



The Management Strategies of Ecotourism Development in Papua New Guinea

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Abstract

This paper focuses on the major tourism infrastructures that contribute for the development of ecotourism in Papua New Guinea. In recent years, tourist arrivals to remote and natural areas are perpetual. The purpose of visit seems to be enjoying, admiring and studying the natural environment and appreciating the cultural values of the areas. The impact of tourism is experienced in the economical, environmental, social and cultural aspects. The tourism policies and programs of the national and local governments minimize the negative impacts of conventional tourism in an effort to protect the ecosystem and empower local community. The transportation, accommodation, restaurant and tourists activities are vital for the development of tourism both at the primary and secondary destinations. The overuse and misuse of the infrastructure over the years may have adverse effect on the environment. It causes the depletion of natural resources available for the tourists targeting the undisturbed scenery and wild life. This may affect tourism market and significantly the national economy. The principle management strategies recommended for the development of ecotourism in Papua New Guinea are the promotion of low carbon emitting vehicles at the tourists' destinations; encouraging hotels and restaurants to supply environmentally friendly products and services; and supporting tourists' activities that do not harm the native species, soil formation, coastal environment and natural attractions.

Keywords: Ecotourism, natural environment, tourists, destinations.

1. Introduction

The International Ecotourism Society defines ecotourism as "responsible travel to natural areas that conserves the environment and improves the well-being of local people" (Uriely et al., 2007). The ecotourism focuses on the elements such as natural environment, ecological and cultural sustainability, education and interpretation and provision of local and regional benefits.

Thus ecotourism is a form of sustainable tourism as it conserves the biological and cultural diversity, minimizes the environmental impact, and provides socio-economic benefits to the local communities. Ecotourism if properly implemented can integrate conservation and rural development by helping to protect valuable natural areas, generating income, stimulating economic development through tourism expenditures and providing jobs and market for local goods (D'Essence consulting, 2004).

2. Tourism in Papua New Guinea

Papua New Guinea is located on the eastern side of New Guinea in the South West Pacific Ocean. Papua

New Guinea has over 600 islands and six million people with 800 different languages. Papua New Guinea is a land of natural attractions, high mountains, tropical jungles, and diverse cultural heritage. Its rainforests, rivers, and scenery attract trekkers, bushwalkers, surfers, cave explorers and mountaineers. The tourists' activities include visiting museums, art gallery, botanical gardens and war relics; interacting with locals; watching cultural shows and festivals; shopping; sightseeing; cycling; walking; climbing; bird-watching; kayaking; island hopping; fishing; canoeing; cruising; swimming; whitewater rafting; diving; and snorkeling.

Papua New Guinea is one of the best dive locations in the world that has the highest diversity of tropical fish and coral species. The country has some of the largest waterways in the world and excellent game fishing, with a choice of river or ocean fishing. The bush treks such as bulldog track, ghost track, black cat track and Kokoda track are amongst the most challenging walking treks in the world. Thousands of visitors walk along the Kokoda track among 100,000 tourists arrive in Papua New Guinea every year. It has over 700 species of birds which attracts a large number of visitors to undertake bird watching. The annual Sing Sing is one of the significant tourist attractions that exhibit the rich culture of the country.

The travel throughout Papua New Guinea is hugely dependent on airplanes, helicopters, charters and passenger ships. The highways are impossible to connect all the town centers due to islands and dense rainforests. The local transport includes banana boat, motorized canoe, passenger motor vehicles (PMV), rental cars and taxis.

Restaurants offer menus full of local fresh seafood, beef, poultry and local fruits and vegetables along with other quality imported produce and fine wines. Tourists can choose from a wide range of exotic themes, including Chinese, Thai, Malaysian, Indian, Italian, Greek, Korean, Japanese, and traditional western cuisine restaurants.

Papua New Guinea's accommodation varies from international standard hotels to rural village-style rooms. The major provincial centres have hotels, resorts and motel accommodation. Most commercial hotels offer facilities including swimming pool, tennis court, squash court, snooker lounge, poker machine bar, gym, fridge, heated pools, satellite and cable TV, email and internet service, telephone and playground for kids. The guesthouses and lodges are available in rural areas with minimum facilities.

Tourism promotes job opportunities in the areas of accommodation, restaurants, transportation, recreational activities, and local markets. The tourism and hospitality increase the growth of nation's economy.

3. Is Tourism a Threat to Ecosystem in PNG?

The conventional tourism is a threat to ecosystem as tourists spoil the beauty and economic prospects of the forest. The deforestation for constructing tourists' facilities damages the ecosystem. The tourists' activities such as camping, firing, cooking, washing and bathing gradually change the nature of the environment. Littering is one of the environmental problems that indirectly reduce the number of tourist arrivals and consequently loss of income due to degraded tourism value. Tourists are not aware of eco-friendly behavior to the nature. They spit on the land, break or bruise the stems, uproot plants, and disturb wildlife. When they see wild animals they chase or throw stones, twigs, soils on them and create sound promoting changes to the behavior of wildlife. Tourists may bring in exotic species that are not native to the local environment. This can cause enormous disruption especially in delicate ecosystems like Papua New Guinea islands.

Tourism can cause loss of biological diversity as land and resources are over used. It destabilizes ecosystems and weakens their ability to deal with natural disasters such as floods, droughts, and hurricanes and with human-caused stresses, such as pollution and climate change (United Nations Environment Programme, 2001). Tourism involves many activities that can have adverse environmental effects. The environmental outcomes that tourism activities produce are mainly from transport, followed by accommodation, restaurant and leisure activities.

3.1 Transportation

The main means of transportation in Papua New Guinea are planes, cars, buses, ships and ferries. Transport systems have significant impacts on the environment, accounting for between 20% and 25% of world energy consumption and carbon dioxide emissions (Sustainable Transport, n.d.). Air travel is contributing to between 2 and 3% of global carbon emissions (Sustainable Tourism, n.d.) that leads to global warming and ocean acidification. Cars increase road congestion and air pollutants. Buses have low environmental impact per passenger due to its high capacity and energy efficiency. Cruise ships and ferries damage coral reefs and sea grass bed and degrade marine ecosystem. Transport is considered as the major cause of

emission in the tourist destinations that damage the environment and can cause climate change.

3.2 Accommodation

The luxury hotels have a bigger environmental footprint than budget hotels as they use more energy and resources to provide high quality service and facilities to the guests. The energy use for lighting, heating, cooling, cleaning and laundry degrade the ecosystem. The air emissions, solid waste and waste water generated by the hotels exacerbate its impact on the environment. Construction of hotels in the tourist destinations leads to increased sewage pollution which in turn pollutes the seas, lakes and surrounding tourist attractions, damages the flora and fauna and threatens the health of humans.

3.3 Restaurants

Restaurants require energy and water for food production. The equipment such as refrigerator, oven, cooking range and dish washer used in the restaurant consume a lot of energy that may lead to depletion of natural resources. The type of food and style of service provided, availability of facilities and amenities and the long opening hours of the restaurants have significant impacts. Greenhouse gas emissions, solid waste and littering from the restaurants contribute to environmental pollution.

3.4 Activities

Tourist activities in the destinations gradually deteriorate the scenic areas, coral reefs, caves and fossil sites. Activities such as horse riding, hiking and biking cause soil erosion. Trekking tourists leave behind their garbage and camping equipment. Such practices degrade the mountain tops and slopes. Diving and visiting neighboring islands disrupt the aquatic environment. Jet skiing harasses wildlife, contaminates water and affects the marine animals. Kayaks damage the aquatic environment. Kite surfing disturbs birds and their feeding practices. Fishing may endanger species. Sport fishing, scuba diving, snorkeling and cruising can cause direct degradation of marine ecosystem. Safaris and wildlife watching activities have a degrading effect on habitat and tend to bring behavioral changes in animals. Loss of biodiversity occurs when tourists use the same trail continuously for many years. Buying souvenirs may endanger native species.

4. The Management Strategies of Ecotourism Development

To protect the ecosystem, conserve energy and local resources, preserve local culture, promote tourism and increase the nation's economy through ecotourism the following management strategies may be developed and adopted in Papua New Guinea.

4.1 Sustainable Transport

The sustainable transportation is an eco-friendly transport system that includes electric cars, plug-in hybrids, fuel cell-powered hydrogen cars, compressed air cars, biodiesel or bio-fuel buses, and liquid nitrogen vehicles. They emit low greenhouse gas, consume less energy and are safe for human and ecosystem. The tourism destinations must have adequate number of eco-friendly vehicles to assist tourists to go around various sites within the destinations. The government should import sustainable (green) vehicles to replace the vehicles that consume non-renewable energy and produce more emissions. The green vehicles help protect the delicate ecosystem, save natural resources and reduce air pollution.

Mass transport is the most climate friendly method of travel. Compared to cars, buses and passenger ships are more sustainable as they carry more number of people at one trip. It is a most efficient way where human and renewable energy are saved. The environmental impacts of transport can also be reduced by improving the walking and cycling activities in the tourism sites. The tour guides in the destinations must encourage tourists to walk and ride bicycle to enjoy the route and have more fun on the way to natural sites. The walking, climbing, and cycling preserve the fragile environment and keep environment clean and safe for the sustainable development.

4.2 Green Hotels

The term "green hotels" describes hotels that strive to be more environmentally friendly through the efficient use of energy, water and materials while providing quality services. Green hotels conserve and preserve environment by saving water, reducing energy use and reducing solid waste (Alexander, 2002).

In Papua New Guinea, the lodges, hotels, guest houses and resorts must be encouraged to use renewable resources efficiently. The United States Environmental Agency (2010) describes that the energy efficiency

is a sound business practice that improves profitability, reduces greenhouse gas emissions, and conserves resources. The energy star qualified office and kitchen equipment minimizes the energy consumption and operational cost. The energy can be saved by installing flat screen monitor and laptop which consume less energy and by switching off photocopiers, faxes, printers, coffee machines, ovens, heating elements and storage rooms when they are not in use. The energy star qualified kitchen appliances such as broilers, fryers, griddles, ranges, steamers, refrigerators, freezers, ice machines, and dishwashers offer very high efficiency. The high efficiency energy star qualified lighting fixtures and compact fluorescent lamps (CFLs) reduce energy consumption. The T5 and T8 lamps with electronic ballasts are more efficient and do not flicker. The energy star qualified ceiling and ventilating fans use less energy than standard models.

Water is one of the non-renewable resources that hotels use in large amount for various purposes. The water conservation reduces demand on drinking water supplies and protects the environment. The hotels should consider installing low-flow shower heads, ultra-flow toilets and taps that deliver a set amount of water. The spring-loaded taps and taps with an electronic sensor are water efficient models. The commercial dishwashers with economy setting save water in the restaurant. The dishwashers should not be operated when they are not fully loaded. The washing machine that has at least four star water efficiency rating reduces water consumption. The AAA rated front loading machines use 60 per cent less water than standard top loaders (Water Wise Hotels Toolkit, 2007). The heating elements, sprays and thermostats must be kept clean to operate well. The high water efficient appliances should be bought and maintain in good working order.

The green hotels use eco-friendly products and practices. They use biodegradable cleaning products for the chemically sensitive travelers and provide amenities such as soap, shampoo and lotion contain natural and organic ingredients. The amenities are provided in dispensers that are 100% recyclable. It eliminates disposing of partially used bottles of shampoo, conditioner or lotion and the need to recycle the bottles and caps. These hotels reduce waste, reuse and recycle the waste. Towels, linens, plastic, glass and paper are all recycled. The hotel spas use organic botanical products. The guest rooms are provided with hypo-allergenic mattresses and pillows, purification shield for carpets, drapes and upholstery, disinfection of all hard surfaces, and recyclable furniture. Green policies include paperless check-in; discount parking for hybrid vehicles; in-room recycling boxes; online newspaper; provision of directory and amenities such as comb, sanitary napkin, tooth brush, and paste on request; and green purchasing.

4.3 Sustainable Catering

The sustainable catering minimizes the environmental impacts such as land degradation, loss of biodiversity, water pollution and climate change; contribute to thriving local economies and sustainable livelihoods; and provide social benefits such as helping people to make healthy and nutritious food choices (Macquarie University, n.d). It encourages the consumption of vegetarian menu to reduce environmental impact. It supports locally grown seasonal and organic foods to decrease chemical inputs and greenhouse gas emissions. The organic agriculture is the environmentally friendly food production system that preserves the ecosystem.

The animal farming causes greenhouse gas emissions and fishing results in loss of marine species. The sustainable choice minimizes the use of animal and sea foods to enhance the biological diversity. The sustainable catering uses fresh ingredients for food and beverage production; plans meals that require minimum processing; serves food that are low in fat and gluten-free; promotes the use of safe tap water for drinking and discourages the bottled water; buys food in bulk to avoid excess packaging; uses reusable plates, cups and cutlery for serving; and chooses recyclable or biodegradable packaging for food delivery.

The food waste has a significant environmental impact. The leftover food thrown away is a waste of resources and when food is sent to landfill it produces more greenhouse gases as it breaks down (Office of Environmental Sustainability, 2009). The sustainable caterers manage the food waste by donating to a charity organization and installing biomethanation plant, in-situ composting or vermicomposting. The biomethanation plant generates gas from the food waste that could be used for cooking. The in-situ composting produces manure for the garden plants. The vermicomposting turns the food waste into very high quality compost.

4.4 Eco-Friendly Tourism Activities

The eco-activities include sightseeing, canoeing, swimming, surfing, visiting museums, art gallery, botanical gardens and war relics, cave exploring, watching cultural show and festivals, interacting with locals and shopping. Activities such as bushwalking, trekking, bird watching, fishing, whitewater rafting and animal safari cause low-impact on the environment. Papua New Guinea is an ideal place for meditation and yoga. The tourist destinations may consider providing infrastructure to facilitate these eco-friendly activities for tourists' arrivals (Mathew et al., 2012). To attract the tourists towards the eco-friendly activities, the entry fee must be minimized. The tourism supporting products such as destination maps, significant sites brochures, caps, binoculars, umbrella, jumpers, and rain coats must be sold in low rate.

Tourists may be educated through the slogans and sign boards to clean their own rubbish. Rubbish bins should be adequately provided at the destinations to help tourists keep environment safe for the local community and support ecotourism. The sale of souvenirs made from coral, turtles and other threatened wildlife should be prohibited. The shops may be encouraged to provide recycled paper bags or biodegradable bags to the customers instead of plastic bags which could be banned in the destinations to protect the ecosystem.

5. Recommendations for policy makers to sustain Ecotourism in Papua New Guinea

The eco-friendly vehicles must be made available at the destinations for tourists to go around on guided tours. Government should educate the car dealers, tourist transport companies, rental car companies and individuals to import only the eco-friendly cars. As an incentive the import duty may be minimized for buying the eco-friendly cars. The existing cars with old traditional engines may be converted into eco-friendly engines. The private cars, company cars and PMVs that emit high carbon should not be given road safety stickers. All the government car engines may be converted into eco-friendly engines as an initiative and may carry an attractive logo "eco-friendly car".

The government may encourage hotels to become a member of Green Hotel Association. Through their membership they will be forced to buy only the eco-friendly products and consumables for the guests in the hotels. The construction of new hotels in Papua New Guinea may be approved if they meet the eco-friendly criteria and become the member of the Green Hotel Association at the construction stage itself. The hotels, lodges and resorts may become green to administer practices that save water and energy and reduce waste to help protect the land of Papua New Guinea. Refreshments like milk and amenities such as shampoo, lotion and conditioner for the guest rooms may be bought in gallon instead of individual portions to reduce waste from packaging. Non-toxic, environmentally safe products must be used to clean guestrooms. Air conditioning and in-room mini bars must be replaced with energy-efficient models. The disposable cups and metal laundry hangers must be eliminated. The incandescent lighting may be replaced with Halogen a 70 watt advantage bulbs.

The restaurants should be encouraged to provide sustainable catering service. The restaurateurs must be trained to produce food by organic system. Organic agriculture conserves soil, enhances biodiversity, and reduces pollution. The food production and service units must use eco-friendly products such as biodegradable bin liners (cornstarch), biocling wrap, biocup (paper cup lined with cornstarch), bowls (sugarcane fiber), plates (palm leaf), cutlery (cornstarch and timber), drinking straws (cornstarch) and envirotrays – snack packs, open trays etc. The health inspectors during their visits should make sure that the restaurants are administered by the eco-friendly practices.

Enough displays should be made available at the tourist destinations in two languages –Pidgin (vernacular) and English to educate tourists the concept of responsible tourism and codes of conduct to be followed as a responsible tourist. Tourists must be instructed through tour companies and guides by issuing brochures and pre-tour advice to (i) adjust their behavior while watching birds and wild life, (ii) walk on the designated tracks to minimize disturbance, (iii) keep distance from the nesting sites, (iv) speak quietly and spend less time near birds, (v) not imitate calls and interfere with their natural behavior, (vi) never feed wild birds, (vii) not use spotlights or laser lights and flashlight that cause birds abandon the nest, (viii) not introduce alien plant or animal species, (ix) never drop anchors onto coral reefs, (x) never chase or ride marine animals, (xi) not remove marine life from its natural habitat or shells, (xii) not use gloves and kneepads in coral reef environments, (xiii) not take anything out of the sea, (xiv) take litter home if there

are no rubbish bins, (xv) use environmentally friendly fishing products such as biodegradable fishing lines, (xvi) secure belongings to prevent them from being blown away by the wind, and (xvii) strictly follow the rules and regulations to conserve the endemic species on the land and water.

Tourists may be encouraged to use binoculars for viewing marine wildlife. As photography can disturb wildlife especially birds, a special fee may be levied for the photographers. For the surfers the environmentally friendly surfboards must be made available at the coastal areas. The tourist activities that cause stress to the marine environment must be restricted. The souvenirs that help sustain local market should not endanger the native species and deplete natural resources. The local communities should not be allowed to kill birds or animals and engage in deforestation to produce souvenirs. The souvenir production must be regulated by the government policies.

Through Tourism Promotion Authority the government should promote and encourage the tourists' activities that cause low environmental impact. The activities with high environmental impact should be restricted by increasing the entry fee, limiting the visitors stay in the attraction sites and enforcing not to use the products that the tourists bring unless they are eco-friendly. Visitor carrying capacity should be monitored and restricted to avoid degradation of the tourist sites. Employ educated people who are aware of global concerns to administer the tourist sites. Tour operators and guides must possess minimum educational qualification to understand and implement the concept "Responsible Tourism". The Northwest Pacific Action Plan (2007) suggests that tour operators play an important role in preventing or minimizing negative impacts from tourists. Continuous inspection and evaluation may be carried out by the government or Tourism Promotion Authority to ensure eco-friendly norms are practiced.

The awareness and understanding of ecotourism must be created among the community that offers tourism. The greater involvement of the individual and community will attract tourists and benefit from tourism by receiving constant income continuously. The model village or town can be created through various tourism promotional strategies and the tour operators can be encouraged to take the visitors to the model village. This gives more income opportunity to the host village and eventually other villages will follow. It is easier to choose a model village and educate the village community by providing frequent training and maintain eco-friendly environment.

6. Conclusion

Ecotourism involves traveling to the areas where environment is unspoiled, climate is pleasant, natural resources are sustained and cultural diversity is conserved. Ecotourism is ecology based tourism depends on natural areas, cultural resources, biological diversity and infrastructure. Ecotourism improves the residents' well-being and the nation's economy. The tourism policies should incorporate the ideas of eco-friendly tourism, support the green vehicles to be imported from overseas, encourage hotels to become member of the Green Hotel Association to create awareness on the latest innovations in the tourism and hospitality industry, help local people maintain a greener business and promote tourism activities that are sustainable. By employing educated tour operators and guides in the destinations the tourists may be given appropriate and timely guidelines to obey local laws designed to protect the natural resources and environment.

References

- Alexander, S. (2002). *Green Hotels: Opportunities and Resources for Success*. Zero Waste Alliance, 1-9. Retrieved from <http://www.zerowaste.org/>
- D'Essence Consulting. (2004). *Ecotourism: An Opportunity in India*. Retrieved from <http://www.dessenceconsulting.com>
- Macquarie University. (n.d.). *A Guide to Sustainable Catering at Macquarie University*. Retrieved from <http://www.mq.edu.au>
- Mathew, C. D., Joseph, K., & Renganathan, R. (2012). An Exploratory Approach to Organisational Ailments: A Case Study with Reference to Ecotourism Destinations in Kerala State. *International Journal of Independent Research and Studies, 1(2)*, 68-79.
- Northwest Pacific Action Plan. (2007). *Marine Litter Guidelines for Tourists and Tour Operators in Marine and Coastal Areas*. Retrieved from UNEP Regional Seas.

Office of Environmental Sustainability. (2009). *Greening Up Our Catering: Sustainable Catering Guide*. Retrieved from <http://www.monash.edu.au>

Sustainable tourism. (n.d.). Retrieved from http://en.wikipedia.org/wiki/Sustainable_tourism

Sustainable transport. (n.d.). Retrieved from http://en.wikipedia.org/wiki/Sustainable_transport

The Melbourne City Council. (2007). *Water Wise Hotels Toolkit*. Retrieved from <http://www.melbourne.vic.gov.au>

The United States Environmental Protection Agency. (2010). *Energy Star Guide for Restaurants: Putting Energy into Profit*. Retrieved from <http://www.energystar.gov>

United Nations Environment Program. (2001). *Environmental Impacts of Tourism*. Retrieved from <http://www.gdrc.org/uem/eco-tour/envi/index.html>

Uriely, N., Reichel, A., & Shani, A. (2007). Ecological orientation of tourists: An empirical investigation. *Tourism and Hospitality Research*, 7, 161-175.