SUSTAINABLE DEVELOPMENT ALONG THE RED SEA COAST: STILL POSSIBLE?

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1 ABSTRACT

The Red Sea is a unique resource whose potential has not yet been realized. Since the 1980s development for mass tourism has destroyed large areas of the northern Red Sea coastal stretches as exemplified by the city of Hurghada. Innovative initiatives have taken place to protect the remaining parts of the Red Sea (From Marsa Alam city South), including several guidelines by the Red Sea Sustainable Tourism Initiative (RSSTI) in 2000-2004 that focused on developing ecotourism and coastal planning for the region, followed by another pilot programme named Livelihood and Income From Environment (LIFE) in 2005-2008 which supported implementing pilot projects in national parks to demonstrate examples of the appropriate process. Since 2008 there have been several initiatives to introduce sustainable practices (e.g., Solid Waste Management and Mooring Buoys) led by local NGOs such as HEPCA.

Despite these attempts, the development pattern has not changed much and the knowledge gained remains within a limited number of people. The main obstacles to improved planning and development are: (i) An institutional problem where the responsible authorities (both tourism and environment ministries) do not coordinate with each other nor with the many stakeholders, (ii) Practitioners typically borrow designs from the Nile Valley architecture rather than developing a local and appropriate one for the Red Sea, and (iii) The lack of understanding of the Red Sea system (i.e., drainage, soil, marine life, and natural habitat) resulted to several inappropriate land subdivisions and allocating development in vulnerable areas.

The solutions for such complex problems can be summarized as follows:

(i) Elevate land use planning above the ministry level, so that planning is not limited to one ministry (such as housing, tourism or environment) with a very specific mandate for one type of development, but rather an overarching exercise that is a product of a higher level proposed committee at the prime-minister level.

(ii) Architecture and planning education to incorporate appropriate planning tools and building technologies, and not limit this arena to the Nile Valley architecture. Learn from the local tribes’ knowledge about best site selections criteria and building styles and seeking guidance from relevant experiences in the region rather than copying western countries.

(iii) Land use suitability maps that can guide development in the region without harming the environment and while being locally implementable within the local market dynamics.

1.1 Keywords  
sustainable tourism, land use planning, Red Sea.
2 INTRODUCTION

The Red Sea is a unique environment with deserts rich in history abutting a sea whose remarkable coral reefs are among the best in the world. With its striking environment and touristic potential, sunny climate, and short flight distance from major population centers in Europe, the Egyptian Red Sea coast has tremendous potential for economic development and benefits for the nation and region. Since this coast was opened to tourism after the Camp David Accords of 1978, the number of hotel rooms shot up from essentially a handful in 1980, to about 7000 in 1999, to over 40,000 in 2009 (Ministry of Tourism, 2009). This rapid development came with unfortunate impacts on the coast and coral reefs (Dewidar, 2002).

Most of the coast is flanked by a fringing coral reef, which blocks access to deep water. Exceptions are the mouths of dry streams (wadis), where there are breaks in the fringing reef and commonly embayments (marsas) that offer anchorage and access to deep water for boats, snorkelling opportunities along the reef edge of the embayment, and swimming beaches along the landward shore. Thus, the best places for tourist resorts are next to marsas, with their access to snorkelling and open water. However, development has been promoted (by the Tourism Development Authority) on parcels evenly distributed along the coast; most sites are along fringing reef, where it is impossible to swim in the sea. This motivated some developers near Hurghada to physically remove the reef in front of their hotels, or to fill over the reef in attempts to create direct access to deep water (Frihy et al., 1996). While such blatant destruction is no longer common, development patterns along the coast are still not informed by the underlying carrying capacity of the coastal geomorphology, coastal waters and thus their coral reefs) have been affected by chronic pollution and are at risk of extensive contamination from flash floods that will scour waste dumps in Wadis and carry chemicals, garbage, and other pollutants out to the coral reef (Ismail, 2003).

3 ENVIRONMENTAL PLANNING INITIATIVES

Since the late seventies there has been a recognition of the environmental significance of the Red Sea area, but attempts to do environmental planning started only in the 21st century. The importance of developing the Red Sea for economic reasons of was mainly promoted by the Government of Egypt to create jobs and increase national income. However, efforts to implement more sustainable, environmental and balanced development were initiated by external organizations seeking to protect the ecosystem specifically the coral reef, migratory birds and mangrove trees, as well as archeological sites. These organizations include USAID, UNEP, GEF, IUCN, Italian Cooperation, UNDP and WFP. (Table 1)

Table 1. Planning initiatives and projects in the southern regions of the Red Sea

<table>
<thead>
<tr>
<th>Project</th>
<th>Year</th>
<th>Area Cover</th>
<th>Lead Agency</th>
<th>Local Partner</th>
</tr>
</thead>
<tbody>
<tr>
<td>Launch of Egyptian EIA</td>
<td>1994-Present</td>
<td>Egypt</td>
<td>EEAA</td>
<td>All other GoE organizations</td>
</tr>
<tr>
<td>Assessment and Management of Mangrove Forest in Egypt for Sustainable Utilization and Development</td>
<td>2003-2005</td>
<td>Egyptian Red Sea Coast</td>
<td>Ministry of Agriculture and Land Reclamation (MALR), Under Secretariat for Afforestation and Environment (UAE), MSEA and EEAA</td>
<td></td>
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<tr>
<td>Private Sector Tourism Infrastructure and</td>
<td>2002-2003</td>
<td>Egyptian Red Sea Coast</td>
<td>World Bank</td>
<td>EEAA</td>
</tr>
<tr>
<td>Environmental Management Project</td>
<td>Year</td>
<td>Region</td>
<td>Funding 1</td>
<td>Funding 2</td>
</tr>
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</tr>
<tr>
<td>Environmental Sustainable Tourism Project (EST)</td>
<td>1998</td>
<td>Southern Region of Red Sea</td>
<td>USAID</td>
<td>TDA</td>
</tr>
<tr>
<td>Red Sea Sustainable Tourism Initiative (RSSTI)</td>
<td>2001</td>
<td>Egyptian Red Sea Coast</td>
<td>USAID</td>
<td>TDA</td>
</tr>
<tr>
<td>Livelihood &amp; Income From the Environment (LIFE)</td>
<td>2005-2008</td>
<td>Southern Region of Red Sea &amp; Mountains Range</td>
<td>USAID</td>
<td>EEAA, RSG and TDA</td>
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**NOTES:**

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tr>
<td>EEA</td>
<td>Egyptian Environmental Affairs Agency</td>
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<tr>
<td>GEF</td>
<td>Global Environmental Facility</td>
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<tr>
<td>GOPP</td>
<td>General Organization for Physical Planning</td>
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<tr>
<td>LIFE</td>
<td>Livelihood and Income From the Environment</td>
</tr>
<tr>
<td>MALR</td>
<td>Ministry of Agriculture and Land Reclamation</td>
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<tr>
<td>MOT</td>
<td>Ministry of Tourism</td>
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<tr>
<td>MSEA</td>
<td>Ministry of State for Environmental Affairs</td>
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<tr>
<td>PERSGA</td>
<td>Organization for the Conservation of the Environment of the Red Sea and Gulf of Aden</td>
</tr>
<tr>
<td>RSG</td>
<td>Red Sea Governorate</td>
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<tr>
<td>RSSTI</td>
<td>Red Sea Sustainable Tourism Initiative</td>
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<td>TDA</td>
<td>Tourism Development Authority</td>
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<td>TPA</td>
<td>Tourism Promotion Authority</td>
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<tr>
<td>UNEP</td>
<td>United Nation Environmental Program</td>
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<tr>
<td>USAID</td>
<td>United States Agency for International Development</td>
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<tr>
<td>WFP</td>
<td>World Food Program</td>
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The earlier projects and initiatives played a role in bringing new concepts to the attention of local authorities and were the “wake-up” call for the importance of sustainable tourism. The most recent projects are the most significant ones that took place since the beginning of this century. However, none of these initiatives were extremely successful in changing the mind set and the pattern of operation of the local authorities. The most recent two projects RSSTI and LIFE had sufficient funding to implement pilot examples. The RSSTI project focused on the 5 km coastal strip of the Red Sea from Marsa Alam to Ras Banas, and despite all the land use planning efforts, the development continues (business as usual) after the project. The most recent project LIFE had some successful intervention with local communities development and supported some infrastructure in the park (e.g. vehicular trails, a ranger’s operation center facility, a visitor center and marine equipment).

However, none of the projects to date have achieved broad public education or developed land use suitability maps at appropriate scales to provide guidance for future ecotourism development for the area.

4 **OBSTACLES FOR ENVIRONMENTAL PLANNING**

Despite the thorough attempts of environmental planning agencies, and despite the fact that there is more awareness about environmental planning and ecotourism planning, the pattern of land subdivisions remains inappropriate for the environment. The reasons can be summarized as follows:

4.1 **Current Structure of Government Agencies (Institutional)**

The implementing agencies for tourism planning, in general, are subordinate agencies to Ministries and have specific mandate that often prevent planners from examining issues from a multidisciplinary perspective. A national or regional planning agency with a broader perspective could alleviate this problem. Alternatively, elevating the authority (or jurisdiction) of individual planning agencies would also encourage multidisciplinary planning perspectives. (Figure 1) shows a schematic simplified diagram for the existing ministries and some of their executing arms. The following are some examples:
Ministry - Implementing Agencies (subordinate agencies)

- Tourism Development Authority and Tourism Promotion Authority
- Egyptian Environmental Affairs Agency, Shore line Protection Agency
- General Organization for Physical Planning, New Unban Communities Authorities
- Supreme Commission for Antiquities

Figure 1. Schematic structure of existing government organizations

The Tourism Development Authority (TDA) under the Ministry of Tourism has a very well-defined mandate, consisting of dividing the land, and encouraging developers to invest in tourism facilities to increase the number of rooms and therefore attract more tourism. They have been successful in achieving the target. However, TDA has not fully considered its impact on environmental resources and fragile ecosystems, so achieving this development was at a very high environmental cost.

The mandate to develop has been manifested more in quantity than quality of tourism (i.e. number of rooms or nights versus revenue), resulting in densely developed coasts in the northern part of the Red Sea with a very low selling rate per room per night (goes as low as 12$/night in charter flights packages). This resulted in a mass tourism which created stress on environmental assets and significant environmental degradation such as developing on landfill, destruction of coral reef, pressure on fresh ground fresh water, development within flood zones and a reduction in quality of the destination.

4.2 Current Methods for Planning & Design (Technical)

Even within the available small window that international organizations promote to introduce some environmental planning for such a quality destination, the actual attempts have been lacking sufficient information about sustainability. The planning process did not recognize the weight of the environmental and cultural factors. Although some projects had high level of awareness about the appropriate planning, this was on the ideas and concept level and was not carried out forward to implementation. The typical planning techniques adopted further north (which is land subdivisions in linear row) has continued to be used in the southern region of the red sea as in (Figure 2)
Figure 2. Existing coastal land subdivision for tourism facilities in the Red Sea. The map shows the planning in relation to shoreline, coastal highway and drainage pattern

4.3 Importing Planning & Design Models (Educational)

The local residents in the area are nomads who move across the Red Sea mountain range. Their numbers are small and their settling points within this migratory network tend to be fresh water wells where they practice grazing, and small villages near the shoreline where their main activity is fishing. Therefore, their physical traces are less impressive than the architecture dominating other parts of Egypt.

Most of the professional planning and design attempts to “go-green” have been imported from other climates. While perhaps environmentally friendly and useful for their original settings they may not be appropriate for the Red Sea coast of Egypt. The following are two examples of this practice:

- Copying Nile Valley Development Style

Architects and landscape architects in Egypt are heavily influenced by the architecture of the Nile Valley, and have drawn upon the vernacular architecture and building materials of the Nile for building along the Red Sea. However the Nilotic template is not necessarily the most appropriate for the Red Sea desert, climate, soil, available stone, economic activity and nature of residents. Patterns of life in the eastern desert of Egypt are very different and would suggest different patterns of planning and design for the coast. Figures 2 and 3 show some replication of domes and vaults using concrete. (Vaults and domes are originally structure forms that are suitable for areas like Nile valley where mud bricks and limestone exist).
• Copying Other External Development Style

In attempts to replicate successful examples of world class ecotourism, such as South Africa “Ecolodges”, the tendency has been to replicate the facility rather than the planning and design process, which resulted in, ignoring differences in locally available material, climate and other aspects. Figure 4 shows an example of the building style of one of the camps using wood and concrete while the area is rich in other material that can be of more use such as granite and gravel. For example,

Figure 4. The government Housing (in Hamata Village) for local residents is not suitable for climate, locals’ needs, design or internal zoning. It has remained unoccupied since it was built (Source, several interviews with local tribes – 2003-2007)

5 RECOMMENDATIONS

5.1 Institutional Restructure

• Institutional restructure

We recommend that planning authorities be elevated above the single sector ministries to avoid the current conflicts between the Ministry of Tourism (aiming to increase tourism development) and the Ministry of Environment (aiming to preserve environmental resources). Figure 5 shows a proposal to elevate the planning authorities above the ministries as agencies that serve one sector through formulation of a cross-cutting higher commission for planning. This is a proposal developed by “Mithaq Group”, a group of professionals representing several organizations, and supported by several political parties and civil society organizations)
Figure 5. Inspired by South African lodges, using (wood) in the construction of some coastal facilities, where wood is an extremely rare material and not local

- **Implementation agency mandate**

Like any other ministry in Egypt, the Ministry of Tourism is supported by many implementing arms such as: Tourism Development Authority, Tourism Promotion Agencies and others.

We recommend that the objective of Tourism Development authority to be changed from “Mass” tourism, where success is evaluated by the number of hotel rooms built, to low, moderate or “eco” tourism (achieving more number of rooms built) to “Moderate” or “eco” tourism (achieving same revenue or more with less number of rooms). Figure 7 shows the major difference between current planning approaches and alternative concepts:

(a) The current parcelization pattern (alternative A) tends to block natural flooding paths, reduce public view of the sea, minimize monitoring and limit control over the marine activities
(b) Laying out parcels in groups (alternative B) allows for floods to flow smoothly without damage, guarantees better management, more and beneficial environmental monitoring, exclusivity and better sustainability for the existing resources
(c) Alternative (C) proposes a more integrated and exclusive pattern that is economically feasible, safe from floods and provides better protection for the environment
Figure 6. Proposed schematic restructure for the government (proposed for the new constitution) as part of the current formulation of the government after the 25th of January revolution (developed by the “Mithaq Group”)

Figure 7. (a) Convention planning, (b) alternative concept with the same numbers of rooms, (c) low intensity development with focus on higher exclusive facility
5.2 Improve Environmental Planning & Design Capabilities

(a) Planning Level

The local authority (TDA) responsible for this planning will need to conduct a comprehensive research project to help identify vulnerability maps to inform other government agencies and developers of potential hazards in the region. It is also crucial to re-evaluate the planning process for the coastal area and incorporate a higher environmental planning component.

Informing the public and the investor of accurate potentials and hazards of sites is a key element to shaping the development pattern for the region and will help reduce risks that may occur to people and investments.

Increasing the technical capabilities for the planning team about Integrated Coastal Zone Management, (ICZM) will allow them to plan the coastal plain in conjunction and proper integration with the mountain deep range of the Red Sea, because the ecosystem is interlinked and the coast can not be sub divided in isolation of what is going neither in the deep desert (west) nor on the marine side (east).

(b) Design Level

It is important to pay closer attention to the designs proposed by project developers and to re-evaluate the entire site layout to make sure it falls within the planning principles and ecological considerations on the macro scale. This can be achieved by revisiting the current Environmental Impact Assessment (E.I.A.) process for such projects to include wider zones than the projects land lot.

One important consideration in tourism planning relate to adopting design solutions within the site boundaries, such as avoiding building in Wadi floor, using light structural development in potential runoff zones and avoiding locating facilities in parts of land where there is potential for flooding or soil replacement. This requires selecting competent landscape designers who are able to understand the site and respond to the developer needs without harmful designs that end up with environmental disasters.

The environmental regulations and current practices for shoreline setback are developed in isolation of risks that may occur from shoreline dynamics such as seal level change, realization of different habitat basic needs (e.g. turtle nesting sites and coastal mangrove zones).

5.3 Improving Education & Learning From Local Knowledge

We recommend consulting local residents about their experience with ecological factors in the area. Such consultation will provide insights to numerous factors that might not otherwise be evident during the decision making time such as history of previous floods, types of winds in other seasons, project impact on local flora and network of movement for the fauna system (migratory birds and camel trail systems).

This consulting could include a wide range of public participation, engaging the nomads in the planning process and allowing for a communication channel between the developer and local residents in the Red Sea region.

6 REFERENCES


