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# Towards Environmentally Friendly Tourism in Arabian Biosphere Reserves

Case Study: Al Reem, Qatar

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Tourist in the State of Qatar  
(Photo: Henning Schwarze)*

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# Preface

By N. Ishwaran

## Travel, tourism and UNESCO Biosphere Reserves (BR)

Travel has been an age-old builder of bridges and relationships between civilizations. It continues to be a necessary condition for promoting a meaningful inter-cultural dialogue that is part of UNESCO's mission to build peace in the minds of men and women. The dividing line between travel and tourism has never been sharp; frequently global tourism data shadow international travel statistics.

Yet, not all those who travel are tourists and the Gulf Region is a part of the world to illustrate that point. Migrant workers and professionals of all socio-economic classes travelling to and from Gulf Nations are not necessarily tourists; but they do contribute towards tourism and economic growth within the region when they decide to spend their holidays within the country they reside or within the broader Gulf sub-region or the Middle East region. The growing prosperity of the Gulf and Middle East is likely to continue to attract an increasing number of travellers and tourists. UN World Tourism Organization estimates that although Europe, Americas and East Asia and the Pacific will together account for 88.5% of the world tourism's market by 2020, for the period from 1995 to 2020, tourist arrivals in the Middle East will grow at 6.7% per annum outpacing its nearest rivals in East Asia and the Pacific (6.5%) and South Asia (6.2%), respectively.

The origins of modern-day ecotourism however, go back to back-packers seeking unspoilt nature and wildlife or uninhabited coastal beaches to surf and sun-bathe, often in remote parts of the world with difficult access. Today someone flying over an African savannah to view large game and then heading to his or her luxury jungle-lodge or others who stay in four or five star safari inns and then go tracking to see habituated gorillas in the wilds of the African Great Lakes region would all

be counted as ecotourists. Ecotourism is believed to be the fastest growing segment of the world tourism market. And there are many definitions of what ecotourism is. The stricter definitions require that ecotourism generates a combination of benefits to the environment as well as for the well-being of local communities and people.

UNESCO BRs share with ecotourism the ambition to create a sustainable relationship between people and the environment. BRs are committed to using sound science and other knowledge based tools to facilitate the task of building that relationship. Created under UNESCO's Man and the Biosphere (MAB) Programme launched in 1971, the BR concept pioneered the notion of integrating biodiversity conservation with the socio-economic well-being of people and local communities. The Madrid Action Plan, adopted at the 20<sup>th</sup> session of the International Co-ordinating Council (ICC) of the MAB Programme and the 3<sup>rd</sup> World Congress of BRs convened in Madrid, Spain, from 4 to 8 February 2008 urges UNESCO Member States to visualize BRs as places for testing and learning practices that facilitate mutually beneficial trade-offs amongst the environmental, economic and social pillars of sustainable development.

Travel and tourism, and particularly ecotourism, are important components of the development tool-kit available to managers and co-ordinators of BRs who are seeking to balance biodiversity conservation with socio-economic change and growth. Unlike conventional parks and protected areas, BRs, with their legally protected core, buffer and transition areas dedicated to environment friendly socio-economic change can allow tourism to develop an interesting mix of itineraries that combine educational, cultural and natural values distributed throughout the BR territory.



Picture: Gazelles at Al Reem BR, Qatar (by M. Richtzenhain)

In these territories an ecotourist may benefit from viewing wildlife, interacting with communities with long-held traditions of sustainable resource use, admire rural and at times even urban landscapes and learn lessons from experiments to find sustainable futures. In fact the promotion of science, participatory research, education and environmental monitoring and stakeholder consultations and negotiations are critical to BR management and raises the interest to visit BRs among a range of groups including academics,

researchers, students, schools and private sector establishments.

Tourism therefore is a critical ingredient in the policy and praxis mix essential to illustrate the concept of BR in action. As Gulf States rejoice in their success of having their first two sites, namely Al Reem of Qatar and Merawah of UAE, respectively, in UNESCO's World Network of BRs, they are becoming keenly aware of the importance and the role tourism, in particular ecotourism, can play in facilitating their ambition to develop their BRs as best practice models. The outcome of the efforts in these two BR pioneers among Gulf States will generate important lessons for others in the same sub-region of the Middle East who are now in the process of developing their own BR proposals.

UNESCO, through its MAB Secretariat in Paris and its Office in Doha, Qatar, stands ready to join hands with Gulf Nations to experiment and demonstrate BRs as places of best practice for tourism, particularly ecotourism development.

## 1. What is environmentally friendly tourism about?

By R. Dowling

**E**nvironmentally friendly tourism (EFT) embraces tourism in the natural environment. Generally it refers to tourism occurring in natural settings in such a manner as to leave few, if any, adverse impacts. Examples include nature-based tourism, in which viewing nature is the primary objective, and wildlife tourism, in which the focus is on the viewing exclusively of wildlife. Thus environmentally friendly tourism is an all-embracing term for tourism in natural settings in which there is an emphasis placed on the understanding and conservation of the natural environment. Essentially it is a type of tourism in the natural environment which promotes environmental understanding and conservation.

EFT includes nature based tourism, wildlife tourism, cultural tourism and ecotourism. However, it excludes a number of other forms of tourism such as adventure tourism, where the emphasis is on the activity rather than the environment; rural tourism which generally occurs in human-altered landscapes; and indigenous tourism, where the central feature is the native culture and/or heritage. EFT also embraces the characteristics of sustainable tourism, which is an approach to tourism which fosters a long-term view of the environment. In essence it fosters 'responsible tourism' which delivers benefits to tourists, host populations and governments. At best, EFT promotes environmental conservation,

international understanding and cooperation, political and economic empowerment of local populations, and cultural preservation. When it fulfils its mission, it not only has a minimal impact, but the local environment and community actually benefit from the experience and even own or control it.

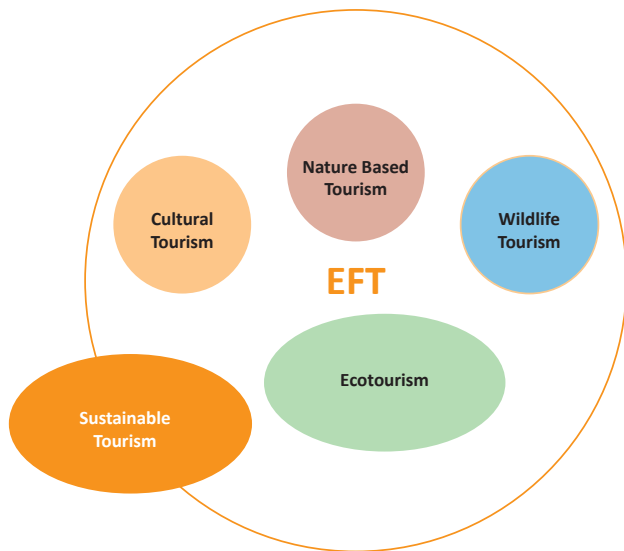


Figure: Different types of EFT (Source: Authors own figure)

There are a number of types of EFT. Nature-based tourism is tourism where the viewing of nature is the primary objective. The focus is upon the study and/or observation of the abiotic (non-living) part of the environment e.g. the rocks and landforms as well as the biotic (living) component of it e.g. fauna and flora. Where it differs from wildlife tourism is that nature based tourism has a broader focus than purely the viewing of wildlife only. In nature based tourism the whole landscape and surrounds is the primary focus for tours and it is more holistic in its embrace of the environment. It tends towards small-scale, but it can become mass or incipient mass tourism in many national parks. It is sometimes perceived as synonymous with ecotourism since one of its aims is to protect natural areas but it also differs in its lack of overt environmental interpretation and/or education.

Often it is the quality of a natural area's living or biotic element, that is, the fauna and flora or wildlife that plays a primary role in attracting tourists to specific destinations. Wildlife tourists

seek an experience that will enable them to explore, no matter for how short a time, a new ecosystem and all its inhabitants. The growth in wildlife viewing in recent years has been phenomenal; for example, in the United States over 75 million people watch wildlife each year and it is now the country's number one outdoor recreational activity.

Ecotourism is nature-based tourism that involves education and interpretation of the natural environment and is managed to be ecologically sustainable. It recognises that 'natural environment' includes cultural components and that 'ecologically sustainable' involves an appropriate return to the local community and long-term conservation of the resource. Thus ecotourism is often viewed as the highest form of EFT. It usually incorporates ecologically sustainable activities, conservation supporting measures at the local level, active interpretation and/or education about the region being visited, and the involvement of the local community.

The IUCN (World Conservation Union) definition states 'ecotourism is environmentally responsible travel and visitation to relatively undisturbed natural areas, in order to enjoy and appreciate nature (and any accompanying cultural features – both past and present) that promotes conservation, has low visitor negative impact and provides for beneficially active socio-economic involvement of local populations'.

Ecotourism attracts people who wish to interact with the environment in order to develop their knowledge, awareness and appreciation of it. By extension, ecotourism should ideally lead to positive action for the environment by fostering enhanced conservation awareness. Ecotourism education can influence tourist, community and industry behaviour and assist in the longer term sustainability of tourist activity in natural areas. Education can also be useful as a management tool for natural areas. Interpretation helps tourists see the big picture regarding the environment. It acknowledges the natural and cultural values of the area visited as well as other issues such as resource management.

Ecotourists expect high levels of ecological information. The quality of the environment and the visibility of its flora and fauna are essential features of their experience. They demand conservation and clear statements of the nature and aims of ecotourism need to be incorporated into literature and publicity material to educate and encourage active participation by stakeholders as well as the tourists themselves. The involvement of local communities not only benefits the community and the environment but also improves the quality of the tourist experience. Local communities can become involved in ecotourism operations, and in the



*Picture: Leisure tourism at Khor Al Adaid, Qatar  
(by M. Richtzenhain)*

provision of knowledge, services, facilities and products. These benefits should outweigh the cost of ecotourism to the host community and environment. Ecotourism can also generate income for resource conservation management in addition to social and cultural benefits. The contribution may be financial with a part of the cost of the tour helping to subsidise a conservation project. Alternatively it could consist of practical help in the field with the tourists being involved in environmental data collection and/or analysis.

Local communities view ecotourism as an accessible development alternative which can enable them to improve their living standards without having to sell off their natural resources or compromise their culture. In the absence of other sustainable alternatives, their participation in ecotourism is often perceived as the best option for achieving their aspiration of sustainable development.

Ecotourism also provides a context for local incentives for conservation and protection. It should integrate both the protection of resources with the provision of local economic benefits. The implementation of ecotourism as an exemplar for sustainable development stems largely from its potential to generate economic benefits. These include generating revenue for management of natural areas and the creation of employment opportunities for the local population.

The satisfaction of visitors with the ecotourism experience is essential to long term viability of the ecotourism industry. Included in this concept is the importance of visitor safety in regard to political stability. Information provided about ecotourism opportunities should accurately represent the opportunities offered at particular ecotourism destinations. The ecotourism experience should match or exceed the realistic expectations of the visitor. Client services and satisfaction should be second only to the conservation and protection of what they visit.

Thus to conclude, EFT is simply tourism in natural areas which impacts lightly on the natural and cultural environment, and ideally leaves behind some added value to the region. It could include nature based tourism, wildlife tourism and / or ecotourism. In nature-based tourism the viewing of nature is the primary objective and the focus is upon the study and/or observation of flora, fauna and/or landscape. Wildlife tourism is based on the living organisms of the environment and often focuses on one component such as bird watching or even on one population only in the case of, for example, whale watching. Ecotourism embraces parts of both nature based tourism and wildlife tourism but also includes the added elements of conservation, education, responsibility and community participation. Thus EFT is a form of tourism which is environmentally based, ecologically sound, educative and ethical.



## 1.1 Ecotourism as part of EFT – an example

By K. Al Muhannadi

**E**cotourism is the fastest growing sector of the tourism market. Travellers are willing to pay more (8.5%) for travel services and products provided by an environmentally friendly and responsible supplier. Almost any term prefixed with 'eco' will increase interest and sales. Also the number of people involved in recreational activities specifically geared toward viewing wildlife is increasing rapidly (Budowski 1976; Carney & Sydeman 1999; Kenchington 1989; Boyle & Samson 1985).

There are many definitions of ecotourism (Western 1993; Ceballos-Lascuráin 1996; Honey 1999 and Mann 2002). The one adopted here has the following components:

- It is nature or culture based
- It is sustainable
- It has no, or low, impact on the environment, culture and local heritage
- It has an educational value
- It results in benefit to the local community
- It has a conservational value

In short, ecotourism plays a limitless role in balancing tourism, conservation, and culture (Boo 1993).

Adoption of only superficial aspects of ecotourism without making substantial changes to business practices that are not environmentally sound, has been called 'ecotourism lite'. Such misuses of the term 'ecotourism' made some consider ecotourism just another environmentally-destructive market device (Boo 1993; Sekercioglu 2002). Activities ranging from powerboat trips through narrow gorges, to chasing elephants with paint-guns, and multiple vehicles chasing cheetahs in Massai Mara, or off-road vehicle trips destroying the top soil in various parts of the world have all been called 'ecotourism'. As demand for wildlife viewing opportunities increase, so does the

concern and the evidence that non-consumptive activities can disturb wildlife (Boyle & Samson 1985; Schreur 1987; Skagen *et al.* 2001). Nevertheless, true ecotourism is preferable to alternative forms of economic development, such as logging, mining, petroleum drilling, or agriculture because properly conducted ecotourism has the potential to protect natural areas and benefit local people at the same time. Ideally ecotourism creates a local incentive for conserving natural areas by generating income through operations that are suitable, low-impact (cultural and environmental), low-investment, and locally-owned (Boo 1993; Goodwin *et al.* 1998; Sekercioglu 2002; Honey 1999). Unfortunately this ideal is rarely reached, in part due to what may be an inherent paradox: ecotourism aims to combine market-driven consumption of goods and services with sustainability.

### A case study of the region

In the Arabian Gulf Region, the current boom in oil production and associated large cash returns is having a tremendous impact on conservation. A significant amount of excess cash-wealth is now available for large multi-national firms and private investors, who are currently willing to invest in capital intensive mega projects. These are typically tourism infrastructure projects, and Bahrain or Qatar are no exception. Massive coastal projects, including significant land reclamation and dredging is changing the coastline of the Arabian Gulf and its biodiversity.

The GCC governments have advocated that rapid progress and industrial and infrastructure expansion has been necessary as a way to diversify the economy away from oil. It is also a way of generating jobs and encouraging tourism and attracting foreign investment in the country. However, important environment and social issues are being mostly sidelined and ignored. There is no doubt that the investment is helping

the economy boom, and investors, construction firms, design firms, and consultants are seeing the rewards. This attracts more foreign capital into the country, however a concern is that the majority of local communities and people do not see any benefit, and that the rich-poor divide continues to widen.

Tourism in general has not benefited local communities the way it could. Local communities paid the consequences but benefited very little. Tourists stay in international branded hotels, eat from franchised restaurants and mostly use their national airline to travel. Even when they buy souvenirs they buy toy-camels or toy-boats, made in China and elsewhere. Books about Arabian Gulf Countries are mostly written by foreign researchers, and local universities do not benefit from their sales. Local products do not feature highly as souvenirs.

Ecotourism, the way it is defined, could be the best option for the region. There is a good potential for ecotourism in the Arabian Gulf Region. Most of the ecotourism attractions are in the sea. Examples are the coral reefs and diving sites in Oman, the dugongs between Qatar and Bahrain, the nesting turtles in Yemen, and Oman, and the pearl diving habitats (Hairat) in Bahrain, Kuwait and Qatar. These could all be the starting for ecotourism activities. In addition, the natural islands in the Arabian Gulf are important nesting sites for different bird species; e.g. Suwad Al Janoobeyah of Hawar Islands has the largest colony of cormorants in the world. Other potential avenues for ecotourism include sailing in old traditional sail boats, which is a good attraction for visitors and locals. Pearl diving following traditional ways is a growing attraction for tourists in the area. Snorkeling around the coral reef areas and around the small islands is another attractive activity in the warm shallow water of the Arabian Gulf.

The desert, from the other hand and its sand mounts, and its few but unique species like dhub lizards and camel is another attraction from the land.

Exclusive ecotourism to some remote and beautiful sites in the sea and land can form a good industry in this area of the world. This can attract tourists with high willingness to pay. These are likely to be more careful in dealing with nature and sensitive towards fragile environments and species.

Ecotourism inside the region can be very successful with good marketing; especially when people are not aware of the existing ecotourism destination in their countries.

### **Hawar island, Bahrain**

In an independent study looking at the potential and impact of ecotourism in Hawar Islands of the Kingdom of Bahrain, a social study survey took place to understand tourist typology and tourism activity in these remote islands. The study also looked at the level of awareness and expectations from tourists in a protected area. It concluded that although Hawar has a good potential for nature-based tourism, achieving ecotourism is not an immediate conclusion. Current tourism is definitely not ecotourism, and it is not even doing well as general tourism. Six years after the start of tourism in Hawar, it was hardly capturing the attention of 4% of Bahrain population a year. This might be a good point for limiting impact, and defining the target market for tourists in Hawar. Some practices on Hawar are environmentally friendly, but many are not. Environmental impact assessments needs to be conducted to estimate the current impact of tourism and other activities of Hawar. Limit of acceptable changes have to be set for any future activities. Baseline data are also missing which makes the process even more critical, and on the other hand business success evaluation is also required. Ownership in Hawar should be clear and made public for people to see their share in Hawar, and so to understand the meaning and the importance of ecotourism in Hawar. Ecotourism activities such as bird watching and conservation interpretation should be developed both to limit impact of other activities and to improve tourism in Hawar into a more appreciated level of tourism by responsible tourists both local and international.

The study highlighted the need to focus on a more target-oriented marketing. It also stressed the importance of applying different levels of tourism with different tourist activities and tourism fees. It also proposed a system for moving from current tourism towards a sound ecotourism.

### Conclusion

The infrastructure for tourism is established in most of the Arabian Gulf areas. Several aspects of ecotourism should be addressed such as: ecological footprint, economic impact for local communities, social effects and job creation, cultural changes and opportunities, spiritual dimension. The environmental, social and even long-term socio-economic impact of the global tourism business is underappreciated.

All stakeholders including governments, inter-governmental organizations, businesses, NGOs, and individuals are important players in pushing towards ecotourism. Together, different levels of tourism can be set for different tourist sites. This includes details of tourism activities, type of

tourists, number and duration of visits, proximity from nature, and setting the right limits for each site. Zoning is a recommended policy, and access to environmentally or culturally sensitive sites, for instance, should be limited to scientific use. Another level of exclusiveness can be assigned for environmental and educational purposes and especially with educated tourists with a high willingness to pay.

In the Arabian Gulf region, protected areas suffer from low funding like other regions of the world. Conservation of protected areas can benefit from the good income of ecotourism.

In the Arabian Gulf Region, ecotourism is one of very few good options for both conservation and tourism. The region needs to understand the meaning, potential and possible application of ecotourism, to be able to enjoy its potential benefits. Ecotourism should occur in the context of other options and programmes for conservation, sustainable development and responsible tourism.

## 1.2 The importance of community-based tourism and the benefit for the local population

By K. Al Muhannadi

**T**ourism is the world's fastest growing industry (Barnett *et al.* 1992). Between 1970 and 1990 tourism grew by nearly 300 percent. In 1991, an estimated 40 million tourists travelled internationally, or nearly 8% of the world population. Tourism currently provides more than 11% of world gross domestic product GDP, employing 255 million people. In the Middle East region, the capital investment in tourism and travel in 2002 was estimated to be 11.3 billion US Dollars representing 6.8% of total investments in the area. Tourism generated 95.1 billion US Dollars in 2002 and expected to grow to 180.7 billion in 2012 if the annual growth continued to be 4.4% (Al Madani 2003).



Picture: Community-based tourism (by H. Schwarze)

Nature based tourism is the fastest growing sector within tourism (Honey 1999). Tourism affects

many communities all over the world and this can have both positive and negative impacts. The effect that ecotourism has on some communities is to provide a good economic alternative to development. For others though, tourism has direct negative impacts (Ashley & Roe 1998). Communities located around protected areas can suffer the cost of development and construction economic instability and social imbalances that sudden and unprecedented change can bring. In addition, in many locations around the world, communities are denied any form of compensation or benefit from protected area status or from the ecotourism scheme itself.

### Impact assessment

Examples of negative impacts on host destination and local communities are tourism infrastructure cost, increase in prices, economic dependence of the local community on tourism, the seasonal character of jobs provided by tourism, in addition to resource depletion and environmental degradation. Recent research shows that growing numbers of tourists would appreciate more meaningful contact with the local communities.

Despite the great potential for economic benefit of tourism as the largest industry worldwide, local host communities often get very little if any of these benefits and suffer some undesirable consequences of hosting tourism.

For tourism to be successful, it needs to benefit local communities to get the support of and avoid conflicts with local communities. For it to be ethical, it should minimize its impacts on them and maximize their benefits. Tourism in many places of the world benefits the international big firms working in tourism, but not the local community and tourism economic leakage is a serious issue.

### Action

In order to develop a solution that addresses all these issues, it would be necessary to incorporate a process of consultation with the local community to discover the best way to

#### What is community-based tourism?

It is tourism, involving genuine community, participation and benefits.

achieve a higher degree of sustainability. An example of this would be to utilise local villagers as guides instead of outsiders. This situation has been described as “showing a stranger around your own home”, whereas having an employee of the tour company showing visitors round the village is like “having a stranger show someone around your home’. One good challenge would be to maintain cultural diversity while establishing a sustainable relationship between tourists and local communities. Community participation in tourism, on the other hand, should not be limited to service provision and answering tourist’s demands.

Local communities in highly visited destination were found to perform dances and rituals that are not part of their culture, only because they thought this will please the tour operators.

Ethical tour operations should try to maximise the benefit of these communities and at the same time seek to minimise impacts of tourism upon them.

To maximise benefits of local communities, there is a need to understand their needs, expectations, concerns and resources. Conventions and unwritten rules play an important role in many decisions which can impact tourism projects. The ideal scenario for a tourism project would be community-based where the community runs the project, sets its limits, be responsible and the beneficial of its success. Issues of fairness, equity and equality have to be considered, and it would be just right to start with training the people to do the job through stakeholder-workshops, and form a process for decision making that is fair, right and adequate. Then a plan should be there for capacity building and preparing the community to run its own project.

Conflict and competition within the community can occur if perceptions of the benefits of

tourism are that available benefits are available only for a few people. In Chiang Rai, Thailand, even a meagre payment received from tourists has caused conflict (Ashley & Roe 1998). This occurred when it was perceived that only the friends of tour guides were selected as hosts for tourists. To reduce cultural impact and acculturation; resulting usually from close and prolonged contact between tourists and the younger members of the host community, emphasis should be given to the elderly women and men of the community.

Tourists showing interest, respect and admiration towards a culture can encourage locals to re-evaluate their own attitude towards their traditions. Minimising social and cultural impacts can also be attained by aiming for active participation by the community in the decision making process of the type, extent and limits of tourism and not just involving the community or some of its members in service provision.

### **Empowerment**

Many communities are enthusiastic about the potential for tourism but face a variety of barriers to participation.

Identifying the Barriers (Ashley & Roe 1998; Honey 1999):

- Lack of capital
- Lack of marketing and business experience and skills
- Fears of unexpected negative cultural impacts
- Leakage of income from tourism
- Lack of linkage with other tourism needs
- Lack of infrastructure and organisation
- Lack of market assessment

### **Removing barriers**

Community tourism development can be demanded; unplanned community initiatives, however, while being commercially successful, are unlikely to be ethically sound as they can result in high cultural impacts. Otherwise, supply-led planned tourism might be a better option ethically, but

a feasibility study is essential to determine that there will be a large enough market to justify investment in infrastructure and to meet the expectations of local communities.

### **Three levels of community tourism management**

The management of the community-based tourism took different shapes in different destinations, where nature tourism and cultural tourism are the main type of tourism (Mann 2002; Ashley & Roe 1998).

- a) Community tours, exclusively run by the community.
- b) Partnership tours in which the community and the tour operator work together to provide.
- c) Responsible tours which are run purely by the tour operator.

The first option sounds more like what community-based tourism is about. It is idealistic and the first choice to any community that overcomes all of the barriers listed above, otherwise it is unlikely to succeed without external support. The role of the tour operator (that could be international or local) is limited here to bringing in tourists to these communities and paying the required fees, and maybe provides tourists before hand with leaflets or brochures prepared by the communities stating their stated roles and regulations or the code of ethics for tourists. Additional involvement may extend to providing technical support if the community accepts this.

The second option helps to remove barriers as you can utilise existing experience, capital and the skills needed to start the business, while partnership gives the community a fair share in decision making and benefit sharing.

The last option is the farthest from the meaning of community based tourism, if it stayed as the only option. It places all the responsibility on the tour operators. The communities are merely recipients. It might be ideal for a responsible tour operator, to understand the community and

move from this option in a planned manner to the second option. It may then act as a base line from which to empower the community and increase community involvement into active participation in decision making related to the type, extent and impact of tourism, leading to partnership between the community and the tour operator. Otherwise tour operators can continue to own tourism and develop their business according to their best judgment which might result in minimising the benefit of the local communities.

In all cases, tourism should complement not conflict with other livelihood activities. In other words, tourism should add to the people and not take from them. An example of that would be tourism complementing agriculture by providing tourists as a purchasing power for the existing local agricultural products, as versus to tourism taking the manpower or the land use right from agriculture.

### Benefit maximisation

(Ashley & Roe 1998; Mann 2002)

- Increase linkage (avoiding enclaves)
  - Forward links: Happy satisfied tourists bring more tourists
  - Backward links: to establish a network of local suppliers to build a stronger local infrastructure for tourism where the benefit goes to local people (e.g. accommodation, food, construction)
- Minimise leakage:
  - To minimize the percentage of tourist expenditure leaving the local economy through external taxation or dealing with big international service providers instead of the small local ones, for instance.
  - If moving to a more advanced level of tourism means more leakage, then it is more beneficial to consider staying at the current level of activity.
- Maximise multipliers:
  - The revenue originating from tourist expenditure multiplies by number of times spent and re-spent in the local

community. By maximizing multipliers, more people benefit directly or indirectly from the project.

- Complementing and boosting community livelihood (Ashley & Roe 1998)
  - Maximizing local development benefit means exploring local priorities and strategies for secure and sustainable livelihoods and adapting tourism to these.

In conclusion, community-based tourism means stated rights and responsibilities that result in both more benefit for the community and more support for the tourism project. It is a process of continuous effort to have a successful tourism that provides maximum benefit and minimum impacts to the local communities, and provide the tourist the opportunity to be close to the local communities while maintaining the integrity and the diversity of those local communities. This will provide better opportunities for cultural respect and for conservation.

It also means active participation by the community and not just involving the community or some of its members in service provision.



Picture: Restaurants near the Al Reem BR (by H. Schwarze)

## 1.3 Training courses, community involvement and environmental education

By C. Southgate

This section will concentrate on the role of education in environmental tourism plans, with a particular focus on community education and training. It will conclude by embedding the discussion within the broader consideration of community participation and environmental tourism development.

Tourism's sustainability revolves around a set of principles common to many environment and development contexts. The need to adopt an integrated approach to planning - incorporating social and environmental considerations rather than avoiding them - is paramount. Equally well recognized as a precondition for sustainability is the need to promote a more equitable distribution of rewards. Indeed tourism has often encouraged the consumption rather than conservation of environmental resources for the very reason that the rewards of tourism are so rarely shared amongst host communities.

The emergence of ecotourism in many areas where tourism and conservation precariously co-exist has demonstrated the importance of these principles. However perhaps equally central to the long term sustainability of environmental tourism is the issue of 'capacity building', most especially in terms of local communities' ability to design, implement and market successful tourism products. Indeed an analysis of the most successful and enduring environmental tourism initiatives demonstrates the fundamental roles education and training play in equipping communities with the tools and skills necessary for the management, operation and profit sharing to be successfully devolved to a more local level.

Of course the recognition for the link between education and sustainability is nothing new. Agenda 21, for example, called for a 're-orientation' of all education towards sus-

tainability some sixteen years ago, and since that time it has been universally accepted that the education and training are fundamental to tourism's long term sustainability. The question as to what form education and training for sustainability should take, and who should be the beneficiaries of it, is a somewhat less examined topic. While the 'community' is often the focal point of such discussions, it is evident that it is not only local people who lack the capacity to 'sustain' environmentally sustainable tourism. For example tourists themselves often lack an understanding of how their behaviour can cause irreversible damage to fragile environments. Private sector actors often lack the cultural sensitivity to sustain mutually beneficial links with communities. In terms of this broader definition of 'capacity building' it is perhaps useful to recognize both the needs of communities, as well as their potential to act as agents of education for the benefit of others. Figures 1 and 2 shed more light on this.

### **Communities as recipients of education and training**

Community training for ecotourism has evolved greatly over recent years. A large number of NGOs have started to prioritize community training as a fundamental component of their conservation objectives. The tools and skills required to empower communities to forge and sustain key roles in environmental tourism are varied, as Figure 1 illustrates.

Environmental tourism potentially provides a wide range of employment opportunities, but only so long as local people have the appropriate 'key skills' for them to act as tour guides, wardens, gate keepers and so on. Experience has shown that too often 'community-based' environmental tourism initiatives rely on non-local personnel

to fill these roles, provoking resentment and ultimately threatening the sustainability of the initiative.



Figure 1: Training requirements of communities for sustainable environmental tourism

Management and entrepreneurial training promote longer term autonomy in the development of specific environmental tourism products. Leadership training to facilitate self-management of community programmes is central to the empowerment of communities, freeing them from reliance on outside management expertise, and so enhancing the level of local control. Likewise, the skills of negotiation and engagement with other actors – governmental and commercial – are vital if communities are to develop capacity to define their own environmental tourism priorities. Linked to this is a component of broader tourism education, allowing community members to understand the wider context of tourism and the positive and negative roles it serves. This provides an opportunity to see how the local ‘connects’ to the global context.

If the objective is to promote more autonomy for host communities, then conservation training serves a vital role. Through this community members become more than mere agents of conservation through the tourism they host

and manage. An understanding of underlying environmental and ecological issues that dictate how and where tourism is conducted is necessary for effective planning of tourism activity, something most often conducted by outside parties, and often for short term benefit more so than long term sustainability.

The final component is training in ‘tourism expectations’ – a broad range of social, economic and cultural issues related to those who the community hosts. Hence the need to train communities to recognize and accommodate the expectations and interests of those who visit. For example where hosts’ culture has been a key attraction for tourists, then the community has had to recognize the delicate balance between promoting tourism for their own development, while conserving the ostensibly ‘traditional’ facade of their community to sustain interest.

### Communities as agents of education and training

Although communities are often identified as necessary recipients of training and education, it should be remembered that ‘capacity building’ for sustainable environmental tourism is a multi-faceted concept. Figure 2 indicates the



Figure 2: Training needs of non-community actors for sustainable environmental tourism



vital role communities can serve in promoting capacity amongst other actors (from tourists to governmental and commercial organizations).

Indeed in promoting a genuinely 'participatory' model of environmental tourism development, recognizing the role of communities as agents of education rather than just recipients is ethically important as much as it is logical.

Thus to avoid many of the problems associated with conventional forms of mass tourism which often forge rifts between host communities and tourists, visitors should be exposed to education about the cultural values, norms and expectations held by local people. This could encompass issues of behaviour, dress codes and a range of other cultural idiosyncrasies which visitors need to be conscious of. Communities are of course best placed to deliver such forms of information for tourists, although, as discussed above, their own capacity to act as educators and manage visitor education initiatives is a prerequisite. Great progress has been made with visitor education in recent years, most notably through increasingly informative and interactive interpretation resources. In short, cultural awareness is an issue of importance for hosts and visitors alike, and sustainability requires as much onus on enhancing visitor awareness as on that of communities.

Likewise, where community training should incorporate an understanding of global tourism issues and broad knowledge of ecological principles, so too is it incumbent on non-local actors to be aware of local environmental and economic contexts. For example, the perceptions of 'nature' as manifest in the minds of many visitors – nurtured by often superficial snapshots of the world in popular media – bear little resemblance to the environments with which local people's lives are so closely intertwined. Little wonder then that visitors often fail to appreciate the significance of the way their activities impact on the environment. Many ecotourism initiatives place great emphasis of educating visitors about locally-held environmental interpretations. Furthermore, an understanding of local economic

issues, for example relating to the competing demands of natural resources (tourists and operators perhaps too often fail to recognize the multi-dimensional character of rural economies) allows non-local agents to more fully appreciate the complex interactions between people and environment.

### **Education and training as means of community empowerment**

Sustainable tourism of all forms needs to be founded on the bases of local empowerment, participatory planning, proactive involvement of all actors, and an appropriately flexible approach to capacity building. Unfortunately 'participation' is often employed as little more than a public relations exercise – rarely does the concept translate into practice. However the pursuit of sustainable environmental tourism can not neglect the vital role local people can play in securing long terms social, economic and environmental security. Moreover, by involving diverse social groups from the popular sectors of local communities in decision making, developing countries may avoid many of the problems that have plagued past tourism.

Emphasizing the essential role communities can play in evolving development strategies from the 'bottom-up', IUCN *et al.* (1996) writes that "properly mandated, empowered and informed, communities can contribute to decisions that affect them and play an indispensable part in creating a securely-based sustainable society". Indeed a participatory-built policy can achieve a synergy between disparate groups that is otherwise impossible to attain. The issue of training and education for sustainable environmental tourism represents one of the more effective ways in which genuine participation and empowerment can be achieved.

## 2 The Al Reem BR: Background and introduction

By N. Ishwaran, N. Pilcher and B. Böer

### Historical background and participants

It was in 2002 that the Supreme Council for the Environment and Natural Reserves (SCENR) and the UNESCO Office in Doha embarked on a dialogue towards establishing potential BRs in the State of Qatar. The SCENR suggested investigating the capacity of an area known as Al Reem, as a potential BR candidate.

UNESCO established, with the support of the SCENR, a team of Qatari and international experts, and a rapid assessment into the ecosystems of Al Reem was carried out. The conclusion was that more research needed to be done, however, that the area concerned has great potential as a BR, especially considering the fact that, at that time, there was no BR in the entire Arabian Peninsula, and the rapid speed of Qatar's coastal and terrestrial areas developing for human purposes, with limited consideration of sustainable human living and nature conservation.

Something needed to be done in order to consider these aspects in the best interest of the people living in Qatar. It was Shell Qatar that approached UNESCO only a few years later and suggested it was willing to provide intellectual and financial support for the establishment of a specialist team developing a BR nomination file for the concerned area. A concerted action was initiated by the SCENR, and with the support of Shell and UNESCO a nomination file was produced and submitted. The BR was successfully enlisted in September 2007.

It is now important to continue on this path and develop a professional and implementable management plan, as well as to allow for the development of the Al Reem BR on high international standards. This is currently in process. Shell and UNESCO agreed to con-



Picture: Cliffs in Al Reem, Qatar (by H. Schwarze)

tinuously support the State of Qatar with this highly important and challenging task, that will consider the past and modern times (heritage such as maritime trade; pearl diving; fishing; bedu, camel & Hima, saluki & hare, falconry & houbara; as well as modern ideas of farming, education, and tourism). Under the leadership of the SCENR, UNESCO and Shell will continuously take pleasure in supporting the development of Al Reem, and simplicity and implementability will be kept as underlying keywords for actions and decisions.

There is no time to be wasted, and no over-ambitious goals to be allowed standing in the way of developing Al Reem as a sophisticated model of human development and nature conservation.

### Status quo

Al Reem, Qatar's first BR, and one of the first two places in the Gulf States that were included in the World Network of BRs in 2007, has inherent advantages in using the process to prepare the nomination dossier that successfully met the expectation of the Bureau of the ICC of the MAB Programme to fulfil its ambition to become a best practice model in BR management. Key among those advantages is the public-private

partnership established between the Qatar Government and Shell Qatar ably assisted by the neutral third party in the UNESCO, Office in Doha, Qatar.

The Government of Qatar and Shell Qatar partnership in Al Reem has significant potential for innovation with regard to the context specific equation between biodiversity conservation and socio-economic growth benefiting communities that can be established and sustained in Al Reem. The commitment of Shell Qatar to use the Al Reem BR as the place to target the benefits of its biodiversity off-set programme can provide a significant boost to biodiversity conservation in Al Reem, raising the interest of the site among visitors belonging to a wide range of categories.

### **Description of the surrounding and its potential**

The Al Reem BR is a unique example of Arabian habitat and culture, and offers significant ecotourism opportunities linked to development and conservation challenges. The total area of the Al Reem BR is approximately 1,190 sq. km. This area represents 10.4% of the entire peninsula, elevating the State of Qatar to one of the highest percentages of protected area per country on the



*Picture: Zekreet plains, Al Reem, Qatar (by M. Richtzenhain)*

planet. In addition to this overall area contained in the core and buffer zones, an additional transition zone is recognised under the BR classification, representing 834 additional sq. km. To put this total BR area into perspective, the reserve is roughly equivalent to one and a half times the

size of all the metropolitan area of New York City, and roughly ten times the size of downtown Paris. Along with the surrounding terrestrial and marine areas, the reserve constitutes one of the Arabian Gulf's most unique habitat complexes. The reserve was established to provide access to educational and scientific activities to the people of Qatar, while preserving the integrity of the biogeographic range and its associated flora and fauna. Historic cultural ties that predate the pearling era also link the coastal areas to the rest of the mainland, and the reserve will attempt to incorporate these traditional linkages through a series of projects, including environmentally friendly tourism / ecotourism activities.

The ecological processes that are responsible for the creation of the variety of inter-tidal and coastal zones, and the erosional forces driving the creation of the sandstone mesas, are outstanding examples of significant on-going biological and physical systems. The suite of ecotypes manifested in the Al Reem reserve are representative of those found throughout much of the arid, desert-like Middle East biogeographic region. The varied habitat types between higher limestone mesas and low-lying sabkha plains encompass all but a few of the key Middle Eastern desert ecotypes. In addition, the varied forms of land-use within the reserve point to a complex mosaic of ecological systems. The reserve encompasses open gravel plain grazing pastures interspersed with water-draining wadis, numerous point-source irrigated crop farming operations, traditional Arabian village communities, a limited distribution of commercial and industrial operations, wildlife management and breeding centers, archaeological ruins, traditional, artisanal fishing communities, date palm plantations and semi-nomadic animal husbandry. The shoreline varies from rock cliffs to shallow sand dunes overlaying solid substrata, to extensive 'sabkha' plains, or desert intertidal mudflats. Inland regions are among the most productive agriculturally in the country, with significant water retention and high soil quality. Fodder for grazing animals is produced nearly entirely in this north-western corner of the peninsula. Further, the desert gravel plain ecosystems interspersed with seasonal

riverbeds (wadis), although partially degraded through overgrazing, are representative of a suite of arid climate habitats found in the region.

The Al Reem BR offers significant opportunities for the development of ecologically sustainable interactions between man and the environment, through innovative water irrigation schemes for grazing animal fodder, landscape restoration and propagation of native species, possible camel farming operations and development of sustainable grazing carrying capacities and pasture rotation schemes, ecotourism operations including a traditional Arab Heritage Village and desert camel trails, and excavations and development of the Al-Zubarah archaeological ruins. Coupled with these could be extensive educational opportunities, and the potential to highlight the way habitats used to be in the past. These initiatives should be developed in tandem with local villagers while respecting their aspirations and traditional cultures, and with the intent of securing long-term gains for both environment and communities. The development of suitable and sustainable farming practices using native flora would also contribute to health improvement programmes among the neighbouring populations through dust and airborne other particle capture, and to reduce



Picture: Socotra Cormorants, Hawar, Bahrain (by H. Schwarze)

topsoil loss and enhance entrapment of valuable seed banks.

## 2.1 Natural heritage and characteristics of Al Reem

By B. Böer and N. Pilcher

### Vegetation and ecosystem types

The ecosystems are mainly slightly undulating gravel plains, interspersed with a few coastal sabkha systems. There are no real mountains, or sand desert systems. The vegetation is mainly made up of *Acacia tortilis* with *Lycium shawii*, and with a lot of different micro-systems, especially in water run-off-systems (wadis). The more coastal vegetation comprises of *Arthrocnemum macrostachyum*, *Halocnemum strobilaceum*, *Halopeplis perfoliata*, and other salt-tolerant communities. *Aeluropis* sp. grasses

as well as specimen of *Zygophyllum qatarense* are also highly wide-spread vegetation elements. The flora in this area is relatively rich in species number compared with other areas of an equal size in the neighbouring countries of Bahrain, Saudi Arabia and the United Arab Emirates. Interestingly, lichens, which were recorded in 15 out of 23 sites, appear to play a significant role within the ecosystems. This is something that begs further study. Annuals were occasionally recorded within water-collecting *rowdat* – a typical Qatari landscape feature.

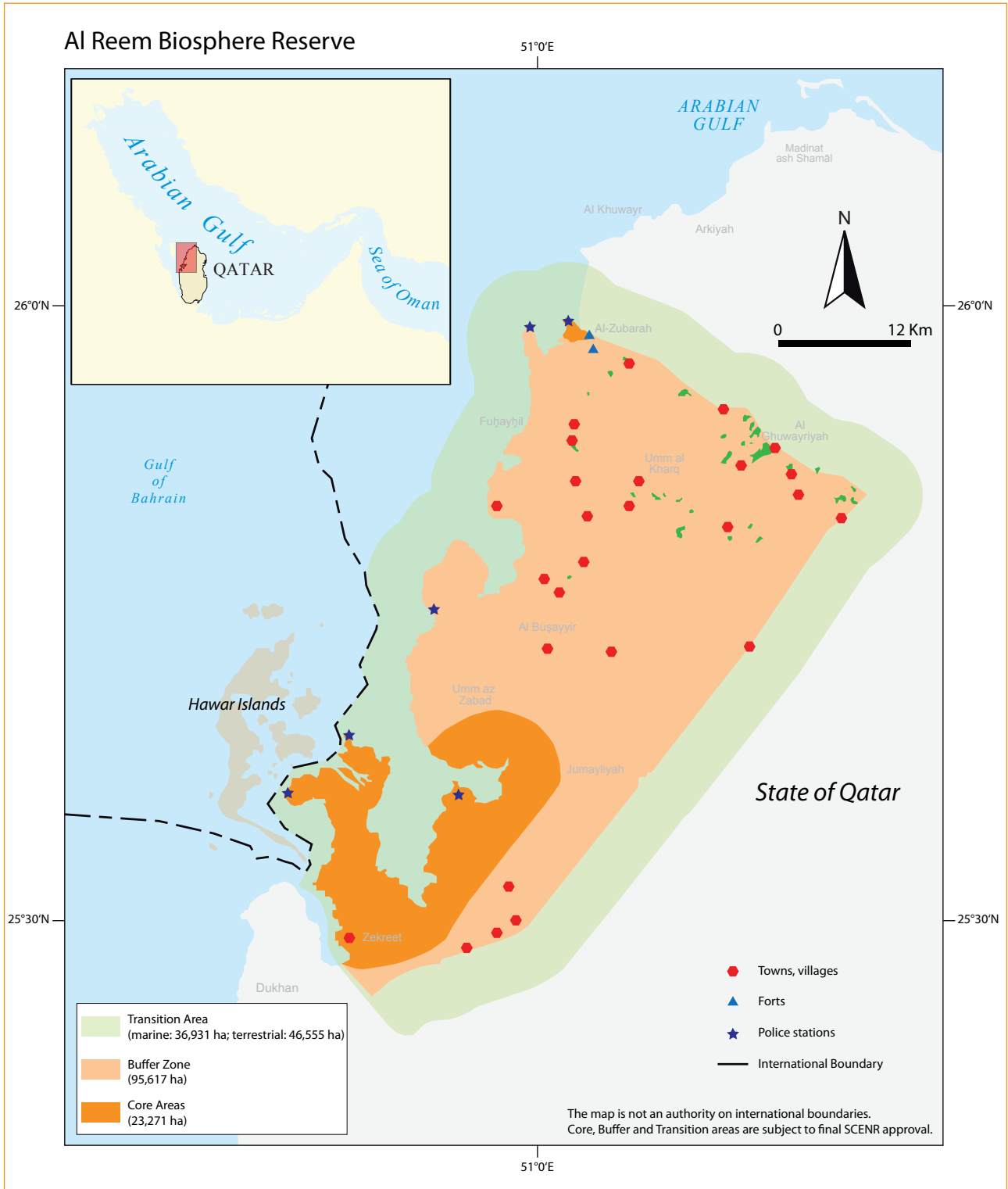


Figure: Map Al Reem BR (Data source: SCENR 2007; by H. Schwarze)

The shores are lined by some of the most developed and valuable seagrass beds of the Arabian Gulf.

Coastal sabkha occur and it was noted, based on field experience, that some of the coastal sabkha seem to be of suitable potential for seawater irrigated mangrove plantations. The Zekreet Peninsula contains a large number of foothills of the Dammam formation. Here, landscape development is demonstrated, including impressive piedmonts, mesas and erosion processes.

All data from the rapid assessment is held at the UNESCO Office in Doha, and is available for inspection on request.

Regarding the adjacent marine environment, no data was obtained, and a careful survey needs to be conducted. However, large marine organic debris, consisting of seagrass species (*Halodule*, and *Halophila* spp.), as well as macro-algae (e.g.



Picture: Spiny tailed lizard in Qatar (by H. Schwarze)

*Sargassum* sp.), and other organisms, such as molluscs and sponges, was found deposited in large quantities on a number of beaches inspected.

The anthropogenic impacts are relatively low, but with grazing ranking highest. However, evidence of date palm plantations, settlements, fences,

roads, livestock grazing (presence, tracks and droppings of camel, goat and sheep), oil pollution on beaches, rubbish, car tracks, power-lines, radio-towers, water-pumps, drift-wood trash, earth-movement, spent munitions, fish traps, tourist activities (wild picnicking / camping), livestock camps, as well as oil and gas industrial facilities were all recorded. These impacts should be quantified and need to be considered in any management plans (Aspinall *et al.* 2002).

In any case, and based on the lack of good scientific publications, it is highly recommendable to carry out generic and specific studies on the importance of the flora of Al Reem.

### Wildlife

The Al Reem BR is home to valuable examples of terrestrial and marine wildlife, highlights of an extremely diverse biological wealth, and encompasses some of the most interesting landscapes of the Qatar peninsula. The limestone cliffs and mesas from Zekreet to Ras Abrouq and the marine landscapes immediately offshore are unparalleled in the country, and are a stark contrast to the varied desert landscapes elsewhere in the Reserve. The Al Reem Reserve is home to reintroduced populations of the Gazelle (*Gazelle subgutturosa*) and the Oryx (*Oryx leucoryx*), both threatened with extinction in the wild in the Arabian region. The Spiny-tailed Lizard (*Uromastyx aegyptius microlepis*), Hooded Malpolon Snake (*Malpolon moiensis*), the

Ethiopian Hedgehog (*Hemiechinus aethiopicus*), the Arabian Red Fox (*Vulpes vulpes*) and a suite of rodents are among the terrestrial fauna. Among the numerous birds occupying or utilizing the landscapes within the proposed BR are the Western Reef Herons (*Egretta gularis*), the White-Cheeked Tern (*Sterna repressa*), the Bridled Tern (*Sterna anaethetus*), Saunder's Little Tern

(*Sterna saundersi*), the Lesser-Crested Tern (*Sterna bengalensis*), the Caspian Tern (*Sterna caspia*), Greater Flamingo (*Phoenicopterus ruber*), Osprey (*Pandion haliaetus*), the Sooty Falcon (*Falco concolor*) and the endangered Socotra Cormorant (*Phalacrocorax nigrogularis*).

In addition, the waters bordering the reserve are home to the critically endangered Hawksbill Turtle (*Eretmochelys imbricate*), the critically endangered Dugong (*Dugong dugong*), the

endangered Green Turtle (*Chelonia mydas*) and the vulnerable Loggerhead Turtle (*Caretta caretta*).

More serious studies into the coastal and marine ecosystems in the Al Reem reserve are very important, and the authorities and NGOs are encouraged to foster additional scientific studies towards the enhancement of ecosystem knowledge in Al Reem.

## 2.2 Tourism potentials

By M. Richtzenhain

The Al Reem BR is already a popular tourism destination and features low intensity tourism with some environmental impact, but significant potential exists to develop this further in keeping with cultures and traditions of the local Arab people, and with minimal impact to the natural environment.

Al Reem is one of the most unique habitat complexes within Qatar and also within the whole Gulf region. Its landscapes are very diverse and vary from huge limestone rock formations and mesas to stone deserts, wadis and sabkhas. The surroundings are perfectly suited to several outdoor activities, like mountain biking, snorkeling, kite surfing or picnicking. But not only the natural beauty is attractive to people; especially the huge variety of wildlife found in the reserve is unparalleled in the country. Typical and eponymous for Al Reem is the “Reem” gazelle which can be seen around the Ras Abu Abrouk peninsula and within the three wildlife breeding centres. Also raised in the breeding centres and threatened with extinction is the Arabian Oryx, the national symbol of Qatar. Further mammals and small animals living in the reserve are the Spiny-tailed Lizard (*Uromastix a. Microlepis*), the Hooded Malpolon Snake (*Malpolon moiensis*), the Ethiopian Hedgehog (*Hemiechinus aethiopicus*), the Arabian Red Fox (*Vulpes vulpes*), the released African Ostrich and a suite of rodents, as well

as dozens of species of birds. A high diversity of migratory birds arrives annually, while using the Arabian peninsula as a migratory pathway and stopover (SCENR 2007). “In addition, the waters bordering the reserve are home to the critically endangered Hawksbill Turtle (*Eretmochelys imbricate*), the critically endangered Dugong (*Dugong dugon*), the endangered green turtle (*Chelonia mydas*) and the vulnerable Loggerhead Turtle (*Caretta caretta*)” (SCENR 2007).

However, a special tourism attraction is the Arabian “Cultural Village”, which was built in 2001 within the scope of an Arabian television show, as an afterimage of a traditional village. There are several other tourist features and landmarks, which have immense tourism potential, like e.g. the recently restored Al Zubarah fort in the north of the reserve, archeological findings and a village ruin, also found in the north of the reserve.

Nevertheless, a main problem to make use of these valuable tourism attractions is that most of them lie within the core zone, where human activities are strictly prohibited. It is therefore advisable to discuss the BR’s zoning in great detail.



Picture: „Cultural Village“ in Al Reem, Qatar (by M. Richtzenhain)

## 2.3 Recent usage

By M. Richtzenhain

As mentioned in section 2, the reserve is home to some farmers, fishermen, policemen and industrial workers. Most of them live in the villages within the buffer and transition zone. Police stations and coast guard officers



Picture: Kite surfers in Al Reem, Qatar (by M. Richtzenhain)

are located all along the coast. Fishermen have occasional camps in these coastal areas.

The core area is mostly unaffected by men. Except for two police stations and the security guards at the coast and the village of Zekreet, there are no further settlements. The wildlife breeding centre for ostriches and gazelles on the Ras Abu Abrouk Peninsula is one special feature, including the Arabian “Cultural Village”. Another wildlife breeding centre for oryx is located in the northern core area. Both are not often visited by locals or residents.

Additionally, the reserve is frequently used by locals for recreational activities, like fishing, camping, falcon hunting, off road driving or kite-surfing.



## 2.4 Facing problems and conflicts

By M. Richtzenhain

As the reserve is fairly young, a management plan still needs to be developed. Until now there are no obvious restrictions or regulations concerning the entrance and use of the reserve. A management plan clearly defines the aims, rules and regulations of a reserve. In it the development of the reserve is explicitly described. The management plan further gives information about how nature conservation and a sustainable development of the reserve should be enabled and how environmentally friendly tourism should be managed best. However, it has to be noted that at the time of writing this proposal, the SCENR together with UNESCO Doha and Shell was in process of producing a management plan.

Obvious problems in the reserve are overgrazing and desertification, wheel tracks, waste disposal and captive-bred released ostriches running freely in the reserve. Some of the occurring problems in the reserve are specified in the following.

### Overgrazing and desertification

“Today livestock grazing affects more than 90% of the land on the Arabian Peninsula and rangeland degradation takes place” (UNESCO Doha 2007). Accordingly, desertification is a man-made “product” of overgrazing.

In former times, with the nomadic husbandry of the Bedouins, people lived in harmonious and symbiotic relationship with their environment. They developed the “Hima” system, for times of persistent droughts to protect certain areas from grazing for a defined period of time (also see chapter 3.6 in this proposal). During modern times this balanced living-together changed. With the extensive oil exploration and the synchronous rise of urban development, land degradation increased. Nomadic farming shifted to sedentary farming and led to an increasing number of camels and fresh water irrigation of camel fodder

plants. The demand on natural water resources increased tremendously and desert rangelands were overexploited. “Well vegetated rangelands were transformed into deserts of 0-1% vegetation cover and camels gradually replaced the populations of other large native herbivores, such as oryx and gazelles” (UNESCO Doha 2007).

A possible solution, to combat desertification may be the limitation of livestock so that the rangeland can recover naturally. Big herds of camels, sheep and goats should be in proper, separate grazing fields and special “camel farms” (further read UNESCO Doha 2007 and chapter 3.5 in this proposal). The reintroduction of indigenous plants and halophytes as fodder for livestock could be a contribution for conserving freshwater. Also the reintroduction of the traditional “Hima” system could be a good concept for allowing the habitats to recover.

### Tyre tracks

Tyre tracks can have negative impacts on vegetation development and assist the process of desertification. Driving vehicles in the reserve and rolling over desert plants can cause their total destruction and inhibit further growths. Taking a look at the reserve, one can see clear tyre tracks, often older than 8-9 months, without any sign of plant growth. The trails show no sign



Picture: Tyre tracks in Al Reem, Qatar (by M. Richtzenhain)

of vegetation anymore. Plants are an essential factor in preventing desertification, covering and protecting the ground from heavy rainfalls and winds, which blow out sand and soil. Without this cover the soil is left to the mercy of the elements resulting in soil degradation. In any case, tyre-marks are unsightly and can contribute to changes in the soil-structure, as well as micro-climate conditions. Vehicles can also heavily disturb wildlife species and need some system of regulating car traffic and off-limit zones. Therefore, it is essential to select designated tracks and declare them official roads. They can be marked with e.g. used tyres or big stones along the sides. Off-road driving should strictly be regulated to certain areas only, and prohibited in the core areas of the reserve.

### Waste disposal

Taking a walk in the reserve, one can see waste disposal in many places, especially where people have camped. Many people dispose of their rubbish, bottles, plates, cutlery and even tyres in the desert. The problem is, that it is fairly difficult to clear away the waste, because it doesn't stay, where it was thrown. The wind blows light plastic waste and other light rubbish into remote areas, "polluting the most picturesque places of the desert" (UNESCO Doha 2007). But it is not only an eyesore; plastic and other rubbish can considerably endanger animals. Especially young and curious ones are attracted by litter, may swallow it and then die a slow and painful death (UNESCO Doha 2007). Furthermore, a polluted environment is not attractive to tourists and may discourage them to return to the reserve.

The positioning of bins and waste containers at frequented places could be one possible solution. Trained rangers should assist tourists and monitor the area. Further the employment of regular cleaning personnel, as in the Khor Al-Adaid area in the south of Qatar, could ensure an unsoiled environment. But for a sustainable prevention of carelessly thrown waste into landscapes, it is of great importance to raise environmental awareness and to educate the people about the problems and consequences



Picture: Waste disposal in Al Reem, Qatar (by M. Richtzenhain)

of environmental pollution. This could be done in one of the proposed visitor and education centres.

A clean environment is not only important to attract visitors, but also to safeguard and protect the life of the reserve's wildlife and livestock.

### Ostriches

Ostriches are causing serious problems for the establishment of tourism in the Al Reem BR. As reported in the Gulf Times (26.12.2007), there have already been several attacks on humans. Out of the last attacks happened at the Eid holiday 2007, which coincided with the breeding season of the birds. What most people don't know is that ostriches can be extremely aggressive and dangerous during their breeding period. Although there are signs welcoming people to the reserve and saying to keep away from the wildlife, there are no explicit warnings about the danger of ostriches.

The African Ostrich, is the biggest of its species, standing 2,7meters tall. Its kick is very powerful and with its sharp-clawed feet it can cause serious injury to other animals or human beings.

To ensure the safety and well-being of potential visitors to the reserve, special security guards must be put in place with consideration to the ostriches. In addition, fencing off an enclosure to restrict birds running wild should be considered. Further it is important to establish additional signboards warning about the ostriches.



Picture: Aggressive ostrich following a car (by M. Richtzenhain)

### Conflicts between locals and tourists

Beside these obvious problems, potential conflicts can arise out of the confrontation of locals and tourists. Often, these two groups have different understandings and views.

Residents may feel bothered by tourists in their daily life, whereas tourists sometimes don't have the empathy and understanding for the culture and habits of the local population. Moreover it is important to integrate locals into projects, and it also appears more authentic to have residents

working in the reserve and guiding tourists, but it is not guaranteed whether enough locals are willing to do this job. It is important to give them incentives. Financial advantages could be generated by the implementation of entrance fees, the establishment of beneficial camel farms or other small-scale businesses. Other incentives could come via training courses and via raising conservation awareness. Training courses can aim at making locals, residents and tourists understand that professional environmental and cultural management of the reserve is also a question of national and international importance, national and cultural pride and simply in the best interest of the people of Qatar and the world.

The amount of tourists attracted by the reserve's activities often may not comply with its carrying capacity and conservation aims. Especially the core area, which is the most sensitive zone, should be strictly protected from human impacts. To ensure prevention and a sound management, a monitoring system should be established to control and check impacts on the surroundings.

## 3 The project

### 3.1 Background and goals of the proposal

By M. Richtzenhain and M. Sutcliffe

The development of a proposal towards environmental tourism plans aims to assist implementing good tourism in the Al Reem BR. It highlights suggestions for the establishment of potential environmentally considerate tourism activities.

Furthermore this proposal encourages other BR managers in the region to use it as an inspiration, and as guidelines. In addition the private sector can use the recommendations as opportunities to develop good tourism practices and to support management activities in the BR

to demonstrate their community responsibility.

The overall aim is twofold:

1. Establish good tourism as a vehicle for nature conservation and tourist education, and
2. allow the local population to benefit from the economic returns that will be offered by tourism development.

Currently the Al Reem BR has limited tourism capacity, and there is plenty of room for improvement, benefitting nature conservation,

tourist education, awareness and behaviour, and this can be achieved via improved tourism management. The cleanliness of the area can be improved via clean-up campaigns and education programmes. This will enhance the overall natural perception of the BR by tourists, and it will be a meaningful contribution preventing wild and domestic animals indigesting rubbish (which can cause plastic calcification in the animals' stomachs, and birds getting entangled in snares). The aesthetic vista of tourists will be enhanced.



Picture: Al Reem western coastline (by M. Richtzenhain)

The number and impact of grazing livestock should be studied, measured, and limited to the ecological carrying capacity. This will allow for the recovery of habitat structure, biodiversity, biomass, plant density, vegetation cover, which in turn will offer opportunities for the release of captive-bred endangered species, such as gazelle, oryx, houbara, desert hare, and other species. There are a few camel farms, and there is an old village (also called „cultural village“), both of interest for tourists, however, in total there is a lack of tourist attractions and information. Questioning visitors, most of them say, after only one visit, that there is no reason to return on a future visit since they have already seen everything.

The development of a sound management plan, considering tourism as one of the most important priorities, will be helpful to allow for good tourism development, and nature conservation. Tourism development should be based on clear rules, training course-based permits, and aim at keeping the natural environment intact, or, even

to improve it, and allow for local communities benefitting economically.

Based on the Man and Biosphere Programme (MAB) the focus should be on the development of the reserve, as well as suggesting the scientific basis and the training of personnel needed. With the establishment of small-scale businesses local people should be involved and benefit from this project. The successful implementation of these aims can only be realised through an all-embracing and sound management plan.

To figure out the maximum tourist carrying capacity it is important to monitor and limit (at least in the core area) the amount of tourists within the reserve, in space and time. It is important to identify tourist and educational pathways which also should be routed by professional trained guides in order to prevent adverse impacts on sensitive areas and wildlife. To contribute to a sustainable tourism with a long-lasting future it is important to implement innovations concerning the environmental friendly use of water, energy, waste, transport, and buildings. Therefore models of environmentally friendly buildings (see chapter 3.4) can be established which show the sustainable treatment of the environment and function as visitor and interpretation centres.

Supplementary the establishment of environmentally friendly tourism in this protected area should raise awareness about the culture, history and nature of Qatar and make it more public to the people.

#### Main aims in short:

- Protection and conservation of nature
- Education and training
- Awareness raising
- Make the reserve more public to the people
- Establish environmental friendly tourism
- Serve as an example for other BRs in the region
- Display traditional Qatari and Bedouin practices (e.g. falconry, artisanal fish-ing, pearl fishing, saluki and hare, Hima, camel)

## 3.2 Recommendations for tourism activities

By M. Richtzenhain and M. Sutcliffe

The following recommendations are suggested in order to serve the four pillars: 1) nature conservation, 2) education, 3) development of the reserve and 4) maximizing local stakeholder benefits. To achieve these basic principles it is necessary to ensure that a professional, simple, implementable, prioritized management plan needs to be produced, considering local stakeholder involvement. Finally the plan needs to be implemented.

BRs are structured into a core area, a buffer zone and a transition zone. Each zone has a separate strategic purpose. Therefore, tourism planning has to be appropriately adapted for every zone.

The following description of the visitor management is structured into management arrangements that could be taken in advance and arrangements that could be taken within the BR.

### Visitor management

Visitor management is important to provide humans with broad information and instructions about the BR. It includes the management of visitors within the reserve as well as the structure and format of the education provided to them. These communications and information can be provided in a variety of different locations (e.g. within the reserve or in advance at hotel receptions, restaurants, organisations, or through the internet) and in different forms (e.g. in writing, verbal, visual and interactive).

#### *Advance information*

Even before travelling to the BR, people should have an opportunity to be informed about available activities, rules and regulations in the reserve. Any information can be broadcasted via internet, through a dedicated homepage and linked with other tourist pages. Additionally, tourist offices, visitor centres and assorted

tourist organisations in Doha and other cities in Qatar may be interested in providing prospective visitors with details.

Prospects, flyers and other media in hotels, hostels, restaurants and other outlets may also inform potential visitors about the existence and uniqueness of the Al Reem BR.

#### *Guidance inside the BR*

A very important part of raising awareness and providing education is a visitor centre. It offers the possibility to learn and study more about the reserve itself, its fauna, flora, geology, history and the Arabian culture. In addition to information boards, maps and prospects within the visitor's centre, people should have the possibility to attend particular lectures and presentations, as well as view slide-shows and documentaries. Currently there are no quality-maps available, which will be in demand of most tourists, visiting the site.

The visitor centre, located at the entrance of the reserve or core area, is very important for the visitor guidance. It should clarify that there are separate traffic regulations inside the reserve, to avoid illegal off-road driving and to protect sensitive areas.

Additionally the centre provides tourists with facilities like sanitation, cafeterias and gift shops.

It should be taken into consideration to build a scientific research centre (maybe in combination with the visitor centre) for research and professional training for tour guides and other personnel and scientists. These specially trained people would serve to be the future visitor guides and personnel of the reserve.

The visitor and science centre itself should be constructed regarding sustainable measures.

This includes building with natural materials, like stones, clay and indigenous materials, as well as indigenous architecture. A conscious association and implementation of freshwater-, wastewater- and energy management should also be kept in mind, as recommended in the „Better Buildings” proposal (for further information contact the UNESCO Doha Office), to position the centre as a role model of environmentally friendly buildings (also see chapter 3.4).

Moreover inside the reserve not only notice boards and signs may inform about the history, nature and wildlife on declared pathways, GPS-guided tours could also be organised (see chapter 3.3).

The best way to explore the area and to learn about its present, past and future would be to attend a guided tour for wildlife watching or night drives, each guided by a licensed pathfinder in groups that are limited in number of attendees. Also the number of tourism groups and the amount of people visiting the reserve should be

#### Important in short:

- Broadcasting information in advance through the internet, flyers, tourist offices, tourist maps at hotels, in restaurants, at the airport and other organisations
- Broadcasting detailed information and education within the reserve: in visitor centres and through different “edutainment” elements
- Offering guided tours to protect the environment
- Offering GPS-guided tours
- Limiting and monitoring the amount of visitors, according to accommodate the carrying capacity of the reserve

limited. However the approved group size and total number of people may change depending on season, zone and monitoring results. It is very important to not overburden the carrying capacity of the reserve, especially in the core area.

## General tourism activity proposals

Beside the above mentioned activities and institutions, the establishment of several small-scale businesses can be additional incentives for visitors as well as for residents. By selling e.g. traditional handicrafts, souvenirs, fruits and products, the local inhabitants should be involved and also profit from tourism in their region.

The following are simple suggestions for tourism activities listed, compatible with the MAB rules. Each activity must be in line with the requirements of the area, natural environment and region. Therefore the following recommendations are suggested for the Al Reem BR. The proposed activities are structured into core, buffer and transition zone actions.

These recommendations can be taken as example tourism activities for other BRs in the region.

### *Core area: possible activities (wildlife research and monitoring)*

There are two declared core areas. One is located at the very south-western part of the BR, also known as the Ras Abrouk Peninsula. The other one is located at the very northern part of the reserve; including the old Al Zubarah Fort and the Oryx Farm. The predominant morphology is stone desert with rocky outcrop, local wadis and sabkhat.

According to the rules and regulations of the MAB, the core area is the most sensitive zone and should be mainly unaffected by humans. It can be used for research, monitoring and educational purposes but anthropogenic impact is strictly to be minimized.

#### *Ras Abu Abrouk core area:*

Typical for the Ras Abu Abrouk Peninsula are beautiful limestone rock formations, as well as its wildlife. This very special place in Qatar would offer great tourism potential. In this area gazelles, ostriches, oryx antelopes and other animals like lizards, geckos, birds and diverse marine wildlife are resident. Especially in the middle of the

peninsula there is the ostrich breeding station, not far from the cultural village. The cultural village is a small, typical rebuilt Arabian town, with many elements of traditional Arabian architecture. It is a suitable place for research and to monitor the ostrich and gazelle breeding. Therefore it should be converted to the requirements needed. Additional educational guided trips on camels and horses from other zones to the cultural village could be organised. It is also possible to lead school classes through the village to teach the children about the local environment and their animals. Educational boards and other media should give additional information about

**Feasible actions for the core area:**

*Research and breeding:*

- Maintain and develop sites for captive-bred wildlife re-introduction
- Cultural village: research, monitoring and education; possibly with a gift shop
- Oryx farm in the north: research, teaching and training

*Education:*

- Educational guided tours to research centres (for everybody, also school classes)
- Research and breeding centres extended to education centres, to teach visitors about the resort, its flora and fauna

*Adventure:*

- Hot air balloon flights around the area
- Guided tours could be organised on camel- and horse back
- Overnight camping, diving, others

the wildlife breeding procedure and behaviour of animals living in this area. Supplementary local products and wildlife products could be obtainable in a small shop to financially support the breeding centre and locals.

The educational trips could only be taken by a small amount of people adapted to the carrying capacity of the core area.

*Please note: These activities can only be established after a sound analysis, in order to avoid the disturbance of animals and adversely affecting the environment!*

*Al Zubarah core area:*

In the northern core area the restored Al Zubarah fort is located. Signboards with historical descriptions could give more information about its past.

Further, there is an old town-ruin (“the lost city”) near Al Zubarah Fort which has recently been listed on Qatar’s Tentative List of World Heritage Sites. This area must be fenced and protected from people. Recently some visitors have been driving with quad-bikes over it, destroying parts of the ruins. The surrounding area offers a perfect place for traditional and cultural education.

Nearby the oryx breeding farm is situated on the northern coastline of the reserve. This farm also features a good possibility for research and monitoring of the animals. Further it could become a *teaching* and *training* centre for personnel, rangers and tour guides.

*Please note: For the core area, it is important to restrict access. To avoid damage or disturbance of flora and fauna the access for tourists should only be possible in a guided tour with trained personnel.*

The recommendations in the box below give a short summary of feasible activities that can be taken in the core area. They are divided into the sections „research and breeding“, „education“ and „adventure“.

***Buffer zone: possible activities (camel farms)***

The buffer zone is the largest zone in the Al Reem BR. Beginning in the south near the city of Dukhan and ending at the top of Al Zubarah core area, the expanse takes ca. 95 ha.

Dominated by stone desert, and rarely covered by vegetation, the main inhabitants of this area are farmers and camel farmers. Therefore it is predestined for the establishment of particular

Feasible actions for the buffer zone:

*Wildlife:*

- Establishing special sites for captive-bred wildlife re-introduction
- Watchtowers for wildlife observation, bird watching hides
- Guided expeditions for wildlife observation
- Camel farms
- Other GPS guided tours: geology, botany, zoology, marine, etc.

*For the sports orientated:*

- Seasonal trekking tourism on declared trekking trails
- Horse and camel riding tours
- Safari tours (day and night), also for training purpose of rangers, tour operators and dive masters on selected and carefully identified trails

*Event and culture:*

- Open Air Theatre with cultural events and / or lightshows
- Traditional arts, crafts and food
- Falconry and houbara, saluki and sustainable hare hunting demonstrations
- Traditional food in traditional Bedouin tents e.g. in combination with art exhibitions

*Education:*

- Visiting camel farms to learn about camels and sustainable feeding
- Recycling projects for children
- Learning about wildlife and culture (Bedouin, fisherman, traders (dhows), pearl fishing)
- Learning about sustainable water usage (e.g. on the camel farms or other projects)
- Educational pathways
- UNESCO Geoparks
- Innovative GPS guided nature trails

*Adventure:*

- Guided tours (on camel, bike, horse)
- Wildlife watching, hunting
- Excursions on traditional dhows or glass bottom boats

*Tourist accommodation:*

- Traditional Bedouin camping tents, Eco-lodges

camel farms (UNESCO Doha 2007). These camel farms could assist in developing sustainable fodder production/grazing methods in order to protect the surrounding nature from overgrazing. They could also be used for educational purposes, such as to inform and teach visitors about behaviour and the life of camels, as well as about the process of desertification.

Additionally camel milk or other camel products, like camel khabsa, could be sold, which would provide financial incentives for local people.

Wildlife observation would be a great option for the buffer zone. In order to make wildlife visible for tourists, it is necessary to build up watchtowers and watching hides along the coastline and within the zone. The tourist gets the chance to observe birds, wildlife and sea life,





Picture: Bedouin tent (by M. Richtzenhain)

like oryx, gazelles, lizards, dolphins, dugongs, etc. For the educational part signboards and information boards explaining flora and fauna should be placed at reasonable selected points. Wildlife observation could also be intensified by booking a guided wildlife expedition and guided night drives with wildlife lamping and night-vision-scopes, as well as boat and glass-bottom boat tours. A good alternative to guided tours through rangers could be GPS-guided tours (see chapter 3.3 in this proposal).

For more of a sports orientation, seasonal horse and camel riding could be provided. Furthermore the seasonal offer could be extended through particularly designed bike tracking pathways.

For an unforgettable journey, picnics and organised dinners and overnight camel-trips could be optionally chosen and located in the beautiful surroundings or served in traditional Bedouin tents.

These indigenous tents feature a perfect place for culture and tradition. Further, evening events like traditional theatre and music could tell more about the ancient Qatari life. Imaginable would also be overnight stays in traditional Bedouin camping tents in combination with traditional dinner and evening events.

*Please note: These events can only be established after a sound analysis, in order to avoid a disturbance of the animals, the environment and cultural sensitivities!*

Safari tours could be offered as a training unit for rangers, tour operators and dive masters to learn more about the reserve and its wildlife. These tours must be carefully implemented on carefully assigned routes.

The vast extent of this area provides a good opportunity to institute falconry, as well as houbara, saluki and sustainable hare hunting. Additional hunting demonstrations could be a sensational tourist attraction, as well as transmitting local culture to the benefit of locals.

*Please note: Hunting could only be established as part of an environmental management programme and with due care and diligence.*

The recommendations in the box below give a short summary of feasible tourism activities that can be taken in the buffer zone. They are divided into the sections „wildlife“, „sport“, „event and culture“, „education“, „adventure“ and „tourist accommodation“.

***Transition zone: Possible activities (QBG, breeding centre, marine life)***

The terrestrial and marine transition zone is the surrounding area of the core and buffer zone. Naturally similar to the buffer zone, it contains bigger villages (see map on page 20).

The transition area is the most flexible one and allows several sustainable and environmentally friendly activities.

Two additional tourism attractions are the Al-Shahaniya Breeding Centre and the planned Quranic Botanical Garden (QBG) (see chapter 3.7 in this proposal). The expansion of these locations to include the function as visitor centres could be considered.

The visitor centres could also be either renovated or have extensions included which would act as training centres for personnel and tour guides. To fully maximise the potential of the extensions/renovations, they would preferably be done in such a way so as to accommodate the Better

Buildings initiative as well, serving as a model for further development.

For visitors interested in marine life, good diving and snorkelling courses could be offered. Further Dhow-trips could give an inside view of indigenous life. This insight could be supplemented through glass bottom boat tours in order to develop an enchanting learning experience about life under water. It would also be suitable for educational purposes as school excursions. Additional sailing trips, wind surfing and kite surfing could be offered.

As cultural events, a traditional mosque trail could be identified to attract local people. Leading the tourists through towns and villages (in the transition and buffer zone), stops will be taken at traditional, old and holy mosques or mosque ruins. At each stop, the guide can take the advantage to tell more about the history. Also, if required, lunch breaks and picnics could be offered.

To offer suitable accommodations for tourists, special eco-lodges could be built in this area. These should be built in a sustainable and environmentally friendly way, furthermore, they should be converted to traditional Arabian architecture and provide for renewable energies.

Considering these pillars, the eco-lodges could stand as role models to encourage other BRs in the region to follow this example. Eco-lodges could be established based on traditional Bedouin tents and tent camps and with modern facilities, environmentally friendly, that provide a large number of tourists with adequate hygiene, sanitation, refrigeration, air-conditioning, comfort and safety. They fit perfectly into the surroundings and are an authentic, cultural and traditional form of architecture.

The recommendations in the box below give a short summary of feasible tourism activities that can be taken in the transition zone. They are divided into the sections „wildlife“, „sport“, „event and culture“, „education“ and „adventure“ and „tourist accommodation“.

#### Feasible actions for the transition zone:

##### *Wildlife:*

- Watchtowers on the coastline for wildlife observation
- Wildlife observation with guided expeditions
- Birdwatching hides

##### *Sports:*

- Diving and snorkelling
- Sailing, sailing trips, surfing and kite surfing
- Hiking
- Horse- and camel back riding

##### *Event and Culture:*

- Traditional mosque trail
- Traditional food and products: camel milk, camel meat, local fish, etc.

##### *Education:*

- Visiting QBG and Al Shahaniya Breeding Centre to learn about flora and fauna
- Information / visitor centres: to inform about the history, geology, environmental pollution, wildlife and culture
- Learning about sustainable water usage in established visitor centres

##### *Adventure:*

- GPS – Guides on specified paths
- Wildlife watching
- Excursions on traditional dhows or glass bottom boats

##### *Tourist accommodation:*

- Establishing environmentally friendly eco-lodges
- Traditional Bedouin tents and tent camps

### 3.3 GPS-based, interactive guided tours: New ways to assist sustainable tourism development

By H. Schwarze

Developments in the tourism industry are leading away from pure recreation and seaside tourism, towards the aim of premium cultural / historical and natural / environmental educational tourism, with a special emphasis on sustainable and environmentally friendly tourism. In this context, designated areas, like BRs, World Heritage Sites and National Parks, due to their characteristics, will be among the preferred destinations. To provide appropriate visitor guidance and coherent location based services will be challenges of future planning and action. While information technology and the internet is moving more and more into our day-to-day life, the use of technology provides new potentials in the tourism sector too. Decision-makers need to consider these modern trends in order to satisfy demand and to act responsibly in their important role, safeguarding natural and cultural heritage.

In order to follow up this novelty, innovative GPS-based, interactive guided tours can provide up-to-date, reliable and easily accessible information. Pocket PCs, cell-phones and GPS units provide satellite navigation (*interactive guidance*), and coherent multimedia information (*location based services*). Whereas in the run-up to tourism related activities the internet serves as a source of information (*pre trip planning*).

While using interactive guidance, sightseers can precisely navigate and reach a certain destination and Point of Interest (POI) in an ecologically compatible way, and furthermore they can call up comprehensive location based services at each POI. Tourist information can be made available in any language and can be presented either written, linguistically, or with a combination of graphics, images and videos.

The character of the system animates tourists



Picture: Tourists using a GPS-tourguide (by WHS)

to absorb information with all of their senses and at their own pace. It enables visitor services to contribute to sustainable environmental development while avoiding tourism based environmental damage by providing tailored guidance. All together, there are a series of advantages and arguments for the provision of environmental information, education and sustainable visitor guidance in urban and rural areas.

#### Pre trip planning

Nowadays the internet is of paramount importance for tourists deciding on where to go and what to see. Travel planning begins at home and the kind and style of the offered information impacts the final decision of potential visitors. A state of the art online presentation about

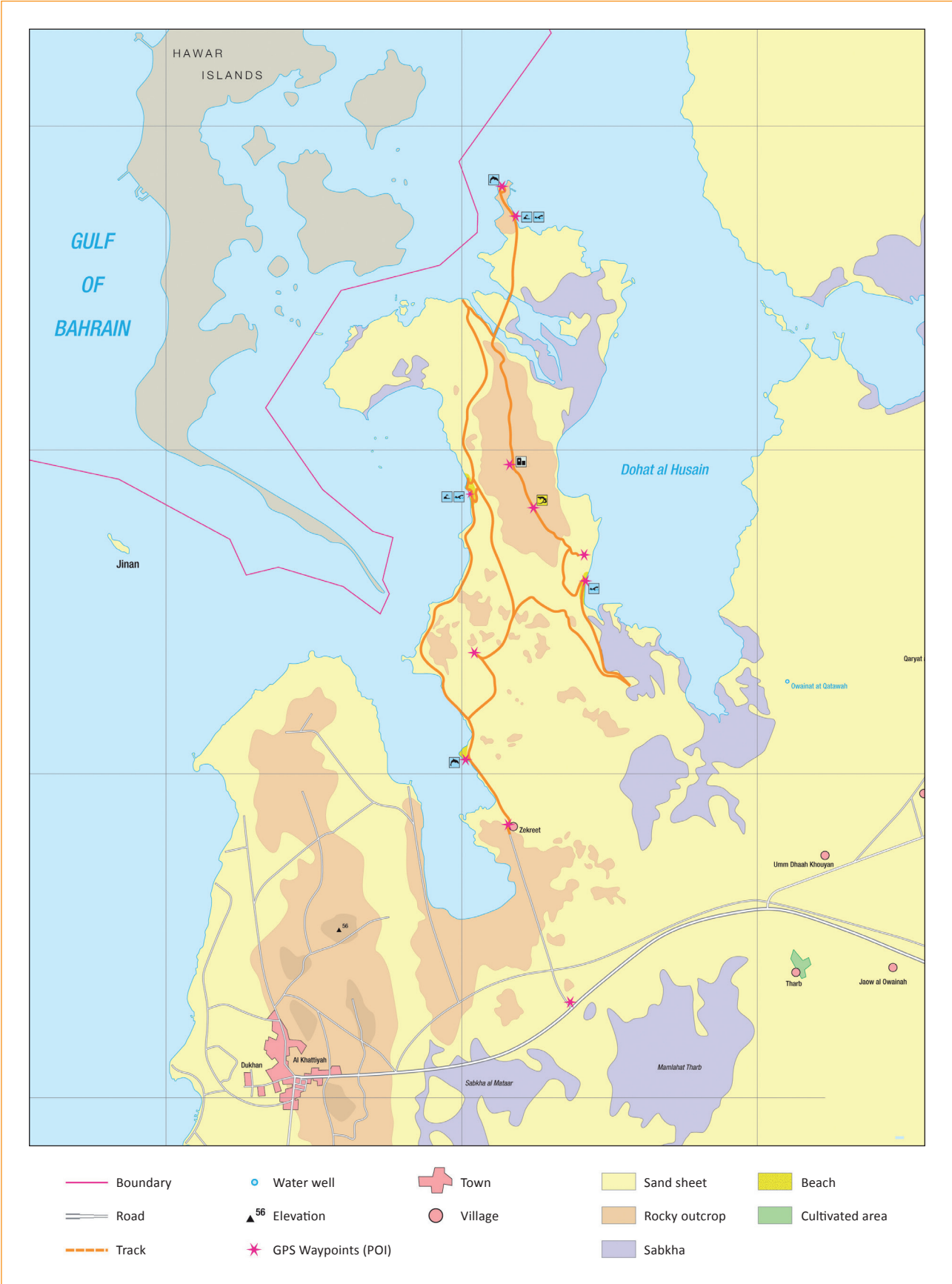


Figure: GPS-true map, for print and moving map applications, providing tourist information for the Ras Abu Abrouk Peninsula, Qatar (Cartography and field identification 2004 by WHS)

a destination (e.g. an Al Reem BR webpage) operates features like a RSS-feed for the latest news, Web-GIS for planning and orientation, Podcast files and comprehensive tour guide information. Furthermore, online presentations provide useful downloadable applications, e.g. GPS track and waypoint data for tours and POIs. Finally the web presentation should be barrier-free and optimized for mobile devices and cell phones.

### On tour guidance

The basic principle for successful visitor guidance is good cartography. Cartography, whether offered as a printed map, leaflet, on signboards or within a digital, GPS-based navigation system, must be authentic and coherent. The map is a key feature to explore a destination and to achieve visitor's satisfaction. The style of mapping should enable visitors to find their selected POIs in an effective and safe way. Cartography production should consider novel techniques to produce GPS-true maps. Digital GPS-true maps can be used within mobile navigation systems and moving map applications, using cell phones and Personal Digital Assistants (PDAs). Furthermore digital maps enable a simple production of GPS track and waypoint data for use with GPS handheld devices. Both, moving map applications and GPS track data facilitate another key feature of modern navigation, the so-called tour rotation. As a result of the available digital data, routes and tours can be changed on short term notice. This enables for example park authorities to change the course of tourist routes or nature trails and to respond to current conditions like overexploitation, road conditions and environmental impacts. Finally

signposting within protected and remote areas can be reduced to a minimum. Tour rotation is an important management tool for local ecosystem rehabilitation.

### Location based services

Applying interactive guidance will lead tourists safely to the place of interest, where a variety of information awaits them. For instance a PDA based tour guide system provides multimedia information exactly at the location of the POI. Tourists can call up multilingual text, verbal information (Podcast), video and pictures. Whereas a complete digital solution would be functional without any on-site installation at a POI, signboards can also be equipped with additional useful and innovative tools. For example Quick-Response-Codes (QR-Codes) can be printed on signboards. These QR-Codes can be scanned by the camera of a standard cell-phone. Once scanned, the cell-phone will be directed to the online presentation of the destination, where one can also call up the multimedia information for the POI. Both, the offline PDA tour guide system and the online cell-phone QR-Code solution will provide comprehensive location based services. This kind of information brokerage will enhance the efficiency of the information and learning experience, and at the same time boost people's enthusiasm for understanding their surroundings in a way that is both fun and informative.

Example: GPS-guided tours could be based on themes, such as ecology, geomorphology, botany, zoology, mammals, reptiles, birds, marine wildlife, ship-wrecks, mosques, geology, archaeology, farms etc.

### Summary

GPS-based, interactive guided tours offer reliable and up-to-date tourist information wherever and whenever needed. Tourists can access information via the internet, on printed maps, and on GPS-supported digital tour-guides. The visitor-resource and its features employ effective design-marketing, as well as providing environmentally friendly guidance for visitors. The concept is fully up-to-date and utilizes advanced practices available in the field of sustainable tourism development. GPS-based, interactive guided tours are suitable for all tourist destinations; they are especially useful for National Parks, National Monuments, Biosphere Reserves, Nature Parks and World Heritage Sites.

### 3.4 Environmentally friendly buildings - Enhanced water-, energy-, and waste-management in Arab urban ecosystems

By B. Böer, M. Richtzenhain, H. Schwarze and M. Breulmann

#### Background information

At the beginning of the 21<sup>st</sup> century almost 3 billion people or approximately half of the world's human population lived in urban areas. It is predicted that this figure will rise to 5 billion within the next 25 years under current population trends. The Arab States of the Gulf are currently undergoing a period of previously unknown growth and rapid development. Cities are expanding at high speed, and many coastal and marine areas are being developed for human habitation. In the Gulf states the per capita consumption of freshwater and energy, as well as the production of waste are high, in comparison to other countries in the world.

Taking this enormous growth together with the inadequacy of water-, energy-, and waste-management in urban ecosystems into consideration, it can be assumed that the situation will rather deteriorate than improve. These enormous changes will occur not only in developed countries, it will affect the total urban population.

UNESCO Doha Office, in partnership with the Friends of the Environment Centre (Qatar) organised a regional workshop "*Better Buildings: Enhanced water-, energy-, and waste-management in Arab urban ecosystems*", in order to bring together existing expertise and raise awareness on technological innovations. The workshop took place from 28-29th of November 2007, in Doha, Qatar, and was intellectually and technically supported by the Regional Office in Western Asia of the United Nations Environment Programme (UNEP / ROWA, Bahrain), and the United Nations Information Centre (UNIC, Bahrain). International and regional experts participated,

and presented innovative, as well as traditional, and alternative techniques centred on the subject of environmentally friendly buildings. Several constructive presentations were given, based on renewable energy, enhanced water- and waste-water management, as well as environmentally considerate construction of buildings, and sustainable human living. The reason for this workshop was the alarming inadequacy of the current water-, energy-, and waste-management practices in the Gulf countries. Furthermore existing technologies to improve the situation were demonstrated.

High consumption rates of water and energy are based on the climatic situation in the Arabian Peninsula and the lack of interest and awareness of environmental issues. Large amounts of water are being used in particular in the construction industry, but also in agriculture, and the irrigation of green areas. Moreover, large quantities of freshwater are being lost because of leakages in the water-supply pipes. Most freshwater-supply comes from desalinization plants, which in turn, are high energy consumers, and polluters.

High energy consuming air conditioners, as well as a lack of thermal insulation in buildings together with low energy prices leads to high per capita energy consumption rates. The per capita waste production is also high and waste disposal sites are spreading, which can cause chemical pollution of water, soil, air, and biota.

#### Outcome of the workshop and significance for Al Reem

The workshop discussed possibilities on how to reduce the above mentioned inadequacies. Methods on environmentally improved design

of buildings, and better human behaviour and education were discussed. The workshop offered four main themes:

1. water
2. energy
3. waste
4. architecture

In this proposal the very valuable outcome of the “Better Buildings” workshop is considered to convince the stakeholders that already a lot of feasible technology exists, and much of it is not being utilised. Further it is to highlight the importance of using resources sustainably, regarding increasing oil prices and the shrinking of natural reserves, like e.g. freshwater.

It is now time to establish a series of environmentally friendly model houses in the Gulf, functioning as demonstration sites based on existing environmentally friendly technologies. People visiting these buildings will be surprised and positively impressed on how good architecture can reduce energy wastage, how effective water management systems can reduce the water consumption rates, how intelligent garden designs can reduce the amount of irrigation water, how recycling systems can contribute reducing the production of waste, and how

education can support this by improving the prestige of environmentally friendly behaviour of adults and children. These models aim to function as mini-museums, and they will be frequently updated with the latest innovations. The visitors are school classes and university students, the general public, tourists, and especially home owners, owners of buildings, and members of the construction industry. Our objective is that via this article, and the production of the “Better Buildings” proposal we will be able to raise sufficient funds that allow us to build model buildings not only in BRs, but also in urban areas in the Gulf region, showing the way to the future. This will be an important contribution to inspire people making essential contributions towards sustainable human living by building Better Buildings.

For BRs in the Gulf region “Better Buildings” could be build as e.g. Visitor Centres, Training Centres or Eco-lodges. Beside the innovative architectural style, the buildings should raise environmental awareness and inform people about how to save water and energy, as well as to encourage other BRs in the region to follow the example.

More information and details are available at the UNESCO Doha Office, Qatar.

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### 3.5 Innovative camel farms

By M. Breulmann

#### **Concept of the project and how camel farms could play an important role in the Al Reem BR**

**P**roducing cow-milk-products in Arabia probably makes as much sense as to produce camel-milk-products in Europe.

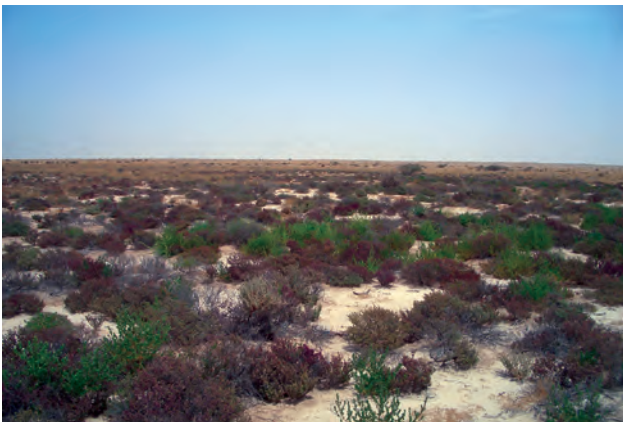
The UNESCO Doha Office developed in 2007 a Proposal towards combating desertification via the establishment of Camel Farms based on fodder production from indigenous plants and

halophytes. The outcome of these studies will be a more stable ecosystem and enhancement of the desert environments.

The main expected results are:

- a) Reverse desertification and restore desert ecosystems.
- b) Viable production of commercial farm products.
- c) Improvement of water use efficiency for fodder production.

The threatening and continuing effect of desertification has an immense impact on the ecological system. The International Year of Deserts and Desertification in 2006 (IYDD) has raised awareness that time and money is needed to focus on sustainable development and that procedures need to be developed to stop the progress of land degradation and to develop major steps in conservation and sustainable management of land and water resources.



Picture: Indigenous palatable desert plant species, Al Reem (by M. Breulmann)

In the Arabian Peninsula, rangeland biodiversity and animal production exist in a delicate balance. Increases in the livestock population has meant that the native plant biodiversity of the Arabian Peninsula, which comprises over 3500 species, is being rapidly depleted by grazing, particularly the palatable species. Over 90% of the total land area now suffers from some form of desertification, and 44% is severely or very severely degraded (Peacock *et al.* 2003; Gallacher & Hill 2006). Camel densities that exceed ecological carrying capacity have been shown by many researchers to be a major threat to desert ecosystems. Reduced camel numbers on open rangeland could redress desertification by allowing vegetation to recover from overgrazing. A prototype Camel Farm should encourage owners to move most camels from open range into intensive farming where camels are fed on native desert- or salt tolerant plants which will help further the restoration process of the ecosystem.

Desert plants and halophytes consume less freshwater and can be used as camel fodder.

Exotic species such as of Rhodes-grass (*Chloris gayana*) and alfalfa (*Medicago sativa*) are currently being grown as fodder in order to supplement the shortfall of palatable rangeland plants. Rhodes-grass and alfalfa consume high volumes of water, (up to 48.000 m<sup>3</sup>/ha/yr). Therefore groundwater reserves have fallen dramatically, leading to increasing soil salinity levels. Indigenous grasses that are adapted to the local climatic conditions are known to respond positively to very small amounts of irrigation. There is an urgent need to collect and conserve these grasses and evaluate their potential as fodder crops under systems with minimal fresh water irrigation for desert plants or with water of relatively high salt content. The rate of restoration/rehabilitation of desert rangelands to their natural condition can be demonstrated in controlled studies in the Camel Farm and can be supported by studies in the open desert. However the ability to recover for certain areas always depends on the soil and the degree of degradation that has taken place. In addition, camel products such as milk and meat can be produced commercially.

The feasibility and success of this new sustainable livestock industry will require strict grazing laws (Le Houérou 2006) as well as a sustainable system for fodder production. Governments are encouraged to allow livestock grazing on rangelands only when it is in tune with the ecological carrying capacity in order to restore the desert ecosystems.

### The advantages of a Camel Farm in BRs

One possibility is the establishment of such a Camel Farm in a BR. The idea of the Camel Farm Project perfectly fits into the concept of a BR in arid lands.

Protecting the desert from overgrazing contributes to the conservation of the desert environment with its unique flora and fauna. The Camel Farm does not destroy nature's resources and is adapted to the culture and tradition of the local communities. During traditional times of nomadic husbandry the Bedouins and their camels lived in a harmonious, symbiotic



relationship with their environment. Camels provided a wide range of useful products such as milk, meat, wool and leather and were basically used for transportation. They were regarded as a “Gift of God”. The Camel Farm is a modern way of camel husbandry. It is linked to the traditions and seeks to encourage the economic and social development. The last condition, logistic support, is fulfilled by “open-air laboratories” in the open desert for scientific research on the rate of the restoration / rehabilitation process of desert rangelands to their natural condition and on fodder plant production adjacent to the farm.

A Camel Farm could also be used as a tourist attraction. Tourists could enjoy day trips to the desert or the coast by riding camels (camel safaris), enjoying the desert and possibly a sunset barbecue or spending a night in the desert before returning. This is an ecofriendly method to



Picture: Upper view of a modern milking machinery for camels in Dubai, UAE (by U. Wernery)

provide a link to nature. Rangelands can recover fast and provide habitat structure for endangered wildlife, such as oryx, gazelles, desert hare and houbara bustard. Wildlife can be re-introduced and wildlife safaris and sustainable hunting may be of interest for tourism.

Reserves based on tourism would provide salaries for local residents and reserve staff. Also the traditional falcon or salouki hunting might again become a popular event in particular restored region for locals and tourists.

The protected areas can demonstrate to school children for instance, the natural desert landscape if grazing is controlled, and demonstrates how to protect the desert environment. Educational facilities and the involvement of local as well as international universities in the research studies will then be encouraged.

As described, the Camel Farm can be linked to the three main objectives which need to be fulfilled in a BR. The Camel Farm should be built in the transition area or even in the buffer zone. This is the zone where the local population, local companies and the people in charge of nature conservation can work together. This farming option presents novel approaches to sustainable use of natural resources and should be introduced in the future BR in Qatar.

### 3.6 The traditional Hima system

By J. Grainger and O. Llewellyn

It is well recognized that established local traditions can provide a sound basis from which to elaborate a programme linking the conservation of renewable natural resources with sustainable national development. There are many examples of traditional, indigenous nature conservation systems that have been maintained, e.g. the Kaya coastal forests in Kenya,

the sacred groves of Ghana, the Sasi system in the Kei Islands of Indonesia, and the Himas of Arabia.

The Middle East contains some of the most arid ecosystems to have been used continuously by human beings. Practices to regulate the use of scarce resources were socio-economic imperatives for sustained production in these

regions of inherently low biomass where water, forage and wildlife are essentially fugitive resources. The Hima tradition is a response to such imperatives. It is an ancient system practised in large parts of the Arabian Peninsula whereby “protected areas” are used mainly to conserve rangeland resources; it is the most widespread and longstanding traditional protected area institution in the Middle East. The Hima tradition represents both the values of local people and the wisdom they have accumulated through centuries of adaptation to their environment, and it has great pragmatic value for the conservation and equitable, sustainable use of natural resources.

Nearly 40 years ago, Draz (1969) suggested the importance of studying the Hima system and its role in the tradition of land management in Saudi Arabia and Syria. The system was used by tribal groups to set aside areas of open range as plant reserves for more or less restricted use by individuals, families or tribes, as part of their grazing management. Several workers have suggested the extension of the Hima principle to cover all recently-created protected areas, for rangeland, woodland, watershed and wildlife reserves. The arrangement predates Islam and probably goes back over 2000 years, but became rooted in Islamic law and tribal custom. In its present form it dates from the time of Prophet Muhammad, who abolished private Himas belonging to powerful individuals, and established the legal system that now governs these protected areas. The fundamental principle is they contribute to public good and result in more benefits than detriments. Special consideration is also given to the interests of the local population.

The Hima system was previously widely practiced in the Arabian Peninsula. In the 1960's it was estimated that there were about 3,000 Himas in Saudi Arabia with nearly every village in the southwestern mountains of the country being associated with one or more Himas. They varied in size from 10 to well over 1,000 hectares and some Himas still exist in Oman, Syria and Yemen, in addition to Saudi Arabia. They were essential components of subsistence production in these

generally semi-arid to arid regions. The system employed many sound land-use principles predating their formal recognition by modern land-use planners.

The following social and economic attributes characterise the Hima system:

- a) It allows for the controlled use of resources, but ensured their proper conservation and use for particular purposes and prevented their abuse. In short, it was ecologically sustainable.
- b) It ensures that protected resource areas are recognized and respected, although they were managed by local communities which relied mainly on social sanctions in applying the rules relating to them. The benefits from the Himas were then allocated among the members of the community according to a system that the community perceived as being equitable. Thus, the system was socially acceptable and was desired by the people who carried the cost of implementing it.
- c) It is economically viable because of the benefits it yields and the social security it provides.

Thus the Hima system incorporates many of the socio-economic and ecological ingredients essential to the sustainable use of renewable resources. In Syria the concept has been utilised by the FAO in a rangeland development project to increase range quality and animal production (Draz 1978). The Hawtah, a similar traditional institution, is apparently used for the conservation of wildlife and its habitats in Oman and perhaps elsewhere in the Arabian Peninsula.

Besides zoning land use, preserving particular resources and allocating their use among members of a community, Himas seem to have provided an important insurance for sedentary agriculturalists against nomadic herds. This was especially important in preserving accessible grazing for draft animals. Allocating the rights to fodder and other resources to particular people,

who benefited directly from the conservation of a resource, provided the necessary incentive for community discipline and investment in the protection of the resources from abuse.

Few established systems of protected areas are known that have a history comparable in length with traditional Himas. As Himas were managed locally, management was subject to community consensus and individuals in the community were able to influence this consensus and thus had a meaningful voice in management decisions. The pragmatic flexibility of the system provides an important, long-standing, cultural precedent for setting aside areas of land for the protection of particular resources. It also allows for the allocation of the rights to the controlled use of these resources to particular people, where this is appropriate.

In Islamic law, the term Hima equates with protected area and they could be established provided the following four conditions were met:

- it should be constituted by the “Imam” – the legitimate Islamic governing authority;
- it should be established in the Way of God – that is, for purposes pertaining to public welfare;
- it should not cause undue hardship to the local people – it should not deprive them of resources that are indispensable to their subsistence; and
- it should realize greater actual benefits to society than detriments.

A Hima could then be established for any purpose that pertains to the common good, so it could be managed for either conservation of biodiversity or sustainable use of natural resources and as such accords with current thinking on equity in protected areas.

Customary management of traditional Himas has been highly adaptive to the characteristics of the land and the needs of local communities for more than two millennia, so one of the salient characteristics of the Hima is its inherent flexibility. In some Himas, grazing is prohibited, although grass is harvested by hand. Others are

protected woodlands within which the cutting of trees is either prohibited or regulated. Still others are managed rangelands in which grazing and cutting of grass are permitted on a seasonal basis, or in which grazing is restricted to specified kinds and numbers of livestock, or within which a limited number of livestock may be grazed for a specified time during periods of drought. In Himas for the production of honey, grazing is prohibited seasonally or is excluded altogether, while others protected woodlands within which the cutting of trees is either prohibited or regulated.

Even allowing that previous descriptions of the Hima system were somewhat idealistic, it is clear that the use of Himas in the Arabian Peninsula has undergone some change over the past 40 years since Draz promoted the concept, and there are clear indications that the whole concept has become less secure in recent years. Many Himas have been abandoned in recent years in Saudi Arabia, that now only a few dozen remain, and few of these are still being managed actively. But if the Hima is as flexible and progressive an institution as has been claimed, so well adapted to the particularities of the land and the needs of its users, why has this conservation practice faded in modern times?

Enormous economic and social changes have taken place in recent decades and tribal ownership and management of the land has been replaced with national ownership and management. Many of the specific objectives for which these Himas were established no longer meet the needs of the local communities. With the mechanization of agriculture, for example, there is little need for draft animals; Himas are now often used to graze sheep and goats, rather than cattle, horses and camels. As human populations have increased, there have been mounting demands for land for housing and farms, and increasing demands for pasture for ever larger herds of livestock – all at the expense of the Himas.

However the Hima tradition still has local popular appeal and Himas have too many excellent attributes that are as applicable now as in the past, to have simply outlived their usefulness.

Furthermore the Hima concept introduces a normative cultural element that is absent from the value-neutral designation of the modern, but alien term, “protected area”.

The traditional conservation practices associated with the Hima must be adapted to socio-economic realities and new technologies to fulfill the changing needs of the local communities. In particular, the management of traditional Himas needs to be shifted away from tribal affiliations and towards productive partnerships with the local communities and other stakeholders.

The revival and extension of the Hima as the basis for protected area systems has far-reaching and exciting implications for the conservation of biological diversity and sustainable use of renewable natural resources, not only in the Middle East, but throughout the Islamic world (Grainger & Llewellyn 1994). Recently in Lebanon, the Society for the Protection of Nature in Lebanon (SPNL) has re-established two traditional Himas, both of them Important Bird Areas - Ebel es-Saqi and Kfar Zabad, and a marine Hima has been proclaimed at Qoleileh. Tanzania’s

Misali Island has been proclaimed as a marine Hima, and has been recognized in the WWF / ARC Sacred Gifts for a Living Planet program. Batang Gadis National Park in North Sumatra is being established as a Hima in cooperation with Conservation International, and in Saudi Arabia’s revised protected area system plan several traditional Himas are proposed for recognition as community conserved areas.

It is clear that the conservation opportunities that arise from revitalising the Hima are becoming better recognized along with the application of lessons from the Hima to other forms of protected areas. But it is evident too that more research is needed to further explore the Himas tradition as a model or even an instrument for conservation. In particular work is needed on historical and current attitudes of local communities towards Himas, their management adaptation to new socio-economic realities and technologies and the legislative status of those exemplary Himas that remain viable. The Hima can then be restored to its proper place as an enduring, effective and locally relevant conservation practice in the Middle East.

### 3.7 Quranic Botanic Gardens (QBG)

By B. Böer

#### Introduction

The first comprehensive documentation on the plants of the Quran was produced in 1989 (Farooqi 1989). The same author produced much later a related volume on the medicinal plants in the traditions of Prophet Muhammad (Farooqi 1998).

Then, in 1996, the Arabian Plant Specialist Group (APSG) was formed in Riyadh, Kingdom of Saudi Arabia, in conjunction between the National Commission for Wildlife Conservation and Development (NCWCD), and the World Conservation Union (IUCN). In the proceedings the recommendations were clearly stipulated,

and one was to “Develop a regional botanical garden or a representative group of smaller local gardens...” (Abuzinada & Joubert 1996).

Since over 60 years, UNESCO, cognizant of the importance of protecting the shared environment of our planet, has initiated and supported many projects to preserve natural and cultural heritage and to hand down to future generations the biological and botanic diversity of nature.

It is with this in mind, that the UNESCO Doha Office intends to support a variety of important activities in the cluster, and one of them was to develop a proposal on *The Quranic Botanic Gardens*. The idea of the Quranic Botanic Garden



Picture: Pomegranate fruit (by P. Hager)

Project was, with a meaningful contribution on a scientific level, to demonstrate the importance of the Islamic Culture towards biological diversity conservation, and educate locals and visitors alike to respect traditional teaching, culture, and nature.

The Quran Botanic Garden will first consider those plants that have a strong cultural importance, such as the plants mentioned in the Holy Quran, such as the date palm, the pomegranate, grapes, olive trees etc. This will be combined with an appropriate landscaping architecture, with traditional Islamic Garden water and shading elements. The surrounding parts of the garden should then also display additional plant themes from the Arabian Peninsula. It should preferably contain research, education, awareness, conservation, and recreation elements, and it will raise awareness about the role of cultural landscapes in ecosystem management, and the sustainable use of biodiversity.

The Quran Botanic Garden will also highlight for the visitor the importance of religious respect, and UNESCO's mandate for peace. This is especially important for the visitor from abroad, in order to learn about the teachings and the values of Islam, which will be an important contribution towards mutual respect, and the cultural global dialogue between the people of the world.

Many experts and scientific documents demonstrated that the Arab region needs more ex situ environmental preserved areas, botanical gardens, herbariums, seed banks. For this reason,

UNESCO intends to plan, coordinate and achieve a comprehensive project called *Quranic Botanic Gardens*, with the main scope of improving the preservation of biological diversity and botanical capacity in the Arab region.

### Aims of the project

The Quranic Botanic Garden project aims to:

- establish botanical gardens in the Arab region; and
- set up a scientific, educational, conservation, and cultural network between these gardens.

This project will facilitate enhancing linkages between the traditional Islamic culture on habitat respect, particularly the culture inspired by the Holy Quran, the environmental protection and the preservation of biological diversity. The establishment of new gardens influenced by the scientific and cultural concepts of the Arab tradition, by the oral and written masterpieces of the Islamic culture, particularly by the Holy Quran, would be extremely useful to realise a physical embodiment of the Islamic tradition of gardens and to preserve the botanical diversity of the Arabian Peninsula. Furthermore, this project could make possible the development of shared strategies and programmes focused on the improvement of people's education and environmental awareness within a framework of sustainable and peaceful development.

New botanical gardens in the Arab region should be influenced by the two major historical phases of the Arab gardening philosophy, made by a first phase based on typical natural desert environments (e.g., *wadis*, *baadiya*, *raudhas*, sand areas, etc.) and a second phase characterised by men-planned gardens (e.g., the Persian concepts of sunken beds, *chahar bagh*, *gulistan*, *bustan*, etc.). In addition, the modern science and cultural promulgation suggests taking into consideration other themes, reproducing specific environments and their flora (e.g., coastal plants or mountainous plants of the Arabian Peninsula, desert plants, agricultural plants, amenity plants, medicinal plants, halophytes, etc.).

The establishment of botanical gardens is equally a scientific, educational, and cultural project and it requires multidisciplinary studies. Their development should be carried out taking into consideration advice by a broad team of experts:

- in the field of Culture, such as: architects, religious scholars, cultural tourism experts, and landscapers;
- in the field of Science, such as: botanists, horticulturalists, irrigation & drainage experts, geologists, pedologists; and
- in the field of Education, such as education-  
alists, and science's promulgators.

In view of the importance of the Al Reem BR

establishment, together with the fact that the countries' physical surfaces are being altered into property sites, it is high time to engage on serious biodiversity conservation. The Quranic Botanic Garden in Qatar as well as the one on Sharjah, and other countries, are serious and significant biodiversity conservation projects (more details of the importance of the QBG Initiative can be obtained from UNESCO Doha Office). The QBG facilities will be so designed that they are in tune with other ongoing scientific research and conservation projects.

Besides, the Al Reem BR might function as one of the prime sites for the collection of natural germplasm for plant diversity conservation.

## 4 Conclusion

*By M. Richtzenhain*

Considering shrinking energy resources, as well as the lack of freshwater, especially in the Arabian Peninsula, it is tremendously important to change our ways of treating nature and our acquaintance with the natural reserves. Therefore, our objective was to create a proposal which provides an informative basis to establish sustainable, environmentally compatible tourism in BRs in the Arab region, in order to conserve the diversity and beauty of nature from our past and for our future. Consequently, a case study in the Al Reem BR was accomplished to identify possibilities and ways for the establishment of

Thus, **EFT** refers to tourism occurring in natural settings in such a manner as to leave few, if any, adverse impacts. It is an all-embracing term for tourism in natural settings in which there is an emphasis placed on the understanding and conservation of the natural environment. Essentially it is a type of tourism in the natural environment which promotes environmental understanding and conservation and is easily applicable to the zones of BRs.

environmentally friendly tourism (EFT) and to serve as a good example for other BRs.

Generalised, it is to say, that there is no general definition for environmentally friendly tourism, or ecotourism – there are a number of types. In *section 1*, we tried to give the reader a common definition and idea about it (see textbox).

Thinking of EFT in BRs, it is important to include many aspects, like to ensure the conservation and protection of nature, participation of the local community, environmental education and training, reducing negative human impacts etc.

Education and training are fundamental to tourism's long term sustainability and goes hand in hand with the participation of the host community. It is useful to recognise both the needs of communities as well as their potential to act as agents of education for the benefit of others. Typical activities for locals can be tour guiding, wardens, gate keeping, selling gifts in small shops, as well as establishing tourist accommodations and restaurants.

By giving responsibility and financial incentives to the host community, they will be encouraged to contribute to sound tourism. Simultaneously, tourists will be attracted by the authenticity of local cultures and traditions. Furthermore, residents will care more about the reserve, to keep it clean and intact, if it is of great value for them.

For the successful implementation of tourism, good **marketing strategies** and information about tourism offers and possibilities within the reserve are essential, which is currently lacking in the Al Reem BR. Also a very important step is to develop a professional and implementable **management plan**, as well as a high-quality baseline map.

EFT is one possible solution to generate benefits for the reserve, to protect and conserve it, as well as to get benefits for the local people. It is also important for a sound BR management and successful tourism concept to consider regional traditions. As outlined in *section 3* this includes traditions like e.g. the Hima system, local habitats, the sensibility of the environment, regional characteristics, the establishment of “Better Buildings” as Visitor or Training Centres,

technological innovations, raising environmental awareness, ways to combat desertification (e.g. with the establishment of camel farms), etc.

As stated in *section 2*, the Al Reem BR is a unique example of Gulf Arabian habitat and culture, as it offers significant EFT opportunities and potentials linked to development and conservation challenges. The great diversity of animals, plants and landscapes, as well as the named archeological findings and traditional buildings can be very attractive to tourists.

Al Reem is a very young reserve and one of the first in the Arab region; it has good conditions and advantages to become a best practice model in BR management.

In the following section, concrete recommendations for a sound tourism implementation in the Al Reem BR will be given (*section 4.1*), as well as the benefits for it (*section 4.2*).

The recommendations should inspire BR managers. Other BRs in the region have different settings, characteristics and therefore have different potentials and requirements.

## 4.1 Concrete recommendations and project development for Al Reem

By M. Richtzenhain, M. Sutcliffe, and B. Böer

The suggestions made in *section 3.2* “Recommendations for Tourism Activities” describe possible tourism activities, education and conservation measures. They show the whole variety of feasible actions within the different zones of the Al Reem BR.

In this chapter concrete recommendations shall be highlighted. These will be kept quite simple, in order to ensure a realistic implementation. Additional activities can be implemented step by step. As a supplement, a second proposal dealing with the project development shall be produced.

Primarily, the author suggests a division into two implementation phases. The first phase identifies the basic requirements which lead to a secure foundation for further establishments and actions within the BR.

The second phase will help build tourism activities upon a sound base.

*Please note that the concrete suggestions made in this proposal are chosen only for the Al Reem BR. However, they can be taken as examples and guidelines for other BRs in the region.*

**Phase I:**

To assure nature conservation and protection we suggest science-based fencing of the area, at least for the core area and buffer zone, in order to provide a clear visual indicator of the difference in purpose between the zones, as well as to limit grazing impact. This should guarantee the prevention of disturbance and destruction of flora and fauna from humans and livestock. Therefore, we want to suggest the correct fence type, which should keep goats, sheep and camels out but allow for crossing by oryx, gazelle, hare, fox, wild cats and lizards etc. For example a fence type below 1,20 m with four or five strings of barbwire is advisable. Mesh wires with a 2,50 m height and with a 10 grid width are not recommendable. The reason for it is that small animals easily get stuck and die thirst or heat exhaustion and larger animals can not cross them. Whatever fence-type is finally being selected, it should keep livestock out, but allow for the free movement of wildlife.

In contrast to the more strictly controlled core area, the buffer zone could have a “cow grate” in the road which would help in keeping the undesired livestock out, but allow for free movement of traffic.

The management of the reserve is a prerequisite for a sustainable use and implementation of the aims and goals of MAB rules and regulations. Consequently the elaboration of a sound management plan is essential.

Therefore, it is important to consider the corresponding MAB rules,

1. the *core zone* is an area which should be mainly unaffected by humans. It is mainly to conserve biological diversity and to monitor unspoiled ecosystems. Also it gives room for scientific research. The core zone can be used for environmental education but there should be no or little environmental impact. The protection of this area is high priority.
2. The *buffer zone* should protect the core zone from any interference. This area preserves the

sustainment and fostering of ecosystems. It is to conserve cultural landscapes which offer a wide range of differed habitats and for it typical animal and plant species. The buffer zone can be used for cooperative activities, like environmental education, recreation, ecotourism and research activities. All activities should be in accordance with the environment and its protection.

3. The *transition zone* is the most flexible zone. It is the living, economic and recreation area for the population. The aim is a development of an economy, which takes into consideration the needs of man and nature. Several activities are possible, like e.g. agriculture, small-scale businesses, tourism or several others. The production of environmentally friendly products can contribute to a sustainable development. It can also give incentives for income generating activities for the locals. At best, these activities are run by local communities and in cooperation with other local stakeholders.

For giving rangeland the possibility to recover naturally, livestock numbers should immediately be assessed and limited. In combination with rainy seasons, this will allow for the habitat structure to recover and captive bred animals can be released later on. Special guided tours for wildlife observation could be an additional tourist attraction.

Also recommendable would be a *town meeting*, for informing the residents of the plans for the reserve and how they could positively contribute and work there. As a result their input into the management plan should be given due consideration. Wherever possible they must be able to have the opportunity to be involved. There are many benefits to be gained by transferring some of the “ownership” of responsibility, e.g. reduced poaching, pollution, and problems, through public participation in policy and planning. Because of the added complexity of public participation, more time will need to be budgeted for this process.



To avoid disturbance of nature and environment the establishment of *trekking trails* and *educational pathways* is important for the buffer and transition zone. Each trail should be signed with different colours of symbols according to the environment highlights. For the buffer zone this could be e.g. different geological forms or animals, like lizards, birds or stones. For the marine transition zone this could be e.g. dugong or dolphin and for the terrestrial transition zone this could be gazelle and oryx. At certain locations, explanation boards and markers should explain the environment, nature and existing animals.

*Previously introduced African Ostriches running freely in the reserve need special consideration. They should be kept in enclosures in order to guarantee human safety.*

*Professional training* of guides comprising all aspects of the reserves nature and animal life are needed to develop qualified educational skills and to interpret the environment correctly. That way, information can be spread and professional managers, guides and rangers will be trained.

The training for guides and managers could take place in a “*training centre*” (see Phase II), which would need to be established.

Additionally a *monitoring system* should be setup in order to calculate and observe the human carrying capacity of the reserve and to detect ecosystem change. This is important in order to study the anthropogenic impact and develop management-recommendations based on science.

## **Phase II:**

After the successful completion of the first phase, concrete tourism activities can be implemented. Thereby, the focus is laid on education, training and awareness raising.

A common tourism form in BRs is ecotourism. The reason therefore is that the principles of ecotourism agree on the principles of BRs. Thus, to attract eco tourists, eco-lodges should

be constructed. These lodges should be build considering the innovative implementation of water-, waste- and energy management (further read chapter 3.4 “Better buildings” and the UNESCO Better Buildings proposal). A good site for the assembly of eco-lodges would be in the buffer zone at the coast or near Zekreet. Another possibility would be in the northern boundary of the buffer zone, near the Al Zubarah fort. The size of the lodges must be measured on potential visitor numbers. Therefore, a representative questioning of Qataris, residents and visitors, would be advisable.

Further, the construction of a *visitor and interpretation centre* is essential to provide the tourist with general information about the reserve. It should include educational programmes about the local environment, geology, flora and fauna, renewable energy and future developments of the region. Additionally, the visitor centre may serve as a *training centre* for personnel working in the reserve (see above). Important to consider is that there should be a new environmentally friendly building constructed as the visitor centre, which should again demonstrate innovative techniques for better buildings. It should preferably be located in the buffer zone and can probably be combined with a Bedouin tent eco-lodge. A good place for it would be at the northern boundary of the buffer and transition zone, somewhere near the oryx breeding centre at the coast. Another possible site could be in the southern buffer zone, near the entrance to the Zekreet core zone (or in Zekreet itself). A third possibility could be in one of the towns inside the buffer zone.

Not only the buildings should be *eco friendly* constructed but also the transport system. This should be highlighted and environmentally friendly options should be discussed and suggested in the management plan, considering reality, costs and inspiration.

Qatar is known for its bird variety. Also the Al Reem BR is the habitat of many wild animals, like lizards, gazelles, oryx and desert hares. Therefore, *bird and wildlife watching hides* should be established at the coast, as well as within the

reserve. Furthermore, snorkeling and guided diving tours into the marine wildlife could be offered.

A questing of people at the Doha International Airport earlier this year has resulted that there is not enough information about the Al Reem BR in the country, as well as internationally. *Marketing* is an indispensable important tool to attract people and to inform about the activities within the BR. The production of a web-site, prospects, flyers and brochures could help to tell more about the Al Reem and therewith catch the attention of potential visitors. This material could be outlaid in hotels, Tourist Informations, airports or other locations. Additional advertising, like short advertising spots and short films, shown in the

national and international TV or in other public places, like supermarkets, airports, malls, etc. could enhance the publicity.

A considerable remark:

The zoning of the Al Reem BR should probably be recalculated. The Ras Abu Abrouk peninsula, which is at the moment one of the core areas, has the biggest tourism potential because of its rocky outcrops, special rock formations and archaeological findings. Also already established is the town of Zekreet with its camel farms. Furthermore the cultural village in the centre of the peninsula could be rebuild to a visitor and training centre.

## 4.2 Benefits for the Al Reem BR and regional economy

By M. Richtzenhain and F. Darwish

Basically, potential benefits of tourism in protected areas are

1. the enhancement of economic opportunities,
2. the protection of natural and cultural heritage and
3. the enhancement of the quality of life (Eagles *et al.* 2002).

### Enhancing economic opportunities

Tourism in the Al Reem BR can create additional jobs and income. With the attraction of tourists, it can be seen as a source of foreign exchange and through the implementation of new tourism activities, the local economy is being diversified. Diversification of the industry could be of high importance for the future development of Qatar. Examples to get revenue out of protected area activities can be the establishment of entrance fees or the establishment of small shops, where local handicraft and art is being sold. Other income generating activities can be guided excursions, home stays, the establishment of eco-lodges, camping and picnic sites or local cuisine

in restaurants. Thus, environmentally friendly tourism is a good chance for local people to gain financially from the protected area they live in.

Sometimes the development of tourist activities has high initial costs. But through well-managed tourism, the estimated costs could outweigh the estimated revenues for the first few years but, thereafter, benefits would exceed the costs (Eagles *et al.*, 2002).

For gaining economic benefits:

- the number of visitors in Al Reem should be increased (only up to the maximum carrying capacity and in certain areas)
- the length of stay should be increased to enhance the possibility of selling local products and overnight stays,
- local lodges and services should be provided; overnight stays enlarge the expenditure on meals, local goods and services,
- local guides should be provided,
- where possible Qatari food and drink should be offered, in order to increase local income

- sport and adventure aspects could be offered in hotels and ecolodges.

### **Protecting natural and cultural heritage**

Environmentally friendly tourism can be a key factor in supporting nature conservation and the protection of cultural heritage. Through generating funds (like entrance and service fees) the costs of conservation and maintaining cultural traditions could be paid. Furthermore, through awareness raising campaigns about the natural and regional reserve's value for the country, political and public attention can be gained. This can then lead to additional support for nature conservation measures.

Not only can the financial support be raised by attracting tourists, but also the physical support, e.g. through the involvement of volunteers in collecting data or analysis. In helping e.g. restoring historically significant buildings (e.g. the lost city near Zubarah), the natural and cultural heritage can be sustainably conserved, also for future generations.

### **Enhancing quality of life in the host community**

Tourism development in the Al Reem BR should be designed to protect Qatari traditions and cultures and boost those aspects that need to be improved. This can be done e.g. through offering tourism facilities and services, run by local communities. Thus, tourism can not only sustain the protected area financially, but also be an essential contribution to generate jobs and raise income. Further it can support local needs like:

- improving the communication system through building roads and telecommunication facilities (e.g. in buffer and transition zone, according to the particular carrying capacity),
- educating people in other languages, literacy or ecological and nature science,
- training the people as park staff,
- the establishment of medical safety and emergency services, which could also be shared with the communities.

The protected area can not only enhance the quality of life for residents within Al Reem, but also for all Qatari residents. The reserve, with its fresh and unpolluted air, its beautiful surroundings and diversified animal life, can be a recreational getaway or leisure area for people who want to relax and take a rest from work and everyday life. School classes, e.g. could make excursions and learn more about Qatari culture and life.

Furthermore, through the involvement of local people and stakeholders, decisions will be made together, which will reduce the potential of conflicts. Residents can participate and take part on important decision-making processes. They can put in their own wishes and ideas, as well as precious experience with that area. They can also address reservations for certain plans that are not in their interests, for reasons only they may know.



*Picture: Sunset in the Al Reem BR (by H. Schwarze)*

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