Potential for Community Based Ecotourism (CBE) along Balochistan Coast, Pakistan

Zia Ullah* Muhammad Jehangir‡ Javed Iqbal†

Abstract

The term CBE is not only an ethic based approach to tourism but to make it sure the community engages actively and enjoys the accruing profits of tourism activities. Following the SFA Framework (Suitability, Feasibility, and Acceptability), this study critically reviewed tourism resources in ecologically sensitive coastal areas of Balochistan for assessing their potential for establishment of CBE. Bio-physical, socio-cultural, and tourism information were collected from coastal communities through a structured questionnaire and the same was analyzed through SWOT analysis, while, coastal scenic information was collected personally through a coastal scenic assessment and analyzed through fuzzy logic analysis. The study confirmed that selected coastal localities are potential CBE destinations. However, infrastructure and communities’ knowledge for developing the desired services/products were below the required standards. Therefore, CBE within the selected localities without any investment in basic infrastructure and capacity building of communities would be detrimental for the natural environment.

Key Words: Transit Trade Agreement, Security Implications, Regional Connectivity, Pak-Afghan Relations

Introduction

Balochistan brands itself as the largest Pakistani province with 347,190 km² area and coastal region of 700 km across Hub River (east) to the middle of Gawardar Bay (west). The coastal zone has many attractions including cliffs, sand beaches and dunes with infrequent rocky headlands. Besides these attractions, the zone features marshy lagoons, creeks, and residue of mangroves. Much less information exists about the biological diversity of the Balochistan coast.

* Assistant Professor, Department of Tourism & Hospitality, Abdul Wali Khan University, Mardan, KP, Pakistan.
‡ Assistant Professor, Institute of Business & Leadership, Abdul Wali Khan University, Mardan, KP, Pakistan. Email: Jehangir@awkum.edu.pk
† Assistant Professor, Department of Economics, Abdul Wali Khan University, Mardan, KP, Pakistan.
The area is dominantly abundant with Xeromorphic types of plants. Mirza et al. (1988) considered the area of mangrove forests to be 7,340 hectares in the three localities in the province (MianiHor, KalmatHor, and Jiwani). In addition, for both resident and migratory waterfowls these coastal sites are of paramount importance. MianiHor, Pasni, Jiwani, Ormara, and HingolHor are rated by ornithologists as the most important sites for migratory birds. Ahmad et al. (1991) recorded water birds of 91 species in the coastal area of Balochistan. Similarly, beaches at the Jinwani and Astola Island are home to the endangered species including green turtle (*Cheloniamydas*). The Ormara nesting site is of international importance (Groombridge, 1988). The protected areas of the region including Hingol National Parkland BuziMakola, while, Astola (Haft Talar) Island, Jiwani, MianiHor, Ormara are recognized as Ramsar Sites (Ramsar Convention Bureau, 2001). The cultural heritage of the Balochistan provides proof of early Stone Age man who struggled for their survival and continuing development. In addition, relics such as stone tools are discovered from caves that can be traced back to Pleistocene period. Architectural resources also exist in the form of forts, tombs, graves, mosques, and other historical monuments (BCS, 2000).

Ecotourism contributes to many aspects, including protecting the environment, developing socio-economic aspect, and ensuring sustainability. In other words, it perceives the tourism from an ethical perspective and strives to develop the socio, economic and ecological dimensions of the region (Bjork, 2000; Weaver, 2005; Wight, 1993 a). The crucial role of communities in conservation and the growing interest of tourists in destination’s communities have prompted the community participation concept in ecotourism to take a step further in the form of the Community Based Ecotourism (CBE) approach. The CBE approach is to not only conserve the natural resources but to enhance the quality of life of the community. Proponents of CBE suggest that it is an ethics-based approach to tourism that not only makes sure the community engages actively as well as enjoys the accruing profits of the tourism activities (Liu, 1994; Ceballos-Lascurain, 1996).

The coastal areas of the country, in particular, Balochistan, the natural, cultural and scenic resources are rarely mentioned as potential tourism assets. However, preliminary information collected for this research has shown that coastal communities along the coastal regions are actively involved in the promotion of coastal tourism. Similarly, there is a great potential of CBE in the sensitive ecological coastal areas of the province. Hence, this study is conducted to critically review the tourism resources of Baluchistan's coast and assess the potential of establishing CBE in ecologically sensitive coastal areas.

**Methodology**

To evaluate the potential for CBE along the Balochistan’s coast, this study applied the SFA Framework (Suitability, Feasibility, and Acceptability) (for details see...
Evans et al. 2003). The suitability evaluation was carried out by collecting preliminary information from key informants. The suitability exercise shortlisted ecologically sensitive coastal localities: MianiHor, and Jiwani, and Pasni-Astola Island. In comparison to suitability, feasibility evaluation is more quantitative and was carried out to assess whether selected localities have the resources and competence to deliver a CBE strategy. Feasibility was assessed in terms of biophysical, socio-cultural, tourism trends and scenic values of shortlisted localities. Bio-physical, socio-cultural, and tourism information on the localities were collected from coastal communities through a structured questionnaire (Appendix 1) and analyzed through SWOT analysis while coastal scenic information was collected personally through a coastal scenic assessment and analyzed through fuzzy logic analysis (for details see Ullah et al, 2009). The acceptability component of the SFA framework is concerned with stakeholder theory including stakeholders' identification, their power, urgency and legitimacy (Mitchells' et al, 1997). In view of the limitation of this study the acceptability details are avoided here, though, as a reference it can be accessed on Ullah et al. (2018). In addition, the information collected from suitability and feasibility exercises certainly identified potential and challenges for establishing CBE along Balochistan coast.

**Results and Discussion**

**Suitability Evaluation**

A suitability criterion is considered a good starting point to an evaluation as it establishes the logic behind a particular strategy (Johnson and Scholes, 1999). The information collected looked at: natural resources; basic facilities (for example, energy resources, availability of freshwater and transportation); tourism attractions (natural and cultural) safety and security. Of the total number of individuals questioned, 60% (N: 66) identified Jiwani, MianiHor, and Pasni-Astola Island as suitable sites for CBE. The suitable sites were then recommended for in-depth or feasibility evaluation.

**Feasibility Evaluation**

Feasibility evaluation was carried out in order to assess localities’ resources and competence for delivering CBE strategy. Bio-physical, socio-cultural, and tourism information of localities was assessed through SWOT analysis, while coastal scenic information was processed through fuzzy logic assessment matrices (for details see Ullah et al, 2009).
SWOT Analysis

The SWOT analysis was used to identify the potential and challenges for establishing CBE in the selected localities. Information collected for each locality through a structured questionnaire (Appendix 1) was manually tabulated into four broader categories of SWOT i.e. Strengths, Weaknesses, Opportunities and Threats. This tabulated information has, however, shown that all the suitable localities have almost similar characteristics in terms of their strengths, weaknesses, opportunities, and threats for CBE. Therefore, for the sake of simplicity the results of the SWOT analysis for all the localities are presented together in Table 1.1 but site-specific attributes are highlighted in the text. In order to ensure anonymous representation, participants are not identified by name in the text, although, wherever required quotes are attributed in general to respondents of a particular locality in italics.

Strengths

Although, it was not in the scope of this study to investigate and provide detailed information about the biological diversity of the selected localities, however, generic information was only collected for plants and animals species of tourism and/or conservation interest and are summarised in Appendix 3. Jiwani, MianiHor, Pasni-Astola Island are Ramsar Sites, furthermore, Jiwani and MianiHor were also classified as Global Eco-regions (Ahmad, 2002). Astola Island has also been recommended for protected area status and as a potential ecotourism site by IUCN-Pakistan (BCS, 2000). Coastal art and craft including traditional boats' craftsmanship and Balochi embroidery were identified as major tourist attractions. Coastal communities offered rental-boats tour coastal visitors and also served as tourists’ guides. Communities’ involvement in tourism exhibited a positive gesture for developing CBE across the coastal region of the province.

Weaknesses

Besides the Gawadar and Pasni town, the rest of the localities provided very limited access to hygienic meals and proper accommodation. Basic tourism facilities, for example, public toilets, safe drinking water, basic medical facilities and systematic disposal of water or solid waste were recorded much below the required standards. More than 90% of the coastal population in Pakistan is directly dependent on fishery resources, however, inappropriate income distribution within this sector and the ever-increasing debt of middlemen was recorded as a major reason for the growing poverty within all study sites (also reported by ESCAP, 1996). While concluding the discussion about the middlemen debt issue, one local WWF workers at MianiHor stated that “middlemen debt increase with every
fishing season making it impossible for fishermen to pay off their debt and ultimately they are left with no choice but to be trapped like a slave forever in middlemen debt”.

Table 1. SWOT Analysis of Potential Localities for CBE

| Internal |     |
|----------|-----|
| **Strengths** | **Weaknesses** |
| • Biological Diversity (Appendix 3) | • Lack of basic tourism infrastructure and services |
| • Ecological recognition of the identified sites | • Scarcity of safe drinking water |
| • Art and craft | • Electricity not available in some parts of selected localities |
| • Communities’ involvement in tourism and/or conservation | • Absence of waste water and solid waste disposal arrangement |
| • Positive views of communities’ about CBE | • Poor socio-economic status of coastal inhabitants |
| • Existence of NGOs in the identified sites | • Unwise use of mangrove |
| • Coastal scenery | • Use of harmful nets & illegal hunting |
|     | • Lack of tourism knowledge |

| External |     |
|----------|-----|
| **Opportunities** | **Threats** |
| • Physical conditions and habitat diversity | • Mangroves degradation from external sources |
| • Regional tourism attractions of the identified sites | • Hazardous influence of Karachi metropolitan on Sindh coast |
| • Safety and security | • Threats to endangered turtles from distance sources |
| • Access and transport | • Rapid infrastructure development plans on the coast |
|     | • Encroachment/illegal selling of ecologically sensitive coastal areas |
|     | • Sea Intrusion in Indus Delta |
|     | • Lack of enforcement of environmental legislations in coastal areas |
|     | • Land ownership conflicts |

**Opportunities**

The prevailing physical conditions in the coastal area of the province supporting a variety of ecosystems (for example, mangroves and coral reef) offer enormous
opportunities for small scale coastal tourism development. Selected sites were recorded as being contiguous to other regional tourism attractions (Appendix 2). The Hingol National Park (the largest park of Pakistan), the Kirthar National Park are some of the regional tourism attractions.

**Threats**

In MianiHor and Jiwani unwise use of mangrove was recorded the major threatening factor to the mangrove ecosystem. In all study sites, the respondents also identified: coastal erosion and illegal poaching of turtle eggs and hunting for shells as major threats to these endangered reptiles. Illegal selling of coastal land for commercial purposes in Jiwan and Pasni are additional threats to ecologically sensitive coastal areas. These threats were both personally observed and invariably identified by respondents of the sites concerned. Land ownership conflicts were also recorded between community groups and government at Miani Hor. These conflicts have the potential to develop into threatening factors while establishing CBE.

Although a number of environmental acts, ordinance, and regulations exist in Pakistan Most importantly the Pakistan Environmental Protection Act 1997 provides sufficient powers to provincial and Local Governments for ensuring environmental standards in their respective jurisdictions. However, implementation of the Act was rarely observed in practice in the coastal sites.

1.3.2.2 Coastal scenery evaluation through Fuzzy Logic Analysis (FLA):

Research on coastal tourism emphasized the importance of coastal scenery and perceived it as an important asset to tourism particularly in the far-flung and rural regions (Morgan and Williams, 1995; Morgan, 1996; Micallef et al. 1999 and Unal and Williams, 1999). As far as the Pakistan tourism development is concerned, it is much around the artificial attractions and has not given adequate consideration to the natural resources and its scenic splendor. Nevertheless, research on coastal tourism endorse that coastal scenery furnishes a region with a competitive advantage particularly the remote and rural areas (Morgan and Williams 1995; Tudor and Williams 2006; Williams and Micallef, 2009) have shown that coastal scenery can provide competitive advantages, especially in rural and remote regions. Keeping in view the geographical location, scenic assessment was considered an appropriate option to carry out as part of feasibility evaluation.

Scenic assessment of the selected spots (MianiHor, Jiwani, and Pasini-Astola) was carried out through a checklist techniques devised by Ergin et al. (2002, 2003, 2004, 2006a &b). MianiHor, Jiwani, and Pasni-Astola Island qualified as Class 1 Sites for being the hub of natural attractions and landscape value. However, it is not in the scope of this paper to provide details of scenic evaluation of the sites, however, a separate paper has already been published by one of the authors on this subject (for details see Ullah et al, 2009).
Conclusion and Recommendations

Suitability and feasibility evaluations confirm that selected coastal localities are potential CBE destinations in terms of their natural, cultural and physical attributes including coastal scenery. However, infrastructure for basic tourism services and environmental management was almost non-existent at all study sites. Similarly, communities’ background knowledge for developing CBE services and products was well below the standards required. Therefore, the introduction of CBE within the selected localities without any investment in basic infrastructure and capacity building of communities would inevitably have a detrimental impact on the natural environment. The following recommendations would assist in establishing CBE in the coastal localities of Balochistan:

- Detail investigations should be carried out for establishing coral reefs as an attraction for eco-tourists;
- The government should promote traditional skilled boats’ craftsmanship as tourism products;
- Keeping in view the successful role of NGOs in ecotourism, their presence in the selected localities can be best utilized by the government as an opportunity for developing CBE;
- The government should ensure basic tourism infrastructure in the coastal localities.
- The capacity of local communities should be built for establishing successful CBE enterprises.
- Mangroves' degradation should be discouraged/minimize by awareness-raising and providing alternative sources of fuel and fodder to the coastal communities.
- The government should ban unplanned and massive infrastructure development along the coast.
- The government should ban encroachment/illegal selling of ecologically sensitive coastal areas.
- The government should strictly enforce environmental legislations in coastal areas.
References

Ahmed, M.F., Ghalib, S.A. & Hasnain, S.A. (1991). The Waterfowl of Makran Coast. In Proceedings of three days National Conference on Problems and Resources of Makran Coast and Plan of Action for its Development. Karachi Zoological Survey Department.

Ahmad, N. (2002) Wildlife of Pakistan. Retrieved on 2nd April 2006 from, http://wildlifeofpakistan.com.

Ahmed, M.F., Ghalib, S.A., Iffat, F. & Hasnain, S.A. (1999) Vertebrate Biodiversity of Mangroves of Pakistan. In Proceedings of the national seminar on mangrove ecosystem dynamics of the Indus Delta, June 14-16, 1999, organised by Sindh Forest Department and The World Bank. 148-153.

Ahmad, E. (2002) Indus Delta Eco-region: An introduction. In Proceedings of consultative workshop on Indus Delta Eco-region (IDER) Dec. 16-19, 2002 Karachi, Pakistan. Published June 2004 by WWF- Pakistan, Ferozepur Road, Lahore-54600, Pakistan.

BCS -Balochistan Conservation Strategy. (2000). The Strategy prepared by Planning and Development Department Government of Balochistan with the technical assistance of IUCN-P. Retrieved from: http://www.bcs.iucnp.org.

Bjork, P. (2000) Ecotourism from conceptual perspective, an extended definition of a unique tourism form. International Journal of Tourism Research, 2: 189-202.

Ceballos-Lascurain, H. (1996). Tourism, ecotourism and protected areas. IUCN (World Conservation Union). Switzerland: Gland.

Ergin. A., Williams, A. T., Micallef, A. & Karakaya, S. T. (2002). An innovative approach to coastal scenic evaluation. In Ozhan, E. (Eds.). Beach management in the Mediterranean and Black Sea (pp. 215-226). MEDCOAST. Middle East Technical University, Ankara, Turkey.

Ergin, A., Micallef, A. & Williams, A. T. (2003). Coastal Scenic Evaluation- A pilot Study of some Dalmatian Areas. Final Report. WWF, MedPo. Rome, Italy. 109pp.
Ergin, A., Karaesmen, E., Micallef, A. & Williams, A. T. (2004) A new methodology for evaluating coastal scenery: fuzzy logic systems. *Area*, 36 (4): 367-386.

Ergin, A., Williams, A. T. & Micallef, A. (2006a) Coastal Scenery: Appreciation and Evaluation. *Journal of Coastal Research*, 22 (2): 958-964.

Ergin, A. and Williams, A. T. (2006b). Scenery and Bathing Area Registration and Evaluation of selected beaches along the coastal province of Nador, Morocco. Report Submitted to EUCC. Leiden, Netherlands.

ESCAP- Economic and Social Commission for Asia and the Pacific (1996) Coastal Environmental Management Plan for Pakistan.

Evans, N., Campbell, D., & Stonehouse, G. (2003). Strategic Management for Travel and Tourism. Burlington (MA): Elsevier Butterworth-Heinemann.

Johnson, G. & Scholes, K. (1999). Exploring Corporate Strategy. Fifth edition. 560p.

Liu, J. (1994) Pacific Islands Ecotourism: A public policy and planning guide. Pacific Business Centre Program, University of Hawaii.

Micallef, A., Morgan, R. & Williams, A. T. (1999) User preference and priorities on Maltese beaches: findings and potential importance for tourism. In: Randazzo, G. (ed.) Coastal environmental management. EUCC. Italy.

Mirza, M. I., Husain, M. Z., Akhtar, S., Ali, J. & Sanjrani, M. A. (1988). Remote sensing survey of Mangrove Forest along the coast of Balochistan. In Proceedings of International Conference on Marine Sciences of the Arabian Sea, M. F. Thompson and N. M. Tirmizi (Eds.). American Institute of Biological Sciences. pp 339-348.

Mitchell, R. K., Agle, B. R. & Wood, D. J. (1997) Towards a theory of stakeholder identification and salience: Defining the principle of who and what really counts. *The Academy of Management Review*, 22 (4): 853-886.

Morgan, R. (1996) *Beach user opinions and the development of a beach rating scale*. Un published PhD Thesis. University of Glamargon. Wales, UK. 336p.
Morgan, R. & Williams, A. T. (1995) Socio-demographic parameters and user priorities at Gower beaches, UK. In: Healy, M. G. & Doody, J. P. (Eds.) Directions in European coastal management. EUCC and Samara Publishing. Tresaith, Wales, UK. 83-90.

Ramsar Convention Bureau (2001) Pakistan designated eight new Ramsar Sites. Retrieved from: http://www.ramsar.org/wn/w.n.pakistan_eightnew.htm.

Tudor, D.T. & Williams, A. T. (2006) A rationale for beach selection by the public on the coast of Wales, UK. Area, 38(2), 153-164.

Ullah, Z., Johnson, D., Micallef, A. & Williams, A. T. (2009). Coastal scenic assessment: unlocking the potential for coastal tourism in rural Pakistan via Mediterranean developed techniques. Journal of Coastal Conservation Planning and Management. 14 (04): 285-293.

Unal, O. & Williams, A. T. (1999). Beach visits and willingness to pay: Cesmepenisula, Turkey. In Ozhan, E (Eds.) Medcoast99-EMECS99 Joint conference. Land Ocean interactions: Monitoring coastal ecosystems. MEDCOAST. Middle East Technical University. Ankara, Turkey. 1149-1162.

Weaver, D.B. (2005) Comprehensive and minimalist dimensions of ecotourism. Annals of Tourism Research, 32(2): 439-455.

Wight, P. (1993a) Ecotourism: Ethics or Eco-Sell? Journal of Travel Research, XXXI (3): 3-9.

Williams, A.T. & Micallef, A. (2009) Beach Management: Principles and Practices. London: Earthscan.
### APPENDICES:

**Appendix 1: Assessment of Locality Potential for Community-based Ecotourism**

| General Information about the locality |
|----------------------------------------|
| Name of the Locality:                  |
| Population:                            |
| Area covered:                          |
| Distance from the City:                |

| Q.1  | How many villages/communities are in the selected locality? |
|------|------------------------------------------------------------|
| A.   |                                                            |

| Q.2  | Using the locality map, identify where these villages/communities are? |
|------|------------------------------------------------------------------------|
| A.   | (Attached map)                                                         |

| Q.3  | What are the major economic activities of the communities (crops, seafood, other)? |
|------|----------------------------------------------------------------------------------|
| A.   |                                                                                   |

| Q.4  | Using the locality map, identify where each activity takes place?                |
|------|----------------------------------------------------------------------------------|
| A.   | (Attached map)                                                                   |

| Q.5  | Land tenure system of the locality?                                              |
|------|----------------------------------------------------------------------------------|
| A.   |                                                                                   |

| Q.6  | What would you like to see change in the land Tenure system?                     |
|------|----------------------------------------------------------------------------------|
| A.   |                                                                                   |

| Q.7  | As there any CBO/s working for community development?                             |
|------|----------------------------------------------------------------------------------|
| A.   | YES                                                                               |
|      | NO                                                                                |

| Q.8  | If, YES, describe their major activities?                                       |
|------|----------------------------------------------------------------------------------|
| A.   |                                                                                   |
| Q.9 | Are there any special features and/or areas of outstanding beauty in the locality? |
|-----|-----------------------------------------------------------------------------------|
| A.  | YES NO                                                                           |

| Q.10 | Using the locality map, identify and name where these sites are, and identify what feature of tourism interest it possess (e.g. scenic beauty, cultural, mangroves, turtles, birds, beaches others) |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A.   | (Attached map)                                                                                                                                  |

| Q.11 | Are there any sites that are taboo for outsiders to see/visit? If YES, please identify which sites are taboo and why? |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A.   | YES NO                                                                                                                                  |

| Q.12 | Are there any special activities/festivals that take place within the locality? Please identify these? |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A.   | YES NO                                                                                                                                  |

| Q.13 | Are there any special products, arts and crafts product in the locality? |
|------|--------------------------------------------------------------------------|
| A.   | YES NO                                                                   |

| Q.14 | If, YES, please describe some of these special product, arts and crafts? |
|------|-------------------------------------------------------------------------|
| A.   |                                                                 |

| Q.15 | From where do you get your fresh water? |
|------|----------------------------------------|
| A.   |                                         |

| Q.16 | What do you do with the sewage/wastewater? |
|------|--------------------------------------------|
| A.   |                                            |

| Q.17 | What do you do with your solid waste? Is there a collection services? |
|------|-----------------------------------------------------------------------|
| A.   | YES NO                                                                 |

| Q.18 | What is/are your main fuel source/s for cooking and lighting? |
|------|----------------------------------------------------------------|
| A.   |                                                             |
### Tourism Trend in the Locality

| Q.19 | Has there been any tourism in the locality in the past? |
|------|-------------------------------------------------------|
| A.   | YES                                                   |
|      | NO                                                    |

| Q.20 | If YES, please explain the types of activities? |
|------|--------------------------------------------------|
| A.   |                                                   |

| Q.21 | Do you feel that this past tourism had a positive or negative effect on the locality and its communities? Please explain how/why the experience was like that? |
|------|-------------------------------------------------------------------------------------------------------------------------------------|
| A.   | POSITIVE                                                                 |
|      | NEGATIVE                                                                |

| Q.22 | Are there any tourism activities in the locality at present? If YES, please list what activities are taking place? |
|------|------------------------------------------------------------------------------------------------------------------|
| A.   | YES                                                                                                               |
|      | NO                                                                                                               |

| Q.23 | What infrastructure/capital works are needed to develop the locality as tourism destination? |
|------|------------------------------------------------------------------------------------------------------------------|
| A.   |                                                                                                                  |

### Appendix 2: Regional tourism attractions of the study sites *(Source: Original)*

- Archaeological Sites in proximity
- Gawadar city
- Akara Dam
- Gwatar Bay
- Hure-e-Bah
d- Ramsar site, Iran

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### JIWANI PASNI ASTOLA

- Hingol National Park
- Kirthar National Park
- Bhira cultural community
- Annual cultural festival in Sonmiani
- Archaeological sites at Balakot
- Sirandar Lake (fresh water)

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### MIANI HOR

- Socio-cultural & Religious attractions of Astola
- Mud volcanoes at Ormara
- Turtle nesting beaches at Ormara
- Gawadar city
- Balochi culture
- Ras Jadi Jabal
- Zairin & Kalnut Khor Wetlands
### Appendix 3. Summary of plants and animal species reported in the studied localities (Source: Original)

| Locality | Faunal Diversity | Florals Diversity |
|----------|------------------|-------------------|
|          | Birds            | Mammals           | Reptiles | Corals | Mangroves | Other Sp. |
| Jiwani   | Birds            | Mammals           | Reptiles | Corals | Mangroves | Other Sp. |
|          | Major Sp.        | Major Sp.         | Major Sp. | Major Sp. | Major Sp. | Major Sp. |
|          | Sp. No.          | Sp. No.           | Sp. No.  | Sp. No. | Sp. No.   | Sp. No.   |
| 112      | Houbara bustard, pelicans, flamingos, waders, gulls, terns, see-see partridge, sandgrouse, Larks, wallows, shrike, wagtail, wheater, and birds of prey (falcon) etc. | - | Plumbearous dolphin, black finless porpoises and whales\(^1\) | 30 | Green turtles (Chelonia mydas), and Olive Ridley turtles (Lepidochelys olivacea)\(^1\) | - | Corals reported, species not investigated | 0 | Avicennia marina | - |
| 83\(^3\) | Flamingos, pelicans, little ringed plovers, sanderlings, curlews, sandpipers, turnstones and osprey etc | 2\(^4\) | Sousa plumbea, Tursiops truncates | - | - | 0 | 3 | Avicennia marina, Rhizophora macronata, and Ceriopstagal | - |

\(^1\) Corals reported, species not investigated

\(^2\) Salsalabaryosma, Abution indicum, Cressacreta, Helitroplum undulatum, Tamarix Spp, Acacia senegal, A. nilotica, Polycarpacorymbos a, Atriplex griffithsiib
| PASNI (ASTOLA) | ARDEACINERIA, EGRETATULARIS, PLUVALISSQUATAROLA, NUMENIASARQUATA, LIMOSALIMOSA, CALIDRIS MINUTES, GALERIDACRISTATA, OENANTHEDESERTI, PRINIASP. ETC. | - | ECHISCARNINATUSASTOLI (ENDEMIC), EUMECESSCHENEIDERL, EREMIAS SP., GREEN TURTLES, HAWKSBILL TURTLES | - | CORALS REPORTED (SPECIES NOT IDENTIFIED) | - | - |

* Hasnain et al. 2004  
2 Ghalib et al. (1979)  
3 Ahmad et al. 1999  
4 WWF (2004)  
5 United Nations, 1996  
6 Khurshaid et al. 1995  
7 Qureshi and Kazi (2001)