

Potentials for Promoting Ecotourism in Knuckles Mountain Range, Sri Lanka: As A Sustainable Solution for Environment Degradation

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Abstract

Ecotourism deals with living part of the natural environment and it focuses on socially responsible travel, personal growth and environmental sustainability. It's intended to offer tourists insight in to the impact of human beings on the environment and to foster greater appreciation of people's natural habitats. Similarly, Knuckles Mountain Range is one of the most important biodiversity hotspot in Sri Lanka and many attractive places have located within this area. Therefore, this article provides a comprehensive overview of the capabilities of the ecotourism industry in this range. Field observation method was used to collect field information and secondary data also appropriated for this paper. This data has been analysed by qualitatively. Data analysis revolved that biodiversity, climate, water resources, land forms and traditional villagers have identified as factors those are proper capabilities of the ecotourism. The findings suggested that the Knuckles Mountain Range is one of the major ecotourism venues of Sri Lanka and finally proposed, these capabilities can be used for regional development and environmental sustainability.

Keywords: Ecotourism, environment, Knuckles mountain range, potential

1. Introduction

Tourism is a most popular industry to develop local economy in the world. Apart from the development of economy, tourism also can bring many advantages to local government and residents. When consider about history of tourism, it has a long history and it seems that the human like to travel from the very first stage of human evolution. Therefore tourism is the activities of people travelling to and staying places outside their usual environment for leisure, business or other purposes for not more than one consecutive year. With the development of the tourism industry, a number of sub divisions have emerged such as Medical tourism, Adventure tourism, Religious tourism, Cultural tourism, Sports tourism, Gambling tourism Business tourism and ecotourism. Meanwhile, development of tourism also brings many negative effects for local residents and especially to the environment. Above all, environmental pollution is the biggest negative factor in tourism.

In this context, the concept of ecotourism is very applicable because it plays one of the sustainable parts in tourism through conservation environment. It's relatively new concept and ecotourism is a form of tourism involving, visiting fragile, pristine and relatively undisturbed natural areas, intended as a low impact and often small scale alternative to standard commercial tourism. Ecotourism mainly dials with living part of the natural environment and it focus on socially responsible travel, personal growth and sustainability. Sri Lanka is a great equatorial country hence most of tourism and ecotourism potential can be seen such as rain forests, wetlands, environment protection areas, national parks, pearly beaches and small islands, climate, rivers, waterfalls, and traditions. Therefore most of tourists like to visit Sri Lanka and some areas in the country can be identified as well developed ecotourism sites.

2. Literature Review

Tourism is used as a pathway for development (Cornelissen, 2005) and gradually become a common development focus for many countries. Having to maintain sustainability and long term success of the tourism industry (Diedrich and Gracia-Buabes, 2009), countries will require to put in more effort toward their tourism development, using tourism, to sustain especially the country's economy. Many of the countries are still in the process of changing and refocusing for the tourism growth (Parlett, Fletcher and Cooper, 1995).

Ecotourism involves responsible traveling to fragile, pristine and mostly protected areas. This takes place for different purposes, from educating the traveler, fostering respect for different cultures to directly benefiting the economic and political empowerment of local communities (Garana, 2008). Ideally, ecotourism incorporates the following criteria; promote biological and cultural diversity, touring unspoiled natural habitats, and the main attractions being local culture, flora and fauna. In short, ecotourism operations are defined by their commitment to the environment, education, nature and culture.

The main objectives of ecotourism are providing nature-based, environmental education experiences for visitors and managing this in a sustainable manner (Badan & Bhatt, 2005). Nature-based ecotourism focuses on personally experiencing natural areas in ways that result in understanding and appreciation. It integrates opportunities to understand natural areas into each and every experience. Furthermore, it targets to proactively contribute to the conservation of natural areas and provides constructive contributions to local communities. It is distinguished from other tourism forms due to its natural area setting it is already showing its potential in becoming a successful ecotourism destination where preservation of natural resources with sustainable development. (Ravens, 1996)

Both tourism and ecotourism aim towards sustainable development. There is usually a conflict between development and environmental conservation with both extremes bringing about inadequacies in adaptation owing to the current global situations of negative environmental impacts and effects of the global village. Ecotourism therefore attempts to meet the needs of the local people while tourism focuses on a much bigger population putting the country's citizens in perspective (Morgan, 1999).

3. Research Problem

Sri Lanka can be identified as better environmental hotspot and many guests like to observe these beauty. But extreme tourism activities have negatively influenced to natural environment and the ultimate result is environmental degradation. Therefore, the concept of ecotourism is most applicable for developing country like Sri Lanka for since it mainly aims for protection of natural environment and sustainable development. Ecotourism activities are well developed in some of areas in Sri Lanka that practises support to reduce extreme anthropogenic influence to the nature. Therefore research problem of this study was to identifying whether are there able to identified ecotourism potentials in study area as in other places in the county.

4. Objectives

The main objective of this study was to observe the ecotourism potentials in the study area and the other objectives was to classification of each ecotourism potential in to different categories.

5. Methodology

5.1 Study area

Knuckles mountain range has been selected as the study area of this study. It has located in central highland in Sri Lanka and which is also above 3000ft or 915mts from sea level and covers an area of about 9059miles or 23459km² of land extent. This mountain range is covered less than 0.5% of the land are on Sri Lanka. This rang takes its name from a series of recumbent folds and peaks. Whilst this name was assigned by early British surveyors, the Sinhalese residents have traditionally referred to area as “Dumbara Kanduwetiya” due to ever present mist covering the mountain. Study area is situated in between kandy and mathale districts in central province of Sri Lanka. Evergreen forests are the dominant ecosystem in this range. Consider about ecological and traditional value, the area above 1500m in the Knuckles Range was declared as a climatic Reserve in 1873. The Knuckles was declared as a conservation forest in April 2000 and subsequently, as a “National Man and Biosphere Reserve” by Central Environment Authority.

5.2 Data Collection and Data Analysis method

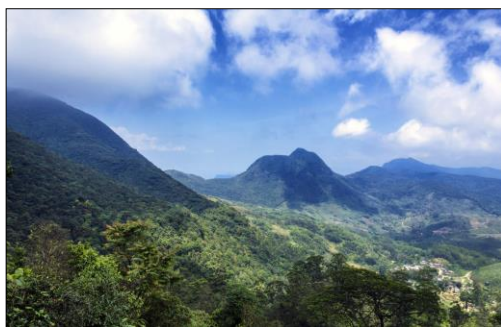
To meet the objectives of the study, field observation survey was conducted for finding information and data. And also secondary data such as books, Journals and websites were made gather information about significant locations and potentials that situated in this mountain range. Quantitative method is used for collecting field information and data analysis.

6. Result and Discussion

Knuckles mountain range has highest ecological, topographical and cultural value and these values and potentials can be identified with several categories such as ecological, topographical, climatologically, hydrological and cultural potentials.

6.1 Ecological Potentials

Knuckles is one of the most important biodiversity hotspot with range of mountains and great water and wild life resource. Therefore this range has been declared as conservation forest and the area above 1500m also declared as climatic reservoir by the central environment authority of Sri Lanka. There are several peaks that are highly ecological and rich in biodiversity. The vegetation within this range is from lowland semi-evergreen forest to mountain forests. This vegetation type can be seen a rich composition of animals and plants, some of which are unique to Sri Lanka. In certain parts of this range, within the knuckles conservation forest, the natural vegetation occurs as a pygmy forest with trees just over waist high.



Knuckles Mountain Range
Photograph No. 6.1
Source: Field data 2018

The most significant feature of this area is that it provides a representation of microcosm of the entire variety of climate conditions found in Sri Lanka from extremely wet to near arid. The upper reaches are described as cloud forests rich in colourful orchids, ferns and mosses. In between lowland and mountain vegetation, on the lower slopes of the hills, tropical sub-mountain humid semi evergreen forests are found. Far drier slopes hold dry sub-mountain evergreen rain forests. Luxuriant riverine forests are found along the banks of rivers and streams. Savannas with isolated trees scattered over vast expanse of grasslands (pathana) can be found on hilly slopes.

Knuckles conservation forest holds a wide variety of fauna. Most important, it is a home to many endangered and endemic species. Accordingly total of 1033 flowering plants, belonging to 141 families has been recorded. Among them 225 are tree species, while the balance consists of shrubs and herbs. Of the total number of flowering plants species, 160 are endemic to Sri Lanka while, about 32% are nationally threatened. There are more than 25 orchid's species in the forest range. When consider about fauna diversity of this range 247 vertebrate species have been recorded in this area of which 26% are endemic to Sri Lanka, including 14 birds and 9 fish species. More than a hundred of other resident and migrant bird species and mammals namely elephants, leopards, sambas, wild boar, spotted deer, barking deer, mouse deer and giant squirrel can be seen and Chart No. 6.1 is shown the endemic and migrant birds species who live in this area. Through it's not a big national park like Yala and Udawalawe, there are 31 species of mammals recorded in Knuckles wilderness. Four of them are endemic and 9 are nationally endangered. Some of the common species Include Wild Buffalo, Wild Boar, Black-necked Here, Jackal, Toque Macaque and Purple-Faced Left Monkey. Both those primates are endemic to Sri Lanka.

| Endemic Bird Species | Migrant Bird Species |
|---|-----------------------------|
| Yellow-Eared Bulbul | Indian Pitta |
| The Elusive Sri Lankan Whistling Thrush | Common Sandpiper |
| Sri Lankan Spot-Wing Eared | Gray And Forest Wagtails |
| Yellow-Fronted Barbet | Brown Shrike |
| Jungle Fowl | Indian Blue Chat |
| Sri Lankan Super Fowl | Greenish Warbler |
| Sri Lankan Wood Pigeon | Large-Billed Left Warbler |
| Sri Lankan Green Pigeon | Brown-Breasted Flycatcher |
| Sri Lankan Hanging Parrot | Asian Paradise Flycatcher |
| Layard's Parakeets | Kashmir Flycatcher |
| Brown-Capped Babbler | |
| Crimson-Backed Woodpecker | |
| Sri Lankan Wood Shrike | |
| Sri Lankan Dull-Blue Flycatcher | |
| Sri Lankan Mynah | |
| Bush Warbler | |
| Sri Lankan White-eye | |

Endemic and Migrants Birds Species In Knuckles Mountain Range

Table No. 6.1

Source. <https://www.timeout.com>, 2018

6.2 Climatologically potentials

A remarkable feature of this area is that most of the climate conditions of Sri Lanka can be found within the extent of a mountain range. All these hanging climate conditions can be experienced within half of hour walk through this valley. The location of this hills, the particular effect of the monsoons and the wind factor generate certain climate diversity to the area. In fact in these hills one can find characteristics of all the key ecological zones found in the country. Average annual rainfall lies between 3000-5000mm, and temperature of the region range between 5.5 degrees and 35 degrees Celsius. It's through a gap in the mountain that the winds of southwest monsoon enter to the Dry zone. The average wind speed has been measured to be approximately 7.2km/hour and humidity in the range lies between 57%-90%.

6.3 Topographical potentials

This area is located on central high land in Sri Lanka and this topographic zone's elevation is upper 300 meters. But Knuckles massif is separated from the Central Highlands by a deeply incised valley referred to as the Dumbara Valley. It bears the pride of 35 peaks above 1000m above sea level, 20 over 1500m, and 2 peaks over 2000m. The highest peak "Gonbaniya" is 1906 meters high. These peaks have enchanting environment because those areas are very useful for mountaineers.

- **Sphinx Rocks And Corbet's Gap At Knuckles Range**

Corbet's Gap is one of the most popular view point in the Knuckles mountain range which spans the Kandy and Mathale districts covering an area of 18,512 ha. Locally known as "Attala-Wettuwa, Kapolla", the British named this spectacular view point of the 19th century. This ridge is dominated by "Dumbanagala" (misty rock 1642m) and "Galtuna" (3rocks) it is turn meets the North West trending "Telambugala" (1332m), "Welangala" (1181m) ridge, is the finest peak of the whole. Proceeding from the Corbet's Gap view point on the main road towards "loolwatte", one come across this awe-inspiring rock of Sphinx. The area is studded with mound shaped rocks that just out from the ridges of mountains which has a characteristic of a square shapes on them. Sphinx rock latitude, longitude are 7.373065, 80.828726. Elevation is 1607 meters (5273 feet).

- **Pitawala Pathana and Mini World's End**

Pitawala Pathana/Plain is the unique grassland found in the Knuckles conservation forest, Sri Lanka. This "Pathana" has a great ecological value. Pitawala Pathana situated close to the Reverston and edge of Knuckles Mountain which is on the way of Matale- Illukkubura road. This area is covered by mist in most of the times. Most of the travelers go to Reverston and return without going to Pitawala Pathana which is just 5Kms from Reverston Mountain. This area is really eye catching. In this Pathana a grass cover spreads over an area of 10ha of a gently sloping rock slab covered with just a thin soil layer. The turf grass of about 10cm in height gives a velvety appearance to this sloping expanse of grassland. Isolated and scattered trees and shrubs could be seen. Many endemic plant and animal species are found. The "Pathana" end in a sheer slop. It is certainly nerve wracking to glimpse into the depths, hundreds of meters below, yet a visit to the plains will not be complete without the visitor having taken in the beauty of the valley below from the vantage. The landscape somewhat resembles that of Horton plains and as its precipice to Mini World's End. (Photograph No. 6.2)

Mini World's End is an escarpment situated at the southern end of the Knuckles range is a fine observation point within this range. From this location, the panoramic view of the Knuckles range and some of the villages situated in the foot hills of Knuckles can be seen.



Mini World's Ends
Photograph No. 6.2
Source: Field Data, 2018



Reverston
Photograph No. 6.3
Source: Field Data, 2018

- **Reverston**

One can experience clouds covering up the area and then passing off at Reverston area making the atmosphere cool. Reverston Mountain is located in the middle of Rattota-Pallegama road and it's the summit of the same. Being located in a windy gap of a range of scenic mountains with frequently changing climate. The climate is changing every minute. Sometimes it brought little sun rays. Sometimes it's a tiny rain with cool wind. But most of the time visitors can warp with a thick mist. Really that is an amazing experience. Two telecommunication towers are setup on the both summit of the Reverston Mountain. The access road for visitors is a private one and no vehicles are allowed beyond the Reverston gap, but pedestrians. (Photograph No.6.3)The mist is gained then a fresh and wet look forever. The communication tower dose plays a game f hide and seeks in the mist. Also, when someone climbs step, can be seen the special place called windy bend. In some seasons, misty powerful wind does enough to left a human being at the windy bend. Just after the windy bend, there is an eye-catching view of Pitawala Pathana and paddy fields of lonely villages in the Knuckles range. Since the surrounding in covered with a shawl of mist.

6.4 Hydrological Potentials

Since the main risen in opposition to both the southwest and northwest monsoons, the area enjoys bountiful rainfalls. For this and other reasons, the Knuckles mountain range is counted among the richer of the upper watersheds in the country. In fact form these hills flow the richer of the tributaries to the Mahaweli River. There is no other valley of this nature to be seen in the island. There are four main rivers called the Hulu Ganga, the Heen Ganga, Telgamu Oya, and the Kalu Ganga, which begin from Knuckles mountain range. And there are a number of breath-taking waterfalls and small rivers, which can be found in this area. Hence Thelgamu Oya is one of the awesome rivers which situated in Knuckles massif and it has many safe places for having a bath (Photograph No.04). Further there are several waterfalls can be seen within this area. these are, Mini Sera Ella(Photograph No.05), Kandi Ella, Naththinda Ella, Pathana Ella, Vedda Peni Ella, Wambatuheena Ella, Banbarakiri Ella.



Thelgamu Oya
Photograph No. 6.4
Source: Field Data, 2018



Mini Sera Ella
Photograph No. 6.5
Source: Field Data, 2018

6.5 Cultural potentials

Knuckles mountain range is very important due to the historical value it carried and therefore it can be categorized as one of the valuable heritage in Sri Lanka. The story of knuckles (Dumbara Hill) goes back into prehistoric periods. It is said that in ancient time it was referred as "Giri Diwayina" and as "Malaya Rata" and there is archaeological evidence that speaks of ancient "Yaksha" settlements. People believe that the name Lanka is derived which much folklore has gathered over the centuries. The Knuckles mountain range is an invariable referent in any salutary appreciation of the last kingdom of the Sinhala "Kanda Udarata".

Several valuable cultural heritages can be located within this range such as Meemure, Puwakpitiya and Galamudunagala. Specific and unique values and tradition can be seen in every village's activities such as agriculture, foods, lifestyle, industries and settlements. Meemure is one of historical village in this range with population of about 400. It's located near the border between Kandy and Mathalee districts in knuckles range. The distance from Colombo capital to Meemure is about 175kms. Meemure is a one of the most remote villages in Sri Lanka with the only access via a 14kms (8.7mi) trail from the town of Loolwatte. Lakegala Mountain is in Meemure village. It's considered the place where King Ravana lifted the "Dhandu Monara". Residents of the village depend on several staple crops including Pepper, Cardamom, Paddy and Ginger. Meemure village owns an exceptional natural beauty and not only natural beauty it's rich with traditional Sri Lankan styles. Similarly Meemure is a perfect place for camping to visit beauty and agricultural activities in Sri Lanka. Within this villages can be seen Paddy Fields and colourful Kandian Home Gardens. The chance to visit traditional small mountain villages in the area gives an interesting insight into the chose-knit atmosphere that such a local community fosters and provides a welcome departure from fast-paced modern day life.

7. Conclusion

Ecotourism is one of important concept in the world today. Generally ecotourism focus on units like conservation, communities and sustainable travel. This means that those who implement, participate in and marked ecotourism activities should adopt the ecotourism principles such as minimize physical, social, behavioural, psychological and environment impact. Therefore the concept of ecotourism is most applicable for protection of environment, improve quality of life of the villagers and helping to regional development of

the study area. There several segments can be identified in Ecotourism such as Ecotourism in wildlife, eco adventure, travels, sustainable tourism, responsible tourism, nature base tourism, green tourism and cultural tourism. These segments can be well practised with in selected area due to its specific features. Because according to this study several ecotourism potential have been identified with in the knuckles mountain range and these potentials were categorised such as ecological, climatologically, topographical, hydrographical and cultural potentials. Knuckles mountain range is a real paradise for those who love to visit this range and most of tourists like to visit these environment conditions. Nature lovers can be experienced with nature, wildlife, biodiversity and hydrological feasters and essentially this range is better region for trekking to tourist and also some of locations are most suitable for camping likewise Pitawala pathana and Meemure. And also cultural tourism potentials like lush tea plantations, alongside terraced paddy fields, colourful Kandian Home Gardens and traditional domestic activities will help to develop ecotourism.

Therefore ecotourism can be well developed in this selected area by using these capabilities sustainably. But the most important factor is this is one of most remote and sensitive area in Sri Lanka. Because before start ecotourism activates, need to create a proper plan that make together with all stakeholders such as government officials, environment scientist and villagers. Even through the ecotourism this range will be able to protecting and village people and infrastructure also will have developed and finally it will help to regional development.

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