

**COMMUNITY BASED ECO-TOURISM DEVELOPMENT: A CASE STUDY IN  
DELFT ISLAND, JAFFNA**

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# Community Based Eco-tourism Development: A Case Study in Delft Island, Jaffna

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Warmly Dedicated to  
My Caring Parents  
And  
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## ABSTRACT

Eco-tourism provides the major contribution on Sri Lankan economy and foreign exchange earnings. Part of the income earnings from the foreigners' expenditure are distributed among the local and rural people because of their protected natural formations and endemic resources. Even though the endangering of the indigenous species and depletion of local natural resources are happening in some areas because of their insufficient knowledge on indigenous species and their poor conservation techniques. Delft Island is facing these kinds of problems. It has renowned documented history with rich ethnic diversity in ancient time. So, the current barriers should be studied and the reason for the barriers also should be reason out. A community based ecotourism could help to develop the delft island in sustainable manner. The objectives of the study were: to found the endangering inland floral and aware the community regarding that species ; to analyze the issues relating residents leaving from the place; to identify the constraints related with less tourist arrival; to ascertain the community awareness related species extinction; to analysis for community based eco- tourism development in Delft and examine the perception of local community towards community based ecotourism its long-term benefits; and to make suggestions for community based sustainable ecotourism development. A case study has been conducted in delft east. During the research.105 plants were counted and categorized. Convenience sampling method with 170 target participants (100 local community, 50 visitors and 20 other stake holders) were participating in the primary data collection. According to the results of the study 11 species are extincted, 8 species face critically endangerd and 12 species are in endangered category. It was observed that there are 28 species in the vulnerable category and 13 species are facing near threaten, 15 species considered as least concern 13 species were not evaluated because of insufficient data. The rate of endangering species is too high. According to wilcoxon signed rank test, the awareness of community about endangerd species are significantly vey low.(Z-8.0,P-0.00) The major reasons for the less tourist arrival and residents leaving from the places are poor transportation and lack of infrastructure facilities and local resources degradation. There is a positive attitude among 78% of the local community towards community based eco-tourism. The education level significantly influences the community attitude ( $\chi^2= 6.821$ , DF = 3, P = 0.00). Most of them have a significant potential of satisfactory level about participation in community based eco-tourism development (Z-8.374, P-0.0000).

While 73% have willingness to participate with the perception of receiving benefits. Further, local community expect to promote mechanism for conservation of local culture; eco system conservation and endangered species protection; increase the economic development; and revenue generation by improving indigenous products and services. They expect other collective benefits including visitor appreciation, and improvement of health, education, skills, and technical knowledge. Some of the community members of the area have the negative opinion toward Community based eco-tourism development. They are feared for disturbing the local culture; increasing waste materials and garbage; reducing the demand for local resources; changing villagers' life style; economic distortion; and creating conflicts by outsiders.

**Key words:** Indigenous species, endangering species, community based eco-tourism, Delft Island.

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## LIST OF ABBREVIATION

CBE	Community Based Eco tourism
TIES	The International Ecotourism Society
IUCN	International Union for Conservation
EX	Extinction
CE	Critically Endangered
EN	Endangered
VU	Vulnerable
NT	Near Threaten
LC	Least Concern

## CHAPTER ONE

### 1. INTRODUCTION

#### 1.1. Background and justification

Throughout the world, tourism has been recognized for its vast contribution to the economy in many countries. Tourism has been regarded as a catalyst for the conservation and improvement of the environment as well as retaining local diversity and culture. Making tourism business more sustainable will stand in the industry's growth, create more and better jobs, merge higher investment returns, benefits local development and contribute to poverty reduction, while raising awareness and support for the sustainable use of natural resources (Matthews et al., 2002).

Community Based Ecotourism is a form of ecotourism that emphasizes the development of local communities. Local community is the first priority of ecotourism for the sustainable eco-tourism development. So they need awareness. The lack of community awareness cases the loss of the ecotourism, increase the extinction rate of species diversity and the environmental degradation also (Wang & Tong, 2009).

The research destination is Delft Island. is a flat island situated in the Palk Strait, to the north of Sri Lanka. The island is isolated from the peninsular of about 10 km off the mainland inherent with peace and quiet environment. The total extent of the island is 4763.06 Ha is almost an area of 50 km<sup>2</sup>. Its length is 8 km and its maximum width about 6 km with a shape of oval. History of the island dates back to the Mesolithic period, and evidence of continuous human settlement can be identified in Delft. Delft is the largest island located in Jaffna Peninsula, Sri Lanka which was named by the colonial Dutch rulers. Portuguese called it Illha das Vaka and renamed Delft by the Dutch after the town in

Netherlands. Dutch caption in the island started in 17th century and most of the archeological monuments in this island belong to this period. According to the chronicles, both Sinhalese and Tamil rulers ruled this area(Goonatilake et al., 2013).

Delft Island has potential as a tourist destination, particularly for ecotourism, the ecologically and archaeologically important areas of the island should be preserved, and also coastal and marine environment, an abundance of coral, limestone, Palmyra palms, and stunning beaches also located here. But due to lack of facilities, not having proper management system, less awareness about the community and objection of the community based eco-tourism. The majority of the present occupants of Delft Island were in favor of the development of tourism on the island, as it will increase the environmental protection and economic opportunities available to them(Surendran et al., 2007).

## 1.2. Problem statement

- 1) Delft Island has high potential of indigenous species from Portuguese and Dutch colonial. In going time frame indigenous species get evicted and endangered to survive. There were many endemic habitants survived in this island in ancient time. Delft was known as Pasuntheevu Milk Island as milk supplied to India from here. Wild Horses also a unique animal to Delft from Portuguese era. The existence of horses also endangered nowadays due to the lack of awareness, lack of food & drinking water available condition (IUCN 2011). Through the sustainable development of community based ecotourism awareness, extinction species will be reduced.
- 2) 1990s there were 25000 people in Delft but the population gradually drops to 6000 up to this year (Delft DS Report). Local residents are leaving from this place. The infrastructure facilities are in a poor condition, and are insufficient to support an effective sustainable tourism operation. Due to lack of facilities, not having proper management system, less awareness about the community and objection of the community towards tourism, these activities were disappeared within short period. By using the untouched tourism potentials of this area in sustainable manner Community Based Ecotourism (CBE) can apply to develop this area. Through that host community can get more benefits to enhance their livelihood while protecting the environment.
- 3) Delft Island has a very high aesthetic value and as such, has great potential to attract tourists. In addition, its isolated nature and the extent of ocean frontage in all parts of the island may also attract visitors. The natural wealth of the island has been enhanced considerably by the unique and characteristic presence of wild horses on Delft. There are more than ten tourist attractive places situated here, but these places still not famous among the tourist. People visit to Jaffna but not to the Delft Island since it has not been reached yet, because in this area has not developed as a tourist destination (Daily Mirror, 25 Oct 2014). But at present, there are very few tourism activities taking place on Delft Island.

### **1.3. Objectives**

#### **1.3.1. Main objective**

The main objective is “To Study the potential of community based ecotourism in Delft Island for sustainable eco-tourism Development”

#### **1.3.2. Specific objectives**

Main objective is fulfilled through following specific objectives,

1. To count, categorize endemic floral species and ascertain the community awareness related endangered species.
2. To analyze the issues related less tourist arrival and residents leaving from the place.
3. Analyze the strength, weakness, opportunity and threat for community based eco-tourism development in Delft Island.
4. To examine the perception of local community towards community based eco-tourism and its long term benefits.
5. To make suggestions for community based sustainable eco-tourism development in Delft Island.

## CHAPTER TWO

### 2. CONCEPTUAL FRAMEWORK AND LITERATURE REVIEW

#### 2.1. Chapter introduction

In this study, a conceptual model aims to place the key concepts in the literature review in to an identifiable framework, which is illustrated in the figure below. That is the construction of the research. That is clearly elaborate the research concepts, Species extinction, residents leaving from the place and less tourist arrival is the main challenges to overcome these challenges CBE should develop. The plan selected with a help of theoretical part especially Dikman's 5As. From that plan potential issues and limitation will be identified. Suggestion will be provided for overcome the identified

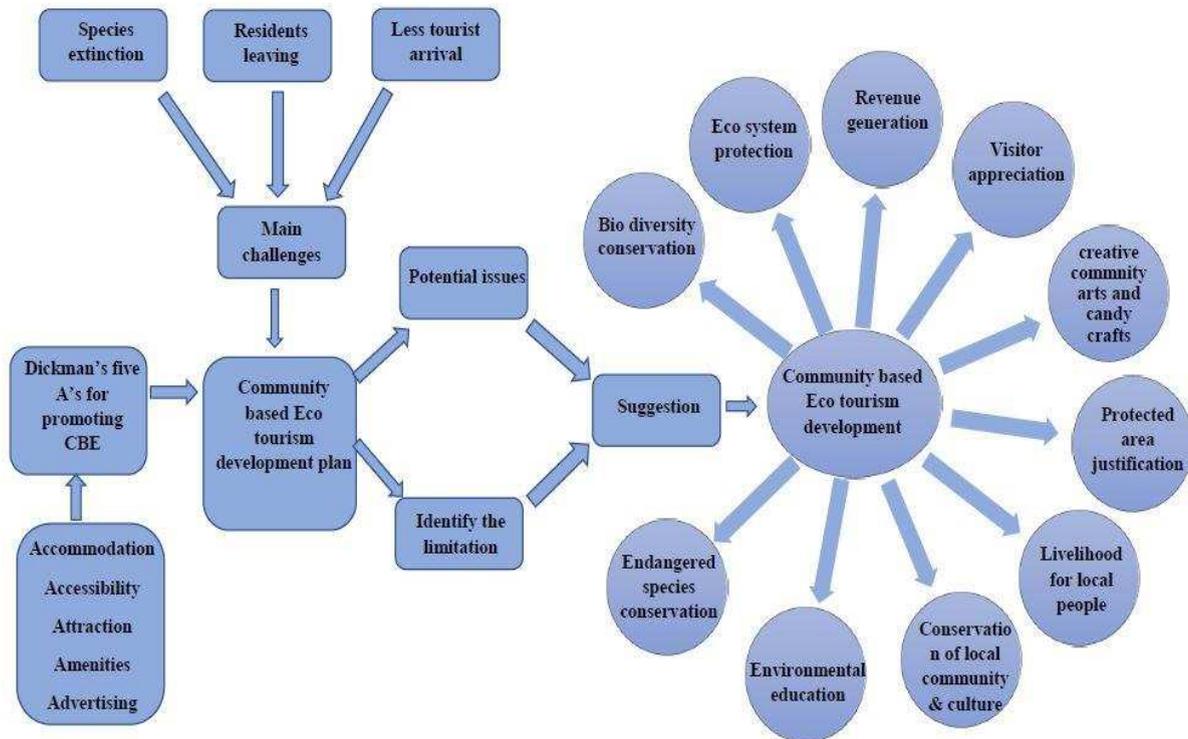


Figure 2.1: conceptual frame work

## **2.2. World Tourism**

Tourism is one of the worldwide largest and blooming industries in the global context. It's particularly caused to the economic growth, small entrepreneurial development and infrastructure development of many countries.(ISPAT, 2013)

Tourism is a leading global industry, responsible for a significant proportion of world production, trade, employment and investments. In many developing nations, it is the most important source of foreign exchange and foreign direct investment. Tourism growth, environmental conservation and social wellbeing can be equally strengthening. Making tourism business more sustainable will stand-in the industry's growth, create more and better jobs, merge higher investment returns, benefits local development and contribute to poverty reduction, while raising awareness and support for the sustainable use of natural resources.(Heritage et al., 2016)

Throughout the world, tourism has been recognized for its vast contribution to the economy in many countries. Tourism has been regarded as a catalyst for the conservation and improvement of the environment as well as retaining local diversity and culture. The quality of the environment, both natural and man-made, is essential to tourism. However, tourism's relationship with the environment is complex. Tourism postures a threat to a region's natural and cultural resources, such as water supply, beaches, coral reefs and heritage sites, through overuse. It also causes increased pollution through traffic emissions, littering, increased sewage production and noise. On the other hand, tourism has the potential to create beneficial effects on the environment by contributing to environmental protection and conservation. Particularly nature and ecotourism helps to promote conservation of wildlife and natural resources such as rain forests, as these are now regarded as tourism assets.(WCED, 1987)

Sri Lanka is a country with ample of resources which can be directed to attract tourists. Geographical location of the country is a good advantage to promote tourism as well. In Sri Lanka, tourism industry emerged in 1960's, it has a huge potential for tourism development because of the various attraction and the tourism business depend on the environment.(Office of Archives, Statistics, 2015)

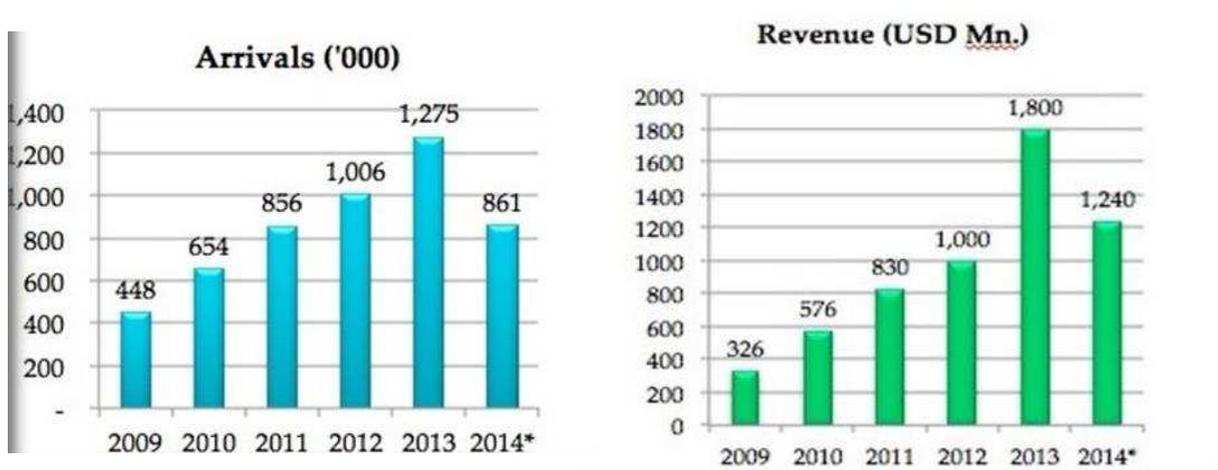


Figure 2.2: Tourist arrivals to Sri Lanka      Figure 2.3: Revenue of Sri Lanka year

Source: Sri Lanka Tourism Development Authority.

### 2.3. Sustainable tourism

Sustainable is the development that meets the needs of present generation without compromising the ability of future generations to meet their own needs.(WCED, 1987)

Sustainable tourism guides to manage all resources by accomplishing economic, aesthetic and social requirements, simultaneously preserving the identity of culture of local communities, ensuring the safety of bio habitats and protecting the vital environmental procedures. Sustainable tourism development is a practice that fulfills the requirements of present tourists, local people and host communities whilst ensuring the future generations' requirements. It is a community footed activity that holds long term planning, natural resources protection,

ensuring the maximum economic growth and leaving a moral remedy for the environment. (Jaafar & Maideen, 2012)

The main aim of sustainable tourism is to find equilibrium between economic, environmental and social needs with harmony in these three. It may be achieved through right tourism administration at tourism area, through our own actions, through changes in governmental policies and accommodation by organizations. (Province, 2012)

Sustainable tourism business is one of the interests of business stakeholders in the present and future, that impact to the long term survival of the business and it's connected social, economic and environmental systems. The organizational performance or activity's effectiveness provides the root for the long term survival outcomes for the business .In the same way sustainable tourism practices also describe through the business and its economic fulfillment, environmental and social-cultural responsibilities, at the same time generating income, employment to locals, cultural maintenance, integrity and conserving the natural ecological activities and biodiversity.(Brain & Goldstein, 2012)

#### **2.4. Sustainable tourism development in Srilanka**

Over the time period Srilanka tourism has huge potential, but unfortunately they negatively caused to the environmental impact such as pollution due to poor facilities to disposal of solid waste, waste water, sewerage and designs water table; unsustainable levels of water extraction from surface; damaged wildlife habitats; lack of observing policies in speed limits of boats in coastal belt; overuse of forest trails resources by tourists; deforestation and loss of habitat and unsustainable resource extraction due to the infrastructure development; cultural heritage place depreciation due to unplanned visiting activities of tourist; visitation sites solid waste concentration; high demands on power; beach site pollution due to

disposable material and release of sewage and storm water; illegal and unplanned tourism construction in natural places; coastal areas over developmental activities. Therefore, Sri Lanka tourism development authority (SLTDA) applies the sustainable tourism development initiatives for the tourism development in the underdeveloped regions. (Sri Lanka Tourism Development Authority, 2011)

Now the Sustainable Tourism Planning and Development is an emerging project in Sri Lanka. This plan includes the three components, mainly improving the efficacy and efficiency of the institutional framework, improving highly localized tourism related infrastructure services and improving & extending the product content and supply chains that are aligned with sustainable tourism. And it is expecting the significant positive impact to the local community economy, such as local ownership and participation, training support for their skills, local investment and development of economic niches of the local and the industries benefits throughout the sustainable tourism practices. (Office of Archives, Statistics, 2015)

## **2.5. Eco tourism**

Ecotourism is the term applied to tourism and travel that pays special attention to environmental concern. And it is special kind of tourism to exotic locations to observe wild life or to preserve nature. With a growing interest to spend leisure time in nature related facilities and increasing awareness on environmentalism, ecotourism has become one of the fastest growing segments of the tourism industry in the world.(KAPLAN, 2013)

Ecotourism is the necessary choice of the tourism development in certain phase; it is the best form of sustainable tourism; it is the concrete application of the principle of sustainable tourism in natural areas and certain social cultural regions.(Wang & Tong, 2009)

Ecotourism is sustainable tourism, which is based on the ecological principle and sustainable development theory. Its aim is to conserve resources, especially biological diversity, and maintain sustainable use of resources, which can bring ecological experience to travelers, conserve the ecological environment and gain economic benefit. Ecotourism establishes a harmonious symbiotic relationship between sightseeing visit and environmental protection, which can make the negative influence of travel to ecological environment be reduced to minimum extent by strict management. So as to ensure the everlasting utilization of resources. Ecotourism is very popular to travelers for its bases that emphasize on natural ecological environment and pay attention to ecological environment protection. (Wang & Tong, 2009)

Ecotourism must simultaneously, Minimize environmental impact and thus have a small ecological footprint, Contribute to conservation either through direct efforts or through financial benefits and Promote local livelihoods through political empowerment and a combination of culturally appropriate social and economic benefits. (Zambrano, Broadbent, & Durham, 2010)

In addition to raising foreign exchange and investment on a national level, ecotourism offers the potential of new jobs for local labor and new markets for locally produced goods and services. The latter can include revalorization of cultural traditions and beliefs, improved community organization and leadership, increased self-esteem and pride in the community, new skills and languages, and contact with an expanded network of people and potential sources of support, including inter-national tourists and tour companies, private foundations, universities and researchers and nongovernmental organizations. (Durham, n.d.-a)

## **2.6. Community based eco-tourism**

Community Based Ecotourism (CBE) is an alternative form of tourism and appropriate for developing countries. Community Based Ecotourism is a growing phenomenon, particularly in the developing world.(Academic & Plan, 2003) Prospects are high as Community Based Ecotourism is one of the fastest growing segments in the global tourism industry. (Wickramasinghe, n.d.)

Community Based Ecotourism (CBE) is a form of ecotourism where the local community has substantial control over, and involvement in, its development and management, and a major proportion of the benefits remain the local community. Community Based Ecotourism has an advantage with regard to ecotourism's conservation and development goals. In a community based approach, local voices, values and knowledge are proactively channeled into strategies for managing resources. (International, 2001)

Most ecotourism operations also claim to benefit local communities; either through employment or by contributing to community projects, but the term community-based in CBE implies going beyond this to involving communities actively. This has been interpreted as anything from regular consultations, to ensuring that at least some community members participate in tourism-related economic activities, to partial or full community ownership of whole ecotourism enterprises.(“benefits of CBE,” 2004)

CBE has the potential to become a driver of sustainable tourism development and also provide opportunities for the development of the disadvantaged, marginalized and rural areas leading to poverty alleviation. It stimulates economic development and social well-being of people and at the same time preserving the natural environment and cultural heritage through awareness creation. Community based ecotourism sites offer potential benefits to the individual, communities and the nation as a whole, in areas such as creation of employment,

foreign exchange earnings and improving the welfare of local people among others. (Manu & Kuuder, 2012)

Community based ecotourism sites offer potential benefits to the individual, communities and the nation as a whole, in areas such as creation of employment, foreign exchange earnings and improving the welfare of local people among others. (Hewlett & Nicholls, 2011) The core aim of CBE is poverty alleviation in rural communities through the creation of sustainable income generating tourism activities, while conserving the delicate and sensitive ecological and cultural resources in their environments. (Manu & Kuuder, 2012)

In basic concept, CBE refers to ecotourism enterprises that are owned and managed by the community. Furthermore, CBE implies that a community is taking care of its natural resources in order to gain income through operating a tourism enterprise and using that income to better the lives of its members. Hence, CBE involves conservation, business enterprise, and community development. (Jones, 2005)

According to Wood; 2002, these are the following concepts of CBE;

The community has substantial control and involvement in the ecotourism initiative, the majority of benefits accrue directly to the community. Three main types of CBE have emerged, as follows, the community owns and manages the enterprise, all community members are employed by the enterprise on a rotational basis, with profits allocated to community projects and the enterprise is a joint venture between family or community and an outside business partners

Community based ecotourism as a responsible travel to natural areas that conserves the environment and sustains the well-being of local people.(International, 2001) CBE can significantly contribute to environmental protection, conservation and restoration of

biological diversity and sustainable use of natural resources in Sri Lanka.(Wickramasinghe, n.d.) CBE refers more specially to tourism activities or enterprises that involve local communities; it operates in their lands, and is based on their cultural demand and natural assets and attractions. (Sardiana & Purnawan, 2015)

According to World Wildlife Fund, 2001; these are the basic preconditions for community based ecotourism, landscapes or flora/fauna which have inherent attractiveness or degree of interest to appeal either to specialists or more general visitors ,ecosystems that are at least able to absorb a managed of visitation without damage ,a local community that aware of the potential opportunities, risks and changes involved, and interests in receiving visitors ,existing or potential structures for effective community decision making ,no obvious threats to indigenous culture and traditions and initial market assessment suggesting a potential demand and an effective means of accessing it, and that the area is not over supplied with ecotourism offers.

Communication, group image, relationships with the community, and the efficient operation of group and their activities are the key elements required to managed and administer the CBE business. A useful way to discern responsible community based ecotourism is to approach it from a development perspective, which considers social, environmental and economic goals. (Scheyvens, 1999)

CBE is declared and practiced as sustainable tourism and is premised on the following principles greater local community participation and involvement, provide a framework for raising the living standards of local people through the economic benefits of tourism, more benefits accrue to host communities ,comprehensive planning ,more consultative and democratic planning ,small scale and less negative impacts, tourism development which maintains ecological integrity of the landscapes ,allow only tourism types that have low

environmental impacts, commitment to environmental protection and conservation of natural resources ,building cultural awareness and respect as well as ensuring that activities are socio-culturally appropriate ,raise awareness to countries“ political, social and cultural climate and empowers the local community as it promotes the use of indigenous knowledge, material and labor, and provides the opportunities for the local population to generate economic benefits from tourism. (Moswete, 2009)

Tourism is a multi-billion dollars a year industry and community based ecotourism can provide strong incentives for local shareholders who rely on natural resources to survive. Adding value to unspoiled natural resources through sustainable community based ecotourism, diversifying income and creating new job opportunities for generations to come, creates a strong incentive for local shareholders to protect the very natural resources on which livelihoods depend. Sustainable community based ecotourism is a vital tool in the fight to protect the earth’s declining unspoiled natural resources. Well managed CBE can restore degraded rangelands, revive cultures, protect and preserve endangered species of fauna and flora, reduce resource conflicts and improve the living standards of rural communities. (Lenao, Mbaiwa, & Chanda, 2015)

### **2.6.1. Community participation in CBE**

Involving the community is a critical important and complex subject for successful community based ecotourism. Local community participation in all endeavors of ecotourism is not a new concept. A community is a group of people, often living in the same geographic area, who identify themselves as belonging to the same group. People in a community are often related by blood or marriage. They may all belong to the same religious or political group, class or caste. (Sproule, 1996)

The word participation implies how and what extent people are able to share their views, take part in an activity, project, program, decision making, profit sharing and other issues related to the tourism development process.(WHO, 1999)

The main fundamental concept for the development of community based ecotourism is the empowerment of local people. The involvement of local people should be encouraged from the very beginning by promoting public dialogue and by enabling them to participate in the process of decision making and profit sharing. (Kreag, 1988)

Numerous studies indicate the importance of incorporating the perceptions, values and interest of the local people in the very region where the ecotourism resources/destinations are found. (“Vincent and Thomson, 2002.pdf,” n.d.) Community participation in CBE makes the project sustainable and attains the objective in its establishment (WHO, 1999)

The main underlying concept for the development of CBE is the empowerment of local people. This is only possible when ecotourism planning takes into consideration the views, the perceptions and preferences of the local inhabitants. (International, 2001)

Community participation in community based ecotourism can make a positive promotion to the protection of ecotourism environment. For example, it can avoid the neglect of environmental and social benefits, and prevent from such phenomena as acquiring short-term benefits by sacrificing long-term benefits and environmental protection. Meanwhile, it can also make the damage caused by tourism development be controlled in the limits of assimilation and self-purification of ecological environment deterioration possibly caused by unplanned predatory management or over-exploitation.(Wang & Tong, 2009)

Based on the CBE concept, local communities operate most tourism activities, such as eco-tours, guiding, craft sales, food service, accommodations, and interpretation of village history and culture, eco-lodge owners. (Kencana & Mertha, 2014)

The community residents, especially those who long engage themselves in tourism activities, have a more intuitional understanding on the needs of tourists, can give some advice to the planners on the development of the CBE projects and the distribution of facilities, meanwhile, they can offer useful reference to the environmental protection in ecotourism development process according to their long history fit in the environment and if they have participated and accepted the CBE projects, they will be friendly and provide high quality service which will improve the tourists' satisfaction to the CBE projects so as to achieve a better travel effect. (Wang & Tong, 2009)

### **2.6.2. Stakeholder participation in CBE**

Stakeholders are organizations, individuals and institutions directly or indirectly involved in development, operation and management of community based ecotourism projects. Stakeholder's interest in CBE can affect the outcome of tourism development. In fact, tourism is complex and dynamic, with linkages and independencies and therefore requires multiple stakeholders with diverse and divergent views and values. Stakeholders assume collective responsibilities for the ongoing directions and success of any ecotourism establishment. (Teressa, 2015)

Participation and involvement of different stakeholders in CBE is critical because they have different views and aspirations with respect to development in their regions. Community based ecotourism development encourages stakeholder participation, especially among local residents, tourists and resource administration. ("8342\_Journal of Sustainable Tourism.pdf," n.d.)

According to Keith W. Sproule, 2001; there are several important stakeholders in the process of developing CBE enterprises. These include, the established tourism industry, particularly inbound and outbound tour operators ,the government tourism bureau and natural resource management agencies ,non-governmental agencies ,universities and other research organizations, travel agents, eco-lodge owners/ managers ,protected area managers and additional partners in the process may include other inter-national organizations, public and private funding institutions, and national cultural committees.

The ecotourism stakeholders play a role in development, implementation and management of programs within communities. Local authorities regulate land use activities and infrastructure.(Bottom, Framework, Development, & Donors, 2004)

### **2.6.3. Benefits of community based ecotourism**

#### **2.6.3.1 Biodiversity, eco system and protected area conservation**

Conservation organizations fund CBE as a means of reducing local threats to biodiversity, such as expanding agriculture, unsustainable harvesting of wild plants and animals, and killing wildlife that threatens peoples' crops, their livestock or themselves. The premise is that CBE depends on maintaining attractive natural landscapes and rich flora and fauna; therefore, helping communities earn money from community based ecotourism provides both an incentive for conservation and an economic alternative to destructive activities. (Kiss, 2004)

The ecological environment protection is a benefit of CBE different from other kind of tourism. CBE is not only one kind of simple, ecological and natural tourism pattern, but also the one that increases the responsibility on natural resources protection through tourism activities. Therefore, the connection of ecotourism puts more emphasis on the conservation of natural landscape. The basic aim of CBE is to be close to nature, to protect nature and to maintain the ecological balance. (Wang & Tong, 2009)

CBE pays much more attention to the protection of natural resources in sustainable manner and positively contribute to protect threaten species and promoting alternative use of renewable resources. (Ratnayake, 2011) CBE combine conservation strategies based on environmental protection and indigenous ecological knowledge. (Rajagopalan, 2008)

Protected area conservancy is enhanced by community based ecotourism, CBE provide awareness education related indigenous species, forest resources and natural resources ((U.S.), States, Development, & Foundation, 2007) Nature Conservancy consider ecotourism as a tool which generates benefits to both local community and protected areas . (Drumm & Moore, 2005) Protected areas are the important destinations of tourism in ecotourism. Proper planning and management of community based ecotourism will minimize the impacts on environment and develop conservation of protected areas. (Dudley, 2008)

### **2.6.3.2 Local people and economic development**

The concept of CBE development appears to meet the majority of the targets established in the definition of sustainable tourism, since it constitutes a tool for both social empowerment and long term economic development of the local communities. (“8342\_Journal of Sustainable Tourism.pdf,” n.d.)

Community based ecotourism helps to improve standard of living for example through increased disposable income of individuals. Besides these, there is an underlying concept of development of CBE which is empowerment of local people. In particularly, the concept of empowerment of host communities can be divided into four different categories; economic, psychological, social and political. (WHO, 1999)

According to R.Scheyvens, 1999; an empowerment framework has been devised to provide a mechanism with which the effectiveness of ecotourism initiatives, in term of their impacts on local communities, can be determined;

Economic empowerment – Ecotourism brings lasting economic gains to local community. Cash earned shared between many households in the community. There are visible signs of improvements from the cash that is earned.

Psychological empowerment – Self-esteem of many community members is enhanced because of outside recognition of the uniqueness and value of their culture, their natural resources and their traditional knowledge. Increasing confidence of community members leads them to seek out further education and training opportunities. Access to employment and cash leads to an increase in status for traditionally low-status sectors of society e.g. women, youths.

Social empowerment – Ecotourism maintains or enhances the local community's equilibrium. Community cohesion is improved as individuals and families work together to build a successful ecotourism venture. Some funds raised are used for community development purposes, e.g. to build schools, improve roads.

Political empowerment – The community's political structure, which fairly represents the needs and interests of all community groups, provides a forum through which people can raise questions relating to the ecotourism venture and have their concerns dealt with. Agencies initiating or implementing the ecotourism venture seek out the opinions of community groups and provide opportunities for them to be represented on decision making bodies.

Community based ecotourism helps to improve standard of living, for example through increased disposable income of individuals. (WHO, 1999) CBE pays much attention to the economic development of tourism destinations and the improvement of the living standard of local residents; the income of CBE should not only be used to promote the ecological environment but also benefit the local residents. (Wang & Tong, 2009) Development

organizations see CBE as a potential source of economic development and poverty alleviation, particularly in marginal rural areas with the limited agricultural potential. (Kiss, 2004)

According to Keith W.Sproule, 2001; the followings are as the benefits of CBE, Mechanisms for communities to directly benefit from ecotourism revenues ,financial and legal mechanism that facilitate, not constrain, CBE development ,information and communication within and between the CBE sector and other sectors of the industry, increasing share of the national ecotourism market, while striving to improve standards and criteria for services that are at the cutting edge of this demanding markets and support for institutions of education, training, and other forms of skill development within rural communities .

Wearing and Neil, 1999 stated that the more obvious reasons to initiate an ecotourism projects is to maximize the benefits of tourism, specially; additional revenue to the local business and other services, example; Medicare, banking, car hire, cottage industries, souvenir shopping, tourism attractions, increased market for local products, example; locally grown produce, artifacts, value added goods thereby sustaining traditional customs ,employment of local labor and expertise, example; Eco tour guides, retail sales assistance, restaurant table waiting staff, source of funding for the protection and enhancement or maintenance of natural attractions and symbols of cultural heritage and heightened community awareness of the value of local indigenous culture and natural environment.

#### **2.6.4. Challenges to community based eco-tourism**

In terms of community based ecotourism management, there are some issues of concern such as carrying capacity and the problem of benefit flow to local people at ecotourism sites. Ecotourism prefers small number of tourists. But in many cases, control and monitoring of the carrying capacities of target areas is often difficult. The impact of tourism on the environment includes depletion of natural resources, pollution, soil erosion, natural habitat

loss, increased pressure on endangered species and heightened vulnerability to forest fires. (Sri Lanka Tourism Development Authority, 2011)

According to Autthapon S., &Sithida J., 2010, all stakeholders including local people have had very little experiences in managing ecotourism and its varying objectives. Several critical factors have been noted as constraints for the progress of poverty alleviation through community based ecotourism; limited access of the poor to the tourism market, lack of commercial validity for their product in term of value and price, weak marketing capability, lack of intergovernmental suitable policy framework and inadequate knowledge about tourism and service skill, managing and implementing at local level.

Community members are often hired for low-skilled jobs, only during certain months of the year. Communities are not adequately recognized as a stakeholder by the state forest managing agencies, which could definitely have implications on developing CBE. Besides, lack of recognition of communities as a partner in privately-run ecotourism business has led to community resistances in commencing ecotourism projects in some locations. Ecotourism, especially when it is based on forests, minimal disturbance to the natural environment and socio-cultural setup be maintained. In this regard, it is important to attract the nature-loving and conservation-oriented tourists. Interpretation services provided by most of ecotourism operations do not meet the expectations of the tourists in most of the cases. (Wickramasinghe, n.d.)

## CHAPTER THREE

### 3. RESEARCH METHODOLOGY

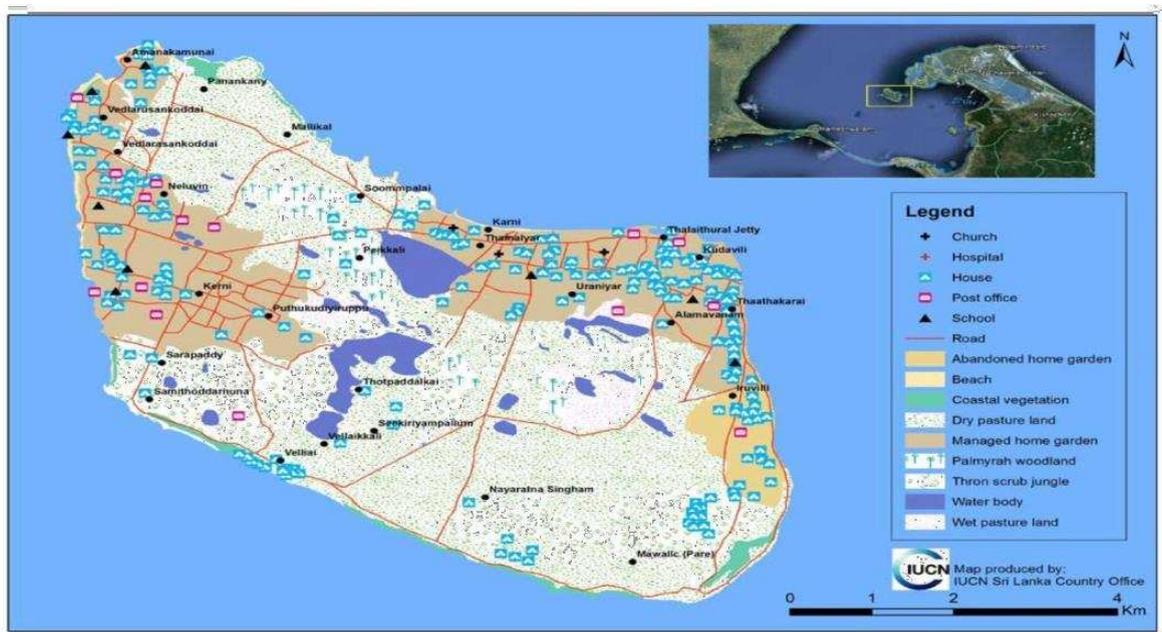
#### 3.1. Chapter introduction

This chapter explains the methodology of the research under two main categories. According to the research approach primary data was collected from inland floral survey, questionnaire survey and field observation. Secondary data has been collected in many ways. Such as, internet, newspapers, research articles and magazines. Under the research design, the methodology of research, data collection methods and data analysis techniques which has been used are explained.

#### 3.2. Study location

Delft island was called by the Portuguese as Ilha das Vacas (the island, of cows), had a fort built by them. The Dutch called it Delft Island. This is the largest island in the Palk Strait, northern Sri Lanka. 46km away from Jaffna mainland. The Island's area is 50 km<sup>2</sup> and it is roughly oval-shaped. Its length is 8 km and its maximum width about 6 km. The total area of the Island is around 4717 hectares. Delft is a relatively undiscovered tourist destination; in Sri Lanka it has history or sandy, white beaches. Ministry of Economic Development has taken measures to convert the island into a tourism destination. The government plans to develop the agriculture, livestock and tourism sectors on Delft Island. Poor infrastructure facilities could be cited as the main drawback, preventing the development of tourism. Delft is dependent on diesel powered electricity generated by the state, with 10 per cent of households connected to it. Transport facilities within the island and between the main lands are limited and require much improvement. There are remnants of a Buddhist temple and the ruins of three "stupas" said to have been constructed during the early Anuradhapura period.

(“Resilience Analysis Protocol to Sustainable Development of Delft Island in Sri Lanka 9,” 2015)



Source: Occasional Papers of IUCN Sri Lanka, 2013

Figure 3.1: Map of Delft Island

The island features a semi-arid tropical vegetation cover dominated by palmyrah palms, thorny shrubs and grasses that grow in the porous coralline soil of the island. The archaeological remains of the island indicate that Delft has been inhabited by humans permanently, since ancient times. Therefore, its present vegetation has been influenced by its human inhabitants significantly, in addition to influence from its climatic and soil factors. Similarly, some of the unique species present on the island, such as the baobab tree and the feral Delft ponies, were introduced by foreign inhabitants. These locations that would be conserved include the Dutch Fort, Dutch Pigeon Nest, the Light House, the horse breeding center, a building used for keeping the horses, the irrigation complex, ancient Hindu Kovils, Buddhist archaeological complex, the boundary wall made out of corals and the area where wild ponies still roam today. (Goonatilake et al., 2013)

### **3.3. Data collection**

#### **3.3.1. Primary data collection**

Primary data collected from inland floral survey, questionnaire survey and field observation.

##### **3.3.1.1 Inland floral survey**

###### **3.3.1.1.1 Selection of sample sites and sampling frequency**

Sample sites were selected based on the findings of several rapid reconnaissance survey that have been conducted on Delft Island in the past. In order to determine the spatial variation and the distribution of biodiversity on the island, both aquatic and terrestrial habitats were surveyed. The main vegetation types and land-use patterns of the island, as well as their extents, were determined using land-use maps, topographic sheets and satellite images of the area.

###### **3.3.1.1.2 Data collected methods**

Following methods are used to collect the data

###### **1. Areal observation counting**

Large unique native plants were randomly count and marked. Delft Central East (J 4), Delft East (J 5).

###### **2. Transect line survey**

A line transect is carried out by unrolling the transect line along the gradient identified. The species touching the line may be recorded along the whole length of the line (continuous sampling). Marked off at regular intervals according to base line map.

###### **3. Quadrature survey**

A series of squares (quadrates) of a set size are placed in a habitat of interest and the species within those quadrates are identified and recorded. In each area were square out by thread with 30m X 30m with plants. Count and recorded the number of plants in each quadrate. The survey recorded in delft east.

###### **4. PCQ method**

The point-centered quarter (PCQ) method is used distance methods employed to sample plant (particularly forests). After a random point has been located, the area around each point is split into four 90° and the nearest tree sought in each quarter. Each tree is identified to species, the distance from the point to the tree is recorded.

### 3.3.1.2 Questionnaire survey

#### 3.3.1.2.1 Questionnaire design

According to Rudestam and Newton (2007) research problem must have the potential to make an original contribution to the field and allow the researcher to demonstrate independent mastery of subject and method. In accordance, it is considered indigenous species endangered going time frame, less tourist arrival and community people leaving from the Delft Island in Jaffna district. Therefore, researcher used community people and local and foreign tourist in Delft to carrying out the research study. (Annex )

Two types of questionnaire were prepared for local People and visitors separately. Those were pretested by supervisors properly. Questionnaires were made in English and then community's questionnaire translated into Tamil since 99 % of the target population was speaking Tamil. These questions help to express a simple overview of the sample Self-administered questions for community and tourist.

Table 3.1: Following factors and variables used in the questionnaire to reach the objective

Specific Objectives	Factors	Variables
To ascertain the community awareness related species extinction.	<ul style="list-style-type: none"> <li>▪ Endangering inland floras</li> </ul>	<ul style="list-style-type: none"> <li>▪ Main causes</li> <li>▪ Awareness</li> <li>▪ Willing to support</li> </ul>
To identify the constraints related with less tourist arrival.	<ul style="list-style-type: none"> <li>▪ Tourist characters</li> <li>▪ Participation in tourism</li> <li>▪ Motivation factor</li> <li>▪ Knowledge about CBE</li> </ul>	<ul style="list-style-type: none"> <li>▪ Tourist type</li> <li>▪ Frequency of visit</li> <li>▪ Purpose</li> <li>▪ Facilities</li> <li>▪ Community support</li> </ul>

To analyze the issues relating residents leaving from the place.

To make suggestions for community based sustainable ecotourism development in Delft Island.

- Existing major problem
- Expectation
- Approaches
- Infrastructure
- Transportation
- Health and safety
- Government and private support
- Development
- Potential benefits

### 3.3.1.2.2 Sample selection

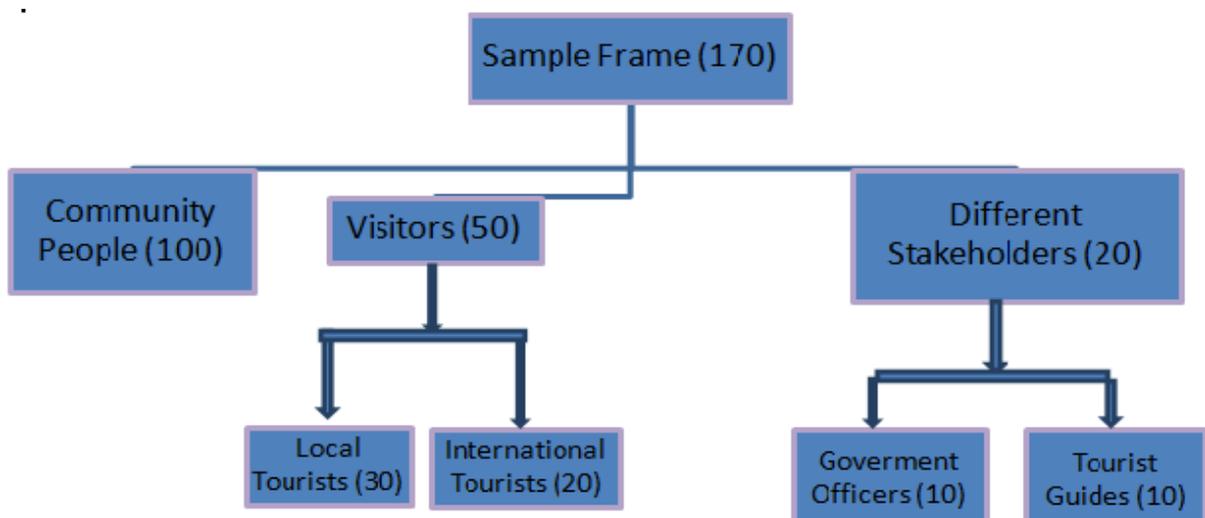


Figure 3.2: Sample frame

The main idea behind this research is to Study the potential of community based ecotourism in Delft Island for Sustainable eco-tourism development. Here convenience sampling method was considered .100 community people and 50 tourists and 20 different stake holders selected for the data collection.

### 3.3.1.3 Field observation

Observed some of the reason for identified issues.

### 3.3.2. Secondary data collection

Secondary data had been collected in many ways. Such as, internet, newspapers, research articles and magazines.

### 3.4. Data analysis

#### 3.4.1. Data analysis for inland floral survey

Data analyzed according population size reduction quantitative analysis.

$$\text{Population size reduction} = \left[ \frac{\text{Previous findings} - \text{Total findings}}{\text{Previous finding}} \right] 100$$

Table 3.2: population size reduction range for species criteria

Species category	Population size reduction range
Extinction	Last individual has died
Critically endangered	$\geq 80\%$
Endangered	$80\% \geq X \geq 70\%$
Vulnerable	$70\% \geq X \geq 50\%$
Near threaten	$50\% \geq X \geq 30\%$
Least concern	$\leq 20\%$
Data deficient	Inadequate information to make a direct, or indirect, assessment of its risk
Not evaluated	Has not yet been evaluated against criteria

#### **Extinct (EX)**

A taxon is Extinct when there is no reasonable doubt that the last individual has died. A taxon is presumed extinct when exhaustive surveys in known and/or expected habitat, at appropriate times (diurnal, seasonal, annual), and throughout its historic range have failed to record an

individual. Surveys should be over a time frame appropriate to the taxon's life cycle and life form.

### **Critically Endangered (CR)**

A taxon is Critically Endangered when the best available evidence indicates that it meets any of the criteria for Critically Endangered, and it is therefore considered to be facing an extremely high risk of extinction in the wild.

### **Endangered (EN)**

A taxon is endangered when the best available evidence indicates that it meets any of the criteria for endangered, and it is therefore considered to be facing a very high risk of extinction in the wild.

### **Vulnerable (VU)**

A taxon is Vulnerable when the best available evidence indicates that it meets any of the criteria for Vulnerable, and it is therefore considered to be facing a high risk of extinction in the wild.

### **Near Threatened (NT)**

Is close to qualifying for or is likely to qualify for a threatened category in the near future.

### **Least Concern (LC)**

A taxon is Least Concern when it has been evaluated against the criteria and does not qualify for Critically Endangered, Endangered, Vulnerable or Near Threatened.

### **Data Deficient(DD)**

A taxon is Data Deficient when there is inadequate information to make a direct, or indirect, assessment of its risk of extinction based on its distribution and/or population status. A taxon in this category may be well studied, and its biology well known, but appropriate data on abundance and/or distribution are lacking.

### **Not Evaluated (NE)**

A taxon is not evaluated when it has not yet been evaluated against the criteria.

## **3.4.2. Data analysis for questionnaire survey**

Using descriptive (Bar chart, pie chart) and inferential statistical (Wilcoxon signed rank test, chi square test) techniques. SPSS version 22 has been used for the analysis of data.

## **CHAPTER FOUR**

### **4. RESULTS AND DISCUSSION**

#### **4.1. Chapter Introduction**

This chapter deals with the data analysis regarding inland floral survey and the community, visitor's perception information based on objectives of the study. A SWOT analysis based on data analysis was prepared. Finally, Dickman's theoretical approach was developed to promote a CBE development in Delft Island

#### **4.2. Inland floral situation**

In this survey have done in delft east total of 105 plant species were counted and categorized according to quantitative population size reduction category. Flowering plant species representing diverse life forms including epiphytes, shrubs, climbers, trees and herbs were observed during the floristic survey. Although some invasive plants were recorded, the rich plant life of the island is a good repository for the indigenous arid zone flora of Sri Lanka. According to the results of the study 11 species are extincted, 8 species face critically endangerd and 12 species are in endangered category. It was observed that there are 28 species in the vulnerable category and 13 species are facing near threaten, 15 species considered as least concern 13 species were not evaluated because of insufficient data.

### 4.3. Community Perception

#### 4.3.1. Analysis of the general information about community

##### 4.3.1.1 Age

Table 4.1: Age profile of the local respondents

Age Group	Frequency	Valid percent
18-24	22	22
25-34	28	28
35-44	37	37
45+	13	13
Total	50	100.0

The age of the respondents has an important part in the participation of community based ecotourism. Analysis found that majority of people surveyed were between 35 and 44 years while they represented 37 % of sample. The study found that the median age of the respondents was between 25-34 years. Further, age between 18 and 24 to 22 represented the 22% of the sample while 22% and 13 % were from age higher than 45 as shown above the table 4.1.

##### 4.3.1.2 Gender

Table 4.2: Gender profile of the local respondents

Gender	Frequency	Valid percent
Female	44	44
Male	56	56
Total	100	100

The gender of the respondents has an important part in the decision making of community based ecotourism. Respondents' gender was recorded for the purpose of comparing with other variables. According to the table majority of the community people are male 56% and female parties 46% so, in this statement mention female parties higher than male parties in the community.

#### 4.3.1.3 Period of resident

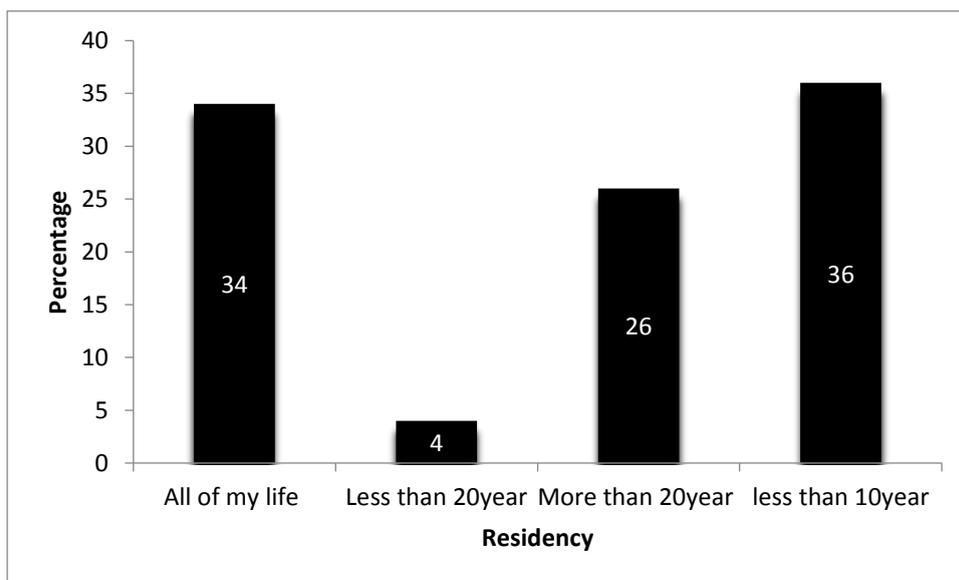


Figure 4.1: Period of Resident

Length of residence has become an important livelihood option for Community-based eco-tourism (CBE). According to the table no 4.4 majority of the community people live all their life in Delft Island percentage is 54% and others are less than 10 years because their came in business purposes.

#### 4.3.1.4 Education level

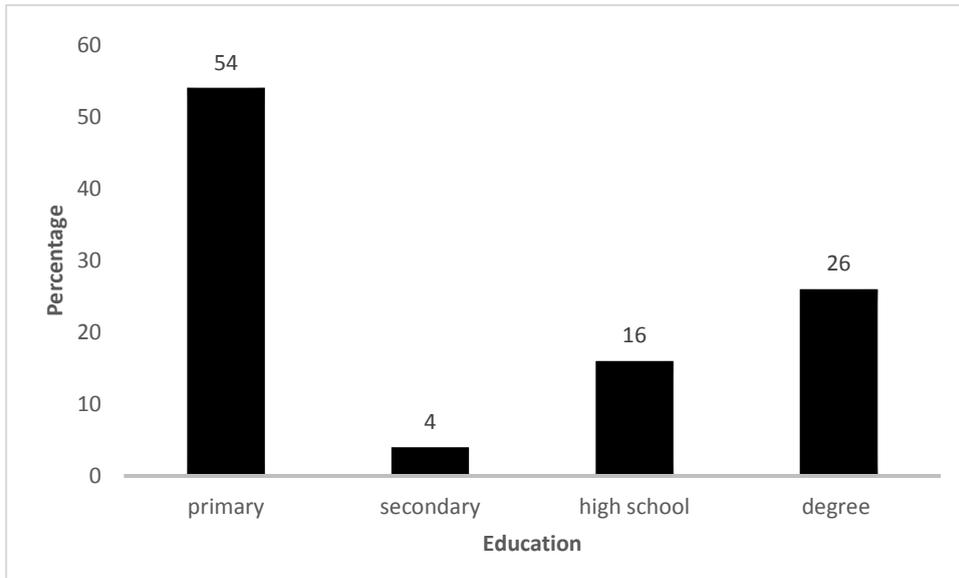


Figure 4.2: Education level

The education level of community is crucial in determining its influence on the perceptions, participation and awareness of in community based ecotourism development practices. Analysis found that the median of the respondents' education level was primary education. Graph shows that 26% of the respondents signified that they completed degree, 4% had secondary education and 16% had high school education.

### 4.3.1.5 Occupation

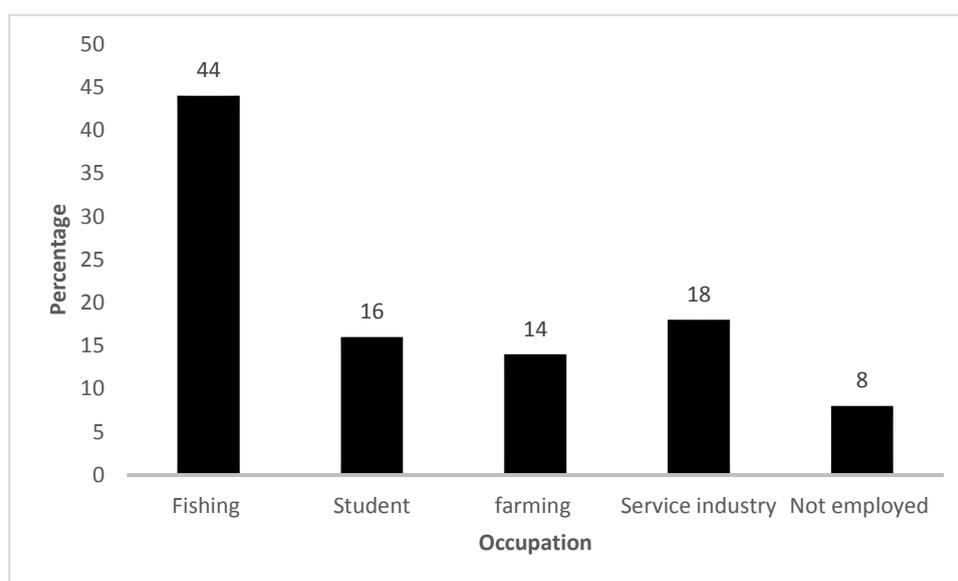


Figure 4.3: Occupation

Occupation is the most important determinant in development of community based ecotourism. According to the figure4.6 majority of the community people occupation is fishing 44% and second majority of the people service industry 18% and some are students others farmers.

### 4.3.2. Community awareness related species extinction

#### 4.3.2.1 Knowledge about endangered species

Table 4.3: Knowledge about endangered species

	knowledge about that endangered species
Z Value	8.030
P Value	0.000
Mean	0.875
Std. Deviation	0.208

Note: \*P value < 0.05, Significant, \*\*Wilcoxon Signed Rank Test

Wilcoxon Signed Rank Test was performed to check. There is low significant potential Knowledge about endangered species to community. According to the findings, calculated ( $Z$  -8.030) and ( $P$ -0.000). Hence, they don't have potential knowledge about endangered species.

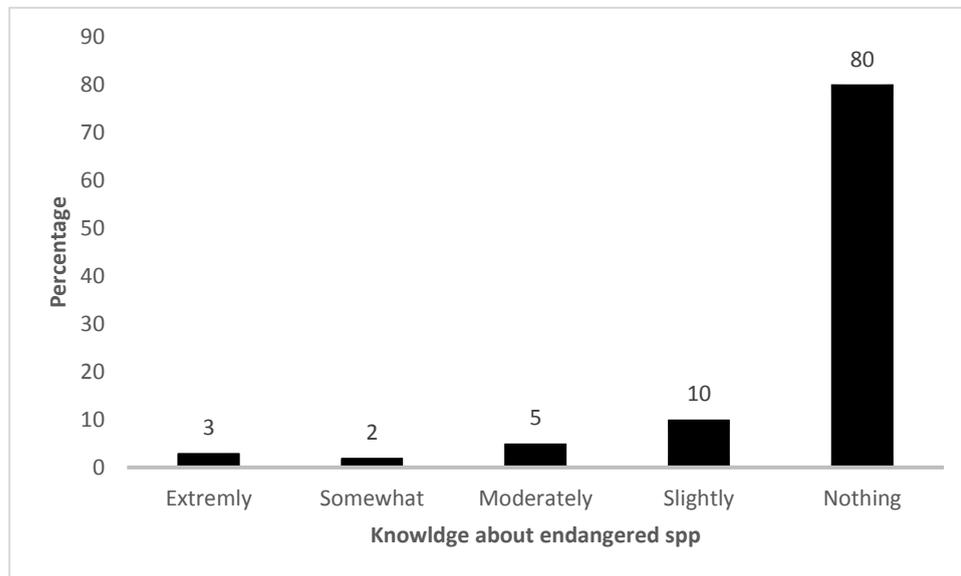


Figure 4.4: Knowledge about endangered species

Above graph also shows the knowledge about endangered species of community. As presented in figure 4.7 majority of the respondents (80 %) were don't have knowledge about endangered species. 3% were extremely know about endangered species. Further, 10% were slightly while 5% and 2% of groups were moderately and somewhat having knowledge about species endangered.

### 4.3.2.2 Major causes for species becoming critically endangered

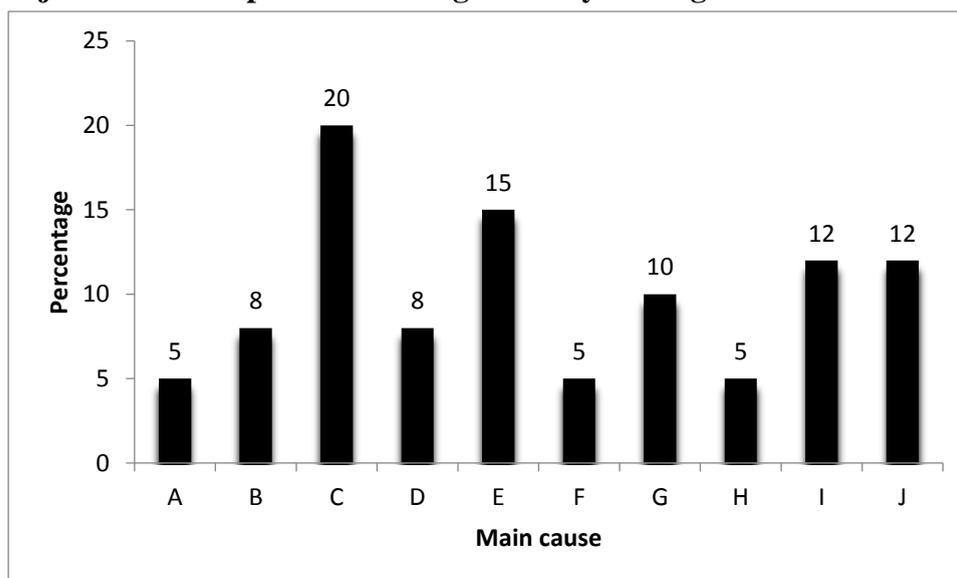


Figure 4.5: Main cause of the species becoming critically endangered

A- Illegal plucking /hunting

F – Over fishing

B -Climate change

G-Waste generation

C- Habitat loss for infrastructure construction

H-Human conflict

D -loss of genetic variation

I-To make other products

E -Pollution

J-Traditional

The graph illustrates (figure 4.8) most of the community are accordance with the statement that the main cause is habitat loss for infrastructure construction. 20% of the sample holds this reason. 15% of the sample given pollution whereas 12% influenced species going to endanger through the traditional activities and to make other product. 10% from the waste generation. 8% of the sample represented climate change and genetic variation. Further 5 % said human conflict and illegal plucking or hunting.

#### 4.3.2.3 Knowledge about Endangered Species Act (ESA1973).

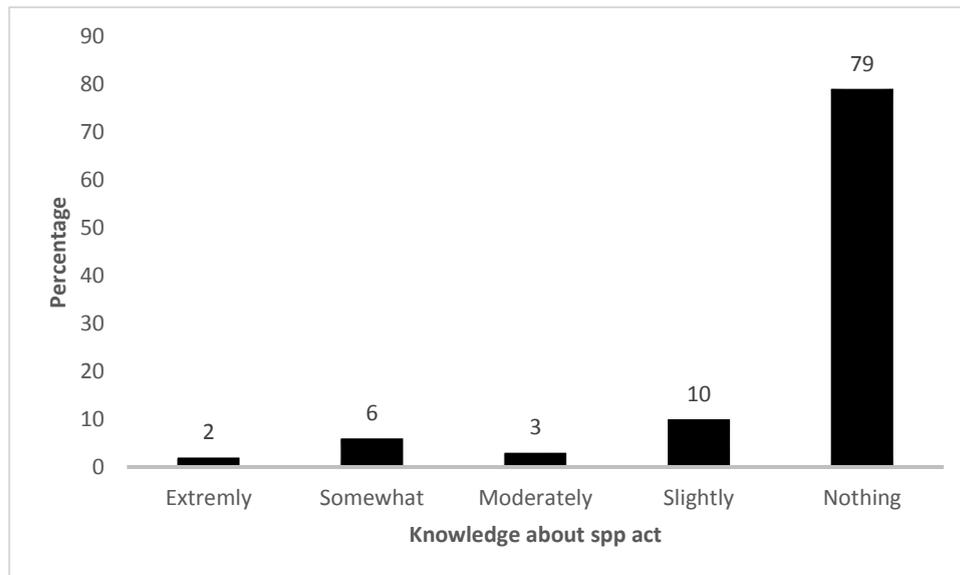


Figure 4.6: Knowledge about species act

The graph above shows the knowledge about endangered species act in the community people. Majority of the respondents (79 %) were not having knowledge about endangered species act 2% were extremely know about endangered species. Further, 10% were slightly while 3% and 6% of groups were moderately and somewhat having knowledge about endangered species act.

#### 4.3.2.4 Willing Support to the projects based on species protection

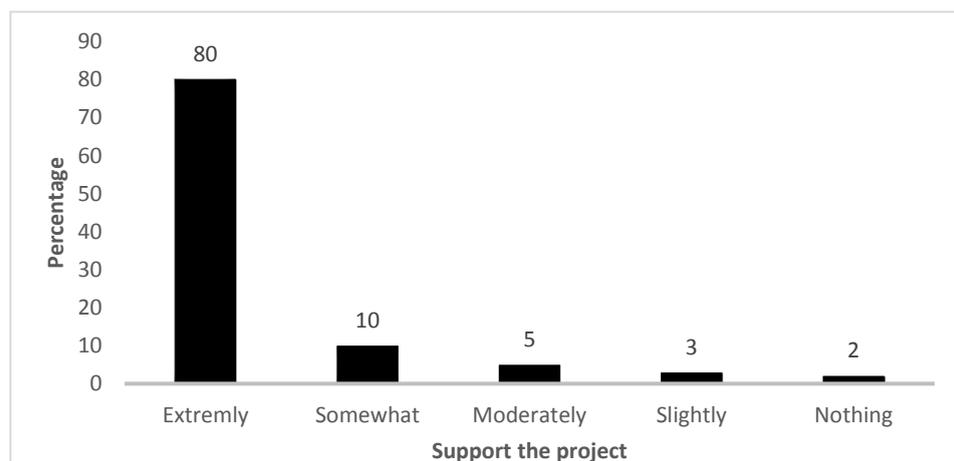


Figure 4.7: Willing Support to the projects based on species protection

Above graph 4.10 also shows the Willing Support to the projects to reduce the endangered species. Majority of the respondents (80 %) were extremely support these kind of projects.10% were support somewhat. Further, 5% and 3% were moderately and slightly support. Another2% of groups was not support.

#### 4.3.2.5 Willing you spend time and effort to help protect endangered species

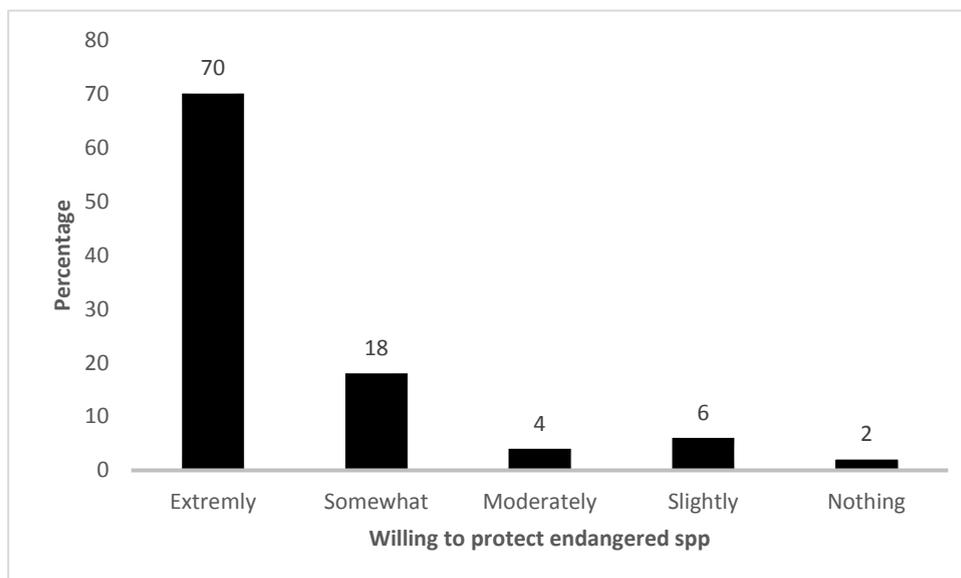


Figure 4.8: Willing you spend time and effort to help protect endangered species

As

presented in figure 4.11 majority of the respondents (70 %) were spend time and effort to extremely.18% were support somewhat. Further, 4% and 6% were moderately and slightly support. Another2% of groups was not support.

#### 4.3.2.6 Best way to preserve endangered species

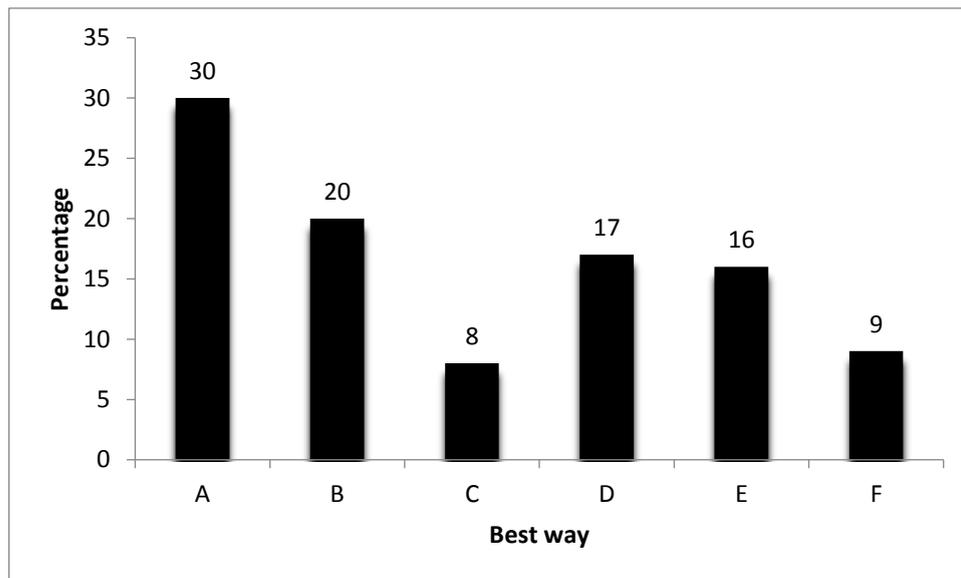


Figure 4.9: Best way to preserve endangered species

A-Develop eco-tourism and Give the awareness related endangered species

B -Consider the environment makes wild life friendly

C- Never purchase product from threaten or endangered species

D -Reduce the waste and recycle by sustainable product

E -Harassing wild life is cruel and illegal

F -Help to organizations that help save endangered animals

Out of 100 respondents, 30 % have said Develop CBE and give the awareness related endangered species is the best way to protect the species.20 % told about consider the environment makes wild life friendly. 8%have said never purchase product from threaten or endangered species 17% said reduce the waste and recycle by sustainable product and further 16% and 9% said harassing wild life is cruel and illegal and help to organizations that help save endangered animals.

### 4.3.3. Issues relating residents leaving from the Delft Island

#### 4.3.3.1 Existing major problem

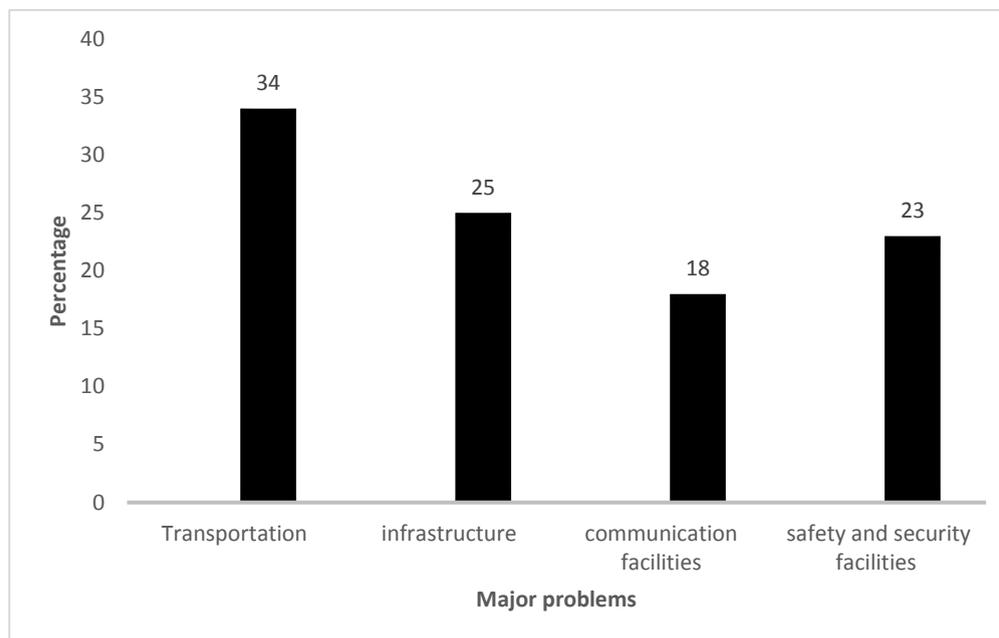


Figure 4.10: Existing major problem

Figure 4.13 illustrates the majority of the community respondents answered (34%) Transportation is the main barrier in the Delft Island. Other each of the respondents answered (25%) poor infrastructure, 23% represented poor safety and security facilities, 18% for not enough communication facilities.

#### 4.3.3.2 Government involvement and private investment

Table 4.4: Government involvement and private investment

	Frequency	Percentage
<b>GND</b>	17	17
<b>JOB</b>	20	20
<b>GSP</b>	16	16
<b>PTD</b>	47	47
Total	100	100

GND: Government and NGO not provide funds for developing Delft Island

JOB: Government and private sector not helping to create new job opportunities and promote local products in delft

GSP: Government not support for protect the historical places and ecological hotspots

PTD: Political influence in delft tourism development

Above the statement 17% and 16% of the residents answered government and NGO not provide funds for developing Delft Island and government not support for protect the historical places and ecological hotspots. 20% answered that government and private sector not helping to create new job opportunities and promote local products in delft. The majority of the tourist and the community answered 47% “feel there is a high PTD”. Therefore, Delft Island tourism development has some political influence.

#### 4.3.3.3 Negative impacts that can be caused by local people leaving from this island

Table 4.5: Negative impacts that can be caused by local people leaving from this island

<b>Impacts</b>	<b>Frequency</b>	<b>percentage</b>
Not enough facilities	50	50
Poor livelihood opportunities	5	5
Degradation of local resources	30	30
For higher studies and jobs	15	15
Total	100	100

According to above table, majority (50%) of the community respondents answered the people leaving from the delft island because of not enough facilities. 30 % for degradation of local resources 15% and 5% answered for higher studies, job and poor livelihood opportunities

#### 4.3.4. Attitudes and perceptions towards Community based ecotourism

##### 4.3.4.1 Attitudes toward community based eco-tourism

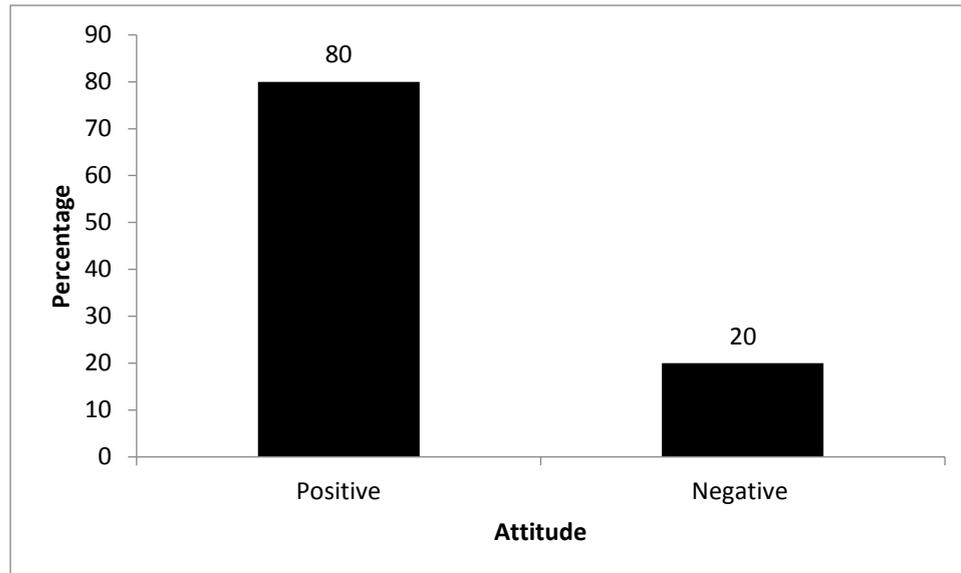


Figure 4.11: attitude toward community based eco-tourism

Involving the community is a critical important and complex subject for community based ecotourism. Local community attitudes and perceptions towards Community based ecotourism is the important endeavors for CBE. Data analysis reveals that nearly 78% of the respondents (78 out of 100 respondents) had positive attitude while 22% (20 respondents) had negative attitude toward community based in the Delft island Jaffna.

##### 4.3.4.2 CBE attitudinal association with other demographic variables

The analysis exposed that the attitudes of the local community towards community based ecotourism were independent of gender, age, education level and length of stay and occupation. There is no significant difference in the association between the gender of the local respondents and the attitudes towards community based ecotourism ( $\chi^2 = 5.18$ ,

DF = 1 P=0.023). The ages of the respondents also had no significant effect on the attitudes towards community based ecotourism ( $\chi^2 = 0.346$ , DF = 3, P-Value = 0.951). Further, education level also had no significant effect on the attitudes towards community based ecotourism ( $\chi^2 = 6.821$ , DF = 3, P-Value = 0.00). Analysis says that there was no significant difference in the association between the length of residency of the local respondents and the attitudes towards community based ecotourism ( $\chi^2 = 6.677$ , DF = 3, P-Value = 0.000). In addition, there was no significant difference between occupation of respondents and the attitudes towards community based ecotourism ( $\chi^2 = 18.871$ , DF = 3, P-Value = 0.001).

Table 4.6: Association between attitude and gender, age, education level, length of residency and occupation

Variables	Negative Attitudes	Positive attitudes	Pearsonchi square value	P value
<b>Gender</b>				
Female	5	39	5.18	0.023
Male	17	39		
<b>Age</b>				
18-24	4	18	0.346	0.951
25-34	7	21		
35-44	8	29		
45+	3	10		
<b>Education level</b>			6.821	0.00
Primary	10	44		
Secondary	1	3		
High school	1	15		
Degree	10	16		
<b>Residency</b>				
All my life	11	22	6.677	0.00
Lessthan20 years	2	2		
Morethan20 years	3	23		
Less than 10 years	6	31		

<b>Occupation</b>				
Fishing	10	34	18.871	0.001
Student	2	14		
Farming	0	14		
Service industry	10	8		
Not employed	0	8		

Significant at P = 0.05

#### 4.3.4.3 Satisfactory level about community based ecotourism development participation in Delft Island.

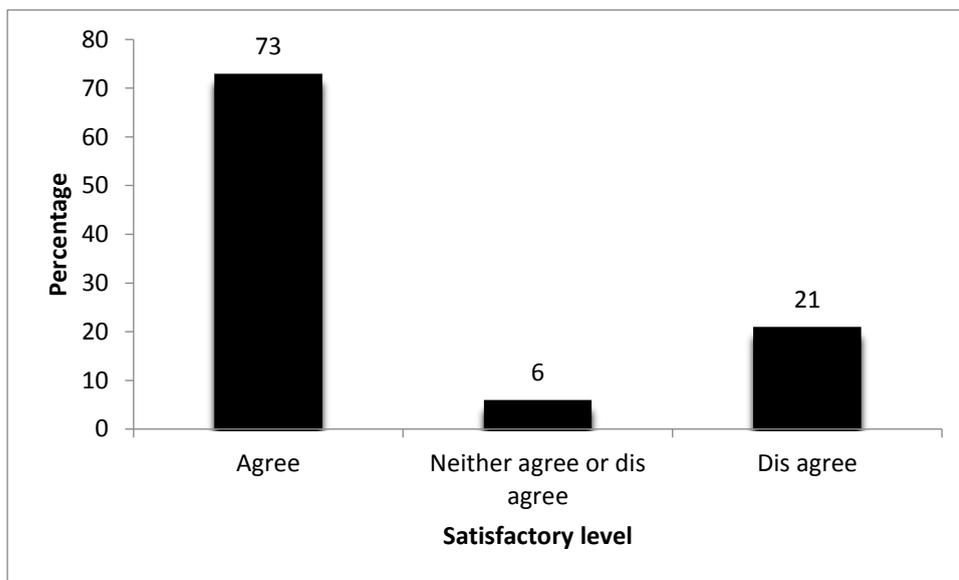


Figure 4.12: Satisfactory level about community based ecotourism development participation in Delft Island.

When developing a CBE practice in a community, local community Participation and the support is must. Data analysis says Most of the respondents (73 %) were really happy and had a good satisfaction about Participation toward CBE. while 21 % were disagree and 6 % were in neither le Wilcoxon Signed Rank Test was performed to check whether there is a significant

potential of satisfactory level about community based eco-tourism ecotourism development or not by feeding data Table 4.7 how the calculated Z value with reference to satisfactory level on sustainable ecotourism as suggested. According to the findings, calculated Z- value is higher than 1.96 (Z-8.374, P-0.0000). That means there is a significant potential for satisfactory level of local community.

Table 4.7: satisfactory level toward CBE

Satisfactory level toward CBE	
Z Value	8.374
Mean	.52
Std. Deviation	0.822
P	0.000

Note: \*P value < 0.05, Significant, \*\*Wilcoxon Signed Rank Test

#### 4.3.4.4 Reason behind this satisfaction

##### 4.3.4.4.1 Expected positive benefits

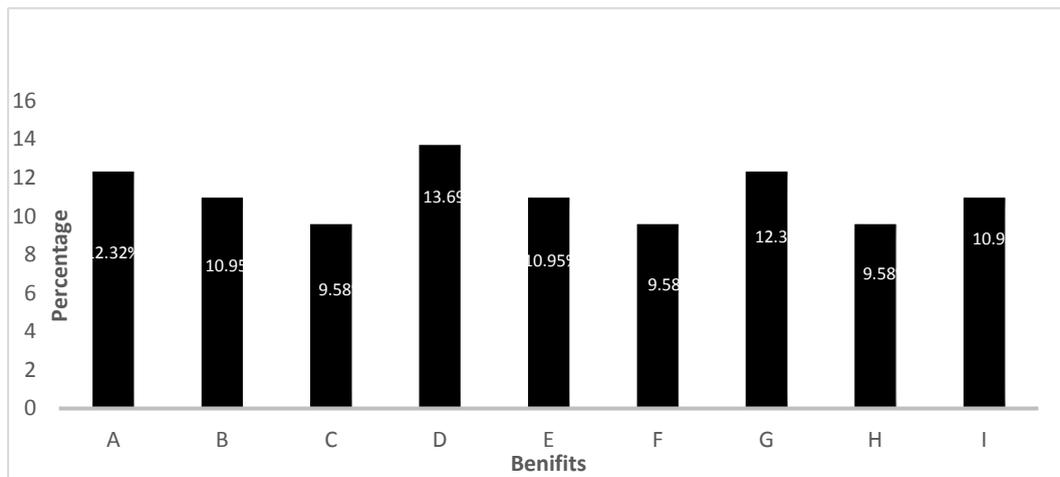


Figure 4.13: Expected positive impact

- A - Eco system& natural resources protection
- B- Business viability and economic development
- C- Visitor appreciation
- D- Conservation of local community& culture
- E- Improve local people livelihood
- F- collective benefits (health, education, skills, technical knowledge)
- G- Endangered species protection
- H- Improve local people creativity handy craft
- I- Revenue generation by indigenous products

According to above satisfaction level 73% were accepted in CBE development participation. The respondents said that they can get benefits from community based ecotourism in Delft Island. As revealed in the Figure 4.16 of the local people surveyed, 12.32% said CBE can be a source for Eco system& natural resources protection and endangered species protection

while 10.95% out of total respondents said that they can get business viability economic development and revenue generation by indigenous products from CBE development. Another 13.69% out of 73 respondents have said it is improve the visitor appreciation. The majority of respondents have said this will be a tool to conservation of local community & culture 10.95% said Improve local people livelihood 9.58% have said to get other collective benefits such as health, education, skills, technical knowledge and Improve local people creativity handy craft by this CBE development.

#### 4.3.4.4.2 Willingness to provide service and product

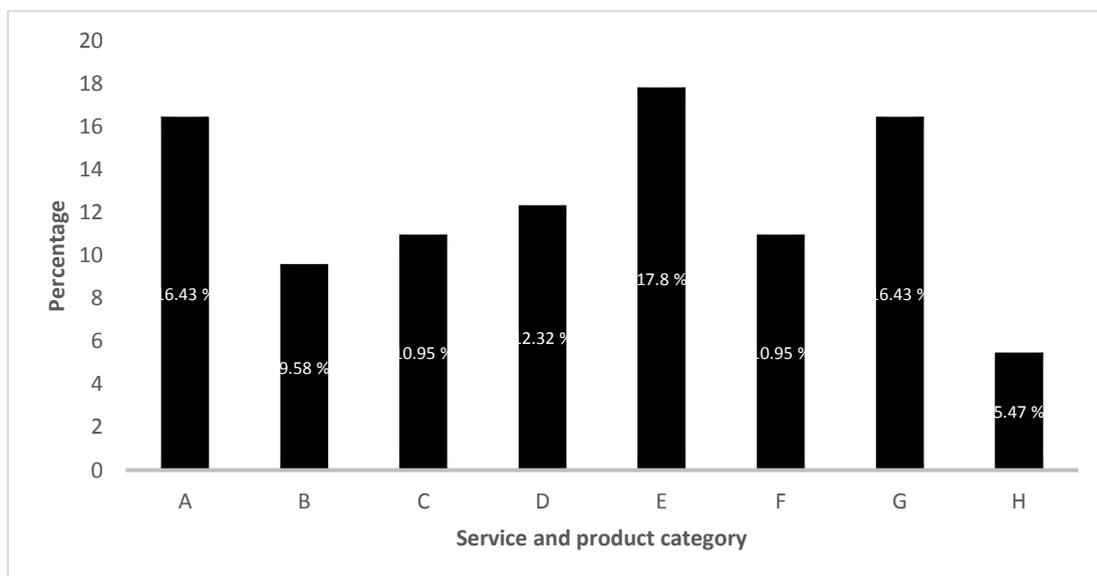


Figure 4.14: willingness to provide service and product

CBE participation accepters 73 % said that they can provide services, products and other facilities to tourist. Out of total respondents 16.43 % said that they can provide services through restaurant, shops and provide Palmyra products. Another 9.58 % said that they can provide accommodation facilities to visitors. Other 10.95% said they can guide to tourist and provide local handicraft. While 12.32%17.8%, said that they can entertain the visitors by providing traditional performances and provide transport facilities.

#### 4.3.4.4.3 Expected negative impact

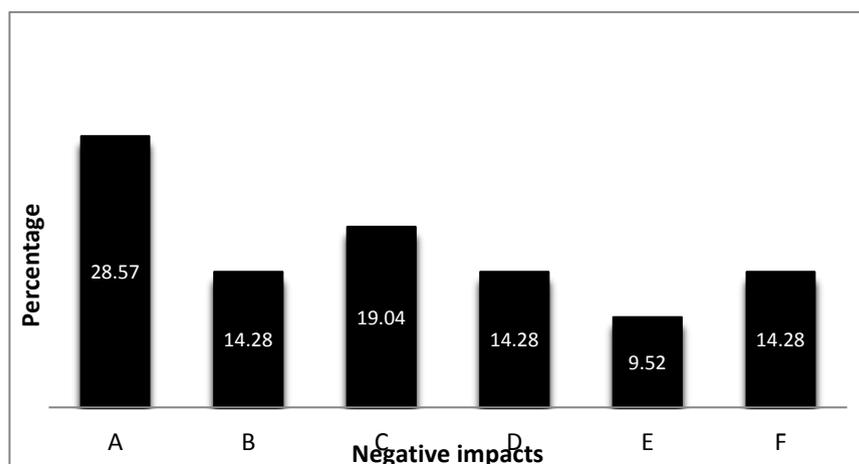


Figure 4.15: Expected negative impact

A-Local culture has been altered

B-The villagers' life style has been changed

C-Increased garbage and wastes

D-Reduced demands on local resources

E-Economic distortions

F-Increase conflict by outsiders

As revealed in the Figure 4.18 From this survey majority of people said 28.57% said CBE development altered the local culture. 19.04% have said that may increase Increased garbage and wastes Some (14.28 %) believe that reduce the demands on local resources. The villagers' life style has been changed and may Increase conflict by outsiders.9.52 % have said that this will drive to create economic distortions.

#### 4.4. Visitors' Perception

##### 4.4.1. Analysis of the general information about visitors

Table 4.8: general information of tourist

Variables	Category	Total	%
Age	18-24	5	10
	25-34	7	14
	35-44	23	46
	45+	15	30
Type of tourist	Foreign	25	50
	Local	25	50
Gender	Male	27	54
	Female	23	46
Education	Primary	07	11.67
	Secondary	15	25.00
	High school	26	43.33
	Degree masters	12	20.00
	No schooling	00	00

##### 4.4.1.1 Age

These tourists were aged within 18-24 years old (10%) and also 25-34 years old (14%), major tourist aged within 35-44 years (46%). Further second majority 30% tourist aged more than 45 years table 4.8. This illustrates the majority young representation of local and foreign tourist.

##### 4.4.1.2 Type of tourist

Twenty-five of local tourist (50%) and twenty-five of foreign tourists (50 %) of were surveyed. The results are shown in table 4.8.

There were more male (54%) than female (46%) tourist selected for the research table 4.8 It indicates the growing popularity of male tourist

#### 4.4.1.3 Education level

Graph shows that 43% of the respondents had high school 20% completed degree, 25% had secondary education and 11% had primary education.

#### 4.4.2. Participation in tourism

##### 4.4.2.1 Frequency of visiting Delft Island.

Table 4.9: frequency of visiting Delft Island

Frequency of visit	Frequency	percentage
This is the first time	34	68.0
Two times or more	16	32.0
Total	50	100.0

According to the 4.9 Most of the foreign and local tourist visited delft island this is the first time (68%) and other (32%) of tourists visit two times.

##### 4.4.2.2 Revisit

Table 4.10: Prefer to revisit

Revisit	Frequency	percentage
Yes	32	64
No	18	36
Total	50	100.0

The majority of tourist answered prefer to revisit (64%) to Delft Island, because of Delft Island has a special unique image and also have cultural and historical value as well as archeological sites. Other (36%) percentage not like to revisit because these destinations don't have enough transportation facilities not enough accommodation facilities also therefore revisit percentage not hundred.

#### 4.4.2.3 Knowing about Delft

Table 4.11: knowing about delft

<b>Knowing about Delft</b>	<b>Frequency</b>	<b>Valid percent</b>
<b>Internet</b>	10	20
<b>Friends</b>	18	36
<b>Newspapers</b>	9	18
<b>Travel agencies</b>	8	16
<b>Other media</b>	5	10
<b>Total</b>	<b>50</b>	<b>100</b>

The majority of tourists know delft by friends (36%) (Table), the fewest number of respondents are knowing newspaper and other media. Eight percentage respondents know delft by travel agencies.

#### 4.4.2.4 Purpose to visit

Table 4.12: purpose to visit

Purpose	Frequency	Valid percent
Rest and relaxation	16	32.0
Archeological and culture	19	38.0
Visiting relatives and friends	3	6.0
Fun	12	24.0
Total	50	100.0

According to the table 4.12 Majority of local and foreign tourist's purpose were archeology and culture (38%) and the second number of majority respondents (32%) rest and relaxation. (24%) respondents came fun with their friends and six percentage of local tourists only came relatives and friends.

#### 4.4.2.5 Favorite destination

Table 4.13: Favorite destination

Favorite destination	Frequency	Valid percent
Ecological	5	10.0%
Archeological	17	34.0%
Community culture	27	54.0%
Coastal		16%
Total	50	100.0%

According to the 4.13 the majorities of the tourist their favorite destination is community culture (54%) within and second majority is archeological sites (34%). Third majority tourist is in (10%) ecological. Further tourists were selected in coastal.

### 4.4.3. Tourist expectation & satisfaction

#### 4.4.3.1 Available facilities

Table 4.14: Transportation, communication and health facilities

Questions	Mean	Std. Dev
<b>TFA</b>	2.80	.700
<b>TFD</b>	2.14	.783
<b>CFD</b>	3.74	.527
<b>SSA</b>	3.20	.639

TFA: Transportation facilities available from Jaffna to delft

TFD: Transportation facilities available within delft

CFD: communication facilities available around the Delft Island

SSA: safety and security facilities are available in Delft Island (medical, sings and arrows)

According to the table, majority of the tourist mentioned that they had “feel CFD”. Mean of the tourist (3.74) so, have communication facilities available there, and other questions means are also same in each question. But according to their statement in Jaffna to delft island don't have enough transportation facilities and within the delft also. So here transportation facilities are the most major problem in Delft Island.

Table 4.15: Infrastructure facilities

Questions	Mean	Std. Devi
<b>ALD</b>	4.70	.463
<b>CPS</b>	4.52	.505
<b>TDS</b>	4.88	.328
<b>SCR</b>	4.32	.471

ALD: Accommodation facilities are important in Delft Island.

CPS: Community people support the tourism in Delft Island.

TDU: This tourist destination has a unique image.

SCR: Suitable climate condition to get relaxation in this area.

According to the table 4.15 mean value of the tourist (4.88) “This tourist destination has a unique selling point” majority of the tourist agree this statement because delft has many destination archeological, ecological, community culture and coastal so have unique image, and other major important thing is majority of the tourist felt “ALD” this is the 2<sup>nd</sup> highest mean value. The mean value of the tourist is (4.70). Hence, the tourist doesn't satisfy because delft has attractions, but don't have accommodations.

#### **4.4.4. visitors' knowledge and preference toward CBE**

#### 4.4.4.1 Visitors' knowledge about community based ecotourism

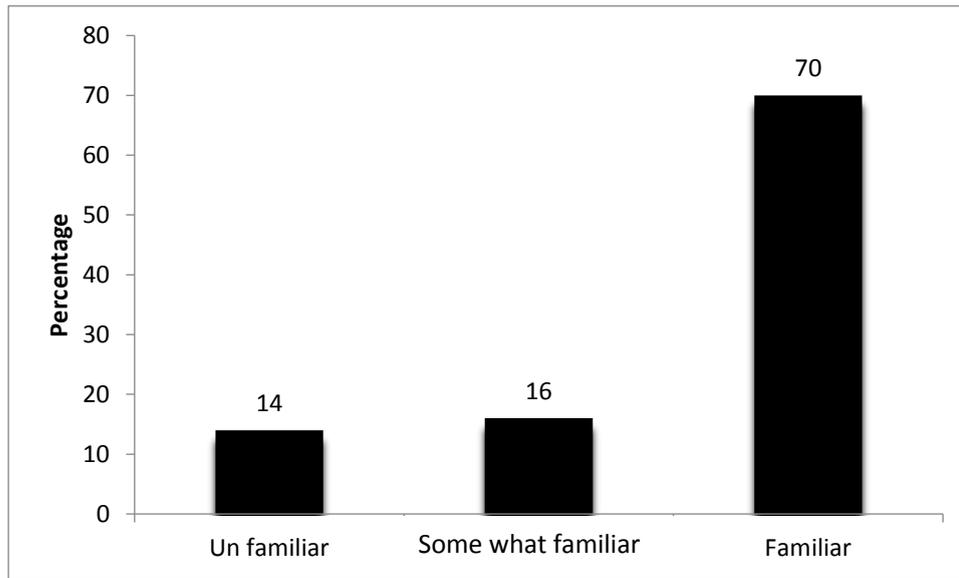


Figure 4.16: Visitors knowledge about CBE

As shown in Figure, 14 % of visitors were unfamiliar with ecotourism. As well as 16 % were somewhat familiar while 70 % of visitors were very familiar related to ecotourism knowledge.

#### 4.4.4.2 Visitor preference toward CBE

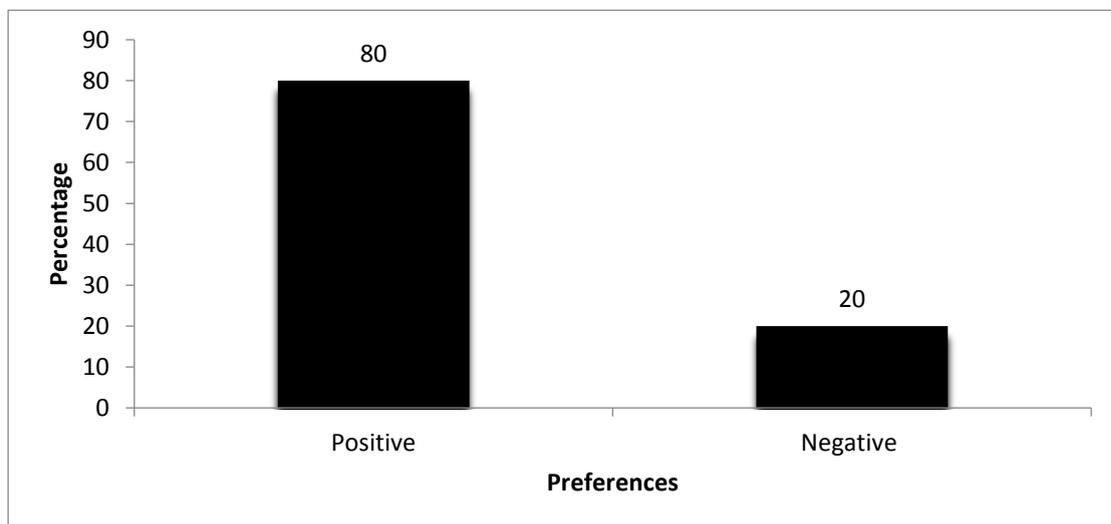


Figure 4.17: Visitors preference level toward CBE

Visitors were asked about their preference level toward CBE. As revealed in the figure 4.20 of the visitors surveyed, 80% said positive preference and 20 % said that negative preference.

#### 4.4.4.3 community support

Table 4.16: Community support

Question	Mean	Std. Devi
CDT	3.40	.535
CFP	4.78	.555
CDT	3.88	.627
LPS	3.86	.670
CPS	4.24	.418

CDT: Community people are depending upon the tourism.

CFP: Community features and people life style is promoting the Delft tourism.

CDT: Community based eco-tourism development increasing the level of community health, education and achieving community economic level.

LPS: Local products are substantial value for money

CPS: CBE will promote local products and services

Table display with mean highest value (4.78) is question CFP majority of the tourist felt community cultural features promote tourism and the second majority of the tourist, Question “CPS” mean value is (4.24) felt CBE promote product and service. And other mean values(3.88), CDT, Community based eco-tourism development increasing the level of community health, education and achieving community economic level increasing the level of community health, education, Transportation and communication facilities” and ( 3.86 ), LPS, Local products are substantial value for money another( 3.40),CDT, Community people are depending upon the tourism.

#### 4.5. SWOT analysis

Strengths	Weakness
<p><b>1)Environment capabilities &amp; having high aesthetical value</b></p> <p>Delft Island having a high potential of environmental inland and marine diversity.</p> <p><b>-Habitats</b></p> <p>Delft Island is covered by a mosaic of diverse vegetation types, ranging from natural and semi-natural habitats, to highly anthropogenic habitats.</p> <p><b>-Dry pasture lands</b></p> <p>The dry pasture lands of Delft Island are characterized by the dense growth of short grasses forming a green carpet that spreads over large areas of the island landscape. The structure and floristic composition of the grassland system is influenced considerably by grazing pressure, trampling, high salinity and drought.</p> <p><b>-Wet pasture lands</b></p> <p>Structurally, as well as functionally, wet pasture lands and their species assemblage patterns are slightly different to another land patterns.</p> <p><b>-Mixed thorn scrub jungles &amp; Phoenix dominant thorn scrub jungles</b></p> <p>Thorn scrubs can trap finer particles of soil, and sand blown away from the habitats that occur</p>	<p><b>1)Poor Infrastructure facilities</b></p> <p>Delft island having poor infrastructure facilities.</p> <p><b>-Water</b></p> <p>The availability of water for drinking, and other consumptive purposes, is the main issue on the island.</p> <p><b>- Health facilities</b></p> <p>Poor health facilities are provided to the people of Delft through a government managed hospital</p> <p>In view of the limited facilities, and poor residential facilities for the medical professionals. Patients with major complaints or health issues and all maternity cases, are referred to the hospitals in Jaffna. An ambulance and ambulance ferry are available to carry passengers to the jetty through sea transport, and from the jetty to mainland. It is a very critical situation for patients.</p> <p><b>-Transport facilities</b></p> <p>Delft Island can be accessed from mainland through road transport followed by a one hour ferry journey to the island. It takes nearly one hour to reach the jetty by bus from Jaffna city</p>

towards the sea, which contributes to the building up of the soil layer. Dense vegetation present in this habitat makes it excellent cover against erosion or 'desertification' caused by the strong winds prevailing in the area,

**-Managed home gardens**

Home gardens are the vegetation type found immediately around homesteads, and are the result of long-term human manipulation. Home gardens are dominated by multi-purpose tree species that are arranged into different vertical levels.

**-Palmyra woodlands**

The arid climatic conditions of the area have enabled the successful spread of Palmyra in some vegetation pockets

**-Coastal woodlands**

This type of vegetation was observed on higher ground, just behind the seashore vegetation and has a simple structure, consisting of a dense growth of dwarf trees, creating continuous canopy cover, with dry pasture lands beneath it.

**-Coral rock and Sandy seashore vegetation**

Although coral rock and seashore areas appear to be barren at first sight, they support several species of plants

**-Inland flora and fauna**

Having high inland floral and faunal diversity. Those varieties of floral species are economically important. Such as palmyra, coconut, medicinal

center. Bus services to the jetty and back to Jaffna are very limited services. Within delft island also have poor transportation facilities. The transport facilities from the mainland to the island are sub-standard, with the journey being both uncomfortable and unsafe

**-Poor accommodation facilities for visitors**

They have not enough accommodation facilities there for tourist length of staying level is low.

**2)Increasing crime rate**

Having Illegal hunting pouching of indigenous animals from out sides, having unlicensed hotels.

**3)Lack of supportive activities**

Lack of supportive public facilities and other services.

**4)Lack of implementation**

The paying attention of responsible Authorities regarding environmental consideration were comparatively low.

**5) Local people having lack of knowledge about endangered species.**

According to this survey they have not adequate knowledge about endangered species.

<p>plants, food plants , firewood and timber. And having high varieties of mammals, dragonflies ,butterflies, amphibians reptiles and birds</p> <p><b>-Marine bio diversity</b></p> <p>The coastline of Delft Island includes coral reefs, dead coral outcrops, coral rubble beaches, sandy beaches, scattered sea grasses and seaweeds. The environmental conditions in the area are different from those observed in the rest of the country.</p> <p><b>2) Socio-economic capabilities</b></p> <p><b>-Demographic profile</b></p> <p>Delft island is the largest human population of the islands located in srilanka Almost 95 percent of the people of Delft is Catholic, while the rest are Hindus. This may be due to the relatively long influence of the Dutch on the island in the period between the fifteenth and seventeenth centuries, until the arrival of the British.</p> <p><b>- The local economy and high market place</b></p> <p>The local economy in Delft, which is based primarily on fisheries, agriculture and cottage industries. They earned high income from these activities.</p> <p><b>3) Having good historical and archaeological findings.</b></p> <p>Given its rich history, several sights of historical and archeological importance can be found on Delft Island The remains of a Portuguese colonial fort also archaeological value found on the island</p>	<p><b>6)Lack of proper hygienic and waste management system.</b></p> <p>-They practiced traditional ways of handling fish during drying process because they have not had opportunities to get proper training on hygienic aspects of food handling</p> <p>-They don't have proper waste management system. Ocean dumping also have done by some of the industries.</p> <p><b>7)No knowledge, lack of capital, lack of access to machineries about coconut coir pith production and some of Palmyra by production</b></p> <p>-Delft is associated with the traditional fishing industry but now having lack of availability of fishing equipment, Fishing harbors are not conducive for landing and keeping boats, Poor transport facilities, lack of marketing facilities Price fluctuation, lack of financial support lack of fishing harbor and poaching from Indian fisherman</p> <p><b>8)Lack of security in historical and archaeological places</b></p>
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Opportunities	Threats
<ol style="list-style-type: none"> <li>1) Delft Island consider as one of the best destination to develop a community based eco-tourism.</li> <li>2) Increasing tendency toward alternative tourism such as community based eco tourism.</li> <li>3) Investment in basic infrastructure and other facilities installations.</li> <li>4) Having high demand for local product through that job creation and revenue generation to regional and local people</li> <li>5) Establishment of an environment management committee for considers the environment.</li> <li>6) Creating tourist facilities and increasing acceptance of tourist.</li> <li>7) Development of a management plan to the waste management, consider the hygienic activities and eco system.</li> </ol>	<ol style="list-style-type: none"> <li>1) Environmental destruction.</li> <li>2) Influence of invasive species.</li> <li>3) Threats to endemic flora and fauna</li> <li>4) Influence of various religious and culture</li> <li>5) Political instability</li> <li>6) In adequate development facilities</li> <li>7) Lack of medical and health facilities.</li> <li>8) Uncertainty over fishing</li> <li>9) Illegal poaching or hunting</li> <li>10) Poverty is still very high</li> </ol>

#### **4.6. Dickman’s 5As approach for develop a CBE in delft Island.**

To promote a place as a CBE destination, it needed to test with Dickman’s 5As: that essentials to promote an area as CBE development destination attractions, accessibility, accommodation, amenities and advertising. From this testing limitation potential issues were identified.

## **Attractions**

To promote a community based eco-tourism, attractions are essential component. And also it causes for the re-visitation of a destination. The majority of tourist answered that they were revisited to Delft Island, because of Delft Island has a special unique image and also have natural, cultural and historical value as well as archeological aspect too.

The island possess unique natural features surrounded by the Indian Ocean, abundant with palm trees, green grasslands, beaches of coral chunks and sand, view both the sunrise and sunset from a single site, cows and wild horses, many kinds of land patterns dry and wet pasture lands, mix and Phoenix dominant thorn scrub jungles, Palmyra coastal wood lands, Coral rock and sandy seashore vegetation .There is also have unique indigenous species, and is thought to have been introduced to Delft Island by Arabic traders But this species are going to endangered. Local people are having not adequate knowledge about the endangered species and they don't know about species act. Therefore, there is high possibility of illegal poaching, hunting, by product production from the indigenous species. But have a high potential of capable of investing on ecotourism activities.

According to the survey majorities of the tourist consider delft for their favorite destination because of its community and their culture. Delft's Community culture and traditional activities are different than other areas. The unique feature of their fences and boundary walls are made of coral rocks piled one on top another. They have some different traditional equipment such as rice pounding equipment, coir pith divider, Palmyra mats etc. They also conduct different traditional activities like bullfighting and bull-racing sports specifically called as "jallikattu" which is conducted between a man and bull. Bull fighting has its own techniques and rules. These sports acted as one of the criteria to marry girls of warrior family. There were traditions where the winner would be chosen as bridegroom for their daughter or

sister. Ancient folk dance using sticks, intricate movement, false legged horses and bull racing also unique traditional activities. Most of the tourist were attracted to this specific community features and people life style which is promoting the Delft tourism.

From this survey the majority of foreign tourists are coming to Delft because of the Delft's unique archeology and history. Due to its rich history, several sights of historical and archeological importance can be found on Delft. The 'Delft' originates from the Dutch colonization of the island, with the island being named after the Dutch city of the same name. There are remains of an ancient temple which is found on the western coast of the island, bear evidence of an early Buddhist civilization that has existed on the island. The remains of a Portuguese colonial fort, a dovecote (a structure intended to house pigeons or doves), and limestone walls, are some of the other notable places of archaeological value found on the island. There is also a local belief that there is a rock that 'grows in size' on Delft Island.

### **Accessibility**

Although the destination is very attractive, they are having difficulties of accessibility which badly affect to attract tourists. Majority of the community respondents and tourist answered that transportation is the main barrier in the delft island. . Delft Island can be accessed from mainland through road transport (from Jaffna to the Kurukattuwan jetty), followed by a one hour ferry journey to the island. It takes nearly one hour to reach the jetty by bus from Jaffna city center. Bus services to the jetty and back to Jaffna are very limited services. There are poor transportation facilities within Delft Island. The transport facilities from the mainland to the island are sub-standard, with the journey being both uncomfortable and unsafe. The survey indicates not enough accessible facilities, local resources degradation and poor livelihood opportunities cause to people leaving from the place.

## **Accommodation**

According to most tourists responds the tourist destination was the unique selling point of Delft Island. Delft has many destination archeological, ecological, community culture and coastal so have unique image. But the major important thing is majority of the tourist felt that they don't have enough accommodation facilities .Therefore tourist arrival and length of staying level is low.. In this area there are some restaurants, small hotels. But they are not in standard level to cater for tourists. The communities have positive attitudes towards community based ecotourism. Majority of the people are willing to provide the accommodation to tourist if there is a establishment of community based eco-tourism development in future.

## **Amenities**

Amenities are the services that are required to meet the needs of tourists while they are away from home. They include public toilets, safe and security facilities, retail shopping, restaurants and cafes, visitor centers, communications and emergency services. Majority of community and tourist in Delft felt there is a lack of infrastructure and health safety facilities. The availability of water for drinking, and other consumptive purposes, is the main issue on the island. Poor health facilities are provided to the people of Delft through a government managed hospital. There is a limited facilities, and poor residential facilities for the medical professionals. Patients with major complaints or health issues and all maternity cases, are referred to the hospitals in Jaffna from Delft. An ambulance and ambulance ferry are available to carry passengers to the jetty through sea transport, and from the jetty to mainland. It is a very critical situation for patients due to the lack of transport and medical services.

## **Advertising**

Advertising is done vital role to promote destinations toward CBE. Today the world become as the global village. In that global village advertising become as major communication media. Advertising make customer awareness regarding the particular products. The delft tourist strongly examined the local products are substantial value for money. These products have unique image such as food products that can be based on Coconut and Palmyra, Ayurveda mud Spas and herbal Packing, coir production and bed Madres, algal cosmetic product, Palmyra leave cap and mats, aesthetical seashells other handy graft.

Advertising make customer awareness regarding the particular products. Now most of the people use internet facilities for their daily activities. Online advertising is most profitable and useful way to promote local product this way can promote all over the world. Newspaper advertisements and TV advertisements are another way to promote CBE products. Even though they have the high potential value of product, but they have very low availability of the knowledge and facilities to advertise.

## CHAPTER FIVE

### 5. CONCLUSION AND RECCOMENDATION

#### 5.1. Conclusion

In the study area of delft east region. 28 species in the vulnerable category and 13 species are facing near threaten, 15 species considered as least concern 13 species were not evaluated because of insufficient data. However the awareness of community about the endangered species is very low.

The major reason for the less tourist arrival is the poor transportation facilities within Delft Island. The transport facilities from the mainland to the island are sub-standard, with the journey being both uncomfortable and unsafe. Insufficient accessible facilities, local resources degradation and poor livelihood opportunities cause to people leaving from the place.

Majority of the community responded that the people leaving from the Delft Island because of the lack of enough facilities. The second highest reason is that people are moving because of the lack of local resources. Thirdly, the people are moving from Delft Island for higher studies, searching for jobs and due to poor livelihood opportunities.

The majority of the community has positive attitudes towards community based ecotourism and most of them are really happy and have a good satisfaction about Participation toward CBE and they are willing to provide product and services such as accommodation, infrastructure, transport, food and traditional performances for entertain the tourist. The community expect that CBE will be a tool for conservation of local community and culture, source for eco system conservation, natural resources protection

and endangered species protection. They also expect that there will be an increase in the business viability, economic development and revenue generation by indigenous products. They also believe that this will improve the visitor appreciation, other collective benefits mainly health, education, skills, technical knowledge. And also CBE will improve local people creativity and handy craft production.

On the other hand, CBE development may lead to their negative impact to the Delft Island with altering the local culture, increasing waste accumulation, reducing the demand on local resources, changing villager's life style, economic distortion and conflict creating by outsiders. Majority of visitors also has positive preference toward Community based eco-tourism development in Delft Island.

Community based ecotourism would present a distinctive solution by contributing towards reducing the identified issues associated with these areas. In particular, community based ecotourism can generate more sustainable development. Furthermore, as a primarily nature positioned site, much of the development is inappropriate for the site. Through the development of community based eco-tourism exposes a high orientation towards ecosystem and biodiversity conservation, develop the livelihoods of local people and improve their facilities, and visitor appreciation and revenue generation.

## **5.2. Recommendation**

According to the study, indigenous species get evicted and endangered to survive due to habitat loss. It is depicted that habitat loss are being caused by the infrastructure construction, traditional activities, making other product, waste accumulation, climate change, human conflicts, and genetic variation. But according to the field observation in the study area, the main reasons are illegal plucking of valuable plants and hunting of endangered animals for human consumption.

There for the government should take legal action against the group or individual who harassing the wild life cruelly and illegally. People prevent purchasing products produced from threaten species. There should be a contribution from community creating the community-based organization that would help and save endangered species. Through this CBE development practices, in the future it's expected that community will be moved to environmental and wildlife friendly society.

The community has very poor awareness on the endangered species. Therefore, their knowledge and awareness based on endangering species should be improved. In future they should pay more care for the indigenous species by receiving the knowledge about indigenous species.

Some of their traditional activities also influence the endangering of species. Therefore, knowledge and awareness is the most important strategy to change their behavior.

Further, to protect the indigenous species it is advisable to organize exhibitions and eco-Museum which shows the details and value of these species.

Greening of routine processes such as solid waste management, sewage and wastewater treatment is needed to reduce adverse impacts on the environment.

The creation of awareness is required on the importance of the marine ecosystems around Delft, their conservation and management, and the role of local communities in the conservation and management of these ecosystems

To develop Delft Island as a tourist destination, Community Based Eco Tourism is the ideal strategy. For that high community participation is essential. It is necessary to introduce set of guidelines for tourism development and management especially for the environment protection and infrastructure development

Reliable transport services between mainland and within the Delft Island are important. With respect to road transport within Delft, it is suggested only to improve transport systems to meet the minimum requirements without disturbing the natural setting. Such as horse drawn carts, bullock carts, push bicycles or driven carts (rickshaws) will make a difference. Therefore, these activities should be promoted with a unique Delft label.

Water scarcity is the main problem in Delft Island. Solution for this issue is to establish Reverse Osmosis Plant which convert the sea water to drinking water. Installing rain water harvesting tanks would improve the accessibility for water to key areas of the island during the rainy seasons. It is necessary to construct drainage paths based on the existing natural gullies for this purpose. Action should also to be taken to increase the ground water recharge by capturing rainwater.

Tourists arrival could be developed through improving home stay facilities, natural huts & resorts, Coastal Tourist activities, wildlife, swimming, water sports, recreational fishing, agro tourism, traditional food culture, organic food, boat tours, and archeological sites, etc. Tourists interested in ecological locations as they prefer to be away from tedious urban life styles. Calm and quiet sea beaches welcome water sports activities. Since delft is an island enriched with unique biodiversity and rural culture, island has great potential for tourism.

Training of the local unemployed youth as English-speaking guides, and development of their skills required to undertake small enterprises of traditional products that will have tourism attraction.

Developing the existing archaeological sites with patronage from the Department of Archaeology has to be executed and establishment of a museum on the island to preserve the natural and cultural history of Delft is important in order to display the cultural

monuments discovered during the excavations. Excavation and restoration of archaeological sites would be another potential tourism attraction for the Island..

Promotion of eco-friendly community-based small industries such as Palmyra and coconut based products, in association with tourism development would improve the local livelihoods. A dedicated marketing center should be established to display the local product of the Island. The center should be built using eco-friendly technology such as roof with solar power panels, a bio gas unit that absorb the solid and liquid waste from the marketing center and wind powered water pumping etc. Identify an attractive theme to market Delft Island for visitors for example “Most authentic Dutch coastal town in Asia” and develop a central website such as "[www.visitdelft.com](http://www.visitdelft.com)" are some potential steps to promote tourism in delft. And advertising the local product online would lead to revenue generation.

CBE is necessary to introduce set of guidelines for tourism development generate a revenue through the CBE development especially for the environmental education, protection and infrastructure development, as well as their role in ensuring environmental sustainability.

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## ANNEX

### Questionnaire for community people

Dear Sir/Madam,

I am HobikaSelvarajah, reading for Bachelor science of Green technology, Degree Programme at Faculty of Agriculture University of Ruhuna Sri Lanka. I am supposed to conduct a research as a partial fulfilment of the degree and hence, I am conducting a research on “**Community Based Eco tourism Development, A Case Study in Delft Island**”. I assure that, all information will be stored confidential and the results of this study will be used for scholarly purpose only.

Thank you for taking your time to fill this questionnaire

#### Section: 1(General characteristics)

##### 1) Age

18-24  25-34  35-44  45+

##### 2) Gender

Male  Female

##### 3) Education

Primary  High school   
Secondary  Degree masters

##### 4) For how long do you live in this community?

All my life  More than 20 years   
Less than 20 years  Less than 10 years

##### 5) What is your main occupation?

Not employed  Farming / fishing  Services industry   
Student  Palmyra

**Section: 2(Endangered species)**

	Question	Extremely	Some	Moderately	Slightly	Nothing/Not	Remarks
6	There were many unique species survived in delft island from Portuguese era but now this indigenous species close to extinction. How much do you know about that endangered species?						
7	Do you have idea about Endangered Species Act (ESA) 1973?						
8	Do you support to the projects based on species protection?						
9	How willing would you be to spend time and effort to help protect endangered species?						

**10) What is the largest cause of the medicinal valuable species becoming critically endangered?**

- Illegal plucking       loss of genetic variation       Exotic species interruption   
 Climate change       Habitat loss for infrastructure construction

**11) What is the best way to help preserve endangered species?**

- Never purchase product from threaten or endangered species   
 Consider the environment make wild life friendly   
 Give the awareness related endangered species to others   
 Reduce the waste and recycle and by sustainable product   
 Harassing wild life is cruel and illegal   
 Help to organizations that help save endangered animals

**Section:3(Existing major problem)**

		<b>Strongly disagree</b>	<b>Disagree</b>	<b>Neither agree/dis agree</b>	<b>Agree</b>	<b>Strongly Agree</b>	<b>Remarks</b>
	<b>Infrastructure facilities</b>						
12	<b>I feel not enough transportation facilities are available from Jaffna to Delft Island</b>						
13	<b>I feel not enough transportation facilities are available within Delft Island</b>						
14	<b>I feel not enough communication facilities available around Delft Island.</b>						
15	<b>I feel not enough safety and security facilities are available in delft Island (medical, sings and arrows)</b>						

		<b>Strongly disagree</b>	<b>Disagree</b>	<b>Neither agree/dis agree</b>	<b>Agree</b>	<b>Strongly Agree</b>	<b>Remarks</b>
	<b>Government involvement and Private investment</b>						
16	<b>Government and NGO do not provide fund for develop Delft Island</b>						
17	<b>I feel government and private sectors are not helping to create</b>						

	<b>new job opportunities and promote local products in delft.</b>						
<b>18</b>	<b>I feel historical places are conserve by government.</b>						
<b>19</b>	<b>I feel there is high political influence in delft tourism development</b>						

**Section: 4**

**• PARTICIPATION IN TOURISM**

		<b>Strongly disagree</b>	<b>Disagree</b>	<b>Neither agree/disagree</b>	<b>Agree</b>	<b>Strongly Agree</b>	<b>Remarks</b>
<b>20</b>	<b>Do you, in anyway, provide services or products to tourists?</b>						
<b>21</b>	<b>Have you been involved in any type of meeting where you discussed tourism development in your community?</b>						
<b>22</b>	<b>Have you been asked about your opinion on tourism by those who plan tourism development?</b>						
<b>23</b>	<b>Do you feel poor infrastructure and transportation facilities are the barriers to develop the tourism in delft is land</b>						

**Section: 5**

**• COMMUNITY BASED ECO TOURISM**

**24) What is your attitude about community based ecotourism?**

Positive

Negative

**25) What short of things attract to the tourist mostly in this area?**

Ecological landscape       Histological archeological       Natural beaches   
Community culture       Horse Stable

**26) Do you like to develop ecotourism in Delft Island?**

Agree       Neither       Disagree

If disagree, **what are the reason?**

Local culture has been altered.       The villagers' life style has been changed.   
Increased garbage and wastes       Demands on local resources   
Economic distortions       Increase conflict by outsiders   
Other \_\_\_\_\_

**27) What are the negative impacts that can be caused by local people leaving from this island?**

Not enough infrastructure facility       Increased garbage and wastes   
Degradation of local resources       for higher study   
Other.....

**28) Do you, in anyway, provide services or products to tourists?**

Yes       No

If Yes, namely

Accommodation       Guide       Shop   
Restaurant       Traditional Performance       Transport   
Local handicraft       Palmyra products

Cooking (in case of a large group of tourists, home stay will assign a group of members to cook and prepare food for tourists)

		Strongly disagree	Dis agree	Neither agree/dis agree	Agree	Strongly Agree	Remarks
29)	I have idea about community based eco-tourism development						
30)	I feel happy to develop community based eco-tourism development in delft island						
31)	I feel happy to sell the products to tourist						
32)	Our products are easy to access by visitors						
33)	That products are substantial value for money.						
34)	Delft island has unique selling point (wild life horse)						
35)	If develop CBE in here, it enhances the local community's livelihood and social structure						
36)	CBE also improve business viability and collective benefits						

## ANNEX 4

### Questionnaire for tourist

Dear Sir/Madam,

I am HobikaSelvarajah, reading for Bachelor science of Green technology, Degree Programme at Faculty of Agriculture University of Ruhuna Sri Lanka. I am supposed to conduct a research as a partial fulfilment of the degree and hence, I am conducting a research on “**Community Based Eco tourism Development, A Case Study in Delft Island**”. I assure that, all information will be stored confidential and the results of this study will be used for scholarly purpose only.

#### Section: 1(General characteristics)

##### 1) Tourist

Foreign  Local

##### 2) Age

18-24  25-34  35-44  45+

##### 3) Gender

Male  Female

##### 4) Education

Primary  High school   
Secondary  Degree masters

#### Section: 2(Participation in tourism)

##### 5) How many times have you visited Delft Island?

This is the first time  Frequency  2 or More

##### 6) Would you prefer to revisit Delft Island again?

Yes  No

##### 7) How do you know about Delft Island?

Internet  Newspapers  Travel Agencies   
Friends  Media  another Source

##### 8) What is your purpose to visit to Delft Island?

Rest and relaxation  Visiting relatives and friends  Fun  
 Religious and Culture  other reason

**9) What is your favorite destination around the Delft Island?**

Ecological landscape  Histological& archeological  Natural   
 beach  
 Horse Stable  Community culture

**Section: 3(Tourist expectation & satisfaction)**

	<b>TOURIST</b>	<b>Strongly disagree</b>	<b>Dis agree</b>	<b>Neither agree/dis agree</b>	<b>Agree</b>	<b>Strongly Agree</b>	<b>Remarks</b>
<b>10)</b>	<b>I feel accommodation facilities are satisfied in Delft Island</b>						
<b>11)</b>	<b>I feel enough Transportation facilities available in the Delft Island</b>						
<b>12)</b>	<b>I feel enough transportation facilities are available from Jaffna to Delft Island.</b>						
	<b>I feel hotels are provide high cost historical tour packages and services</b>						
<b>13)</b>	<b>I feel enough infrastructure and communication facilities are available in delft Island</b>						
<b>14)</b>	<b>I feel enough safety and security available in delft Island (medical, sings and arrows</b>						

		Strongly disagree	Disagree	Neither agree/disagree	Agree	Strongly Agree	Remarks
15)	I feel historical places are important to promote this area.						
16)	I would like to visit Delft Island beach in future.						
17)	I feel this environment is bio diversity& high value destination						
18)	This tourist destination respects the natural environment						
19)	Local people lose any benefits by protecting these resources						
20)	I observed many indigenous species from this place						
21)	When I visited this island, I concerned the endemic flora and fauna without disturbing.						
22)	This tourist destination has a unique image						

**Section: 4**

	<b>COMMUNITY SUPPORT</b>	<b>Strongly disagree</b>	<b>Dis Agree</b>	<b>Neither agree/dis agree</b>	<b>Agree</b>	<b>Strongly Agree</b>	<b>Remarks</b>
23)	I interested the local people cultural features and life style (stone benches and Palmyra leaves benches)						
24)	I feel community people are depend upon the tourism						
25)	If you bought some product or services from local people did like that						
26)	Are they substantial value for money						
27)	I have idea about community based eco-tourism						
28)	I feel cultural features and people life style are promote the Delft tourism						
29)	I feel developing CBE increasing the level of community health, education, and transportation and communication facilities.						
30)	CBE improve the community economic level and enhance the local community's livelihood.						

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