommend all hotels to bring their water from outside the town.
Lack of awareness and appreciation (especially stakeholders).	- Development is increasing without even minimum environmental control. - Introduction of alien plant species. - A lot of lighting. - Extending new roads unnecessarily.	- Repairing heavy equipments (loaders). - Activating coordination with the city council. - Expansion of the landfill site. - Substitution of exotic plants with native plants. (coordination with SKP, MPCP and Town Council).



### 4.2.3 Indicators

Time in the workshop did not allow for the development of indicators, however this is important and should be carried out by staff.

### 4.2.4 Management plan objectives and actions

Part VI of the management plan provides a focus on socio-economic development for the St Katherine urban area. The plan states the following policy: *“To regulate and disperse development in order to retain the unique Bedouin mountain-town character of St Katherine and to diversify tourism opportunities in its environs. All planned projects are to be reviewed and due consideration given to deferring or revoking consent for development so as not to irrevocably jeopardise the potential for the successful and sensitive development of St Katherine Town and environs and the St Katherine Protectorate as a whole.”* The plan also provides policies, strategies and guidelines related to waste management, road building and other related topics.

The overall status of the town today compared to five years ago is “worse.” This rating was given for the following reasons:

- Rapid expansion of the town and its facilities (such as the sewage and the freshwater systems, asphalted roads, lighting, building of non-compliant housing, exotic plant cultivation, etc.) in the absence of EIAs. There is an absence of environmental awareness among municipal decision makers, which threatens the area with losing its uniqueness.
- Lack of compliance by the municipalities with the rules of the St Katherine town plan and the UNESCO World Heritage Committee recommendations for the area. World heritage and protected area status is viewed as a hindrance.
- The non-compliance of SKP administration with the previously set Management Plan of 2003.
- Refusal of the St Katherine municipality to implement the SKP Northern Range visitor management plan.
- Allowing construction of three Bedouin camps near the current Bedouin settlements.
- Mounting pressure of tourism activities on the area’s fragile ecological and cultural resources.

### 4.2.5 Recommended actions

Based upon the foregoing evaluation of threats, achievement of management objectives and status, the following actions are recommended. These should be integrated into the management plan and annual work plans.

- Establishment and regular nurturing of an effective relationship between SKP and the town administration.
- Updating, authentication and implementation of the SKP management plan of 2003.
- The St Katherine Town plan should be implemented without delay in compliance with the UNESCO World Heritage Committee recommendations.
- The SKP visitor management plan should be implemented.
- Banning the building of new Bedouin camps near current Bedouin settlements.

- Intensifying law enforcement activities by increasing the number of patrolling schemes and monitoring programs in the SKP beyond their current levels.
- Hire, and train more staff in the SKP.
- Increase financial resources allocated for infrastructure, maintenance, and visitor management in the SKP.

## Part IV. Synthesis: Effective Management

Effective management of SKP is a complex process, as demonstrated in this report. The ecological, social and economic dimensions are all complex in their own right. When taken together, they present challenging situations that require a balanced approach to management. Consideration of the principles of sustainable development and the ecosystem approach is warranted, especially in SKP which combines strict protection (category II) and management of the cultural landscape (category V).

This evaluation primarily focused on the following:

- ❑ *Threats*: what are the threats affecting the key values in SKP?
- ❑ *Outputs*: was the management plan implemented?
- ❑ *Outcomes*: were the actions effective in protecting the area, and what is the status of the area?

These aspects are summarized and discussed below, including the associated planning, inputs and processes needed to address the threats and improve the outputs and outcomes.

### 5.0 Threats

Twenty-six threats affect SKP's 12 key values.

The threats affecting each of the key values described in part III (sections 1, 2, 3, 4) were listed and ranked according to their potential severity for damage and their geographical extent of damage<sup>1</sup> (TNC, 2000). The severity and extent ratings allow an estimate of threat magnitude, which was recorded in table 1. Upon compiling the ratings from the staff workshop, the evaluation team further reviewed the different terminologies and ratings applied by staff to ensure consistency and clarity. As a result, some threats were combined under one name, and in some cases, a threat rating was added where it was missing but known to exist. This additional analysis ensured that the results were as complete as possible.

Table 1 provides an overview of the threats affecting each of the key values in SKP (read down the columns) and the importance of the individual threats across the protected area (read across the rows).

These results show that the monastery (as a cultural value), Gebel Mousa (as a recreational-tourism value) and the Beudoin community (as a socio-economic value) face high degrees of threat. Six other values face medium degrees of threat while three have low levels of threat.

#### **Threat Defined:**

Any human activity or process that has caused, is causing or may cause the destruction, degradation and/or impairment of biodiversity and natural processes, *eco-tourism resources or community well-being*. (per Salafsky et al., 2003; the additional elements *in italics* were included to reflect the added focus of this evaluation on socio-economic perspectives).

<sup>1</sup> Refer to method in part I for the extent and severity rating guidelines.

All should be regarded as valid threats, and for any one of the key values, management attention should be focused on the high threats.

Of the 26 threats identified, the principle threats are related to tourism (several types were listed: garbage, pollution/noise, accidents, cafeterias, human waste, crowding, seasonal fluctuations in use), habitat loss due to the growing number of habitations (villages), habitat fragmentation from road building, and disturbances to species such as army maneuvers in the Al'qaa Plain, and others.

Abatement efforts should focus on the high threats. The threat maps in the report provide a useful look at the underlying causes and actions that relate to the threats and the values. Underlying these threats is a larger issue related to insufficient financial and human capacity to effectively address the problems.

**Table 1.** Threat Summary for St Katherine Protectorate

Threat	1.1 High Mountain Ecosystem	1.2 Gazelle EI Qaa Plain	1.3 Geologic Features	1.4 Acacia	2.1 World Heritage Site	2.2 Monastery	2.3 Historical + Arch'I	3.1 Gebel Mousa	3.2 Wadi Mander	3.3 Eco-tour infrastru	4.1 Bedouin	4.2 St Kath Town	Overall Threat Rank
Alien plants + animals	Medium												Medium
Army manoeuvres		High											Medium
Cultural (conflict over local benefits)										Low			Low
Cultural change + loss of traditional knowledge					Medium					Low	Medium		Medium
Domestic animals (disease)						Low							Low
Habitat fragmentation	Medium	Medium		Medium									Medium
Habitat loss-Growing number of habitations		Medium		Medium			Medium				High <sup>7</sup>	Medium <sup>5</sup>	Medium
Hunting	Low	Medium											Low
Lack of awareness									Medium			High <sup>2</sup>	Medium
Natural disasters (floods)						Low							Low
Over collecting, uprooting (natural)	High		Low <sup>1</sup>	Medium									Medium
Over demand (cultural items)										Low			Low
Over grazing	Low			High									Low
Poverty-Little money available											High		Medium
Quarrying			Low				Low		Medium				Low
Tourism-Accidents								Low					Low
Tourism-Cafeterias								Low					Low
Tourism-Car pollution, noise					Medium	High							Medium
Tourism-Crowding					Medium			High					Medium
Tourism-Garbage	Low				Medium	High	Low	High	High	Low		Low	High
Tourism-Human waste, disturbing fauna or archaeological site							Low	High					Low

Threat	1.1 High Mountain Ecosystem	1.2 Gazelle El Qaa Plain	1.3 Geologic Features	1.4 Acacia	2.1 World Heritage Site	2.2 Monastery	2.3 Historical + Arch'I	3.1 Gebel Mousa	3.2 Wadi Mander	3.3 Eco-tour infrastru	4.1 Bedouin	4.2 St Kath Town	Overall Threat Rank
Tourism-Seasonal fluctuations										Low			Low
Tourism-Trampling, off road driving	Medium							High	Medium				Medium
Unplanned development	Low				Medium							Medium <sup>6</sup>	Medium
Water contamination	Low												Low
Water use	Medium <sup>3</sup>											Low <sup>4</sup>	Low
<i>Threat status for each value</i>	<i>Medium</i>	<i>Medium</i>	<i>Low</i>	<i>Medium</i>	<i>Medium</i>	<i>High</i>	<i>Low</i>	<i>High</i>	<i>Medium</i>	<i>Low</i>	<i>High</i>	<i>Medium</i>	<i>High</i>

**Notes:** <sup>1</sup>Rock collections by researchers; <sup>2</sup>Stakeholder awareness; <sup>3</sup>Water harvesting; <sup>4</sup>Stress on water resources; <sup>5</sup>Development expansion; <sup>6</sup>Development not following PA guidelines; <sup>7</sup>Illegal cultivation of drugs.

The following method was used for summing low, medium, high and very high ranks (per TNC, 2000) for the values(columns) and threats (rows):

(1) For the individual ranks in each column and each row (before summing the 'overall threat rank' and 'threat status for each value'), apply the following rules:

Less than 7 Low=Low; 7 Low = 1 Medium; 5 Medium = 1 High; 3 High = 1 Very High.

Example: for Tourism-Garbage, 3 high = 1 very high

(2) Calculate the sum across each row to find the 'overall threat rank' and down each column to find the 'threat status for each value'. Apply the following rules when summing:

Less than 2 Medium=Low; 2 Medium or 1 High=Medium; 2 High or 1 Very High=High; 2 Very High=Very High.

Example: for Tourism-Garbage, 1 very high = high



## 6.0 Outputs and Outcomes

In Part III (sections 1, 2, 3, 4) and appendix 2, the management plan objectives (outcomes) and actions (outputs) were examined, and a status was provided for each of the 12 values (see table below). Arising from this review, actions have been identified to address the specific needs associated with the values and toward improved implementation of work plans and greater effectiveness. Clearly there are significant challenges ahead if the conditions of the value are to be maintained at satisfactory or improved levels.

### 6.1 Outputs

SKP is fortunate to have a well-formulated and comprehensive management plan. This review found that all of the key values are addressed in the management plan.

The following main objectives in the plan were reviewed (refer to appendix 2). In general, the overall status was estimated, as follows:

1. The conservation of the mountain ecosystem of Southern Sinai including all its elements and processes and the conservation of the site's traditional cultural and religious values.
  - Improving for wildlife except for Dorcas Gazelle.
  - Improving for traditional religious and cultural values.
2. To facilitate and strengthen the institutional capacity of Protectorate management and development in partnership with relevant institutions and local stakeholders.
  - Deteriorating due to difficult relationships.
3. The integration of the St Katherine Protectorate management and development planning into the network of protected areas forming the South Sinai Management Sector.
  - Improving.
4. The integration of the protectorate into the local development process and land use management system in order to assist sustainable local rural development.
  - Improving.

The main policies in the management plan were also reviewed (a self examination by interviewing the Assistant Manager) to determine the degree of implementation and effectiveness. The following status codes were used (refer to appendix 2B for details).

#### **Status codes:**

- 1 = Completed or part of an ongoing program.
- 2 = Implementation underway but not yet completed.
- 3 = Planning is in progress.
- 4 = Not commenced, but action is still worthy of implementation.
- 5 = Circumstances have changed; action is no longer appropriate or necessary.
- 6 = Out of the control of the PA.

Of the 24 policies listed, most are either completed, underway or part of an ongoing programme (14). Planning is underway for 3 policies and 5 have not yet been initiated. Two policies are deemed to be no longer appropriated as circumstances have changed. Overall, this indicates a reasonable record of achievement in light of the challenges and low level of human and financial resources available. While more effort is generally needed in all facets of work, attention is needed in the following areas that have not been addressed:

- waste management
- over-grazing
- fuelwood collection
- invasive species
- public awareness
- off-road driving and de-mining
- mountain rescue

<b>Management Plan Policies</b>	<b>Status Code</b>
<b><i>Participatory Management and the Bedouin Support Program:</i></b> To involve and benefit local people and to win their active support for conservation activities, primarily through maintaining and extending the Bedouin Support Program.	1
<b><i>Socio-economic Development:</i></b> To regulate and disperse development in order to retain the unique Bedouin mountain town character of St Katherine, and to diversify tourism opportunities in its environs. All planned projects are to be reviewed and due consideration given to deferring or revoking consent for development so as not to irrevocably jeopardize potential for the successful and sensitive development of St Katherine town and environs and the St Katherine Protectorate concept as a whole (see Development Regulations under World Heritage Site and Appendix 5).	1
<b><i>Roads:</i></b> Will be to limit road construction, i.e. the fewer roads the better. No roads will be allowed in Wilderness or Wildlife Sanctuary Zones and a full EIA (black code) will be required for any road construction within the Protectorate or its adjacent area. The Protectorate will seek to restore road lines of spoil tips resulting from maintenance and repair (e.g. broken asphalt), and in future enforce the removal of such spoil by maintenance contractors.	?
<b><i>Quarrying and Mining:</i></b> To seek the eventual exclusion of all commercial quarrying and mining activities within the Protectorate and ensure that all current quarrying activities are strictly limited to ensure that they do not destroy the long-term value of the Protectorate's natural resources, destroy their aesthetic qualities or deplete biological diversity. In addition, the PAMU will exclude all quarrying activities from important wildlife habitats, premium tourist areas, areas of natural beauty and archaeological, cultural and religious sites. In tandem, the PAMU will seek to restore quarry sites by promoting the utilization of granite waste and re-profiling sand and gravel borrow pits' spoil tips, initially with the support of the SSRDP.	1
<b><i>Landscape Restoration:</i></b> The natural aspects of landscapes within the Protectorate are to be respected and as far as possible they are to be restored after any development or maintenance impacts.	1, 3
<b><i>Waste Management:</i></b> Waste management inside the Protectorate will remain a high priority for the PAMU. The general policy will be to prohibit the dumping of all waste inside the protectorate. The protectorate will continue to support the Town Council with domestic waste management within the municipal area of St Katherine but it will seek to hand over full responsibility for all aspects of municipal	4

Management Plan Policies	Status Code
waste collection and sorting by mid-2004.	
<b>Bedouin Settlements:</b> Natural expansion of Bedouin settlements within recognized traditional community areas will be permitted but all new dwellings are to be built in vernacular style, i.e. simple stone façades with no balconies and natural colors for finishing.	3
<b>Sustainable Use of Resources:</b> <b>Overgrazing:</b> The PAMU, in co-operation with, and agreement of, local communities, will seek to introduce an integrated program for sustainable grazing, particularly in critical plant habitats. This will involve the re-establishment of traditional grazing management systems, the institution of rotational grazing systems, range recovery areas and grazing exclusion areas including fenced plant conservation areas.	5
<b>Fuel-wood Collection:</b> The policy for the sustainable collection and use of fuel wood will be developed at an early stage in the project to ensure the conservation of woody plants traditionally used as fuel.	4
<b>Sustainable Use of Medicinal Plants:</b> The policy for the sustainable use of medicinal plants will be developed at an early stage in the project to ensure best practices for wild medicinal plant collection and regulation of collection levels. Collectors will be encouraged to process, package and market their medicinal plants through the proposed Medicinal Plant Centre.	2
<b>Hunting:</b> The no-hunting regulation within the Protectorate will be strictly enforced for all wild species and offenders will be vigorously prosecuted.	1
<b>Trapping and Collection of Wildlife:</b> Strict enforcement of Protectorate regulations and offenders are to be vigorously prosecuted.	1
<b>Feral and Invasive Species:</b> Seek to eradicate, in a humane manner, all feral and invasive species inside the protectorate in order to protect natural biodiversity. No poisons will be permitted for feral animal control.	3,4
<b>Tourism and Visitor Management:</b> The overall policy will be to enhance the quality and diversity of visitors' experiences in the area. The short-term policy will be to attract visitors to a wider range of activities and attractions in the immediate excursion area of St Katherine and environs and so reduce pressure on the monastery and Mt. Sinai. The long-term policy will be to encourage and diversify sustainable nature-based and cultural tourism opportunities and so disperse visitors throughout the protectorate and decrease localized environmental impact. A master plan for tourism within the WHS will be developed as a matter of priority.	1
<b>Public Awareness:</b> To raise local, national and international awareness in order to elicit support for St Katherine Protectorate. The target audiences are Bedouin communities, tour operators, tourists, local and regional authorities, hotels, investors and the St Katherine community at large, particularly schoolchildren.	4
<b>Signposting:</b> All signposting within the Protectorate will be harmonious and use natural materials. Other signs will be kept to a minimum and no roadside commercial billboards will be allowed within the Protectorate. Within urban areas only one simple sign per establishment (hotel, restaurant etc.) will be allowed and may be simply lit at night i.e. no flashing or colored lights.	1
<b>Off-road Driving (including Rallies) and De-mining:</b> To control and limit, as far as possible, off-road driving within the protectorate by proactive measures, such as zoning, trail marking, delimiting tracks and physically closing sections of wadis, as well as awareness raising among residents and tour operators.	4
<b>Mountain Rescue:</b> The PAMU will continue to provide a free medical emergency and evacuation service for visitors	5

<b>Management Plan Policies</b>	<b>Status Code</b>
to the high mountain region of St Katherine particularly Mt. Sinai. The PAMU will ensure that the system is adequate, is fully operational at all times and is upgraded as circumstances require, in terms of training and provision of equipment and supplies.	
<b><i>Entrance Fees and Revenue Generation:</i></b> An appropriate entrance fee to the popular tourism area and World Heritage Site of the Protectorate immediately around St Katherine was instituted during 2003 and visitor-use charges to premium, and other areas, in the protectorate will be introduced when facilities allow for their collection. The Protectorate will seek to maximize additional revenue through introducing fees for leases, commercial use (film making etc) as well as spot fines and product sales.	1
<b><i>External Research:</i></b> The PAMU will encourage, and where possible support, applied research both by outside researchers and by PAMU staff, according to priorities. All territory-related data are to be registered in the PAMU's GIS as a matter of course.	1
<b>Monitoring and Research (Pt VII):</b> Reptiles, Breeding birds of prey	1
<b>Gazelle monitoring</b>	1
<b>Veterinary monitoring</b>	1

## 6.2 Outcomes

SKP has a mix of improving, stable and declining conditions for its 12 key values (see table below). Of the 12 values, 4 are considered to have improved compared to five years ago, 4 are stable, and 5 values have worsened, which is cause for concern.

The poor condition of all of the recreational-tourism values appears to be the result of insufficient financial and human capacity to deal with the large job at hand. This is troublesome given that revenues associated with a declining product should eventually decline as well, along with the natural resource base. In addition, the poor condition of the Wadi Mandar area is substantially the result of the poor management of the Sharm el-Sheikh dump site by the municipality, which controls dumping areas by law.

The declining condition of the El'qaa gazelle population is the result of a lack of effective enforcement and control in the area to stem the loss and fragmentation of gazelle habitat. Cooperation with policing authorities is needed.

The worsened condition for the town of St Katherine relates to ongoing expansion, ineffective waste management and poor cooperation between the town and the PA.

**Table 2: Status of key values in the SKP**

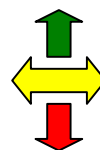
Value	Status
<b>Biodiversity / Natural Resources</b>	
High Mountain Ecosystem	↑
Threatened gazelle populations on el-Qaa Plain	↓
Unique geological features	↑
Acacia key species	↑
<b>Cultural Values</b>	
World Heritage Site, Cultural Landscape	↔
Monastery and monastic traditions	↔
Historical and archaeological sites	↔
<b>Recreational/Tourism Values</b>	
Mount Sinai and the St Katherine's Monastery	↓
Wadi Mandar	↓
Ecotourism infrastructure and opportunities	↓
<b>Local Community Values</b>	
Bedouin local culture and heritage	↑
St Katherine Town	↓

Key:

Improved condition or situation over the last five years

Stable condition or situation over the last five years

Worse condition or situation over the last five years



## Part V. Towards the Future

### 7.0 Strategic Considerations

- The PA's of South Sinai should have a liaison office in the South Sinai Governorate to support improved dialogue and collaboration. This could help in understanding the exact conditions in which the governorate is planning to modify the existing Sharm El Sheik dump site. Sound management of the dumping area is necessary, not only because it is located in the PA, but also because it directly affects the condition of PA values.
- The poor condition of infrastructure and eco-tourism opportunities as well as the condition of Saint Katherine town can be substantially linked to the poor financing that the SKP has faced since the end of European funding in 2003. Despite the fact that the SKP started collecting visitor entrance fees in 2005, which has generated over 6,000,000 LE a year, the SKP's budget for the year 2006–2007 has not exceeded 350,000 LE. In order for the SKP to continue to generate this kind of revenue for the nation, it is important to increase its funding so it can solve its chronic problems and continue to protect its key values.
- Other problems such as poor staffing, lack of training for new recruits, and the slow process of hiring replacement staff, as well as the control of the SKP's relatively small budget by the St Katherine town council are problems that hamper management activities and cause them to be inefficient. A key priority for SKP management should be to improve the effective collaboration with the town's administration and leadership.
- The non-cooperative style of the management of the Medicinal Plants Conservation Project, which should have been integrated with the SKP, has led to the loss of many opportunities to improve the situation of the SKP. Until now, the project has failed to provide assistance for the SKP management and is reportedly seen by many people in the area as a major threat to the natural heritage of medicinal plants.
- For five years, the SKP has failed to implement its visitor management plans, either in the Northern or Southern Ranges for different reasons. Implementation of such plans is of a paramount importance to reduce visitor impact in the area. Failure to implement the visitor management plan for the Northern Range, because of opposition by the town council, may lead to the delisting of the SK world heritage site by UNESCO, at great cost and embarrassment. Failure to implement the visitor management plan in the Southern Range will result in the eating away of major areas in the SKP to unlicensed tourism activities in the Southern Range. It will also create a situation of expansion of local settlements by Bedouins from outside the area, who will want to move into these

areas inside the PA to be near lucrative tourism in Sharm el-Sheikh, and cheap fodder provided by the Sharm el-Sheikh non-sanitary landfill site.

- The improved ratings for community's local culture and heritage are an estimate by which to measure change and progress. In line with the Millennium Development Goals, a focus for SKP should include poverty reduction and community development.
- A strategic priority, therefore, is to ensure that clear objectives are established in the management plan with associated actions. To this end, annual reporting on the implementation of the management plan is recommended. Preparation of an annual work plan is a useful way to translate management plan actions into reality. Also, the management plan should include a section, or an appendix, that summarizes the actions (commitments) stated in the plan. This would assist the protectorate manager in preparing an annual report on implementation of the management plan.
- The management plan should be reviewed and updated, as it will reach 5 years age in 2008. As part of the management plan review, a long-range vision should be prepared for the management of SKP in 2020. The most important actions to achieve the vision (or to avert major looming problems) need to be specified.

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## **Appendices**

1. Workshop Agenda and Participants
2. Evaluation of SKP Management Plan Implementation
3. Summary of Recommended Actions
4. Results of Visitor Surveys
5. RAPPAM Results for SKP
6. Site Level Management Effectiveness Evaluation Procedure
7. Workshop Participant Evaluation Results

## Appendix 1. Workshop Agenda and Participants

A five day workshop was held in March 2007 to examine the current status of SKP, threats, and the overall effectiveness of management. The following individuals participated in the workshop: Ayman Eltoukhy, Wael Ibrahim, Elbially Hatab, Mohammed Fawzy, Ismail Hatab, Mohammed Ismail, Haitham Saad, Sabreen Rashad, Yousria Abdelbaset, Ahmed Disouky, Mahmoud Mansour, Farhan Zidour, Adnan Mohammed, M. Farid, Khaled Allam, Mohammed Talaat and Dan Paleczny.

### Agenda

March 18-22, 2007

	Day 1 March 18	Day 2 March 19	Day 3 March 20	Day 4 March 21	Day 5 March 22
Morning		9:00 am  Introduction to values & indicators  Working Groups  Surveys	9:00am  Values, indicators  Working Groups  Surveys	9:00am  Threat Analysis	9:00am  Review Survey Results  Synthesis and Action Planning  Key Recommendations
Afternoon	12:00-2:00 pm  Introduction to Management Effectiveness  3:00  Surveys (training and plan of action)  Management Plan/operational plan/ annual work plan evaluation	Continue...  Working Groups  Surveys	Continue...  Working Groups  Surveys (Monastery)	Continue ...  Finish Surveys	Continue ....  Wrap up evaluation of process  {team meeting, next steps, evaluation}

## Appendix 2: Evaluating Management Plan Implementation and Effectiveness

Review Period: 2003-2007

Date of this Review: March 2007

### A. Management Plan Objectives

Objectives (per management plan)	Overall Status of Protected Area Compared to 5 years ago (declining, stable, improving)	Evidence (1. Estimation 2. Expert opinion 3. Results of PA patrolling and monitoring 4. Results of technical or research study)
1. The conservation of the mountain ecosystem of Southern Sinai including all its elements and processes and the conservation of the site's traditional cultural and religious values.	<b>Improving</b> conditions for wildlife, except Dorcas Gazelle population on el-Qaa plain. Traditional cultural and religious values are improving.	3-Monitoring reports. Results of patrolling and monitoring. Results of field research and surveys.
2. To facilitate and strengthen the institutional capacity of Protectorate management and development in partnership with relevant institutions and local stakeholders.	<p><b>Deteriorating</b> because of absence of the direct benefits that the SKPDP used to be able to distribute over a large portion of the local community, particularly in St Katherine town. These have stopped, which has resulted in some distance between the PA management and the local people.</p> <p>The relationship between the PA management and the other stakeholder, the St Katherine Town Council, has become difficult since the end of the SKPDP because of the inability of the SKP to support the town with its shrunken budget. This has resulted in garbage cleaning tools such as trucks and loaders that have been out of order for the last five years and the cessation of operations in the SK landfill site.</p> <p>Another difficult relationship is that with the environmental office</p>	1-Estimation based on collective personal judgment of SKP staff.

<b>Objectives</b> (per management plan)	<b>Overall Status of Protected Area Compared to 5 years ago</b> (declining, stable, improving)	<b>Evidence</b> (1. Estimation 2. Expert opinion 3. Results of PA patrolling and monitoring 4. Results of technical or research study)
	<p>in the Governorate of South Sinai because of their transfer of the main garbage dump of the city of Sharm el-Sheikh, which is the largest in the Sinai Peninsula, in the SKP's Southern Range. This is causing a major catastrophe of garbage spreading over an area of about 40km<sup>2</sup>.</p> <p>Relationships with hotel managements in St Katherine are <i>stable</i>, and are the same with the local community in the SKP Southern Range, the quarry department in the South Sinai Governorate, and the police forces in the Northern Range.</p> <p>Police in the Southern Range of the SKP refuse to perform their duties, and when called for a violation, they refuse to attend; as most offenders know this attitude, the rate of violations is getting higher.</p>	
3. The integration of the St Katherine Protectorate management and development planning into the network of protected areas forming the South Sinai Management Sector.	<p><b>Improving:</b> the SKP continues to play an active role in the integration into the network of PAs of the South Sinai sector. SKP staff has managed on every possible occasion to assist in serving other protected areas in South Sinai that might be in need of their technical support, for example, in large mammal monitoring, bird flu, visitor management and impact assessment, veterinary services, avian surveys, botanical surveys, etc. Nowadays, the SKP is playing an ever-greater role as an active member of the South Sinai Protected Area Network, particularly since the creation of the South Sinai Protected Areas Sector (SSPAS) under one umbrella.</p>	1-Estimate based on collective personal opinion of the SKP staff.
4. The integration of the protectorate into the local development process and land	<p><b>Improving:</b> the design of the PA itself was based on it being an integral part of the local development process and land-use management system. This helped it to succeed in its role of</p>	1-Estimate based on collective personal opinion of the SKP staff.

<b>Objectives</b> (per management plan)	<b>Overall Status of Protected Area Compared to 5 years ago</b> (declining, stable, improving)	<b>Evidence</b> (1. Estimation 2. Expert opinion 3. Results of PA patrolling and monitoring 4. Results of technical or research study)
use management system in order to assist sustainable local rural development.	assisting sustainable, local, rural development. Because of the protectorate's active role, the environmental and cultural conservation element has become a major part of every local development project in the area.	

## B. Management Actions

For this evaluation, the main policies in the management plan were reviewed to determine the degree of implementation and effectiveness. The following status codes were used.

### Status codes:

- 1 = Completed or part of an ongoing program.
- 2 = Implementation underway but not yet completed.
- 3 = Planning is in progress.
- 4 = Not commenced, but action is still worthy of implementation.
- 5 = Circumstances have changed; action is no longer appropriate or necessary.
- 6 = Out of the control of the PA.

### Comments on Status

**1+2:** Description of Effectiveness, Needed Changes and Follow-up.

**3+4:** Note problems and/or reasons for status.

**5+6:** Rationale.

### Evidence of Effectiveness:

- 1. Estimate.
- 2. Expert opinion.
- 3. Results of patrolling and monitoring.
- 4. Results of technical or research study or other reports/products.
- 5. No evidence.

Management Policies	Plan	Status Code	Comments on Status	Evidence of Effectiveness
<b><i>Participatory Management and the Bedouin Support Program:</i></b> To involve and benefit local people and to win their active support for conservation activities, primarily through maintaining and extending the Bedouin Support Program.		1	<ul style="list-style-type: none"> <li>- Participatory management is a long-term commitment and will be actively championed and maintained for the life of the Protectorate. Communication is still underway on different levels, which was clear from the questionnaire results.</li> <li>- Tangible benefits to local communities are to be sustained; particularly Protectorate-initiated activities, such as the Bedouin health and veterinary support and Acacia rehabilitation programs. In addition, independent local Bedouin enterprises such as the Bedouin eco-lodge and FanSina Crafts Company will continue to be assisted where possible. Some programs, such as Acacia rehabilitation, need more financial support so that they can continue. The vet and health program is completely implemented through stakeholder collaboration.</li> <li>- Traditional responsibility of local people as the resource managers in the area will be acknowledged and exploited. The Bedouins' view of the PA is a respectful one, which is clear from the questionnaire and effective programs which are followed up by local staff.</li> <li>- The Protected Area Management Unit (PAMU) will work for the effective integration of tourism, local economic development and PA management, particularly by encouraging the expansion of nature-based tourism in the more remote parts of the protectorate. This strategy has not been completely realized, but some elements have materialized, such as the eco-lodge structure in Sheikh Awad.</li> <li>- The PAMU will seek to catalyze associated rural development activities by other agencies. Great efforts were made, which had partial results, such as stopping pavement works in remote wadis, preventing the doubling of the highway from the checkpoint to the town, and sharing rural planning procedures at the level of relevant stakeholders until 2017. Some challenges are still there, for example, implementation of development strategies.</li> </ul>	1, 3  3  3, 4  1  2, 3, 4 (in, 2003)
<b><i>Socio-economic Development:</i></b>		1.	<ul style="list-style-type: none"> <li>- Activate the process of establishing effective representation of the PAMU/EEAA on the regional development committee. PA staff are</li> </ul>	

Management Plan Policies	Status Code	Comments on Status	Evidence of Effectiveness
To regulate and disperse development in order to retain the unique Bedouin mountain town character of St Katherine, and to diversify tourism opportunities in its environs. All planned projects are to be reviewed and due consideration given to deferring or revoking consent for development so as not to irrevocably jeopardize potential for the successful and sensitive development of St Katherine town and environs and the St Katherine Protectorate concept as a whole (see Development Regulations under World Heritage Site and Appendix 5).		<p>represented on the rural planning committee</p> <ul style="list-style-type: none"> <li>- Enforce the adoption of the main principles of the GOPP plan for St Katherine i.e. the twin-node concept of urban development and the maintenance of “cones of vision,” free of all development. Recorded success in some areas.</li> <li>- Establish and enforce building codes for St Katherine. (Appendix 2) Strategy is currently implemented.</li> <li>- EIAs, including cumulative impacts, are to be enforced on all recreational and commercial facilities and activities before approvals are granted. Strategy is implemented.</li> <li>- Prohibit the construction of new hotels and the expansion of existing hotels. Partially done, there is some expansion but no new ones.</li> <li>- Activate, with the Town Council, a priority program for urban development and management. Low level of collaboration</li> <li>- Champion a reform of TDA regulations requiring four-star hotels to have swimming pools in desert environments. The limitations are only in the limited water resources, so the solutions are currently applied in bringing water from far away. In the near future, a water pipeline will reach St Katherine town.</li> <li>- Applying a program of collaboration with tourist police to monitor camels infected with disease to avoid their presence in the heavy tourist areas such as Gebel Musa.</li> <li>- Implementing the proposed strategy which deals with distributing the ticket collection fees to partly cover maintenance of the visitor facilities that were in place under the EU project. The Minister of the Environment has agreed to this in a decree dated in late 2006.</li> </ul>	3, 4
<b>Roads:</b> Will be to limit road construction, i.e. the fewer roads the better. No roads will be allowed in		<p>The PAMU will liaise closely with the Ministry of Public Works and Sinai Development Authority to review road development plans. Specifically, it will seek to ensure that:</p> <ul style="list-style-type: none"> <li>- The planned new road from el-Tur to St Katherine via Wadi Hibran,</li> </ul>	3, 4



Management Plan Policies	Status Code	Comments on Status	Evidence of Effectiveness
Wilderness or Wildlife Sanctuary Zones and a full EIA (black code) will be required for any road construction within the Protectorate or its adjacent area. The Protectorate will seek to restore road lines of spoil tips resulting from maintenance and repair (e.g. broken asphalt), and in future enforce the removal of such spoil by maintenance contractors.		<p>Wadi Sulaf and Nabq Hawa (shortening the distance by 100km) is cancelled, as it would cut through critical wildlife habitat and an area of scenic beauty that until now has been untouched. It would thus endanger the integrity of the area's natural resources and landscape. Also road construction in Wadi Hibran, a high flood-risk wadi, will be difficult and will lead to high physical impact.</p> <ul style="list-style-type: none"> <li>- The planned new access route from the Gulf of Suez to the airport in Sharm el-Sheikh via Wadi Leithy has been cancelled, as it would seriously impact the core area for the remaining gazelle population in South Sinai.</li> <li>- Liaison is still operating and clear in stopping the doubling of the highway to St Katherine from the checkpoint</li> <li>- All agencies now respect the rules of the PA on roads</li> </ul>	
<p><b>Quarrying and Mining:</b></p> <p>To seek the eventual exclusion of all commercial quarrying and mining activities within the Protectorate and ensure that all current quarrying activities are strictly limited to ensure that they do not destroy the long-term value of the Protectorate's natural resources, destroy their aesthetic qualities or deplete biological</p>	1	<ul style="list-style-type: none"> <li>- On the basis of commercial, environmental and aesthetic considerations, the PAMU and the Quarry Department of the South Sinai Governorate have defined areas where quarrying activities, including boulder collection, are to be allowed within the Protectorate's boundaries and adjacent zone. No quarry activities will be permitted outside these defined quarry zones. Completely applied strategy</li> <li>- The Quarry Department, in consultation with the PAMU, will institute and enforce new regulations for the issuance of operator licenses in order to increase efficiency and reduce wastage; operators will also be required to sign and uphold a code of best practice to minimize environmental impacts. Completely applied, which is strictly enforced by the PAMU.</li> <li>- The PAMU will ensure that full monitoring of all active quarry sites is fully implemented.</li> <li>- The PAMU will ensure that investors and operators are kept fully aware of quarry regulations and will maintain effective monitoring procedures. Implemented</li> <li>- Where necessary the EEAA will help support studies to identify</li> </ul>	3,4,

Management Plan Policies	Status Code	Comments on Status	Evidence of Effectiveness
diversity. In addition, the PAMU will exclude all quarrying activities from important wildlife habitats, premium tourist areas, areas of natural beauty and archaeological, cultural and religious sites. In tandem, the PAMU will seek to restore quarry sites by promoting the utilization of granite waste and re-profiling sand and gravel borrow pits' spoil tips, initially with the support of the SSRDP.		alternative quarry areas and investigate methods of increasing efficiency, promoting mechanization and reducing wastage in the industry. Work carried on by SKP.	
<b><i>Landscape Restoration:</i></b>  The natural aspects of landscapes within the Protectorate are to be respected and as far as possible they are to be restored after any development or maintenance impacts.	1, 3	<ul style="list-style-type: none"> <li>- Full EIAs will be obligatory for all development and installations that impact natural landscapes and the appropriate restoration measures to be used are to be identified in the EIA. Implemented.</li> <li>- All contractors will be obliged to restore the landscapes as far as possible prior to leaving any development site. Partially succeeding.</li> <li>- The PAMU will continue to restore Wadi Raha by filling borrow pits and encouraging plant rehabilitation. Filling the pits is succeeding and continuing but plant rehabilitation has not been applied because of inadequate financing.</li> <li>- The PAMU will regularly remove graffiti from roadsides using the sandblaster. Not succeeded in high mountain areas because of heavy machinery. But is currently running using appropriate chemicals.</li> </ul>	- 3,4
<b><i>Waste Management:</i></b> Waste management inside	4	During this period the PAMU in co-operation with the Town Council will seek to:	

Management Plan Policies	Status Code	Comments on Status	Evidence of Effectiveness
the Protectorate will remain a high priority for the PAMU. The general policy will be to prohibit the dumping of all waste inside the protectorate. The protectorate will continue to support the Town Council with domestic waste management within the municipal area of St Katherine but it will seek to hand over full responsibility for all aspects of municipal waste collection and sorting by mid-2004.		<ul style="list-style-type: none"> <li>- Raise awareness among visitors on the importance of disposing of garbage responsibly and packing out garbage from backcountry areas.</li> <li>- Continue awareness and cleaning campaigns among local communities and residents.</li> <li>- Maintain the prohibition on burning waste and fly dumping with immediate prosecution (spot fine) for offenders. Succeeding.</li> <li>- Enforce the dumping of all building debris and spoil in borrow pits in Wadi Raha. Succeeding.</li> <li>- Seek the near-future closure of the municipal waste dumps at Khanasir (Sharm el-Sheikh) and Dahab and their relocation to suitable sites outside the protectorate. Succeeding in Dahab with NGO, but in Sharm el-Sheikh will be included in SSRDP.</li> <li>- Champion the inclusion of waste management as a major investment need for the SSRDP.</li> </ul> <p>Currently there is a plan for waste dumping for the whole of South Sinai with SSRDP, which is expected to largely solve the waste problem. The PAMU is effectively sharing the plan to increase and continue awareness programs targeting hotels and governmental employees.</p> <p><b>Landfill site:</b> The Protectorate will continue to operate the landfill site using PAMU equipment and staff until mid-2004 before handing over responsibility to the Town Council. Garbage is to be compacted and covered daily. The PA did its part towards the Town Council until late-2006, however, the council is not yet taking responsibility, but is waiting for the SSRDP.</p> <p><b>Waste management on Mt. Sinai:</b> The PAMU will continue to have responsibility for the installation of bins and removal of garbage from Mt. Sinai and other outlying tourist areas within the protectorate. The PAMU will re-introduce a collection fee from cafeteria owners to cover part of the cost of</p>	3, 4

Management Policies	Plan	Status Code	Comments on Status	Evidence of Effectiveness
			this service. Partially done through installation of bins and removal of garbage from Mt Sinai, but no collection fees applied.	
<b>Bedouin Settlements:</b> Natural expansion of Bedouin settlements within recognized traditional community areas will be permitted but all new dwellings are to be built in vernacular style, i.e. simple stone façades with no balconies and natural colors for finishing.		3	<ul style="list-style-type: none"> <li>- Enforcement of building codes and sustainable urban plan. Partially implemented in the outer shape, height, and colors of new buildings.</li> </ul>	3
<b>Sustainable Use of Resources:</b>  <b>Overgrazing:</b> The PAMU, in co-operation with, and agreement of, local communities, will seek to introduce an integrated program for sustainable grazing, particularly in critical plant habitats. This will involve the re-establishment of traditional grazing management systems, the institution of rotational		5	<ul style="list-style-type: none"> <li>- Maintain plants and monitor plant enclosures and use them for public awareness to demonstrate the impact of grazing. Ongoing.</li> <li>- Continue and extend the grazing study to identify grazing pressure points and reveal the limited benefits of open-range grazing for livestock. Stopped three years ago as most of the experienced staff had left. Lack of financial resources is among the causes.</li> <li>- On the basis of this study, locate areas for increased protection (plant enclosures); places where grazing is limited and range recovery areas could be established. Stopped, but recommended for continuation with the MPCP.</li> <li>- Liaise with local people to identify and agree on establishing grazing exclusion areas, particularly traditionally respected zones such as Mt. Sinai and Gebel Safsafa. Stopped; hoping to continue with the MPCP.</li> <li>- Work with local Bedouins to eradicate feral donkeys particularly from important plant areas, e.g., Gebel Katherina and G. Serbal. Ongoing with MPCP. Wild donkeys are caught, and donkeys belonging to local communities have had their free mobility in the wild restricted.</li> </ul>	3, 4

Management Plan Policies	Status Code	Comments on Status	Evidence of Effectiveness
grazing systems, range recovery areas and grazing exclusion areas including fenced plant conservation areas.			
<b>Fuel-wood Collection:</b> The policy for the sustainable collection and use of fuel wood will be developed at an early stage in the project to ensure the conservation of woody plants traditionally used as fuel.	4	<ul style="list-style-type: none"> <li>- Prohibiting the collection of fuel wood by tourists through awareness and enforcement. Currently stopped. The project has been assisted by bringing a fuel wood from the Delta for delivery to tourists.</li> </ul> <i>The local units have proposed a woody plant area that is watered from the wastewater treatment plant.</i>	3
<b>Sustainable Use of Medicinal Plants:</b> The policy for the sustainable use of medicinal plants will be developed at an early stage in the project to ensure best practices for wild medicinal plant collection and regulation of collection levels. Collectors will be encouraged to process, package and market their medicinal plants through	2	<ul style="list-style-type: none"> <li>- Design and implement an awareness program among Bedouin communities to demonstrate the cause and effects of over-collection of medicinal plant species. Stopped in 2003</li> <li>- Build consensus for a community agreement on sustainable collection levels for medicinal plant species. Done for all plant cover not only for medicinal plants</li> <li>- Adapt and modify collection techniques for use in St Katherine to minimize damage to wild medicinal plant resources. Done for all plant cover not only for medicinal plants.</li> </ul> <p>To date a number of activities have been expected to be carried out by the MPCP, which started in 2003. The project activities are expected to join those of the PA in the next period. Achievement of valuable actions in the area of conservation is also expected.</p>	1, 2, 3, 4

Management Plan Policies	Status Code	Comments on Status	Evidence of Effectiveness
the proposed Medicinal Plant Centre.			
<b>Hunting:</b> The no-hunting regulation within the Protectorate will be strictly enforced for all wild species and offenders will be vigorously prosecuted.	1	Frequent patrols and mobilization of Community Guard (CG) interventions and liaison activities in those areas and in seasons when hunting (trapping and collecting) is reported. Implemented. Vigorous public awareness programs for local people, explaining wildlife's ecological importance and the charismatic value of native wildlife for visitors, especially large mammals and particularly predators. Implemented. Expanding eco-tourism destinations to remote areas to offer alternative income-generation opportunities. Partially implemented, but not as a continuous plan.	3, 4
<b>Trapping and Collection of Wildlife:</b> Strict enforcement of Protectorate regulations and offenders are to be vigorously prosecuted.	1	<ul style="list-style-type: none"> <li>- Mobilizing CG interventions and liaison activities, in those areas and in seasons in which trapping and collecting are reported.</li> <li>- At the local level, CGs should take note of animal collection activities, as local participants are usually involved.</li> <li>- Major monitoring and patrol activity to be scheduled annually on the el-Qaa Plain between late September and early November.</li> </ul> <p>A major part of the solution to this issue lies in the hands of the CITES management authority in Cairo, which needs to be made aware of the situation. More careful assessment of the permit allocation process and better management and monitoring of the animal trade are needed.  All the previous activities are currently implemented.</p>	2, 3
<b>Feral and Invasive Species:</b> Seek to eradicate, in a humane manner, all feral and invasive species inside the protectorate in order to protect natural biodiversity. No poisons	3,4	<ul style="list-style-type: none"> <li>- <b>Implement a program for the sterilisation of all household dogs and cats in the environs of St Katherine. Stopped in 2002.</b></li> <li>- Introduce a system to encourage the Bedouin to round up feral donkeys, from prime habitats such as Gebel Katherine and dispose of captured animals humanely. Done in agreement with MPCP.</li> <li>- Proscribe the use of exotic plants for landscaping and enforce the use of alternative indigenous species that should be supplied from the proposed plant nursery using wastewater for irrigation. Done by Town Council</li> </ul>	3

Management Plan Policies	Status Code	Comments on Status	Evidence of Effectiveness
will be permitted for feral animal control.			
<p><b>Tourism and Visitor Management:</b>  <b>The overall policy</b> will be to enhance the quality and diversity of visitors' experiences in the area.  <b>The short-term policy</b> will be to attract visitors to a wider range of activities and attractions in the immediate excursion area of St Katherine and environs and so reduce pressure on the monastery and Mt. Sinai.  <b>The long-term policy</b> will be to encourage and diversify sustainable nature-based and cultural tourism opportunities and so disperse visitors throughout the protectorate and decrease localized environmental impact. A master plan for tourism within the WHS will be developed as a matter of priority.</p>	1	<ul style="list-style-type: none"> <li>- Utilize the new visitor reception and interpretation centre for the St Katherine Protectorate, to expand visitors' perceptions of the protectorate and minimize impacts through awareness raising. Implemented but needs to apply visitor management plan (2003–2004) in collaboration with UNESCO.</li> <li>- Develop alternative and compatible attractions to St Katherine's monastery to increase carrying capacity through visitor dispersion into the "excursion catchment area" and decrease localized environmental impact. Partially developed and can be clear at al-Karm Eco-lodge. Future development of 77 Bedouin gardens to be a tradition-based tourism issue.</li> <li>- Prohibit construction of additional hotels in the St Katherine town environs and promote the development of small low-impact Bedouin-managed eco-lodges and camps. Partially done by al-Karm</li> <li>- Introduce a policy aimed at increasing accommodation capacity by visitor length of stay through a program of constraint and upgrading of visitor accommodation (including reducing the supply), plus increasing the range of facilities and attractions, combined with the launching of a marketing strategy in support of these objectives. Developments are ongoing partly by PA and partly by SSRDP</li> <li>- Liaise with security authorities to facilitate visitor access to remote areas. Partly done in Sheikh Awad, al-Karm Eco-lodge.</li> <li>- Implement site-specific visitor management plans, i.e. for traffic management in Wadi el-Deir and introduce visiting times and proscribed areas for Mt. Sinai (Part V). Not yet implemented, need more collaboration efforts with relevant stakeholders.</li> <li>- Develop a tourism master plan for the WHS area by June 2003 that will reconcile the conservation requirements of the Protectorate and obligations to WHS listing with the preferences of the tourists. Included</li> </ul>	3, 4

Management Plan Policies	Status Code	Comments on Status	Evidence of Effectiveness
		within tourism plan for SKP as a whole.	
<b>Public Awareness:</b> To raise local, national and international awareness in order to elicit support for St Katherine Protectorate. The target audiences are Bedouin communities, tour operators, tourists, local and regional authorities, hotels, investors and the St Katherine community at large, particularly schoolchildren.	4	Public Awareness strategy- per Appendix 7 in management plan. <ul style="list-style-type: none"> <li>- Maintain, expand <b>and continuously update</b> the established public awareness programs (newsletter, web page, brochures, etc.). Only brochures are currently in place, money is needed for activation of web site and reissuing of St Katherine Newsletter.</li> <li>- Respond promptly to e-mail messages. No response due to web site inactivation.</li> <li>- Fully utilize the new visitor reception and interpretation centre for the St Katherine Protectorate, to expand visitors' perceptions of the Protectorate and raise environmental awareness. Partially implemented until visitor management plan is operating.</li> </ul>	3
<b>Signposting:</b> All signposting within the Protectorate will be harmonious and use natural materials. Other signs will be kept to a minimum and no roadside commercial billboards will be allowed within the Protectorate. Within urban areas only one simple sign per establishment (hotel, restaurant etc.) will be allowed and may be	1	<ul style="list-style-type: none"> <li>- Signposting of all boundary, entrance, visitor interest, regulation, destination, and information and access sites using the established hand-carved sandstone signs throughout the Protectorate. Done</li> <li>- Promotion of the same signage style by all authorities for various purposes where appropriate. Done</li> <li>- Prohibition and removal of all roadside billboards and advertising signs. Done</li> <li>- Prohibition of flashing or neon lit signs. Mostly done</li> </ul>	3, 4



Management Plan Policies	Status Code	Comments on Status	Evidence of Effectiveness
simply lit at night i.e. no flashing or colored lights.			
<b><i>Off-road Driving (including Rallies) and De-mining:</i></b> To control and limit, as far as possible, off-road driving within the protectorate by proactive measures, such as zoning, trail marking, delimiting tracks and physically closing sections of wadis, as well as awareness raising among residents and tour operators.	4	<ul style="list-style-type: none"> <li>- Undertake pre-rally and post-rally EIAs along designated Paris–Sharm el-Sheikh Rally routes according to the pro-forma in Appendix 8 of the management plan. Done.</li> <li>- Off-road driving has mainly done within this policy due to security issues.</li> </ul>	3,
<b><i>Mountain Rescue:</i></b> The PAMU will continue to provide a free medical emergency and evacuation service for visitors to the high mountain region of St Katherine particularly Mt. Sinai. The PAMU will ensure that the system is adequate, is fully operational at all times and is upgraded as circumstances require, in terms of training and	5	<b><i>Maintaining Rescue Response:</i></b> <ul style="list-style-type: none"> <li>- Stopped more than three years ago due to inadequate equipment and financial resources.</li> </ul>	3

Management Plan Policies	Status Code	Comments on Status	Evidence of Effectiveness
provision of equipment and supplies.			
<b>Entrance Fees and Revenue Generation:</b> An appropriate entrance fee to the popular tourism area and World Heritage Site of the Protectorate immediately around St Katherine was instituted during 2003 and visitor-use charges to premium, and other areas, in the protectorate will be introduced when facilities allow for their collection. The Protectorate will seek to maximize additional revenue through introducing fees for leases, commercial use (film making etc) as well as spot fines and product sales.	1,	<ul style="list-style-type: none"> <li>- Entrance fee collection system has been operating since 2005, but no means for additional revenues have been applied.</li> </ul>	1, 3, 4
<b>External Research:</b> The PAMU will encourage, and where possible support, applied research both by outside researchers and by PAMU	1	<ul style="list-style-type: none"> <li>- Outside researchers will be encouraged and supported where practical to undertake applied research on condition that they sign confidentiality and code of conduct statements and submit papers intended for publication for prior review. Done.</li> <li>- All researchers will have to submit an outline of their intended research and methodology and indicate whether specimens of plants are to be</li> </ul>	

<b>Management Plan Policies</b>	<b>Status Code</b>	<b>Comments on Status</b>	<b>Evidence of Effectiveness</b>
staff, according to priorities. All territory-related data are to be registered in the PAMU's GIS as a matter of course.		collected or animals culled and if so, how and in what quantities, with justifications. Implemented. <ul style="list-style-type: none"> <li>- All researchers will be expected to acknowledge any support and submit a free copy of any paper, article or thesis arising from the research to the PAMU library. Done.</li> <li>- PAMU technical staff will be encouraged to pursue relevant and applied research as part of their duties (Part VII). Done.</li> </ul>	2, 3, 4
<b>Monitoring and Research (Pt VII):</b> Reptiles Breeding birds of prey	1	- Wildlife in St Katherine, (included reptiles), issued by SKP, 2003. (Tim Watsher No information	2, 4
<b>Monitoring procedures</b>	1	<ul style="list-style-type: none"> <li>- Grid cell system (per management plan), done</li> <li>- Permanent transects established in representation of habitats. Done</li> <li>- Permanent monitoring routes, recently activated after a two-year cessation</li> <li>- Implementation of monitoring protocols (p 82) resumed after a two-year cessation</li> </ul>	1, 3, 4
<b>Gazelle monitoring</b>	1	- (per management plan) resumed after a two-year cessation	
<b>Veterinary monitoring:</b>	1	<ul style="list-style-type: none"> <li>- Baseline surveys. Ongoing</li> <li>- Veterinary treatment services. Ongoing</li> <li>- Camel registration and inspection. Ongoing</li> <li>- Training and monitoring Community Animal Health Workers. Ongoing</li> </ul>	1, 3, 4

## **Appendix 3: Summary of Recommended Actions**

### **1.1.5 High Mountain Ecosystem**

- Law enforcement has intensified and has become more effective in the area over time, but more patrols are needed and better training is needed for the new SKP recruits.
- A research-based visitor management plan was put in place and awaits implementation during the current year by a fund from the EU/SSRDP. The plan will help to significantly reduce visitor impact on the high mountain areas.
- An integrated public awareness strategy should be put into action to target tour guides, school children, local community and governmental organizations, and generally, all stakeholders.
- Bedouin eco-guide certification programs have begun to give accreditation to the environmentally committed local guides. Training of local guides and turning them into eco-guides is an essential step to seize business opportunities for the local inhabitants of the SKP and should be actively implemented.
- Non-Bedouin guides certification program will allow only trained guides to operate in the area; certification of guides is an essential step to minimize visitor impacts in a protected area.
- Cooperation with the MPCP on the feral donkey eradication program is continuing.
- The visitor center has not yet reached its full operational capacity. This world-class facility needs proper attention and planning to increase use. Implementation of the visitor management plan should be a priority during the next annual work plan, including the re-design of the visitor parking area and circulation system for the monastery and Gebel Mousa.
- Continue implementation of the protectorate's water analysis program to help determine contaminated sources of water and give warnings if necessary.
- Protectorate has adapted a zoning plan and kept high ecological sensitivity areas in the impact free zones. It is recommended that the zoning maps be printed, posted in the headquarters office, and training be carried out for the protectorate and town staff to better understand the zoning system and permitted uses.

### **1.2.5 Gazelle El-Q'aa Plain**

- Implement a gazelle monitoring program (e.g., radio telemetry tracking) to study movements, use areas, etc., in cooperation with the Army. The management plan provides for gazelle monitoring, however this is not being implemented.
- Include the largest section possible of el-Qaa Plain within the SKP buffer zone, and give the rangers effective jurisdiction to operate within that area.
- Contact army chiefs for a meeting in which the situation will be explained to them, they will be asked to move areas of live ammunition maneuvers away from major and high-sensitivity areas for gazelle population.
- The whole area of el-Qaa Plain should continue to be a no-quarry area for at least the coming decade to minimize impacts on the very-stressed gazelle population.

- Large mammal surveys will be resumed by the protectorate's newly appointed zoological team after over three years of being halted.
- NCS and EEAA should hasten the hiring of replacement community guards for the areas currently without a community guard because of the firing of the guards for security reasons. This time it has to be a precondition that guards should be living within their own areas and that movement to other areas after being contracted will result in termination of contract.
- Meeting with the police force's senior officials in el-Tur by a high ranking EEAA official to sign a memorandum of understanding. The Environmental Police should be obliged to share with the protectorate's rangers in joint patrols in the area to arrest hunters.

### **1.3.5 Geological Features**

- The protectorate should seek funding for its ambitious quarry waste management program through the business community.
- Quarry ranges should not be extended outside the current zones under any circumstances.

### **1.4.5 Acacia Keystone Species**

- Include the area of el-Qaa Plain in the protectorate's buffer zone. Establish new Acacia conservation sites on el-Qaa Plain.
- Increase public awareness among local communities and safari tour companies particularly in el-Qaa Plain and the surrounding area. In support of this, prepare a communication plan to relate key messages, target audiences, suitable methods of communication, and timing.
- Increased protectorate staff in the Southern Range to increase law enforcement efficiency by increasing patrols in the area.
- Provide the funds needed for the maintenance of old cultivation sites in the southeast of the SKP, as these sites have lately come under attack from Bedouins who come from outside the protectorate; some fences have started to rust and have become unusable.
- Encourage the application of traditional laws (hulf) to lessen the threat of overgrazing, cutting and uprooting.

### **2.1.5 World Heritage Site-Cultural Landscape**

- The SKP visitor management plan should be implemented during the next annual work plan, which includes closing the existing access road to the monastery, opening new parking and a transportation system to the monastery, and operating the Visitor Centre.
- Number of cleaners in the high mountain area should be increased, as well as the financial resources of the protectorate allocated to such issue.
- Building of new Bedouin camps within the St Katherine town area should be totally banned to minimize chances for cultural change; new camps should be allowed in the Morgen Land area.

- More cooperation with the St Katherine town council should be exercised to guarantee their support for the protectorate's conservation effort and to demonstrate the PA's support for the town.
- The two SK landfill sites, as well as the transfer station, should be handed over officially to the St Katherine town council during the coming financial year, and if necessary include the protectorate's two loaders in the deal (as the town council refuses to receive the two sites without the two loaders, the two lorries and the tractor).
- A site hardening plan should be adopted for the protection of the fragile archeological sites in the protectorate's World Heritage area; these sites are now unattended and could be severely damaged if not carefully managed.
- Public awareness programs should continue to target the area's stakeholders to raise awareness of the importance of preserving this unique World Heritage Site.
- Certification programs for local guides to become eco-guides and non-local guides become certified to operate in the area should continue. They represent a shortcut to the large number of visitors and can educate them on how they should behave to minimize their impact, and about the area's natural and cultural features. Trained guides can also help to assure quality and value for their services, thereby ensuring continued economic benefits.

#### **2.2.5 Monastery and Monastic Traditions**

- Implementation of the SKP visitor management plan should take place in the coming financial year. A St Katherine monastery-associated NGO has received €1.5 million in funding for the improvement of the whole area of St Katherine's monastery. The implementation of the SKP visitor management plan is a major part of this project.
- All cafeterias and vendors should be removed from the top of Mount Sinai as it is a holy site linked to the monastery; on it there is a church and a mosque. The summit should not look like a circus, as it does now. Mt Sinai is a holy site containing a mosque and a church; it should be treated as such.
- The number of cleaners and money allocated for cleanliness of the area around the monastery and Mount Sinai should be increased.
- Reprint the currently out of print brochures of the SKP and make them available in the monastery and the SKP visitor center.

#### **2.3.5 Historical and Archaeological Sites**

- Set a clear strategy for expansion of settlements and land acquisition inside the SKP where genuinely local settlements can be increased to a certain limit, and non-local acquisition of land should be totally banned, combated and prosecuted. Declare all other areas to be "no settlement" zones and demolish any structure built inside them, before buildings spread within the protectorate due to the absence of a police force in the protectorate (particularly in the Southern Range). The settlement expansion issue threatens most of the values that the SKP stands for, including its uniquely valuable historical and archeological sites.
- A site hardening strategy should be adopted; where appropriate, fences may be erected or local guards for the most fragile sites and the sites that are more likely to be targeted by tourism.

- Increase public awareness programs particularly in the Southern Range of the SKP.
- Start collection of entrance fees in the Southern Range of the SKP, which will help to make tourism activities more cautious.
- Staff and financial resources for the Southern Range of the SKP should be increased.
- Rangers' police powers should be increased to provide effective and firm management of such high value resources.
- Regulate the current size of settlements using GIS and compare data to the fixed position of the archeological sites.
- Implement GIS mapping of archaeological site boundaries and features, and determine a policy for access for each (open or closed for visitors).
- Training and certification for local and non-local guides to become eco-guides should be an ongoing program of the SKP, as it does provide a shortcut to the increased number of visitors and locals.
- Intensify and regulate patrolling and monitoring programs to the historical and archeological sites in the area.
- Quarry zones within the SKP should remain the same; no new areas should be opened to this destructive activity. Any impact on archeological sites should lead to the quarrying being stopped immediately.

### **3.1.5 Gebel Mousa and Monastery**

- A solution to the WC problem on the mountain is urgently needed to solve the environmental pollution problem and moral responsibility. This should include improvements to the existing two WCs and possible expansion of the system, and importantly, a strict cleaning regime (e.g., continuously during the busy periods). An incentive system should be considered to encourage clean facilities (e.g., voluntary use fee if facilities are clean).
- The visitor management plan should be implemented throughout the coming year.
- The Mountain Rescue Service of the SKP should be resumed by hiring and training new staff, particularly a second doctor, during the coming year.
- Number of cleaners in the area should be increased as well as the financial resources allocated for keeping the mountain clean.
- Training and certification programs for local and non-local guides should continue and should be a main part of the management plan, as they provide an excellent short cut to the increasing number of visitors.
- Cafeterias on the summit should all be moved down the mountain, and vendors should be banned from selling souvenirs at the summit.
- There should be a limit on the number of camels allowed to operate in the area of Mount Sinai, Camels should be ear-tagged, and regular checks on their numbers and health should be made by SKP veterinarians.
- Changing the pattern of visiting (to avoid night climbing) should be discussed with tour operators and enforced on all visitors to the protectorate.
- SKP should consider establishing a modest ranger and community guard outpost on the mountain with staff stationed here on a permanent basis. This is a high value natural, cultural and recreational resource with high levels of threats. Focused management

attention is warranted. Educational programmes can be delivered as part of their responsibilities.

### **3.2.5 Wadi Mandar**

- Implement the SKP Southern Range visitor management plan to introduce visitor entrance fees into the area of Wadi Mandar; the plan is expected to result in a considerable reduction in visitor impact.
- Lay down a strategy that ends the utilization of the adjacent Wadi Umm Adawy as a stone quarry, because of the anticipated severe impact of this type of quarrying.
- Ban the introduction and use of tourist quad runner activities inside the protectorate's Southern Range completely. This should be stated clearly in the protectorate's management plan.
- Restrict the number of Bedouin cafeterias allowed to operate in the area.
- Lay down a clear strategy to deal with the issue of local settlement expansion. The plan should lay down a maximum zone for current settlements, and ban building of settlements in other areas. The plan should also ban in-migration to the area, whether the immigrant is a Bedouin from outside the area or a non-Bedouin.
- Major trails in the area should be clearly marked to minimize off-road driving.
- Increase both the number of staff in the Southern Range and the financial resources allocated for visitor management actions inside it.

### **3.3.5 Eco-tourism Infrastructure**

- The implementation of the SKP proposed visitor management plans in the Northern and Southern Ranges.
- SKP should take a leading role in the management of the Sheikh Awad Eco-lodge; it is proposed to hire a ranger dedicated only for the management of that facility.
- Establish a clear strategy for dealing with the Bedouin settlement expansions in the area.
- Local eco-guides and non-local guides' certification programs should be a major part of the management plan as they provide an excellent short cut to the ever increasing flow of visitors and they help to generate business opportunities for the local community (programs have started already).
- The protectorate should set itself a certification scheme for eco-tourism establishments, which are going to increase in number during the upcoming period and should be in compliance with international standards (currently developed).
- Increase number of SKP staff.
- Increase financial resources allocated for visitor impact management and eco-tourism introduction and certification.

### **4.1.5 Bedouin Community**

- SKP needs to set a clear strategy for in-migration outside the town as it threatens to undermine the uniqueness of the local culture.
- Certification of local eco-guides should be an essential part of the protectorate's management plan as it helps to raise the community's awareness.



- The PA should develop its own strategy for eco-tourism as this could have a considerable negative impact on the local community if goes off track. The necessary strategy should be in compliance with international standards and also be consistent with the SKP management plan.
- Building of new tourist camps should be away from the main settlements.

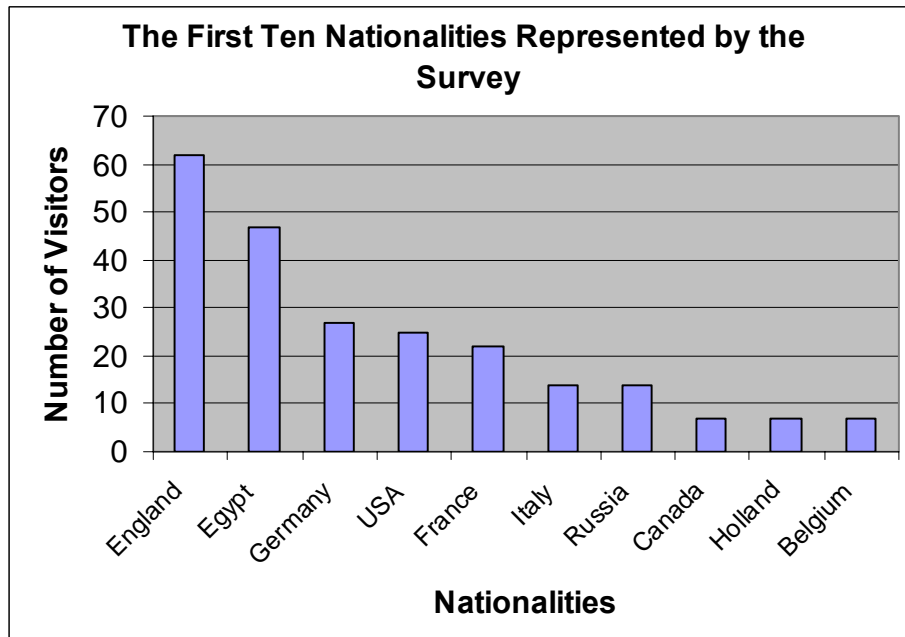
#### **4.2.5 St Katherine Town**

- Establishment and regular nurturing of an effective relationship between SKP and the town administration.
- Updating, authentication and implementation of the SKP management plan of 2003.
- The St Katherine Town plan should be implemented without delay in compliance with the UNESCO World Heritage Committee recommendations.
- The SKP visitor management plan should be implemented.
- Banning the building of new Bedouin camps near current Bedouin settlements.
- Intensifying law enforcement activities by increasing the number of patrolling schemes and monitoring programs in the SKP beyond their current levels.
- Hire, and train more staff in the SKP.
- Increase financial resources allocated for infrastructure, maintenance, and visitor management in the SKP.

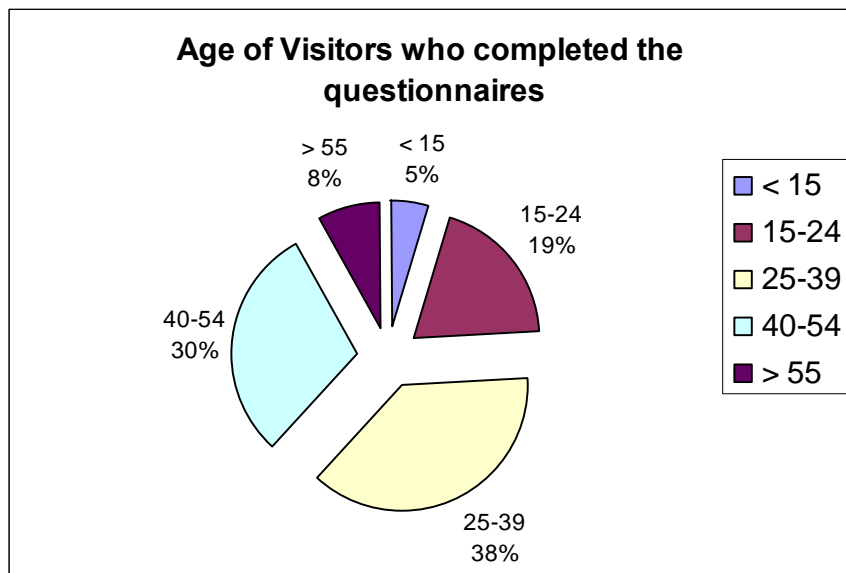
## Appendix 4: Results of Visitor Surveys

### Saint Katherine Protectorate Visitor Survey For the Months July to October 2006 2006–2007 Survey

#### 1- Ten most often recorded nationalities by survey

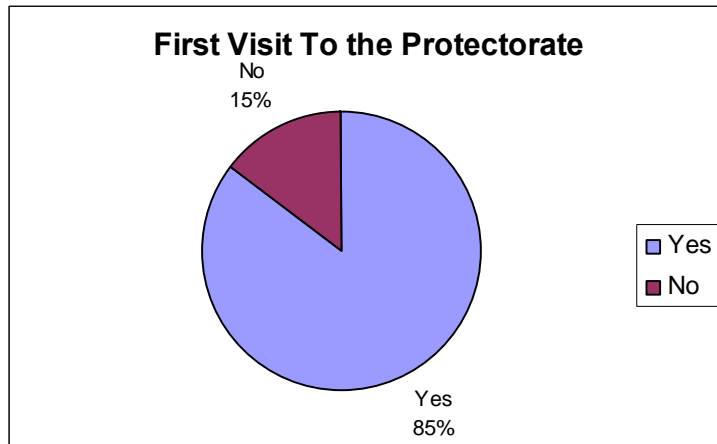


#### 2- Age of visitors who completed the survey forms



Visitors between the ages of 25 and 45 represent 68% of all respondents.

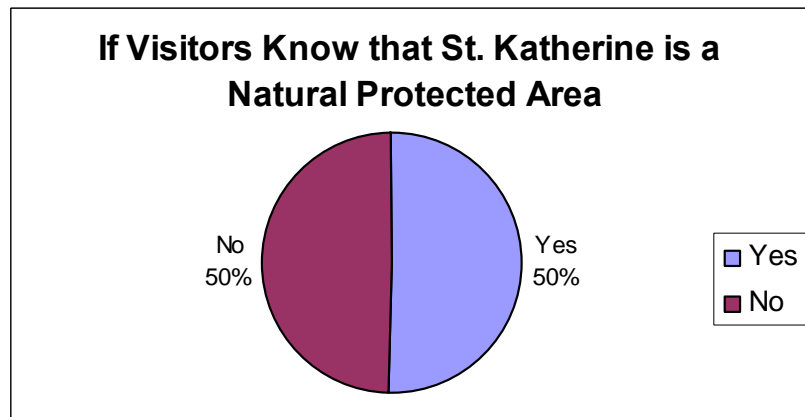
### 3- First time or repeat visitors



Fifteen percent of respondents were return visitors compared to only 13 percent in the survey carried out in 1997.

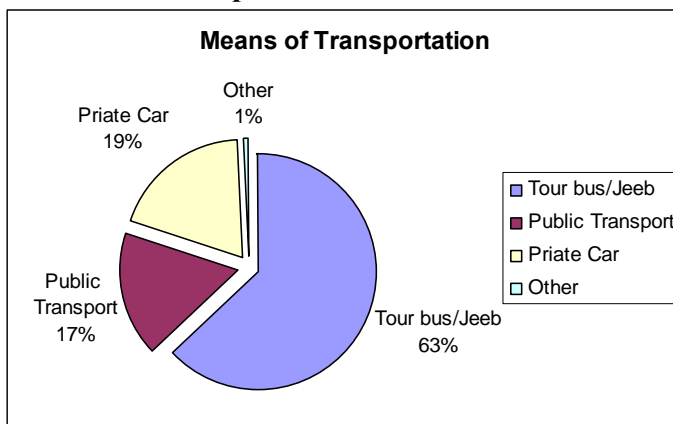
### 4- Awareness of existence of a protected area

Half of respondents were found to be aware of the existence of a protected area in Saint Katherine, compared to only 30 percent when a survey was carried out in 1997, which may indicate that visitor's awareness of the existence of a

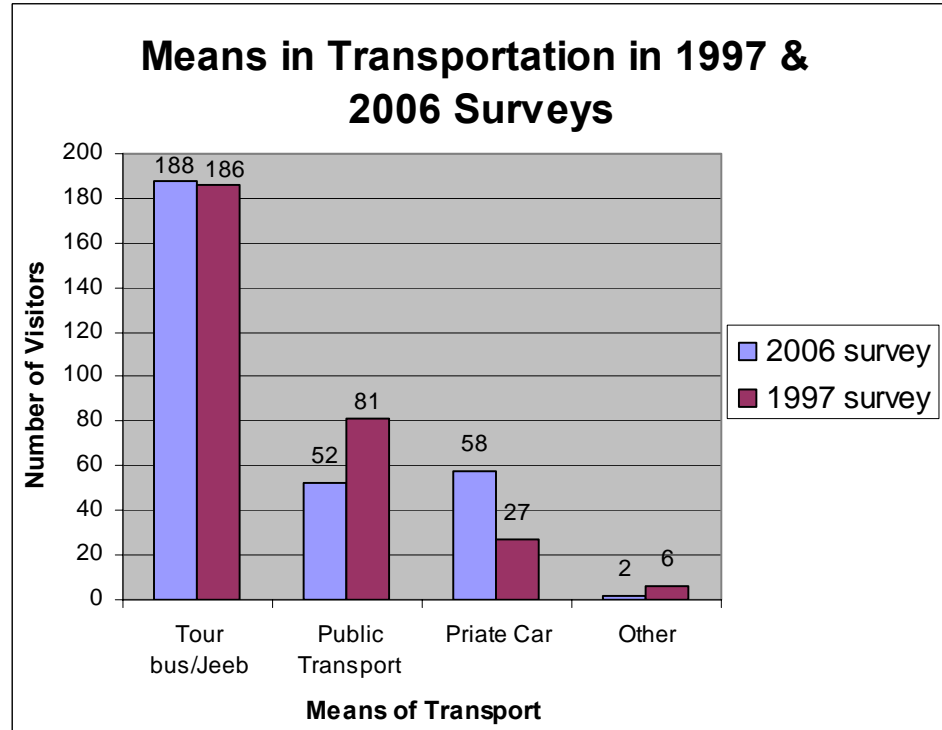


protected area in Saint Katherine is rising steadily, thanks to the protectorate's visitor management and public awareness programs.

### 5- Means of transport



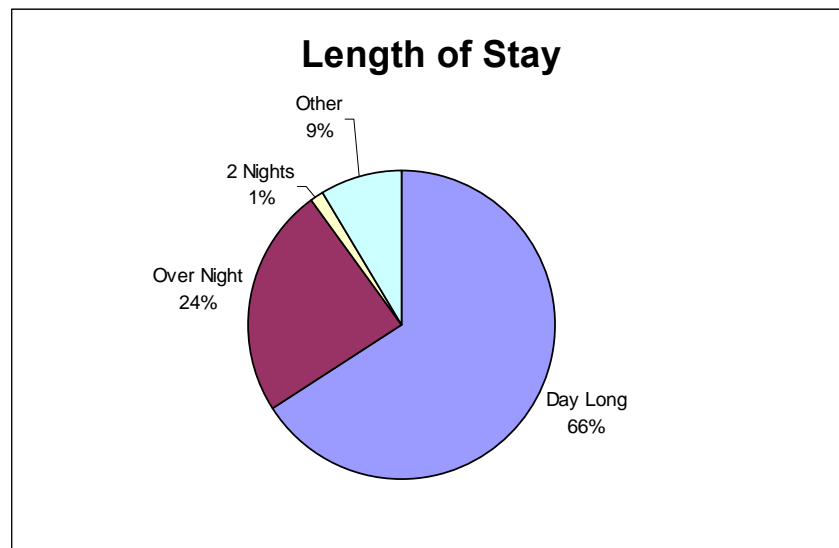
Mass tourism means of transportation, such as tour buses and tour company Jeeps, were by large the most used means of transportation to the area in both the 2006 and the 1997 surveys. Meanwhile there is an indication that public transport is being used less by



visitor's, perhaps because it has deteriorated, meanwhile there are signs that more and more visitors are using their private cars to get to the area.

## 6- Length of Stay

Ninety percent of visitors stayed for a few hours in the protectorate, this might be associated with the marketed pattern of visits by most tour companies. This graph may indicate that 66% of visitors come especially to see the Monastery of Saint Katherine; the other 34% may

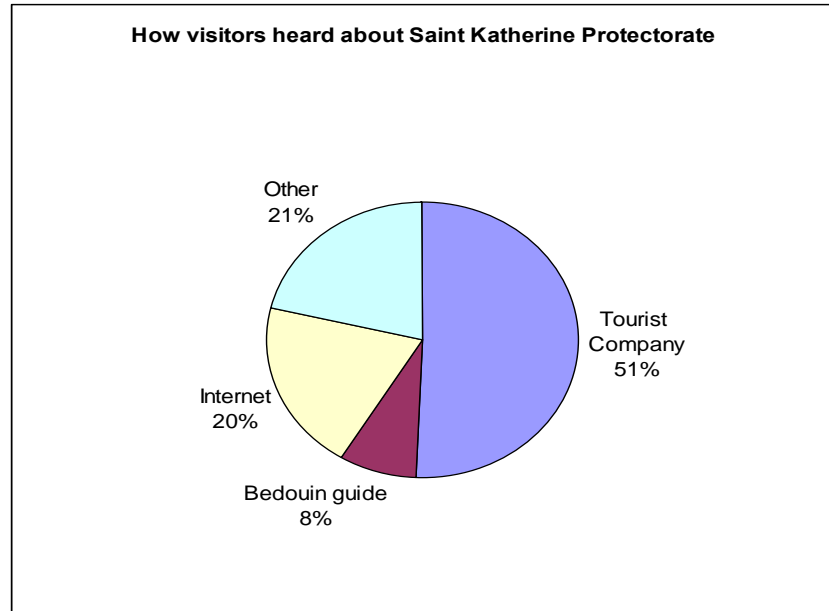


include another site in their trip schedule, which in most cases would be Mount Sinai. Others included less than six hours, three nights or five nights.

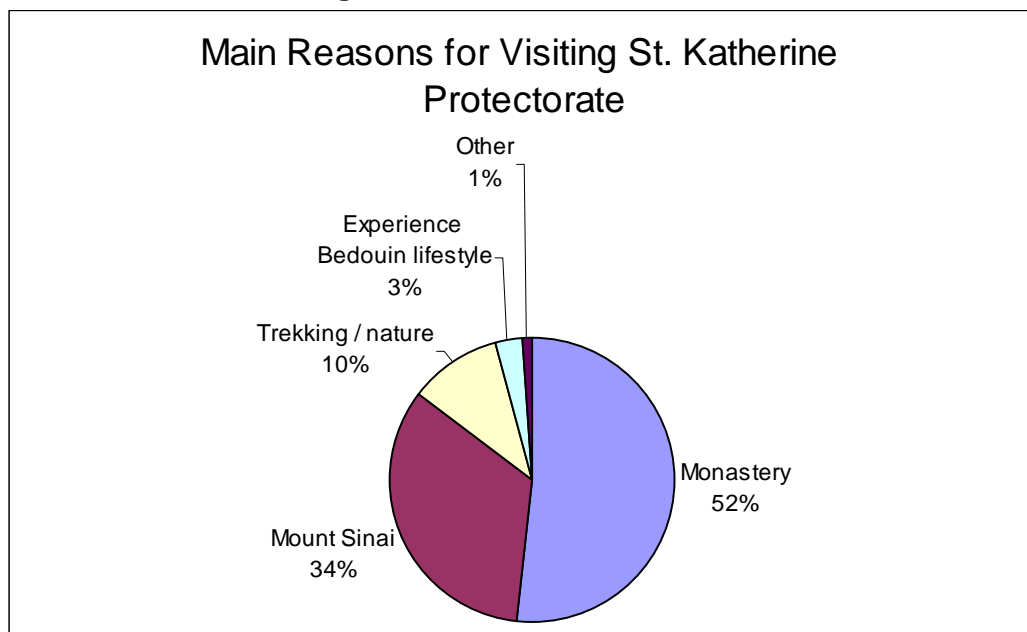
## 7- How visitors heard about Saint Katherine Protectorate:

Fifty-one percent of visitors heard of the Saint Katherine Protectorate through tour companies, 20% heard of it from the internet compared to 0% in the survey of 1997, which illustrates what a powerful tool the Internet has become in marketing over the last decade. It also demonstrates the urgent need to get the protectorate's web site back on track.

Other included friends, guide books, word of mouth, TV, work, university, hotel and school.



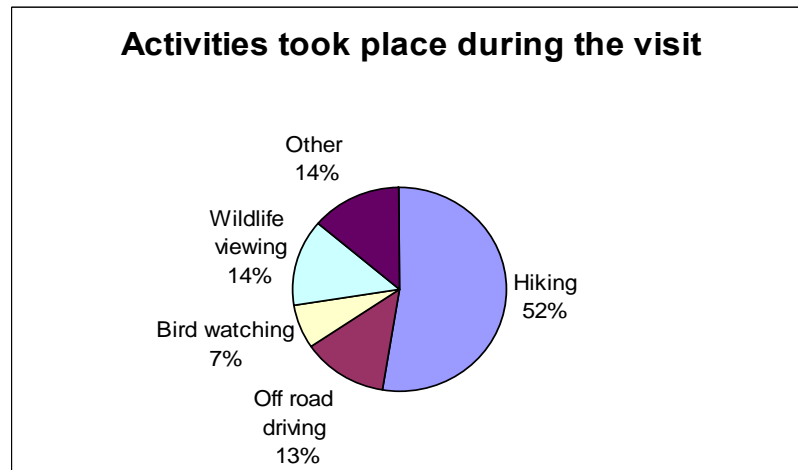
## 8- Main reason for visiting Saint Katherine Protectorate



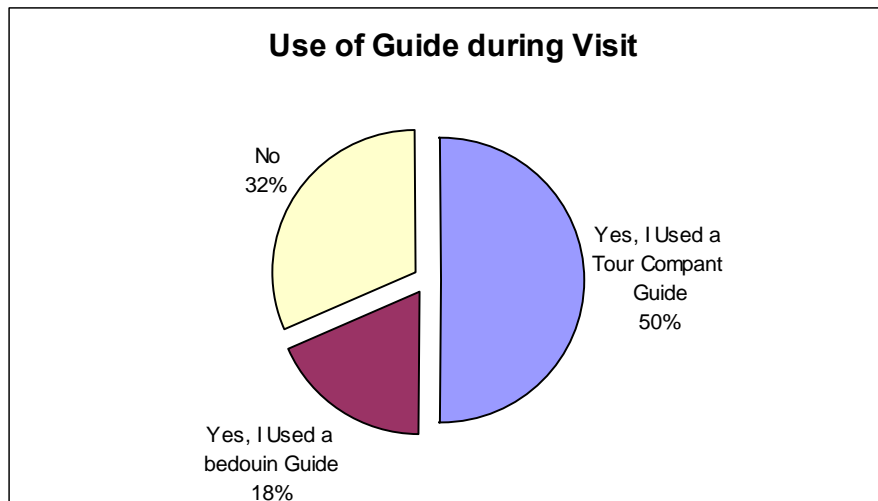
About half of the respondents came especially to visit the monastery while 34% came to visit Mount Sinai as well. Ten percent of the respondents considered trekking and nature one the main reasons for their visit, while 3% considered experiencing the Bedouin lifestyle one of the reasons of their visit. Other reasons included scientific trip, to see Saint Katherine village and private trip.

#### 9- Activities undertaken during visit:

Most activities that took place during visit involved some natural aspect of the protectorate. Other included sight seeing, experiencing Bedouin lifestyle, and camel rides.



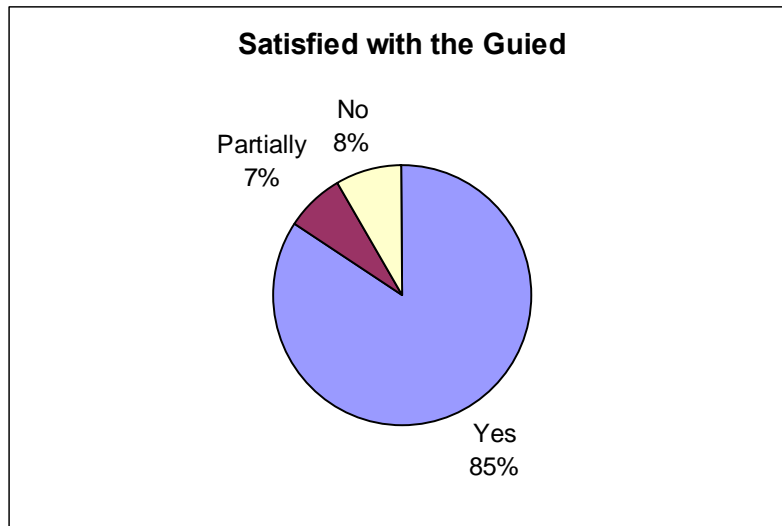
#### 10- Use of guide during visit:



Fifty percent of respondents used a tour company guide; 18% used a Bedouin guide compared to 9% in the survey of 1997, which proves that protectorate's policy of qualifying and certifying Bedouin guides as eco-guides is increasingly more important. The majority of respondents (68%) used some form of a guide, compared to only 56% in the survey of 1997, which also indicates an opportunity to minimize the ever-mounting negative impact of visitors on the area through tailor made qualification and certification

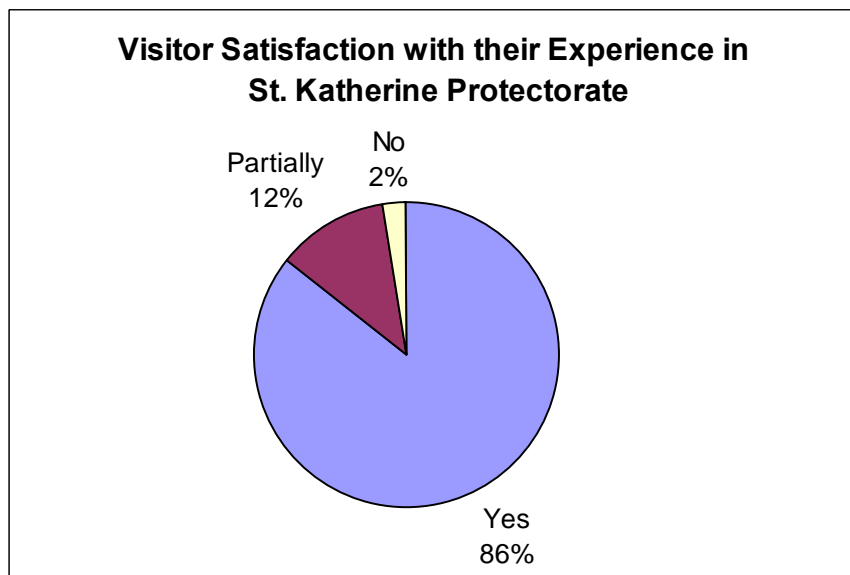
programs for all forms of guides as now happens with the guides of Ras Mohammed National Park.

#### 11- Satisfaction with Guide:



Fifteen percent of visitors were not totally satisfied with their guides, providing room for improvement in the services provided by those guides. This also reflects the need to create this improvement through the protectorate's plan for qualifying and certifying guides who regularly operate in the area as now happens with the guides of Ras Mohammed.

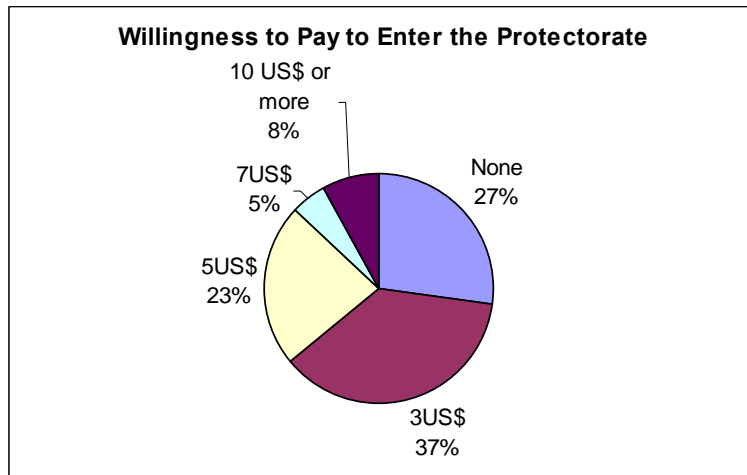
#### 12- Visitor Satisfaction with their experience in Saint Katherine Protectorate:



Fourteen percent of respondents were not totally satisfied with their experience in the protectorate, providing room for improvement through the protectorate's plans of

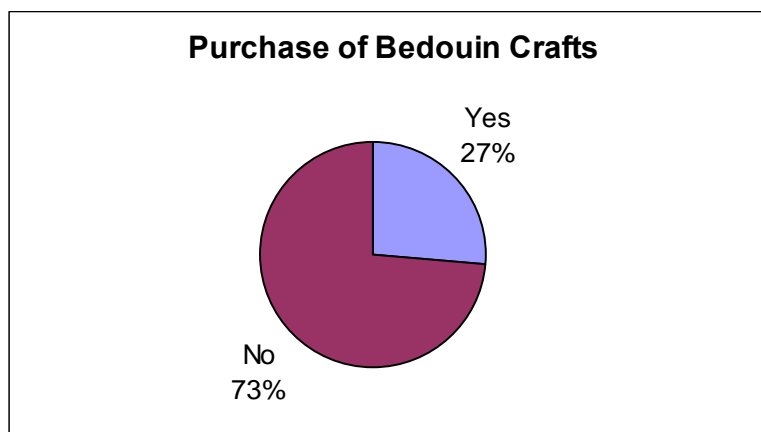
qualifying and certifying guides in the area. Only 2% of respondents were disappointed with their visit compared to 7% in the survey of 1996, thanks to the efforts exerted by the protectorate throughout the last decade.

### 13- Willingness to pay to enter the protectorate:



Only 27 %of respondents said that they did not like the fact that they had to pay to enter the protectorate. Perhaps the protected area needs to do more work; 73% were happy about paying to enter the protectorate and about half were prepared to pay more to enter the protectorate.

### 14- Purchase of Bedouin crafts:

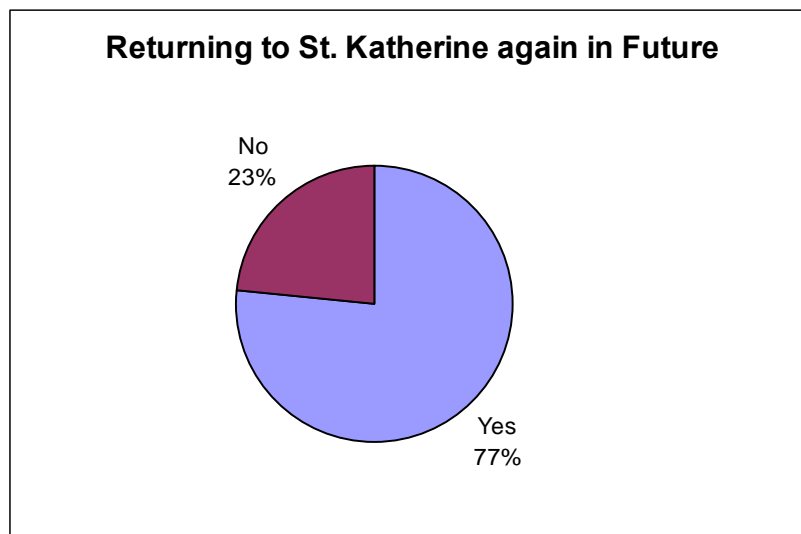


Twenty-seven percent of respondents purchased Bedouin crafts compared to 16% in the survey of 1997, which may indicate that the effort made by the protectorate in supporting the production and marketing of Bedouin crafts and the establishment of the currently independent project of FanSina has resulted in an increase of the percentage of visitors who purchase local crafts and in an increase in the benefits that reach the community from the crafts sold.

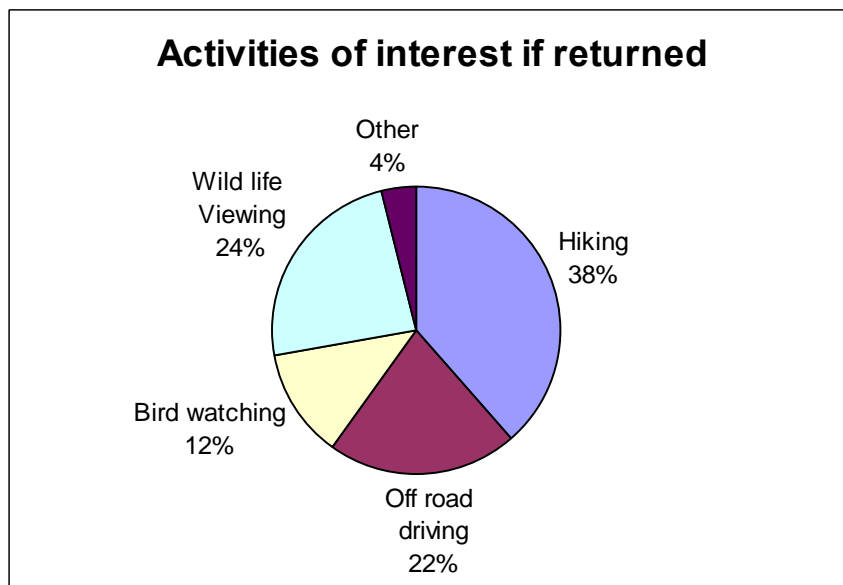


### 15- Interest in returning to Saint Katherine Protectorate in the future:

Seventy-seven percent of respondents were interested in visiting the area again in the future compared to 67% in the survey of 1997, which may indicate a positive response from visitors towards the protectorate's efforts to manage the area over the last decade.

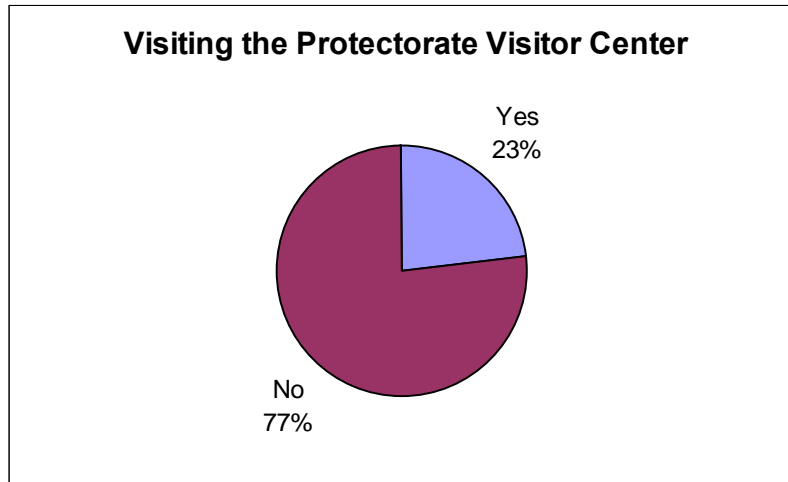


### 16- Activities of interest if returned

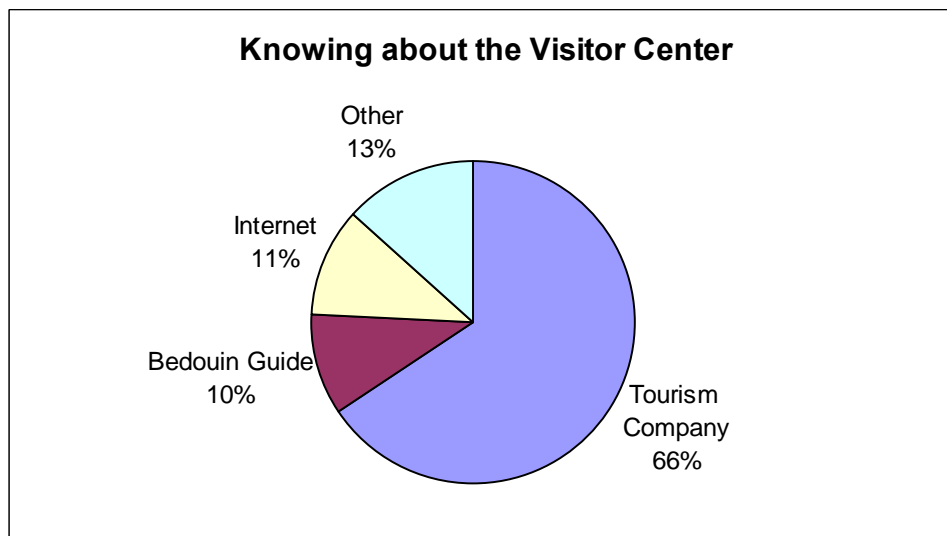


Most activities of interest, if respondents returned to Saint Katherine were: some natural activity, which proves the ever-increasing need to manage visitors. Others included sightseeing, rock climbing, camel riding and motorbikes.

#### 17- Visiting the protectorate's visitor center:

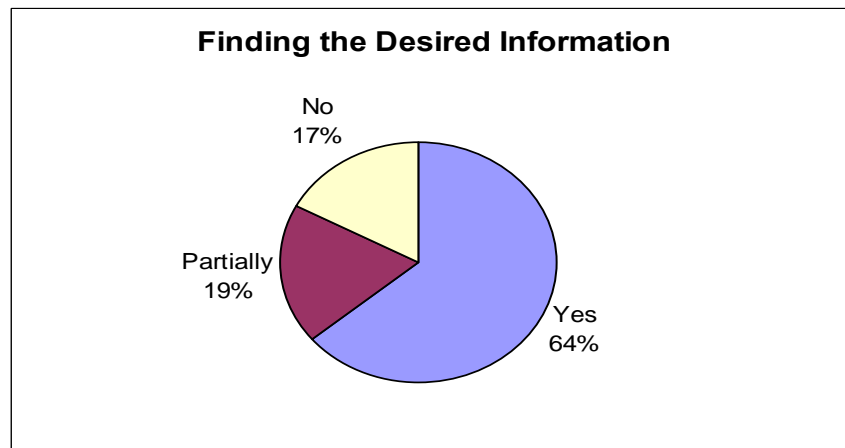
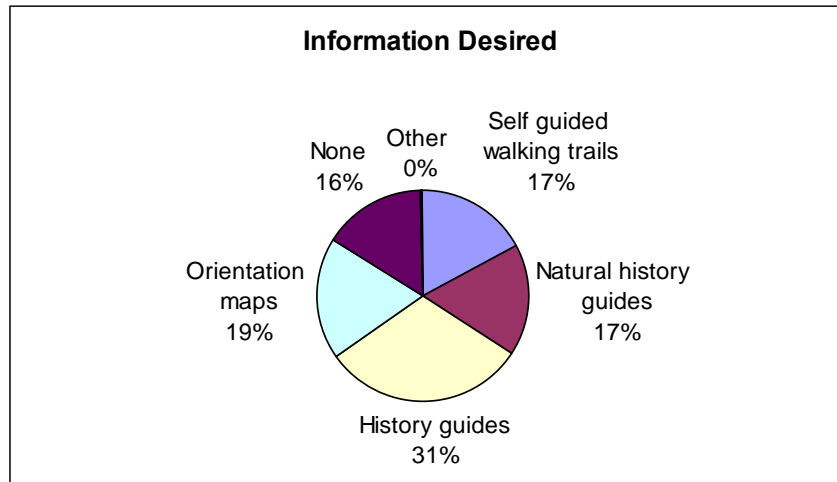


Only 23% of respondents have visited the protectorate's visitor center, which illustrates the need to promote the visitor center and to implement the protectorate's visitor management plan in which the monastery's valley should be closed for all forms of vehicles and kept open only for pedestrians, also it illustrate the need to carry out the protectorate's plan of qualifying and certifying all forms of guides who operate in the area.



Out of those who had visited the visitor center, 66% knew of the visitor center through their tourist company, 11% from the Internet, and 10% from Bedouin guides. Others included guide books, friends, work and signs

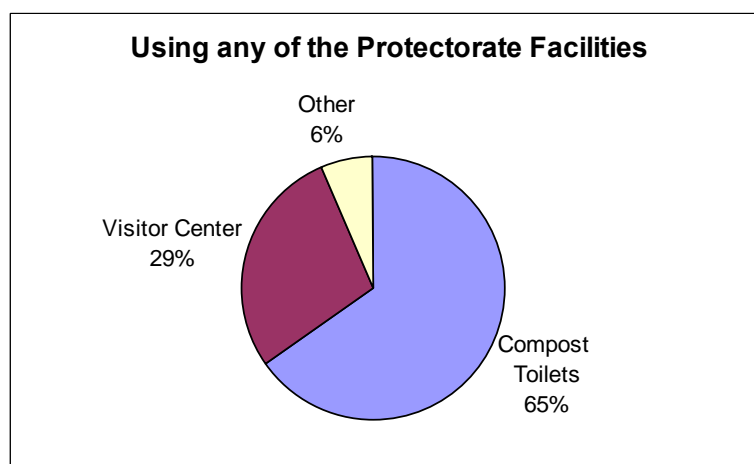
## 18- Information Desired:



The vast majority of respondents needed more information, 36% of visitors said that they did not fully find the information desired; half of them did not find the information desired at all, the protectorate needs to allocate more

funds to reprinting its brochures, which are currently out of print, and need to create a visitor orientation map that should be available for all visitors in the visitor center.

## 19- Use of protectorate facilities:



All respondents had used at least one of the protectorate facilities with the vast majority of them have used the compost toilets, and 29% who have used the visitor center.

## **20- Suggestions to improve the Protectorate's Visitor Information Center**

1. Herbarium.
2. Frame all posters with non-reflecting glass.
3. Guide books in Italian.
4. Signs for the VC.
5. Open the VC at night.
6. A resthouse for the drivers.
7. More Bedouin activities.

## **21- Suggestions for improving visitor services in Saint Katherine Protectorate**

1. **Have not to pay to use toilets.**
2. **More publicity for eco-tourism.**
3. **More and cleaner toilets** on the mountain.
4. **Training for guides.**
5. **More maps** for the town.
6. **Fixing roads.**
7. **Clean the top of Mt. Sinai.**
8. **English signs in the monastery.**
9. **More information in Cairo about SKP.**
10. **More shops.**
11. **No soap in the WCs.**
12. **More information about the tickets.**
13. **Announce the visiting hours of the monastery.**
14. **Better police treatment.**
15. **Organize the selling process in the monastery.**
16. **A guide from the protectorate in the monastery.**
17. **Maintenance for the mountain roads.**
18. **More shade areas.**
19. **More lights in the toilets in the mountain.**
20. **More outdoor sports.**
21. **More detailed maps for off-road driving.**
22. **Cable car on Mt. Sinai.**
23. **Less money and more taking care of tourists.**
24. **Multiple translations for the religious information.**
25. **To allow photography inside the monastery.**
26. **Rock climbing.**
27. **More trees and green areas.**
28. **More rest places.**

## Appendix 5. National RAPPAM (St. Katherine Protectorate)

March 15, 2007

### **MANAGEMENT EFFECTIVENESS EVALUATION OF EGYPT'S PROTECTED AREA SYSTEM** (Fouda et al., 2006)

#### Report Synopsis

This report, presents the results of a two day workshop held in January 2006 in which NCS staff undertook a rapid assessment of the management effectiveness of Egypt's system of Protected Areas. This was the first such evaluation of Egypt's Protected Areas, and is also the first such evaluation for Arab countries, and may serve as a model for the WESCANA region. The main findings from this exercise were:

- Egypt has declared a relatively good proportion of its land as PAs, and the ecological and social benefits offered by Egypt's PA system are high.
- In general the system contains a good representation of Egyptian habitats (but this needs quantitative verification) with high biological significance.
- The system appears to be equally important for most aspects of biodiversity conservation, i.e. representativeness, important species, full range of diversity, significant populations etc.
- The PAs generally are meeting their conservation objectives and the PAMU staff technical skills are generally good.
- The PA system is a vitally important socio-economic asset to Egypt but many benefits are unrealised.
- Egypt's Protected Areas are all chronically under-resourced, far below the norm for Developing Countries or even for Africa. In Egypt the total expenditure on PAs (including staff costs) averages 108 LE (\$19) per km<sup>2</sup> per year, approximately 11% of the average for developing countries. In order to match the regional or developing countries norms Egypt would need to invest between \$7.4 million and \$15.7 million annually in its national protected area system – a 4 to 9 fold increase on current expenditure.
- In administering the system, there is a marked disparity in the allocation of staff and budgets to areas as opposed to their needs and the national priorities in regard to biodiversity value.
- The conversion of land use, recreational use (especially tourism) and hunting are considered as the greatest pressures operating on the PA system. Since they will continue to threaten the system, coordinated national strategies will be required to address these issues.
- While there appear to be good local relations, local people don't necessarily support the PAs and they are not involved in management decisions.
- The system is vulnerable as a result of poor law enforcement, overexploitation of resources, and lack of resources.
- Site planning is generally poor; only one third of the protected areas have formal management plans or definitive work plans – this is a serious concern because it makes it difficult to implement proper management, track effectiveness or develop business plans.
- Inputs to the system are inadequate from all aspects. The main limitations to effective management are considered to be the very low levels of Government funding, the low staff levels, and the lack of training opportunities. Inadequate management resources (especially transport) and poor infrastructure facilities are also important constraints.
- PA staff have major concerns with staffing levels, salaries and funding for their many duties, especially transport. They also cite an unresponsive central office with administrative delays (in releasing funds, in approvals, etc) and uncoordinated requests for data and information.

## 1. Background Information

The results in this report come from the national workshop on ‘rapid assessment and prioritization of protected area management’ (RAPPAM) conducted in January 2006, at which St Katherine staff attended and completed surveys. The results concerning St Katherine Protectorate (5 surveys) have been extracted from the full report for use by staff during the site level management effectiveness workshop in March 2007.

Name	Size (km <sup>2</sup> )—RAPPAM Reported	Size-- NCS Records	Size-- System Plan	Date Establishment	Age as a PA (yrs)	GoE Budget RAPPAM Reported	Actual Budget 2004-5—NCS	Donor Budget (K_LE)	No. of staff RAPPAM Reported	No. of Staff (NCS)
St Katherine	4250	5,750	4,350	1996	10	270	257	0	3	69
Egypt PAs		100,152	94,183			1013	2,776		159	470

### *Staffing and Funding per km<sup>2</sup>*

PA	Area NCS km <sup>2</sup>	Area PA System km <sup>2</sup>	Total Staff	Staff /km <sup>2</sup>	Op and Mtc Expenditure 2004-2005 (LE) *	Exp/km <sup>2</sup> (LE) *
St. Katherine	5750	4350	69	0.012	257,000	44.70

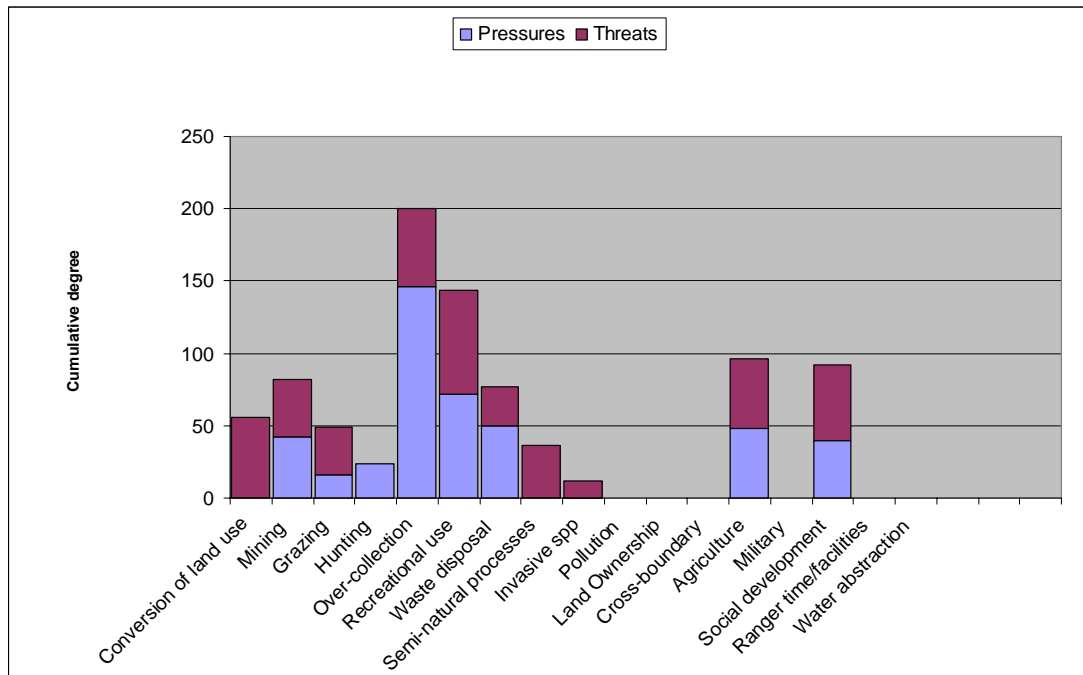
\* Calculated on NCS supplied data

## 2. Pressures and Threats

**Pressures** describe forces, activities or events *that have already* impacted the area.

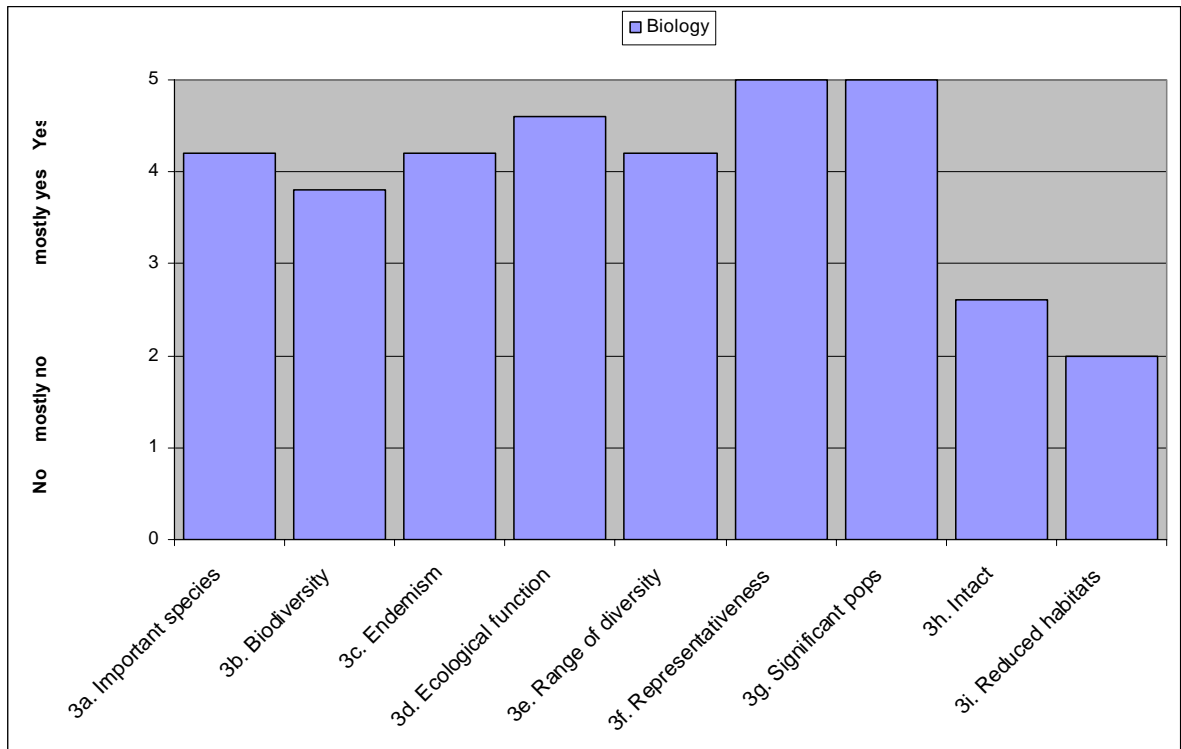
**Threats** describe *potential or future pressures* likely to impact area.

The “degree” of threat and pressure is the product of the three elements of Extent, Impact and Permanence, each rated on a scale of 1 to 4 (low to high). [Degree=E x I x P]



### 3. BIOLOGICAL IMPORTANCE – CONTEXT

- The PA contains a relatively high number of rare, threatened, or endangered species.
- The PA has relatively high levels of biodiversity.
- The PA has a relatively high degree of endemism.
- The PA provides a critical ecological function.
- The PA contains the full range of plant and animal diversity.
- The PA significantly contributes to the representativeness of the PA system.
- The PA sustains significant populations of key species.
- The structural diversity of the PA is largely intact, undamaged and unchanged.
- The PA includes ecosystems whose historic range has been greatly diminished.



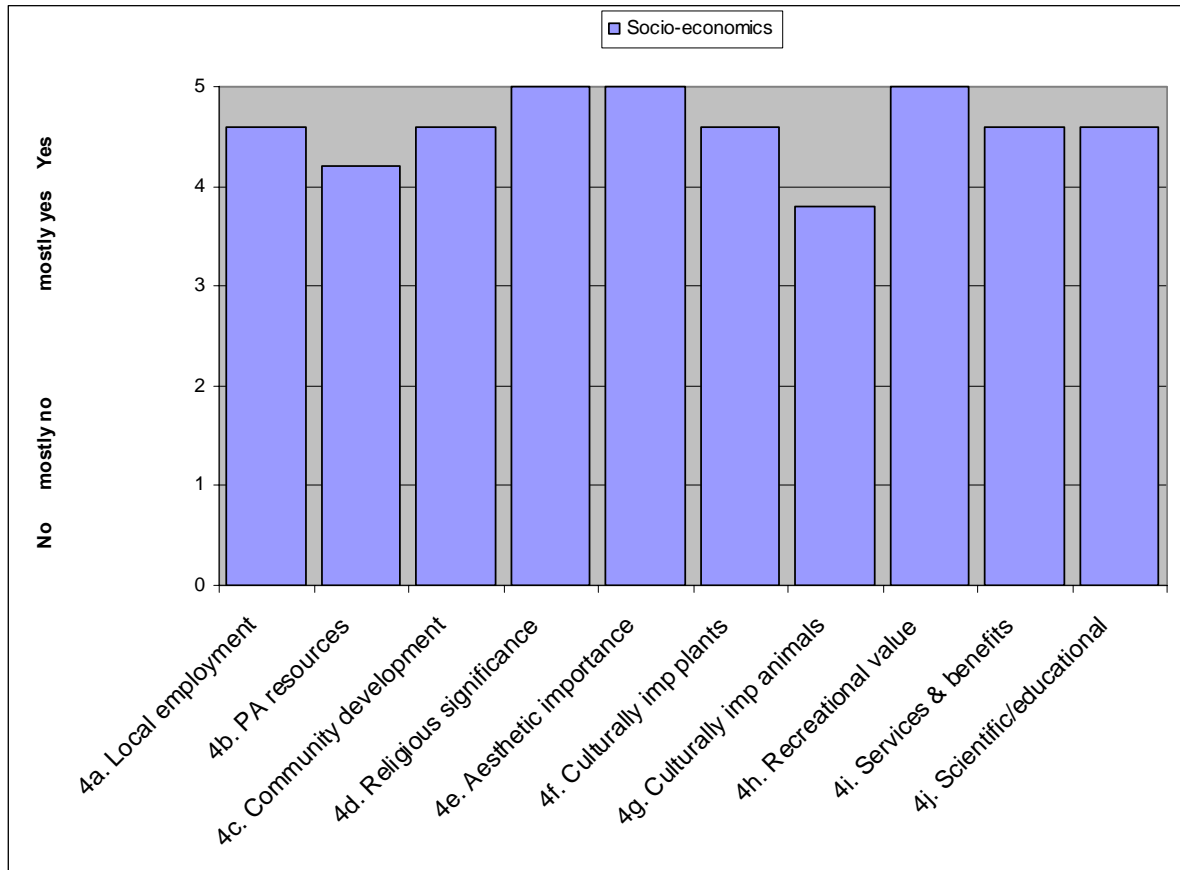
### 3. الأهمية البيولوجية (السياق)

- أ- تحتوي المحمية على عدد كبير نسبياً من الأنواع النادرة أو المهددة أو المعرضة لخطر الانقراض.
  - ب- تمتلك المحمية درجة عالية نسبياً من التنوع البيولوجي.
  - ج- تمتلك المحمية نسبة عالية إلى حد ما من الأنواع المتوطنة.
  - د- للمحمية وظائف بيئية حرجية.
  - هـ- تحتوي المحمية على مدى متكامل من التنوع للنباتات والحيوانات.
  - و- تساهم المحمية بشكل ملحوظ في تمثيل نظام المحمية الطبيعية.
  - ز- تحتوي المحمية على نسبة كبيرة من جماعات الأنواع الرئيسية.
  - ح- الهيكل البنائي للمحمية سليم لم يتم إيداعه أو تغييره.
  - ر- تتضمن المحمية أنظمة بيئية قد تغيرت كثيراً عبر التاريخ.
- لقد أُلغى السؤال (م)



#### 4. SOCIO-ECONOMIC IMPORTANCE – CONTEXT

- The PA is an important source of employment for local communities.
- Local communities depend upon the PA resources for their subsistence.
- The PA provides community development opportunities through legalized sustainable resource use.
- The PA has religious or spiritual significance.
- The PA has unusual features of aesthetic importance.
- The PA contains plant species of high social, cultural, or economic importance.
- The PA contains animal species of high social, cultural, or economic importance.
- The PA has a high recreational value.
- The PA contributes significant ecosystem services and benefits to communities.
- The PA has a high educational and/or scientific value.



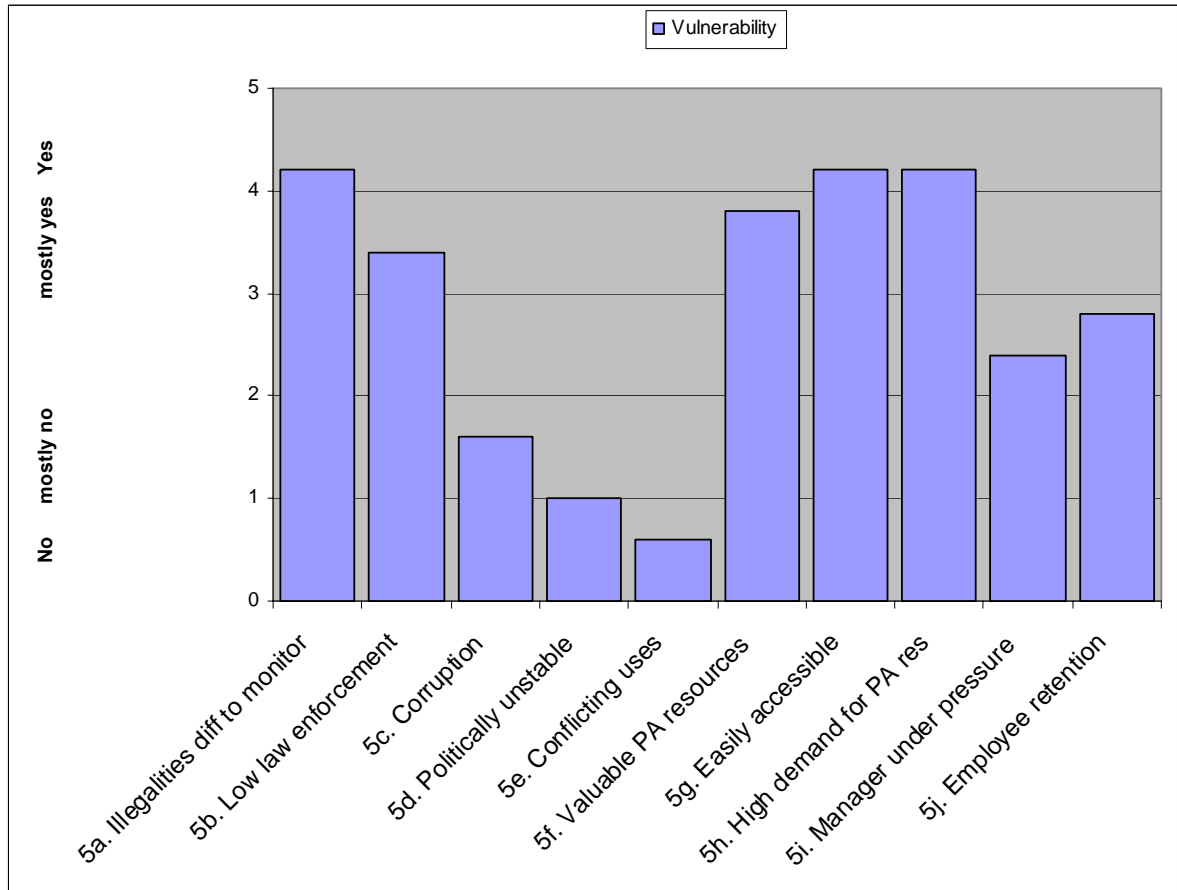
#### 4. الأهمية الاقتصادية والاجتماعية (السياق)

- تعتبر المحمية مصدر مهم للعمل بالنسبة للسكان المحليين.
- يعتمد المجتمع المحلي على موارد المحمية للمعيشة.
- تمنح المحمية السكان فرص للتنمية من خلال الاستغلال القانوني والمستمر للموارد.
- للمحمية أهمية دينية أو روحية.
- للمحمية أهمية غير عادية من حيث الخصائص الجمالية.
- تحتوي المحمية على أنواع نباتية ذات أهمية اجتماعية أو ثقافية أو اقتصادية عالية.
- تحتوي المحمية على أنواع حيوانية ذات أهمية اجتماعية أو ثقافية أو اقتصادية عالية.
- للمحمية قيمة ترفيهية عالية.

ر- تساهم المحمية في تقديم خدمات ومنافع بيئية هامة للسكان.  
م- للمحمية قيمة تربية وعلمية هامة.

## 5. VULNERABILITY – CONTEXT

- a) Illegal activities within the PA are difficult to monitor.
- b) Law enforcement is low in the region.
- c) Bribery and corruption is common throughout the region.
- d) The area is experiencing civil unrest and/or political instability.
- e) Cultural practices, beliefs, and traditional uses conflict with the PA objectives.
- f) The market value of the PA resources is high.
- g) The area is easily accessible for illegal activities.
- h) There is a strong demand for vulnerable PA resources.
- i) The PA manager is under pressure to unduly exploit the PA resources.
- j) Recruitment and retention of employees is difficult.



### 5. نقاط الضعف (السياق)

- أ- أنشطة غير قانونية داخل المحمية ومن الصعب أن تراقب.
- ب- تطبيق القانون قليل بالمنطقة.
- ج- الرشوة والفساد منتشرين بالمنطقة.
- د- تواجه المنطقة إضطراب مدني مع عدم الإستقرار السياسي.
- هـ- ممارسات ثقافية ومعتقدات واستخدامات تقليدية تنافي أهداف المحمية.

- و- سعر السوق لموارد المحمية عالي.
- ز- تعتبر المنطقة قابلة لإقامة أنشطة غير قانونية.
- ح- هناك مطلب قوي على موارد المحمية الضعيفة.
- ر- مدير المحمية تحت ضغط مما يؤدي للإفراط في إستغلال موارد المحمية.
- م- عدم القدرة على تطويع العاملين والإحتفاظ بهم.

## 6. OBJECTIVES – PLANNING

- a) PA objectives provide for the protection and maintenance of biodiversity.
- b) Specific biodiversity-related objectives are clearly stated in the management plan.
- c) Management policies and plans are consistent with the PA objectives.
- d) PA employees and administrators understand the PA objectives and policies.
- e) Local communities support the overall objectives of the PA.

### 6. الأهداف (التخطيط)

- أ- تسعى أهداف المحمية إلى حماية التنوع البيولوجي والإبقاء عليه.
- ب- توضع الأهداف الخاصة المتعلقة بالتنوع البيولوجي في مخطط الإدارة بشكل واضح.
- ج- تكون سياسات ومخططات الإدارة متسقة مع أهداف المحمية.
- د- يكون الإداريين والعاملين بالمحمية متفهمين لأهدافها وسياساتها.
- هـ- يدعم المجتمع المحلي الأهداف العامة للمحمية.

## 7. LEGAL SECURITY – PLANNING

- a) The PA has long-term legally binding protection.
- b) There are no unsettled disputes regarding land tenure or use rights.
- c) Boundary demarcation is adequate to meet the PA objectives.
- d) Staff and financial resources are adequate to conduct critical law enforcement activities.
- e) Conflicts with the local community are resolved fairly and effectively.
- f) EIA arrangements to regulate development activities are adequate and enforced.

### 7. الحماية القانونية (التخطيط)

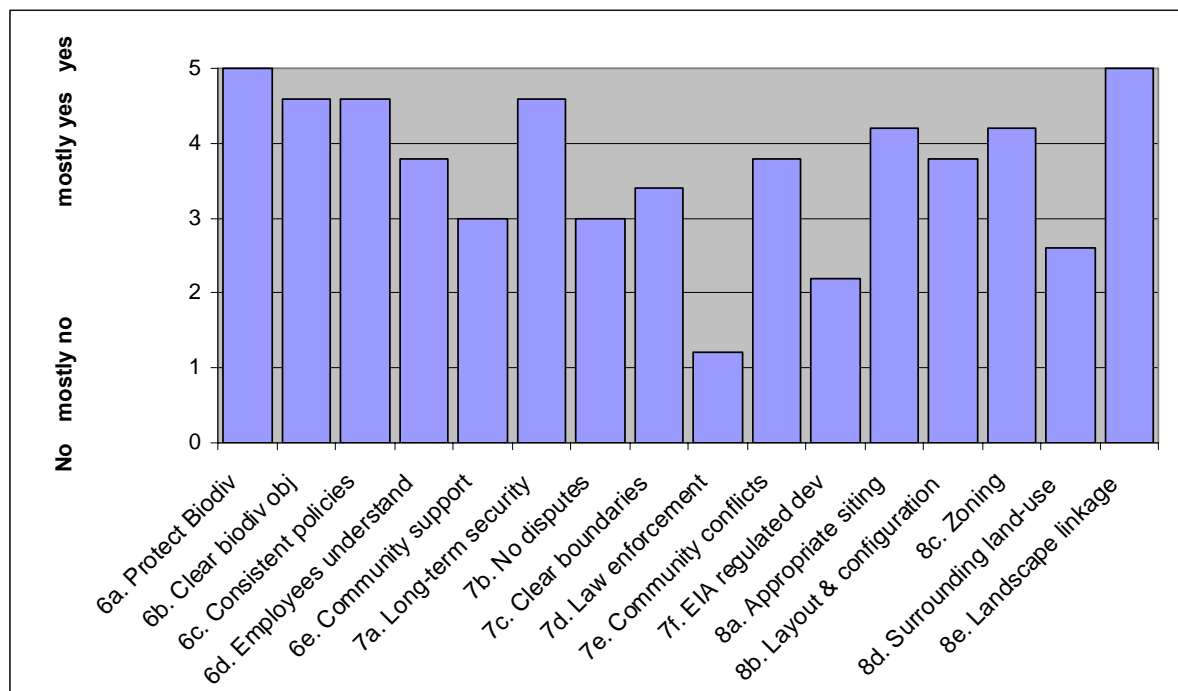
- أ- للمحمية حماية قانونية طويلة المدى.
- ب- ليس هناك نزاعات قائمة بامتلاك الأرض أو حقوق الاستغلال.
- ج- يكون تعيين حدود المحمية كافياً لمقابلة أهداف المحمية.
- د- تعتبر العمالة والموارد المالية كافية لإجراء الأنشطة الهامة لتطبيق القانون.
- هـ- تحل النزاعات مع السكان المحليين بطريقة عادلة وفعالة.
- و- إن الترتيبات الخاصة بتقييمات الوقع البيئي من أجل تنظيم الأنشطة التطويرية كافية ومطبقة.

## 8. SITE DESIGN AND PLANNING – PLANNING

- a) The siting of the PA is consistent with the PA objectives.
- b) The layout and configuration of the PA optimizes the conservation of biodiversity.
- c) The PA zoning system is adequate to achieve the PA objectives.
- d) The land use in the surrounding area enables effective PA management.
- e) The PA is linked to another area of conserved or protected land.

### 8. تصميم وتخطيط الموقع (التخطيط)

- أ- تحديد موقع المحمية متنسق مع أهدافها.
- ب- تخطيط وتشكيل المحمية يحسن من عملية الحفاظ على التنوع البيولوجي.
- ج- نظام تقسيم المحمية كافي لتحقيق أهدافها.
- د- استخدام الأرض في المنطقة المحيطة يمكن من إدارة فعالة للمحمية.
- هـ- ترتبط المحمية بمنطقة أخرى سواء كانت محمية أخرى أو أرض محفوظة.

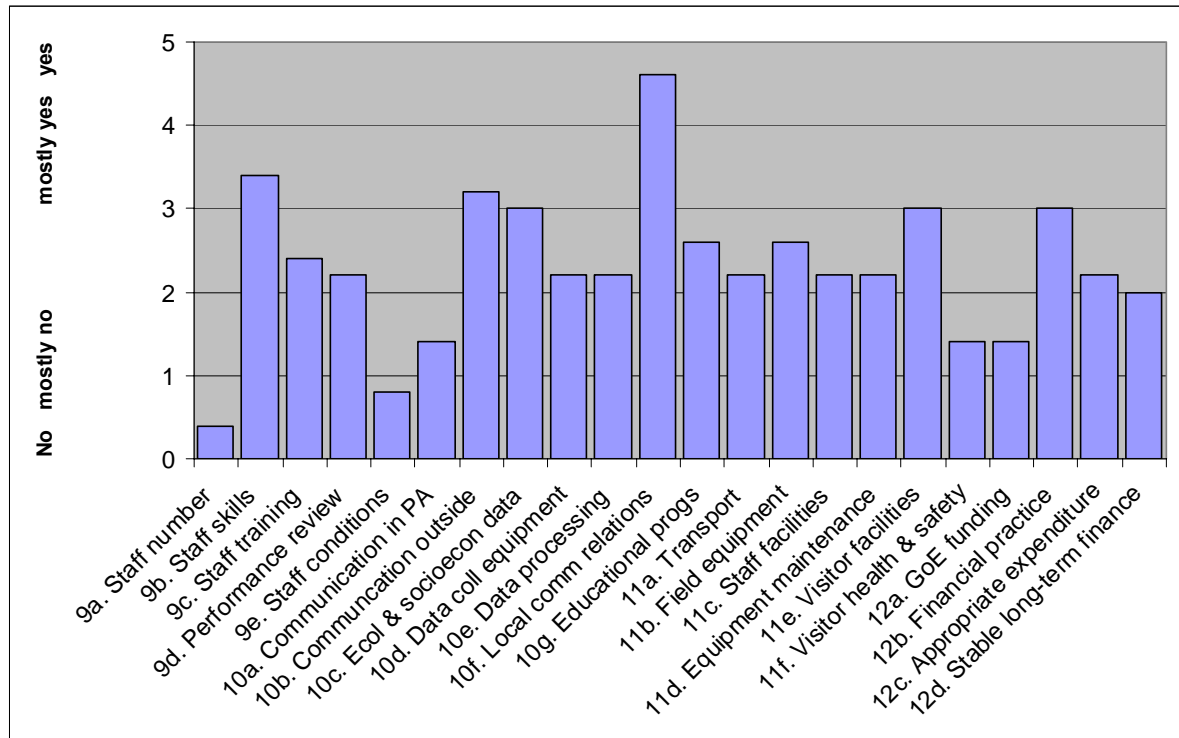


## 9. STAFFING – INPUTS

- The level of staffing is sufficient to effectively manage the area.
- Staff members have adequate skills to conduct critical management activities.
- Training and development opportunities are appropriate to the needs of the staff.
- Staff performance and progress on targets are periodically reviewed.
- Staff employment conditions are sufficient to retain high-quality staff.

### 9. العمالة (المدخلات)

- أ- مستوى العمالة كافي لإدارة المنطقة بفاعلية.
- ب- للعاملين مهارات كافية لإجراء أنشطة إدارية هامة.
- ج- تكون فرص التدريب والتطوير مناسبة لإحتياجات العاملين.
- د- يراجع أداء العاملين وتقدمهم بصفة دورية.
- هـ- ظروف العمل مناسبة للحصول على عمالة عالية الجودة.



## 10. COMMUNICATION AND INFORMATION – INPUTS

- There are adequate means of communication within the PA.
- There are adequate means of communication with the outside world.
- Existing ecological and socio economic data are adequate for management planning.
- There are adequate means of collecting new data.
- There are adequate systems for processing and analysing data.
- There is effective communication with local communities.
- There are effective educational and interpretative plans and programmes in place.

### 10. الإتصالات والمعلومات (المدخلات)

- أ- هناك وسائل إتصال كافية داخل المحمية.
- ب- هناك وسائل إتصال كافية مع العالم الخارجي.
- ج- التواجد الكافي للبيانات البيئية والاقتصادية والاجتماعية لاستخدامها في التخطيط الإداري.
- د- هناك وسائل كافية لتجميع بيانات جديدة.
- هـ- هناك أنظمة لمعالجة وتحليل البيانات.
- و- هناك إتصال فعال بين أفراد المجتمع المحلي.
- ز- هناك برامج وخطط تعليمية وتوضيحية فعالة بالمنطقة.

## 11. INFRASTRUCTURE – INPUTS

- Transportation infrastructure is adequate to perform critical management activities.
- Field equipment is adequate to perform critical management activities.
- Staff facilities are adequate to perform critical management activities.
- Maintenance and care of equipment is adequate to ensure long-term use.

- e) Visitor facilities are appropriate to the level of visitor use.
- f) Visitor health and safety requirements are adequately addressed.

### 11. البنية التحتية (المدخلات)

- أ- البنية التحتية للنقل والمواصلات كافية لأداء أنشطة المحمية الهامة.
- ب- المعدات الحقلية كافية لأداء الأنشطة الإدارية الهامة.
- ج- التسهيلات المقدمة للعاملين كافية لأداء الأنشطة الإدارية الهامة.
- د- صيانة المعدات ورعايتها كافي لضمان استخدام طويل المدى.
- هـ- التسهيلات المقدمة للزوار مناسبة لمستوى استخدام الزائر.
- و- الإهتمام بصحة وسلامة الزائرين.

## 12. FINANCES – INPUTS

- a) Funding from the GoE in the past 5 years has been adequate to conduct critical management activities.
- b) Financial management practices enable efficient and effective PA management.
- c) The allocation of expenditures is appropriate to PA priorities and objectives.
- d) The long-term financial (5 years) outlook for the PA is stable.

### 12. الموارد المالية (المدخلات)

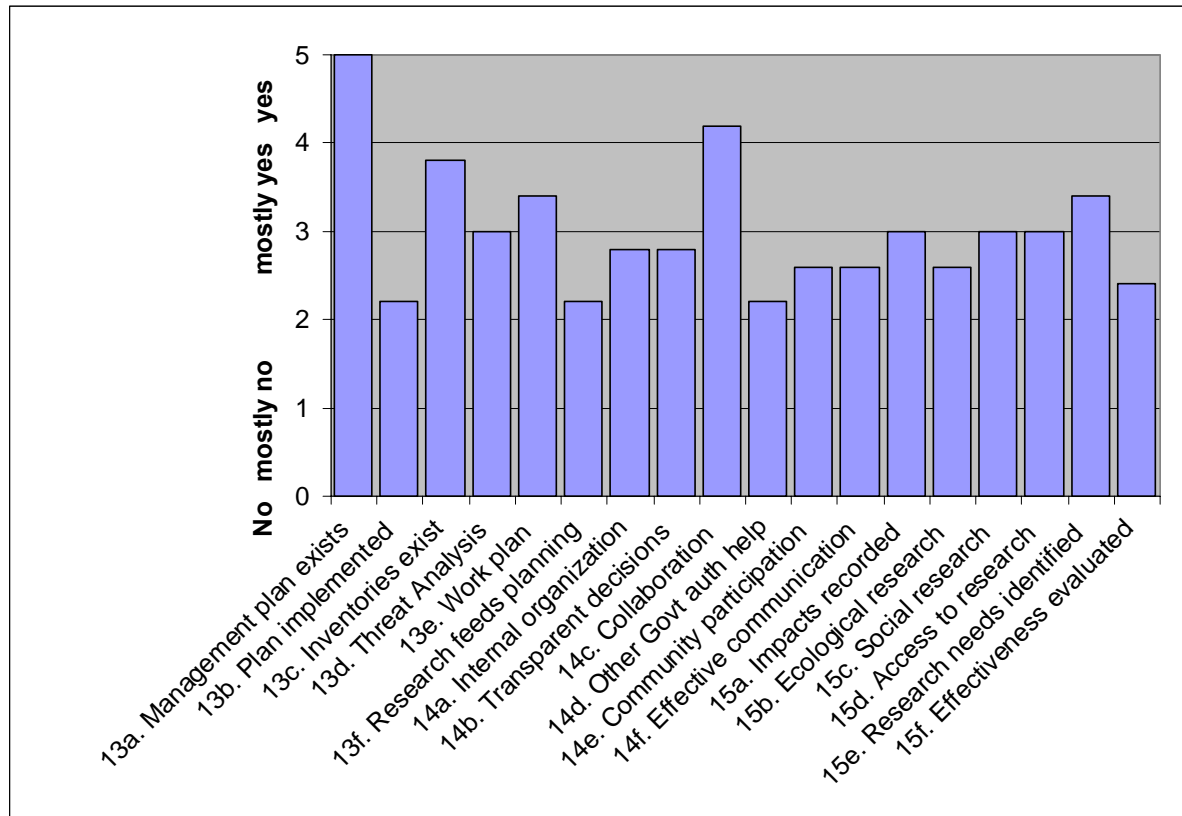
- أ- لقد كان الدعم المالي (المقدم من الحكومة الإيطالية) في الخمس سنوات الماضية كافي لإجراء الأنشطة الإدارية الهامة.
- ب- تمكن الممارسات المالية الإدارية من إدارة كفاء وفعالة للمحمية.
- ج- تخصيص الإنفاق يناسب أولويات وأهداف المحمية.
- د- إستقرار الوضع المالي طويل المدى للمحمية.

## 13. MANAGEMENT PLANNING – PROCESSES

- a) There is a comprehensive, relatively recent written management plan.
- b) The management plan is largely implemented and effective.
- c) There is a comprehensive inventory of natural and cultural resources.
- d) There is an analysis of, and strategy for addressing, PA threats and pressures.
- e) A detailed work plan identifies specific targets for achieving management objectives.
- f) The results of research and monitoring are routinely incorporated into planning.

### 13. التخطيط الإداري (العمليات الإدارية)

- أ- هناك خطة إدارية مكتوبة شاملة وحديثة إلى حد ما.
- ب- تكون الخطة الإدارية فعالة ومطبقة لحد كبير.
- ج- هناك جرد شامل للموارد الطبيعية والثقافية.
- د- هناك تحليل للضغوط والتهديدات التي تواجه المحمية واستراتيجية لحصرهم.
- هـ- هناك خطة عمل لتحديد وسائل تحقيق أهداف الإدارة.
- و- تدمج نتائج البحث والمراقبة بشكل روتيني مع التخطيط.



#### 14. MANAGEMENT DECISION MAKING – PROCESSES

- There is clear internal organization.
- Management decision making is transparent.
- PA staff regularly collaborate with partners, local communities, and other organizations.
- Other Government authorities endorse and enforce the decisions made
- Local communities participate in decisions that affect them.
- There is effective communication between all levels of PA staff and administration.

#### 14. إتخاذ القرارات الإدارية (العمليات الإدارية)

- أ- هناك تنظيم داخلي واضح.
- ب- شفافية إتخاذ القرارات الإدارية.
- ج- يتعاون العاملون بالمحمية مع الشركاء والمجتمع المحلي ومع منظمات أخرى.
- د- تصدق السلطات الحكومية الأخرى على القرارات المتخذة وتنفذها.
- هـ- يشارك المجتمع المحلي في القرارات المؤثرة عليه.
- و- هناك إتصال فعال بين كل المستويات من العاملين بالمحمية والإداريين.

#### 15. RESEARCH, MONITORING, AND EVALUATION – PROCESSES

- The impact of legal and illegal uses of the PA are accurately monitored and recorded.
- Research on key ecological issues is consistent with the needs of the PA.
- Research on key social issues is consistent with the needs of the PA.
- PA staff members have regular access to recent scientific research and advice.

- e) Critical research and monitoring needs are identified and prioritized.
- f) The PA management, including management effectiveness is routinely evaluated and reported.

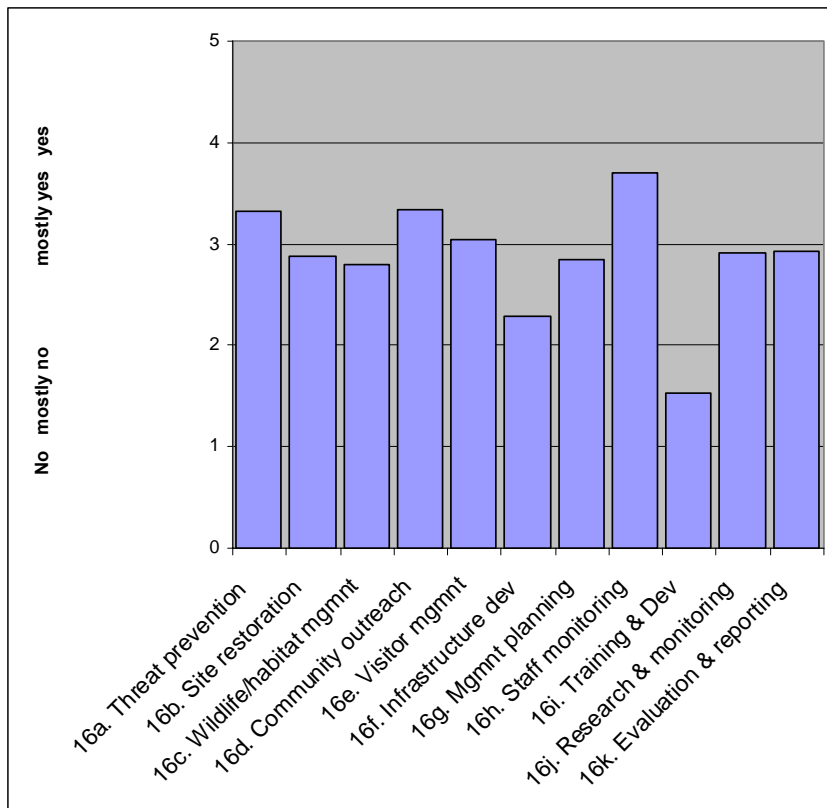
### 15. البحث والمراقبة والتقييم (العمليات الإدارية)

- أ- ترأقب وتسجل وقائع الاستخدامات القانونية والغير قانونية للمحمية بدقة.
- ب- يكون البحث في القضايا البيئية الرئيسية متنسق مع احتياجات المحمية.
- ج- يكون البحث في القضايا الإجتماعية الرئيسية متنسق مع احتياجات المحمية.
- د- لدى العاملين بالمحمية وسيلة وصول للأبحاث والنصائح العلمية الأخيرة.
- هـ- تكون الاحتياجات الهامة للبحث والمراقبة محددة ولها الأولوية.
- و- تقيم فاعلية إدارة المحمية بشكل روتيني مع كتابة تقارير عنها.

### 16. OUTPUTS

In the last 2 years, the following outputs have been consistent with the threats and pressures, PA objectives, and annual workplan:

- a) Threat prevention, detection and law enforcement.
- b) Site restoration and mitigation efforts.
- c) Wildlife or habitat management.
- d) Community outreach and education efforts.
- e) Visitor and tourist management.
- f) Infrastructure development.
- g) Management planning and inventorying.
- h) Staff monitoring, supervision, and evaluation.
- i) Staff training and development.
- j) Research and monitoring.
- k) Evaluation and reporting.



### 16. المخرجات

- أ- في السنتين الماضيتين، كانت المخرجات التالية متنسقة مع الضغوط والتهديدات، وأهداف المحمية، وخطة العمل السنوية: أ- إكتشاف التهديد ومنعه، وتطبيق القانون.
- ب- جهود إعادة تأهيل الموقع وتقليل الخطر الموجه له.
- ج- إدارة البيئة أو الحياة البرية.
- د- جهود تنمية وتعليم المجتمع.
- هـ- إدارة السياح والزائرين.
- و- تطوير البنية التحتية.
- ز- عمليات التخطيط والجرد الإدارية.
- ح- مراقبة وتقييم العاملين والإشراف عليهم.
- ر- تدريب وتطوير العاملين.
- م- عمليات البحث والمراقبة.
- ي- عمليات التقييم والتدوين.



## Appendix 6. Site Level Management Effectiveness Evaluation Procedure

### Introduction

This appendix summarizes the detailed process for conducting site level management effectiveness evaluations (Paleczny 2006b). A series of ‘worksheets’ were used to assist in completing the respective steps. This process is designed to focus on “outputs” and “outcomes” of management. Outputs include the actions the protected area has implemented and if the actions have resulted in positive changes. Outcomes include the status of the protected area. For example, are current conditions improving, remaining stable or declining? A thorough evaluation must also include an examination of threats and possible actions to address the problems.

*This system should be applied with an understanding of the limitations related to available human, financial and technical resources. Over time, the evaluation can evolve with greater sophistication, as time and money and experience allow.*

### The Evaluation Process

#### 1. Implementation of Management Objectives and Actions (e.g., Management Plan / Annual Work Plans)

a) Review status of implementation and the effectiveness of past actions toward meeting objectives (see worksheet).

#### 2. Status of Protected Area Resources

a) Identify the key values of the protected area, in the following three groups. Then select the one or two priorities from each of these groups to examine in detail.

- *Biodiversity/Natural Resource*: Characterise each key ecosystem/resource in terms of its key attributes (see worksheet).
- *Ecotourism/Recreational Resources*: Characterise each ecotourism/recreational resource (see worksheet).
- *Community Well-being* (socio-economic): Characterise each community (see worksheet).

b) For each key value being examined, choose at least one key attribute and one indicator for further assessment. (see worksheets).

#### 3. Threats

a) Revisit and confirm pressures and threats from RAPPAM, management plan, systems plan and participants’ experience.

- b) Draw a chart to show the relationship of the threats to each of the key values selected in part 2 (biodiversity, recreational resources, community well-being). Discuss the underlying causes and find possible solutions. (see worksheet).
- c) Rate the threats for each key value (see worksheet).
- d) Prepare a summary chart for all of the threats (see worksheet).
- e) Discuss and prepare initial list of possible actions.

#### **4. Action Planning**

- a) Review, confirm, refine or establish goal and specific objectives for key values, taking into consideration the problems and needs to manage key values and threats. (Note that objectives should be stated as desired outcomes, not as actions).
- b) Develop actions for each objective. Evaluate and prioritize the actions based on cost, practicality, and likelihood of achieving a desired impact.
- c) Initiate\* the development of indicators and a monitoring plan for tracking and measuring the following (\* it is expected that this will take considerable effort beyond the initial evaluation):
  - Status of key values (outcomes).
  - Threats.
  - Implementation of actions (outputs) and effectiveness of actions (outcomes).

*Following the site Management Effectiveness Evaluation, additional steps are needed by the Protected Area Management Unit, as follows:*

#### **5. Management plan / descriptive plan**

- a) Update the existing management plan or prepare descriptive plan.

#### **6. Annual work plan and project plans**

- a) Integrate actions into work processes, such as Annual Work Plans and Environmental Impact Assessments.

#### **7. Monitoring, assessment, reporting on MEE**

- a) Monitor key indicators.
- b) Prepare monthly reports, annual report on implementation of management plan, and status reports for stakeholders and communities.
- c) Adapt and change programmes and actions, as required, to improve effectiveness.

## Appendix 7. Workshop Participant Evaluation

### تقييم للمشاركين فى ورشة العمل لتقييم فاعلية إدارة محمية

St Katherine Protectorate

March 18-21, 2007

#### 1. The management effectiveness evaluation can be carried out by the staff?

##### 1. يمكن إجراء عملية تقييم فاعلية الإدارة بواسطة أفراد المحمية؟

Strongly disagree	Disagree	Neutral	Agree	Strongly Agree	No reply
			8	5	

Comments:

تعليق:

R1: No problem to be supervised by the NCS.

R2: It is better to be in the presence of an external expert in PA management with the staff.

R3: The PA staff know the most about the PA.

R4: I think it will help all staff to avoid misunderstandings.

R5: SK staff are very qualified to do the evaluation.

R6: Because they know the important value of the PA and its use.

R7: Agree, but not necessary In the presence of all staff.

R12: Facilitator should direct the process.

#### 2. A facilitator is important to guide the participants through the process.

##### 2. وجود ا facilitator ضرورى لتوجيه المشاركين أثناء عملية التقييم

Strongly disagree	Disagree	Neutral	Agree	Strongly Agree	No reply
1	1	1	1	9	

Comments:

تعليق:

R2: It is better to be in the presence of an external expert in PA management with the staff.

R3: Some of the participants talk about other topics and need to be kept on track.

R4: I think the facilitator must give a brief to the staff before coming to avoid any problems of working and to save their time.

R5: Yes, there are many things I couldn't understand from the PA staff.

R12: Got a lot of experience from the presentations.

**3. The survey of stakeholders, communities and visitors is useful to help understand their perspective about the protected area.**

3. المسوح المتعلقة بالجهات ذات الصلة والمجتمعات المحلية والزائرين نافعة للمساعدة على فهم منظورهم تجاه المحمية

Strongly disagree	Disagree	Neutral	Agree	Strongly Agree	No reply
1			4	8	

Comments:

تعليق:

R1: Strongly disagree because the survey of stakeholders is not compatible with SKP conditions.

R2: There is a big gap between the PA and the other stakeholders so need to have surveys from time to time.

R3: Concerned about activities and services of the local communities, which is very basic for the management of the PA.

R5: Due to the surveys it raised the public awareness and increased the knowledge of local communities through the objectives.

R6: Because they help the PA in its work.

R7: A lot of these surveys should be done.

R8: Should be accurate without driving to certain answers.

**4. What methods would be suitable to get input from these groups?**

4. ما هي الطرق المناسبة للحصول على نتائج من مجموعات العمل في عملية التقييم؟

Comments:

تعليق:

R1: Working in groups according to the topic

R2: Give more time for discussion and comments.

R3: Working groups for nice discussions..

R6: Each group can speak on his programs in the PA and the main problems.

R7: By doing presentation from one of the participants.

R8: Making work groups; filling forms; discussions.

R10: Direct meetings.

R11: Regulation of groups and balance.

R12: Good way.

R13: Group discussion

5. The workshop process was helpful to study problems and solutions, and other needs.  
5. عملية ورشة العمل كانت نافعة لدراسة المشاكل والحلول والحاجات الأخرى

Strongly disagree	Disagree	Neutral	Agree	Strongly Agree	No reply
			3	10	

Comments:

تعليق:

R2: Evaluation helped me form the personal side and explained how to determine the resources of the PA and the priority of things we should protect.

R3: Suggest to do the workshop annually instead of every five years (ME review cycle).

R4: It was very useful for the staff.

R5: Very helpful according to the special way and scientific one to study the problems and solutions.

R6: That is a very good idea to solve all problems in the PA.

**6. How could the evaluation process be improved? كيف يمكن تحسين عملية التقييم؟**

Comments:

تعليق:

R1: Increase the length of the workshop more than 4 days as it was very tiring.

R2: Need more time; at least one week.

R3: Needs more than 4 days to have good/full discussions.

R5: Increase number of days and facilitators.

R6: By doing this management effectiveness evaluation annually.

R7: Each participant should write a separate report.

R8: By sending a brief on the workshop before starting with the staff.

R10: By having more time, reading the management plan by all the participants.

R11: By participation of staff in the evaluation team.

R12: Participation of local communities in the evaluation.

**7. The results of the evaluation will be helpful to staff.**

7. سوف تكون نتائج عملية التقييم نافعة لأفراد المحمية

Strongly disagree	Disagree	Neutral	Agree	Strongly Agree	No reply
			4	9	

Comments:

تعليق:

R1: The evaluation helped everyone know the key values of the PA.

R3: Just in case each stakeholder determine the negative aspects and follow up:

R5: Due to this workshop, I can determine any problem facing any one of the staff and deal with this problem.

R6: Everyone now knows about the other programs of the PA, which lead to making cooperation.

**8. I learned useful information or approaches from the process.**

8. لقد تعلمت اتجاهات ومعلومات نافعة من عملية التقييم

Strongly disagree	Disagree	Neutral	Agree	Strongly Agree	No reply
			1	12	

9. What did you like about the evaluation?

9. ما هو الشيء الذي أحببته في عملية التقييم؟

R2: Determining the key values and the indicators.

R3: First time to participate in this evaluation; learned a lot about other programmes and know how to do the evaluation now.

R4: Dialogue between members of the protectorate.

R5: The scientific way and the cooperation between facilitator and the staff

R6: Discussion.

R8: Emphasizing that the work should be well planned. Friendly atmosphere between the staff and discussions after end of the day.

R10: Clarifying the PA's problems, finding proper solutions by discussing within all the group.

R11: Communication between evaluators and staff.

R13: Democracy

10. Staff have had an adequate chance to input to the evaluation of management effectiveness.

10. أتيحت لأفراد المحمية فرصة طيبة لإثراء عملية تقييم فاعلية الإدارة

Strongly disagree	Disagree	Neutral	Agree	Strongly Agree	No reply
			3	10	

Comments:

تعليق:

R1: We need more time and more discussions.

R3: same as 9; very helpful, each ranger knows programmes of other rangers

R5: The staff who did the evaluation according to their experience.

11. Stakeholders, community and visitors have had an adequate chance to input?

11. كان للجهات ذات الصلة، المجتمعات المحلية والزائرين فرصة طيبة للمشاركة بمدخلاتهم

Strongly disagree	Disagree	Neutral	Agree	Strongly Agree	No reply
		1	6	6	

Comments:

تعليق:

R1: It helps to find solutions to a lot of problems between the protected area and city council.  
 R2: If possible, have one day for stakeholders to present and discuss the things common between PA and stakeholders.  
 R3: Stakeholders, especially local communities are best to express ideas on equipment.  
 R5: Presence of city council chairman helps in finding solutions.  
 R6: This lead to hearing the distance between the stakeholders, community and PA.  
 R10: The local community people made a very useful contribution.

12. The evaluation of management effectiveness has led to improved awareness, communications, collaboration or co-management with others (e.g., stakeholders, communities).

12. قادت عملية تقييم فاعلية الإدارة إلى تحسين الوعي وتبادل الآراء والتعاون مع الآخرين (مثل الجهات ذات الصلة والمجتمعات المحلية)

Strongly disagree	Disagree	Neutral	Agree	Strongly Agree	No reply
			6	7	

Comments:

تعليق:

R3: Group discussions  
 R5: Exchange of experience between the staff.  
 R6: Due to explaining to the stakeholders the most important problems affecting the PA.  
 R10: Meeting with the head of city council gave a very effective output.



13. Overall, the evaluation of management effectiveness is a worthwhile exercise for protected areas staff.

13. كانت عملية تقييم فاعلية الإدارة في مجملها تمرين جدير باهتمام أفراد المحمية

Strongly disagree	Disagree	Neutral	Agree	Strongly Agree	No reply
			2	11	

Comments:

تعليق:

R1: It was a good training and needs to have a certificate.

R3: Because it means more work and need to have a free and open discussion.

Survey Respondents: R1-R13 rangers from SKP