


# Identification of Natural Resources and Features for Ecotourism Purposes in the Kelantan Delta Area, Malaysia

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**Abstract:** The aim of this research is to identify the natural resources and features in the Kelantan Delta area with regard to the suitability for ecotourism. This delta is famous for its mangrove forest and its natural beauty as the habitat of some natural resources. It is not only a considerable ecotourism area for people who live in Tumpat district and Kota Bharu district, where the delta is located, but also for people who living in other districts in the state of Kelantan, people from other states in Malaysia and tourists from overseas as well. Field observation was carried out in some islands of the delta to identify the natural resources and features of the area. The study clearly shows that the mangrove forest is the main attraction of the delta. Other resources and features also support the area to be promoted as an ecotourism site such as the diversity of flora and fauna, rivers, and delta environment.

**Keywords:** Ecotourism, natural resources and features, the Kelantan Delta, mangrove forest, Kelantan.

**Introduction:** Ecotourism has been growing rapidly over the last decades. However, it is not easy to identify clearly what ecotourism is. There are actually various definitions of the term. While the term was first heard in the 1980s, the first broadly accepted and valid definition was established by The International Ecotourism Society (TIES, 1990) that defined ecotourism as “responsible travel to natural areas that conserves the environment and improves the well-being of local people.”

Based on that definition, we can highlight three important things in ecotourism. Firstly, *responsible/sustainable travel*, which means ecotourism includes programs that minimize the negative aspects of conventional tourism on the environment and enhance the cultural integrity of local people. Secondly, *conservation*, which means that ecotourism provides effective economic incentives for conserving and enhancing biodiversity and helps protect the natural and cultural heritage of our areas. Lastly, *community*, which means that ecotourism is an effective vehicle

for empowering local communities around the world to fight against poverty and to achieve sustainable development.

Ecotourism is a sub-component of the field of sustainable tourism. Ecotourism began as an idea that many hoped could contribute to the conservation of natural resources worldwide. The prime motivation in ecotourism is the observation and appreciation of natural features and related cultural assets (Wood, 2002). Cristina (2004) stated that several objectives of ecotourism are learning, studying or participating in activities that do not bring negative effects to the environment; whilst protecting and empowering the local community socially and economically.

The Kelantan Delta is the one and only delta in the state of Kelantan, Malaysia. This delta is covered geologically by the unconsolidated sediments of alluvial plains (Quaternary deposits, composed of sand, silt and clay). It is famous for its mangrove forests and its natural beauty as the habitat of some



natural resources. It will be gazetted as a potential ecotourism site in Kelantan. This study was conducted to identify the natural resources and features in the Kelantan Delta area with regard to the suitability for ecotourism.

### **Ecotourism in Malaysia and Kelantan**

According Marker et. al. (2008), the tourism industry in Malaysia has been developing since the 1970s and in the 1980s the government made its first strategic policy on tourism. In 1999 the successful brand "Malaysia Truly Asia" was launched to position Malaysia as a major destination in the region. For ecotourism, Malaysia has many potential destinations. It is blessed with a variety of ecosystems such as tropical rain forests, mangroves, swamps, mountains, limestone, caves, and so on. Some famous places in Malaysia have been known that promote ecotourism, such as the Danum Valley and Mount Kinabalu in Sabah, Endau-Rompin State Park in Johor and many more.

Malaysian government has been pursuing ecotourism since the mid-nineties. The development of government policies on ecotourism is set up in the following policies:

1. The National Ecotourism Plan 1995, which identifies 52 potential sites for ecotourism in Malaysia and suggests that Malaysia has a great potential for ecotourism. It further identifies a number of policies that the government can undertake to strengthen the industry.
2. Seventh Malaysia Plan 1996-2000, which intends to let the private sector implement the bulk of the National Ecotourism Plan.
3. Eighth Malaysia Plan 2001-2005, for which the government stepped up its efforts in ecotourism. It wanted to provide policy guidelines for sustainable development, make sure that products offered match the changing demand and by promoting Malaysia as an ecotourism destination.
4. Ninth Malaysia Plan 2006-2010, under which the government seems to increase its efforts on ecotourism and sustainable travel. The government also plans to upgrade and make more ecotourism activities and facilities available.
5. Government promotion, by which the government promotes Malaysia as an ecotourism destination..

The state of Kelantan has a lot to offer for ecotourism as it has many natural resources and features like flora and fauna diversity, hills, caves, waterfalls, and dense jungles. There are several ecotourism sites that have been developed. The Gunung Stong State Park (GSSP), located in the

centre of Kelantan, is listed in the National Ecotourism Plan as one of the top 10 special places for ecotourism. The state park is a forested area, totalling 21,950 ha with several prominent mountain peaks. The Kuala Koh National Park, located in the south eastern of Kelantan and a part of the Peninsular National Park, is the only official entry point in the state of Kelantan to *Taman Negara*. The Kuala Koh National Park is covering 4343 sq km which includes the state of Kelantan, Terengganu and Pahang. It is home to many unique species of flora and fauna.

Although ecotourism have some advantages for conservation and development of natural heritages, but lack of the attention on tourism development, lack of the experience on ecotourism planning and finance problem are amongst the significant constraints for ecotourism development in Kelantan.

### **MATERIALS AND METHODS**

Materials of the research include map, satellite imagery, photographs and literatures related to ecotourism and the study area. Methods comprise office and field stages. At the office stage, map, satellite imagery and literatures were collected. At the field stage, field trip was performed in some islands of the delta to identify the natural resources and features of the area and to take photographs.

### **OVERVIEW OF THE KELANTAN DELTA**

The study was carried out at the Kelantan Delta, the one and only delta in the state of Kelantan. The delta is located on the east coast and in the north easternmost of Peninsular Malaysia, within the area of two districts in Kelantan, Tumpat and Kota Bharu (Figure 1). The delta is located between latitudes of 06° 11"N and 06° 13"N and longitude of 102° 10"E and 102° 14"E with the total area is approximately 1,200 ha. The area range from the estuary of the Kelantan Delta until the Seri Tujuh beach in Tumpat. There are around 48 islands in the area. Among the islands are Timun island, Tongkang island, Tok Fakir island, Gagak island, Che Soh island, Chik Lah island, Rulah island, Ekor Che Tahir island, Seratus island, Beluru island, Renjuna island, Doljah island, Terendak island, Suri island, Haji Nik Mat island, Besar island, Kecil island, and some more. In this paper, the natural resources and features of the Kelantan Delta were identified with regard for ecotourism purposes.

According to Kamal Roslan Mohamed et. al. (1997), the Kelantan Delta is exposed to the strong waves, particularly during the annual monsoonal season (November to February). The present-day

Kelantan Delta is influenced by the tide as shown by the dominance of well-developed mangroves in

muddy estuaries together with small distributary channels.

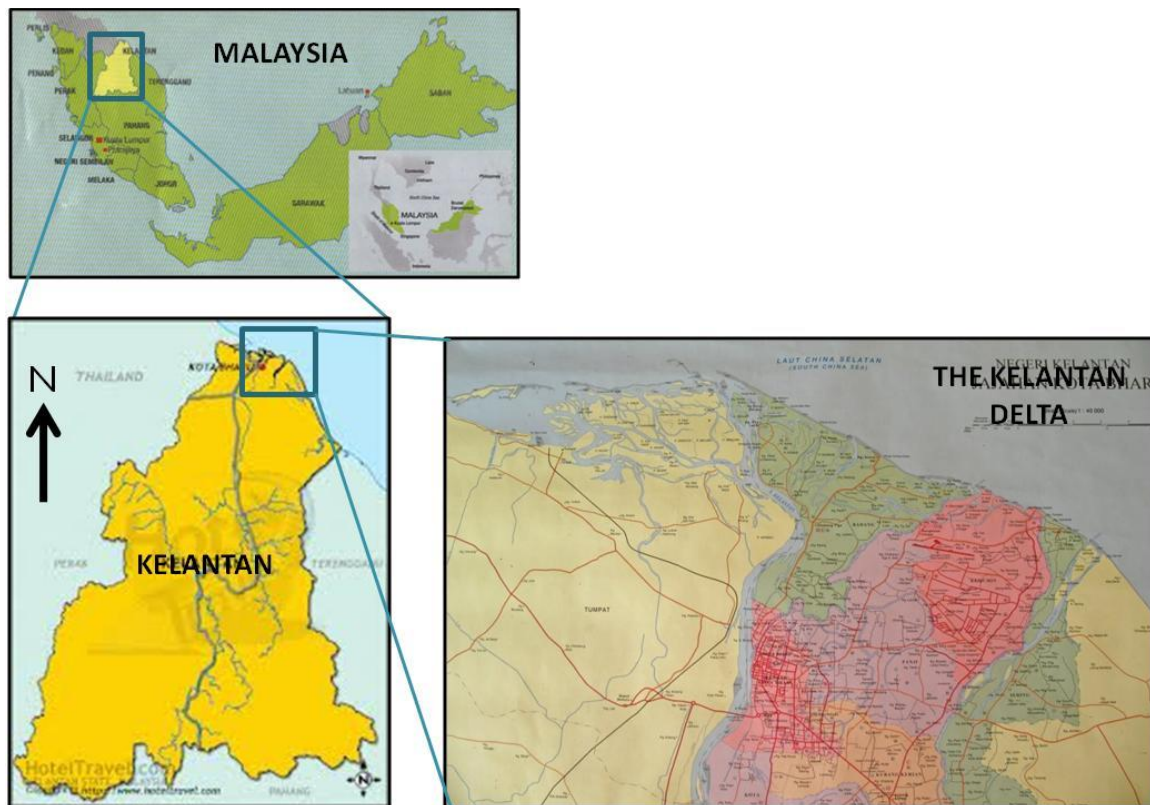


Figure 1. Map of the study area

### Natural Resources and Features of the Kelantan Delta

The Kelantan Delta area is assumed as a suitable place to establish an ecotourism site as there are biodiversity and geodiversity in the area. Tourists are willing to enjoy and experience the natural resources and features of the area. All these resources and features make it home to a wealth of ecosystems which should be well protected and preserved. These ecosystems have become the major resources for ecotourism in the area, they are:

#### 1. Mangrove Forests

Mangroves are supposed to become the primary attraction in the Kelantan Delta. Compared to the west coast of Peninsular Malaysia (mangrove extent is 91,177 ha = 16%), mangroves in the east coast is only 5,738 ha (1%), which is entirely exposed to the South China Sea. In Malaysia, mangroves occupy 564,606 ha area (Shamsudin and Nasir, 2005). Mangrove forests in the Kelantan Delta (Figure 2), called the Kelantan Delta Mangrove Forest (KDMF), experience run-off due to seasonal rainfall and offshore currents northerly and southerly that regularly modify the coastal morphological conditions in this area (Mohd. Suffian et al., 2004)



Figure 2 Mangrove forest in one island in the Kelantan Delta area

In the area, mangroves have the vast diversity of flora and fauna with 17 islands all around the area. The speciality of mangroves is of its environmental benefits and to the society especially as a barrier to strong winds, waves, and water currents. They also prevent saltwater from intruding into rivers as the tree roots have special sap where it can absorb salt into the tree bark. Mangroves can also retain, concentrate and recycle nutrients and remove toxicants through a natural filtering process. These trees are tough and they provide resources for coastal communities who depend on the plants for timber, fuel, food, medicinal herbs and other products. The bottom of the trees is an important breeding ground for many fishes, crabs, prawns and other marine animals. Mangrove forests has been utilized traditionally for different purposes including construction woods, fuel woods, raw

materials for the wood-based industry, etc (Mallar, 2012).

## 2. Plants (Flora) Diversity

The main role of the forest is the habitat of rich biodiversity of flora and fauna. Another prominent plant in the area is coconut (*Cocos nucifera*) trees. Main flora existing in this area are ketapang (*Terminia catappa*), leban (*Vitex pubescens*), bebaru (*Hibiscus tiliaceus*), jeruju (*Acrostichum speciosum*), pi ai raya (*Acrostichum aureum*), pi ai lasa (*Acrotichum speciosum*), api-api putih (*Avicennia alba*), nipah (*Nypa frutican*), bakau minyak (*Rhizophora apiculata*), tumu (*Bruguiera sp.*), berembang (*Sonneratia caseolaris*) and pepanjat (*Derris trifolata*) (Mallar, 2012). Figure 3 shows the diversity of flora in the area.

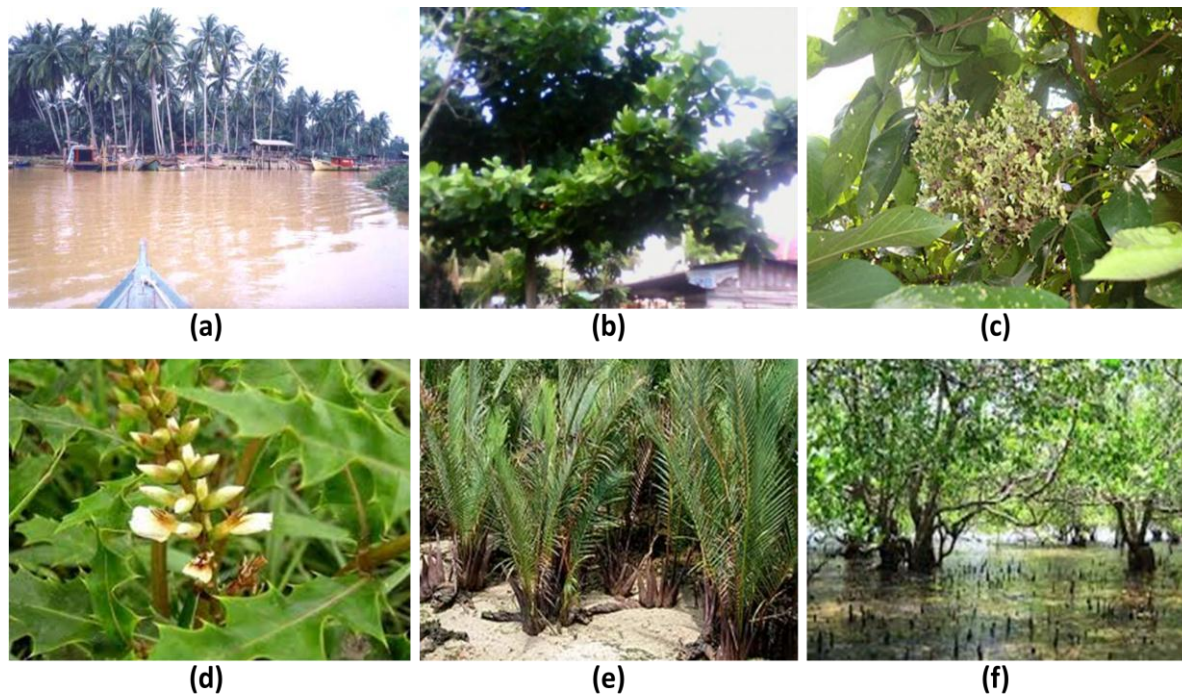


Figure 3. Some plants (flora) found in the Kelantan Delta area: (a) Coconut (*Cocos nucifera*); (b) Ketapang (*Terminia catappa*); (c) Leban (*Vitex pubescens*); (d) Jeruju (*Acrostichum speciosum*); (e) Nipah (*Nypa fruticans*); (f) Berembang (*Sonneratia caseolaris*).

### 3. Animals (Fauna) Diversity

There are various species of fish we can find in the rivers there: white seabass (*Cynoscion nobilis*), red fish species, grouper species, white pomfret fish (*Pampus Argenteus*), etc. There are also three groups of birds in this area: mangrove pitta (*Pitta megarhyncha*), mangrove blue flycatcher (*Cyornis rufigastra*), and greater golden backed woodpecker (*Chrysocolaptes lucidus*). Migratory birds are also

visible in this habitat such as great egret (*Ardea alba*), little egret (*Egretta garzetta*), little heron (*Butorides striatus*), osprey (*Pandion haliaetus*), pheasant tailed jacana (*Hydrophasianus chirurgus*), wood sandpiper (*Tringa glareola*), and common sandpiper (*Actitis hypoleucos*). Other dominant animals are reptiles in the mangrove swamps and crustaceans (Mallar, 2012). The diversity of fauna in the area is shown in Figure 4.

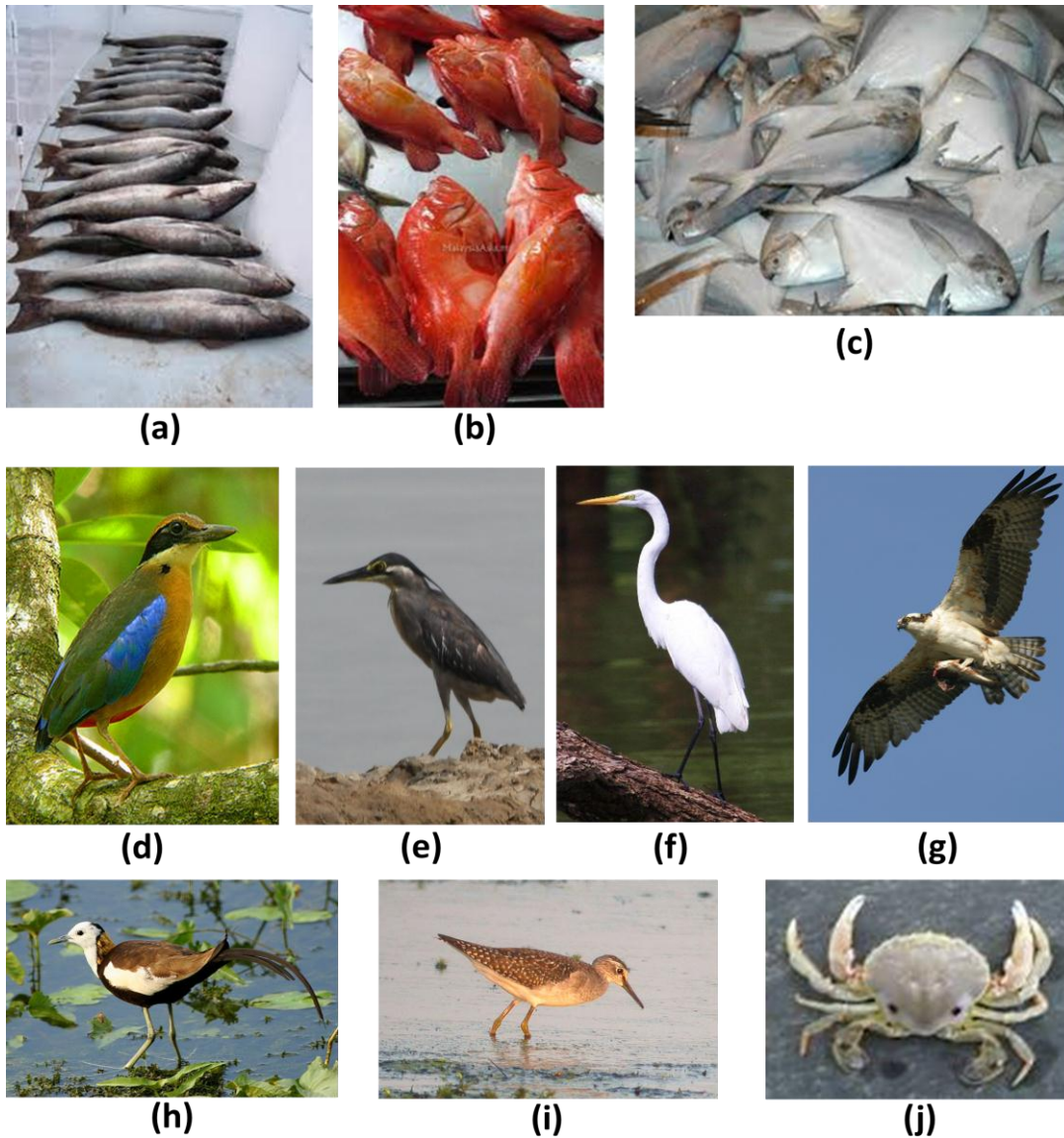


Figure 4. The diversity of fauna living in the area: (a) White seabass (*Cynoscion nobilis*); (b) Redfish; (c) White pomfret fish (*Pampus Argenteus*); (d) Mangrove pitta (*Pitta megarhyncha*); (e) Little heron (*Butorides striatus*); (f) Great egret (*Ardea alba*); (g) Osprey (*Pandion haliaetus*); (h) Pheasant tailed jacana (*Hydrophasianus chirurgus*); (i) Wood sandpiper (*Tringa glareola*); and (j) Crustacean.

#### 4. Distributary Channels (Rivers)

The water body or rivers in the Kelantan Delta area (Figure 5) in between the 48 islands are among the prominent attractions that would attract tourists to the area. Some people are fond of the rivers especially the mode of transport is only the boat

(Figure 6). Even from island to island the river passage is calm and tranquil giving a harmonious environment. Rivers in this delta are so rich of fish and clams that many fishermen live there by fishing every day in the rivers.



Figure 5 Distributary channels (rivers) in the Kelantan Delta area.  
(Source: <http://www.skyscrapercity.com/showthread.php?t=252167&page=154>)



Figure 6 Boat is the only transport in cruising rivers of the delta area. Boating is the most attractive activity for tourist in the area.

### 5. Delta Environment

The Kelantan Delta is unique where it has definitely contributed a big amount to the study of soil, estuarine water, mangroves, and the mangrove forest ecosystem. However, it also plays a major role in tourism and conservation efforts. From the satellite image, we can know that the Kelantan

Delta (Figure 7) is one of the essential shoreline forested areas (the green colour in the image of the delta shows dominantly mangrove forests) which contribute to the economic, social, ecology and surrounding environments. The main reason to visit this delta is for recreation or relaxation purpose (Mallar, 2012).



Figure 7 Satellite imagery of the Kelantan Delta area

The ecosystem in this delta is underlain by alluvial plains, which eventually has made up into islands. Initially it was a bare land without any mangroves and forests, however, the plants were introduced in 2000. The area is composed of sand sedimentation due to sediment influx from the main river (the Kelantan River) and the strong wave from the sea (the South China Sea) making up a depositional coastal environment. This area may consist of brackish water and saline water, and more sea water will penetrate the area during the high tide level.

### Conclusions

There is a wide potential of the Kelantan Delta area to become an ecotourism site. The potential of ecotourism development in the area is mainly based on its natural resources and features, such as mangrove forests, diversity of flora and fauna, rivers, and delta environment. It is believed that there are some factors which support and influence ecotourism development there, such as environment, socio-culture, economic condition, and infrastructures. However, another important factor is local community empowerment. Putting ecotourism on a truly sustainable path is a major challenge, requiring partnership and cooperation. Local communities or villagers have to play important rule in the area, working together and collaborate with some parties, such as researchers/academics, authorities, private sectors (developers, operators, and so on), and visitors (ecotourists). Improving condition and infrastructures in the area and good management and planning are very important to develop the delta.

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