



THE OPEN UNIVERSITY OF SRI LANKA

M.Sc. In Environmental Sciences Level 08 (2017)

NEP -2214/2202 Biodiversity Conservation and Management
Final Examination 2017

Date: 11th November 2017

Time.13.30hrs to -16.30 hrs

Answer any four (04) questions

Question 1

Discuss the option available for the conservation of biodiversity in Sri Lanka.

Question 2

You have been given an article on sea food by a friend. This leaflet states that “ sea cucumbers are used in fresh or dried form in various cuisines (food). In some cultural contexts the sea cucumber is thought to have medicinal value. The creature and the food product are commonly known as *bêche-de-mer* in French. Most cultures in East and southeast Asia regard sea cucumbers as a delicacy. A number of dishes are made with sea cucumber, and in most dishes it has a slippery texture. Common ingredients that go with sea cucumber dishes include melons, mushrooms and Chinese cabbage.”

- (1) Your friend wants to know what is meant by a sea cucumber. Explain to what Phylum this organism belongs, and where it would be found naturally.
- (2) Give 3 salient features of this Phylum and explain its diversity giving examples of the best known 5 classes.
- (3) A restaurant in Paris services Chinese cabbage with grilled sea cucumber. What two Kingdoms would be represented on the plate of a customer ordering this dish?
- (4) To which of the following ‘Classes’ could a sea cucumber belong? Underline 1 answer only.
- (5) Which type of ‘resource use’ is given as examples in the paragraph above? (answer in one sentence)
- (6) Select the main biodiversity value/s of the marine molluscs mentioned in the paragraph above from the following and explain your choice:
(a) Direct Extractive use value (b) Indirect use value (c) Optional use value
(d) Aesthetic value. (e) Bequest value
- (7) State the industry in Sri Lanka that uses sea cucumber, (b) What type of resources use does this industry provide?

Question 3

You have been given a leaflet by a friend. This leaflet states that:

Chemical weapons with potential for bioprospecting in the biological gold rush . . .

Unlike bioprospecting on land, marine bioprospecting is a relatively new phenomenon. Some estimates, however, suggest that the probability of discovering a drug from marine resources is approximately a thousand times more than that from terrestrial ones. It is therefore not surprising that many pharmaceutical and biotech companies worldwide are keen to open the new-found marine medicine chest. This growing interest in marine bioresources raises questions about access rights and benefit sharing, already contentious issues between the North and the South in land-based bioprospecting. For although the oceans cover nearly 70 per cent of the earth's surface, their biodiversity is concentrated in tropical seas, and mostly within the shallow territorial waters and Exclusive Economic Zones (EEZs) of what tend to be developing countries.

Many of the drug molecules such as ara-c, trabectedin and eribulin have been discovered from marine organisms. It is noteworthy that indigenous communities have developed, preserved as well as evolved the marine traditional knowledge from one generation to next. Pharmaceutical companies utilize marine life based traditional knowledge developed by the communities at various stages of drug development, unfortunately, many a times without having a mechanism of access and benefit sharing in place.

1. Your friend wants to know what is meant by a marine resource in this paragraph. Explain in one paragraph indicating its link to biodiversity
2. Which type of bio-resource use is **exemplified** in the paragraph above? (answer in one sentence)
3. Select the main value/s of the resources mentioned in the paragraph above from the following and explain your choice:
 - (b) Indirect use value
 - © Optional use value
 - (d) Ethical value.
 - (e) Bequest value
4. (a) Which is the most relevant article of the CBD in terms of bioprospecting by a developed country party to the CBD in the territorial sea of a developing country party?
 - (b) What sub-article describes ownership of the genetic resources? What does it mean in terms of ownership?
 - (c) What are the conditions that are imposed on the developed country to assist the country of origin?
 - (d) What is the main benefit expected of this article? Explain in one sentence.
 - (e) How can this article ensure that traditional knowledge is included in benefit sharing from marine bio-prospecting?

Question 4

“Fuelled by the post war tourism boom, visitor numbers to The Ruhunu National Park (Yala) has been growing rapidly. In 2011, Yala had close upon 99,000 foreign visitors and 217,000 local visitors. The total visitation is said to have exceeded 500,000 in 2012. It is also estimated that there are over 250 jeep drivers operating in the Yala area, most of whom have no experience nor interest in wildlife, but have gone into the business to make money. Profit margins are high, with a single safari driver earning Rs. 4,000-Rs. 5,000 per safari, of approximately three hours, together with ‘handsome tips’ for a unique sighting, particularly leopards”

1. To what IUCN category of Protected Area does Yala belong to?
2. What are the salient features such a protected area category?
3. Write very briefly about the kind of tourism reported in the paragraph above. Explain whether this can be categorized as nature tourism, adventure tourism, sustainable tourism or ecotourism? Explain the differences in these tourism approaches, using visitation patterns at Yala in the above paragraph. Indicate the common misconceptions associated with the term Ecotourism. What are the key differences between ecotourism and other forms of nature tourism.

Question 5

“We depend on forests for our survival, from the air we breathe to the food and wood we use. Besides providing habitats for animals and livelihoods for humans including nature based tourists, forests also offer watershed protection, prevent soil erosion and mitigate climate change. Climate influences the structure and function of forest ecosystems and plays an essential role in forest health. A changing climate may, however, worsen many of the existing threats to forests, such as pest outbreaks, fires, and drought.”

(1) Define and briefly discuss extractive and non-extractive uses of biodiversity, using examples from the above paragraph.

(2) Define and briefly discuss the difference between direct and indirect values of biodiversity using examples from forests gained from the above paragraph.

(3) What is the threat to global forest biodiversity that is the subject of this paragraph that would also increase other threats?

(4) What type of biome from among the following would be affected mostly by timber felling?: (a) Tropical rainforests (b) hot deserts (3) Savannah (4) arctic Tundra. Explain your choice in one sentence.

(5) What type of biome in the above is already known to be affected most by climate change:?

(a) Tropical rainforests (2) Savannah (3) Hot desert (4) Arctic Tundra. Explain your choice in one sentence.

Question 6

The manager of a Forest Reserve in Sri Lanka is preparing a communication strategy to reduce poaching by local hunters and encourage more national visitors to his reserve. The local poachers are economically deprived and hunt deer in the reserve for sale of flesh to visitors to the area. The reserve is rated high in terms of scenic beauty and large charismatic animal species. Several articles appeared in the national newspapers, a beautiful film about the reserve (produced by a reputed foreign media company) was shown on national television, several radio broadcasts and interviews with reserve staff and university academics about the reserve were relayed. The Manager gave a public lecture at an event organised by an NGO located in Colombo. Many people became interested in the reserve as a result and a large number of people telephoned the reserve office during the next few days to get more information and to inquire about ticket bookings. However, two out of three of the telephone lines provided in the newspaper articles (and also provided by the staff member at the lecture) were not functioning.

Based on the information given above,

- (a) What major errors have been committed by the manager in terms of following these steps as seen from the above paragraph?
- (b) Who should be the main target groups that should be addressed in the communication strategy?
- (c) What is the main mode of communication used by the protected area manager to popularise his park among local people? (i.e. was it interactive or instrumental, explain).
- (d) What aspect of the communication exercise was successful? What aspects of communication have been neglected?
- (f) Will the communication means used by the manager stop local poachers from hunting deer in the reserve? What other instruments could be used to stem this problem here and what role has communication to create a behavioural change? Analyse the situation and present your recommendations using the available data.
- (e) Present a brief outline of a better communication strategy that you would prepare using the steps to communication planning based on the available data.