

The Impact Tourism Activities on Ecosystem

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Abstract

An ecosystem includes the physical or abiotic environment in addition to the biological component. Ecosystems integrity refers to the soundness or completeness of the system and its existence in a state of being whole and unimpaired. The integrity of both the system structure and function, a maintenance of system component, interactions among them and the resultant dynamic of the ecosystem are implied.

Ecosystems are extremely complex entities that offer an untold number tourism opportunities. Some of these opportunities will invariably conflict. Even tourists who come purely to enjoy the natural world will cause ecosystem impact.

The impact tourism activities on ecosystem such as (a) the construction of road can affect wild species in a variety of ways, (b) more risks face species with no inhibitions about approaching or crossing roads, (c) excessive algae growths in land water enriched by sewage effluents, and Sewage discharge and coral reefs.

Keywords: The impact, Tourism activities, Ecosystem

Abstrak

Suatu ekosistem termasuk didalamnya lingkungan fisik atau abiotik sebagai bagian dari komponen biologi. Integritas ekosistem termasuk kekurangan atau kelengkapan sistem dan eksistensi semuanya. Integritas baik struktur sistem maupun fungsi sistem berperan memelihara komponen sistem, interaksi di antaranya dan dinamika ekosistem beserta terapannya.

Ekosistem adalah entitas kompleks ekstrim lebih dari sekadar banyaknya peluang pariwisata. Hal ini menimbulkan berbagai konflik. Wisatawan yang tiba menikmati alam dengan senang, yang pada akhirnya dapat memberikan dampak terhadap ekosistem.

Dampak aktifitas pariwisata antara lain (a) konstruksi jalan dapat mempengaruhi spesies liar dalam berbagai keragaman, (b) lebih banyak menimbulkan risiko pada spesies permukaan dengan cara mencegah melintasi jalan, dan (c) tumbuhnya alga secara berlebihan akibat dari lahan perairan yang diperkaya oleh effluent dan penurunan saluran serta batu karang.

Kata kunci: Dampak, Aktifitas pariwisata, Ekosistem

1.Introduction

An ecosystem is more of a concept than a real, physical entity. Tansley first formally proposed the term ecosystem with regard to a single location as “not only the organism complex, but the whole complex of physical factors forming what we call the environment (Tansley in Campbell, 1997 p-48-49). Another view of an ecosystem is as a system, that is collection of interacting component and their interaction that includes ecological component. A key idea is that an ecosystem includes the physical or abiotic environment in addition to the biological component.

Ecosystems have six major (Kimmins, 1987: p.64) such as (1) structure, which is composition and arrangement or the distribution of matter and energy among the biotic and abiotic subcomponent, (2) function, which is the integrated holistic dynamics which result from a constant exchange of matter and energy between the physical environment and the living community, (3) complexity, with result from a high level of biological integration and may occur at several hierarchical levels, (4) interaction and interdependency among the various living and nonliving component will result in a change in other component, (5) spatial boundaries and scales that are diffuse and multitiered, and (6) temporal change, which inherent in ecological systems and can result in change in an ecosystems entire structure and function given enough time.

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2.Tourism Typology

Nelson, Butler and Wall (1993, p.49-51) shown four element tourism typology : (1) attraction type (2) location (3) spatial characteristics and (4) development status.

Attraction type can be identified: cultural, natural and recreational. It is suggested that the cultural sites, many of which religious significance, and natural sites are particularly sensitive to use by tourists and can only sustain low density developments when compared with recreation sites, such as many beaches, which can sustain higher levels of use.

Location. It is useful to divide the island into two main types of location: the interior and coast. In line with Balinese cosmography, which is oriented to the

interior rather than the coast, the inland sites tend to be locations with especially valuable cultural and natural resources which can only sustain low density development. The coast, although also containing valuable cultural and natural sites, is the location of beaches which are, predominantly, a recreational resource which is capable of being developed to a higher density interior.

Spatial characteristic. Three spatial configurations of tourism resources can be identified: nodal resources, linear resources, and extensive resources. Nodal resources are specific sites, such as waterfalls and viewpoints, which draw tourists to particular localized places. Because they attract large numbers of tourists to a small area they have a high potential for commercial development. Places can very easily be overdeveloped for tourism.

Linear resources, such as coast and excursion routes, also have considerable commercial potential and they may have more resilience than many nodal resources. However, there is always a danger of resource deterioration through uninterrupted linear development. The strategy here may be to concentrate development in a series of developed nodes connected by relatively underdeveloped links.

Extensive resources are often natural areas, such as national parks, and they may also be cultural landscapes such as the magnificent sawah (irrigated rice field) of Bali. Such areas attract tourists but they are fragile resources which cannot readily cater to large numbers of visitors.

Development status. In highly developed situations, new development should be limited. Emphasis should be placed on remedial actions for degraded sites and upgrading infrastructure. In developed areas, judicious infilling may be acceptable but with care being taken to avoid the creation of unbroken linear development as discussed above.

3. Impact tourism activities on ecosystem

The impact of tourists on ecosystems are not limited to the occasions when they are taking part in some specific recreational activity. Tourists staying for any length of time in an area require support facilities in the form of residential accommodation, roads and parks, water supplies and waste disposal facilities. Any review of the impact of tourism would be incomplete without some consideration of the environmental consequences of providing these facilities.

a) The ecological impact of roads

Roads as barriers

The Construction of road can affect wild species in a variety of ways. Example in observation from the Kruger National Park in South Africa have shown that roads on embankments can act as barriers to young animals (Pienaar, 1968: p.169-174).

Even roads without embankments represent a major barrier for some species. Mader (1984: p.81-96) has shown that some of the smaller forest-dwelling species such as the yellow-necked mouse (*Apodemus flavicollis*) are reluctant to cross roads even though they regularly travel comparable distances in other directions. This inhibition was found to apply not only to main highways but also to a lesser extent to minor roads and even forest roads closed to the general public.

The opinions are divided as to the biological implications of this road-avoidance behavior. It has been suggested that it restricts the exchange of genetic materials within animals population concerned and would therefore limit its capacity to adapt to environmental change.

Road mortality

More risks face species with no inhibitions about approaching or crossing roads. These face the real hazard of being killed or injured by passing vehicle. In the Kruger Park night-driving vehicles frequently kill scrub hares (*Lepus saxatilis*) feeding on the short grasses which flourish in the moist furrows at the roads edge (Pienaar, 1968)

Disorientation of marine turtles

A less obvious road-related problem arises in relation to the breeding activities of marine turtle. As must now be widely known from television film, many species of marine turtles lay their eggs in laboriously excavated nest situated above the tide line on sandy beaches. After about two months of development, the young turtles hatch from egg, emerge on the sand surface and make their way down to the sea.

2) Environmental problems associated with waste-disposal practices at tourist resort

A quite different set of problems can arise if sufficient attention is given to the disposal of organic wastes from tourist areas.

Excessive algae growths in land water enriched by sewage effluents

The most significant nuisance involving plant comes from the excessive growth of algae which develop in recreational waters enriched by sewage effluent. The commonly used means of sewage treatment, involving primary and secondary stages, is not sufficient to remove nutrients which stimulate plant growth from the final effluent. These effluent may contain as much as 8mg/litre of phosphate-phosphorus and 20 mg/liter of inorganic nitrogen. The comparable values for unpolluted lake water are of the order of 0.01 and 0.10 mg/litre respectively (Eddington and Edington,

1986, p.172). Nutrient-rich discharges into enclosed water bodies can stimulate algal growth to such an extent as to seriously disrupt recreational activities.

Sewage discharge and coral reefs

Similar problems associated with sewage effluent have arisen on some coral reefs, particularly reefs in bays where tidal movement is limited. On the Hawaiian island of Oahu the discharge of partially treated sewage effluent into Kaneohe Bay stimulated the growth of the alga *Dictyosphaeria cavernosa* to such an extent that it has overgrown and killed large sections of the reefs (Johannes, 1971, 1975). Corals are filter-feeding animals whose nutrition depends partly on suspended organic particles obtained from water, and partly on carbon compounds derived from small plant cells (zooxanthellae) which live in the animals' tissues.

The generation of coral reefs at a tourist resort can have many ramifications. Not only does it deny visitors the opportunity to explore a unique type of biological community, it may also increase the vulnerability of the beach to storm damage. Fringing coral reefs have rightly been described as self-repairing breakwaters, capable of dissipating wave forces equivalent to many thousands of horsepower.

4. Conclusion

Ecosystems are extremely complex entities that offer an untold number of tourism opportunities. Some of these opportunities will invariably conflict. Even tourists who come purely to enjoy the natural world will cause ecosystem impact.

The impact of tourism activities on ecosystems such as (a) the construction of roads can affect wild species in a variety of ways, (b) more risks are faced by species with no inhibitions about approaching or crossing roads, (c) excessive algae growths in land water enriched by sewage effluents, and Sewage discharge and coral reefs.

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