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## Formulation of Methodological Approach for Sustainable Tourism Using 'GSTC' Criteria: A Case Study of Sagar Island, India

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### **Abstract:**

*Sagar Island, located on the mouth of River Hugli is famous for its cultural heritage of Gangasagarmela. This annual Mela (festival) attracts thousands of pilgrims from all over the country. The major part of the annual income of the local community is generated from this 'GangasagarMela'. These only achieve some extent of economic gain of the unorganized sector of Sagar Island. Also, the people engaged in other profession utilize this event for extra income. The pilgrims (tourists) are mostly day-tourists, come to offer their homage to Kapil Muni (Sacred Father) on the very auspicious day of Makar Sankranti (last day of the Bengali month Chaitra; middle day of the month January) without staying at Sagar. The tourist flow throughout the year is very negligible, while huge numbers of pilgrims (tourists) used to visit at a particular time, overshoot the carrying capacity of this island. Sagar Island has great aesthetic value offers sandy beaches, scenic beauty, rich terrestrial and marine bio-diversity, and that way it has immense potential to attract the tourists for leisure and holiday-trips. But Sagar Island has miserably failed to emerge as a tourist destination due to lack of infrastructural facilities and sustainable planning. This study attempts to assess the potentiality of sustainable tourism in Sagar Island. Sustainable tourism is the management of all resources in such an effective way that the social, economic and aesthetic needs can be fulfilled, maintaining cultural integrity, essential ecological processes, biological diversity and life support system. Along with this, responsible tourism is also important as both the host and tourist have equal responsibility to maintain, protect and elevate tourism in a sustained way. The potentiality of sustainable tourism in Sagar Island has envisaged according to the Global Sustainable Tourism Criteria (GSTC) which describes a state of the art and/or the improvement of certain features of a region in terms of tourism. All the GSTC criteria are not applicable for this low lying coastal island while some other non-listed GSTC criteria must be considered. Criteria weightage analysis can be a useful method to evaluate the potentiality of tourism in Sagar Island along with the issues and recommendations.*

**Key words:** Sagar Island; GSTC; Sustainable Tourism

### **1. Introduction**

The world summit held in 1992 laid emphasis on the need for a more balanced approach in sustainable development planning for social, economical and environmental sector. Four basic principles can be seen to be crucial to the concept of sustainability: (1) the idea of holistic planning and strategy-making; (2) the importance of preserving essential ecological processes; (3) the need to protect both human heritage and biodiversity; (4) the key requirement: to develop in such a way that productivity can be sustained over the long term for future generations (Bramwell& Lane, 1993). Tourism is an economic activity and its development and prosperity strongly depend on the environmental and sociocultural resources (Gebhard et al., 2007). The tourism industry has increased considerably in recent decades and has become one of the main sources of income in many countries (Williams and Shaw, 1988). The industry already contributed around 10% of the total global Gross Domestic Product (GDP) of about USD \$44 trillion by the year 2006, and will increase to 10.9% by the year 2016 (Ghosh, 2011). Many tourist sites development are characterized by a long and intense growth in infrastructure, superstructure, and facilities which, sooner or later, seriously made impact on the environment, thus creating a critical situation (Casagrandi&Rinaldi, 2002). In fact, some destinations, after flourishing for a long time, have been abandoned by the tourists in favor of more attractive sites newly available on the market (Butler, 1991). Thus, a new concept of sustainable tourism in tourism development, with the focus of long term viability of tourism industry in certain place, is felt necessary (Garrod&Fyall, 1998). The holistic approach of sustainable tourism implies that all environmental quality, economic prosperity, social equity and viability of industry are necessary for a balanced and long term tourism development. Sustainable tourism

has now achieved wide spread acceptance as a desirable objective of tourism development policy. Sustainable tourism has also been referred to as an 'adaptive paradigm' (Hunter, 1997). Sustainable tourism will maintain economic benefits through time by creating employment opportunities and infrastructural development and can contribute to environmental protection and restoration of biological and ecosystem diversity through the sustainable use of natural resources (Ghosh, 2012). Furthermore, Interactions between the cultures of tourists and those of the local community are an opportunity for cultural exchanges that will promote understanding and reduce intolerance and prejudice (Ghosh, 2012).

Criteria based study is useful for the assessment whether tourism is possible to develop and/ or takes place in a sustainable way (Gebhard et al., 2007). Certain indicators can be used to measure a criterion. So criteria based study can be more context specific as indicators are selected according to the nature of study area (Gebhard et al., 2007). Global Sustainable Tourism Criterion is an effort to establish minimum global standards for sustainable practices. The Global Sustainable Tourism Council baseline criteria for destinations were drafted the 7th of March 2012 and updated the 4th of June 2012 (GSTC, 2012). The criteria are part of the response of the tourism community to the global challenges of the United Nations' Millennium Development Goals. Poverty alleviation, gender equity and environmental sustainability, including climate change, are the main crosscutting issues that are addressed through the criteria. The criteria and indicators were developed and based on already recognized criteria and approaches including, for example, the UNWTO destination level indicators, GSTC Criteria for Hotels and Tour Operators, and other widely accepted principles and guidelines, certification criteria and indicators (GSTC, 2012). The Global Sustainable Tourism Criteria for Destinations were conceived as the beginning of a process to make sustainability the standard practice in all forms of tourism. GSTC may act as a basic guideline for sustainable tourism of a destination site. There may be circumstances in which a criterion is not applicable to a specific tourism destination and few criteria may have limitations depending on the nature of the destination. Sagar Island has been taken as the study area since it is a coastal area and the importance of coastal tourism is being increased in Global economy more and more. Tourism in the coastal regions is a significant way of earning as 40% of the world's population lives on the coast or within the coastal zone and they are dependent on the coastal tourism in addition to their other profession like fisheries, agriculture and so on (Ghosh, 2011). Excessive increase of tourism activity on coastal area is creating negative impact on the coastal environment which leads to necessity of sustainable tourism to protect the environment from degradation (Ghosh, 2011). This paper is a theoretical analysis through the applicable criteria to find a potential tourism aspect of Sagar Island in a sustainable way. This paper also proposes a framework of approaches to sustainable tourism based on Global Sustainable Criteria.

## 2. Study of Potential Tourism in Sagar Island

Sagar Island situated at the estuary of the river Hooghly at south-west of the Indian Sundarban extends from 21°37'21" to 21°52'28" N and 88°2'17" to 88°10'25" E. It is the largest Island of Sundarban under administrative jurisdiction of South 24 Parganas District of West Bengal. This Island spreads over a length of nearly 30 km along the north-south axis with a maximum width of 12 km and thereby covers 251.58sqkm area at all. The unique ecosystem of the coastal island is characterized by resource combination at the interface of land and sea offering beaches, scenic beauty, rich terrestrial and marine biodiversity, diversified cultural and historic heritage, etc. The coastal processes such as erosion, accretion and wave action constantly modify the shoreline that brings changes in human practices. Significant erosion can be seen on both eastern and western faces. Erosion of mudflat is prominent in the northern part of the island while marginal accretion is shown in the southern portion due to delta formation (Ghosh et al., 2001). The majority of the coastal population of the Sagar Island belongs to fisherman and farmer communities (Purkait, 2009). Agriculture is the main source of income of the inhabitants. People of this region are mainly engaged in farming, fishing, tourism and transport services, business and industry (Mondal, 2012). However, besides the major sources of income of the local people, the other economic backbone of the area is yearly 'GangasagarMela'(GSM). In the winter, pilgrims from all over India celebrate the holy dip at the confluence of the River Ganges at Bay of Bengal near Kapil Muni Ashrama on the dawn of the last day of Poush (MakarSankranti) as per Bengali date system (Second week of January). Over a few lakhs of pilgrims from all over India visits the place every year and nearly 2,00,000 of them prefer staying there for 2 to 5 days. A huge infrastructural set up is in place to cater to this large influx which the local population can take advantage of throughout the year. This includes a large rural hospital and a wide all-weather road running through the length of the island (WWF, 2011). Annual monetary involvement during the GangasagarMela (GSM) is about Rs. 20 million of which only 20% is spent on permanent assets. And the rest amount roll over within the local, as well as the regional economy. An estimated 67,500 man-days of jobs are created in the informal sector during the occasion of GSM (Basak, 2004). The local people get themselves involved directly or indirectly with the GSM through various types of business such as transport, marketing, food & lodging etc. of huge pilgrims gathered from all over India. Thus, during this GSM the economy of Sagar Island boosts up (Hajra et al., 2012).

Gangasagar Mela is already an attraction for pilgrims (tourists) but this is only for a certain time of the year. The tourist flow throughout the year is very negligible, while a huge number of pilgrims (tourists) use to visit at a particular time, overshoot the carrying capacity of this island. World Tourism Organization defines tourism carrying capacity as "the maximum number of people that may visit a tourist destination at the same time, without causing destruction of the physical, economic, socio-cultural environment and an unacceptable decrease in the quality of visitors' satisfaction" (Santonocito, 2009). The concept of tourism carrying capacity is one which exemplifies the need to maintain development and activities at a level, both ecologically and socially sustainable (Li, 1998). Primarily, it aims at avoiding environmental degradation and social conflicts (Cazes-Duvat, 2001). Sagar Island has an immense potential to attract the tourists for leisure and holiday-trips. But Sagar Island has miserably failed to emerge as a tourist destination due to lack of infrastructural facilities and sustainable planning. With the increased beautification of beach, accessibility and promotion,

Sagar Island will be a spot of attraction for many tourists. This study attempts to assess the potentiality of sustainable tourism in Sagar Island.

### 3. Framework to study potentiality of sustainable tourism in Sagar Island

According to the WTO's definition of sustainable tourism, it should be ecologically sustainable, economically viable as well as ethically and socially equitable. So, sustainable tourism integrates the natural, cultural and human environment. Therefore, sustainable tourism is certainly a balance between the tourism industry and the local community to protect the destruction of assets on which the coastal tourism is really dependent (Ghosh, 2012). Furthermore, it is characterized by a long term perspective. To evaluate, if tourism development accomplishes these goals, a set of criteria has to be developed which serves as a frame to identify and structure the different aspects of the goals of sustainable tourism are referring to (Gebhard et al., 2007). Criteria express the goals to achieve by sustainable tourism development. If these criteria are fulfilled or true, it can be stated that tourism was developed and/or takes place in a sustainable way. While people usually have similar ideas on what sustainable tourism is, there is no generally binding set of criteria for sustainable tourism. There are different proposals from internationally well-known organizations dealing with the question which criteria and indicators are to be selected to evaluate sustainable tourism.

The Global Sustainable Tourism Criteria (GSTC) for Destinations was conceived as the beginning of a process to make sustainability the standard practice in all forms of tourism. GSTC may act as a basic guideline for sustainable tourism of a destination site. In this paper few criteria have been selected from the list of criteria of GSTC which are applicable to Sagar Island. GSTC have been clustered into four broad categories (Fig.1).

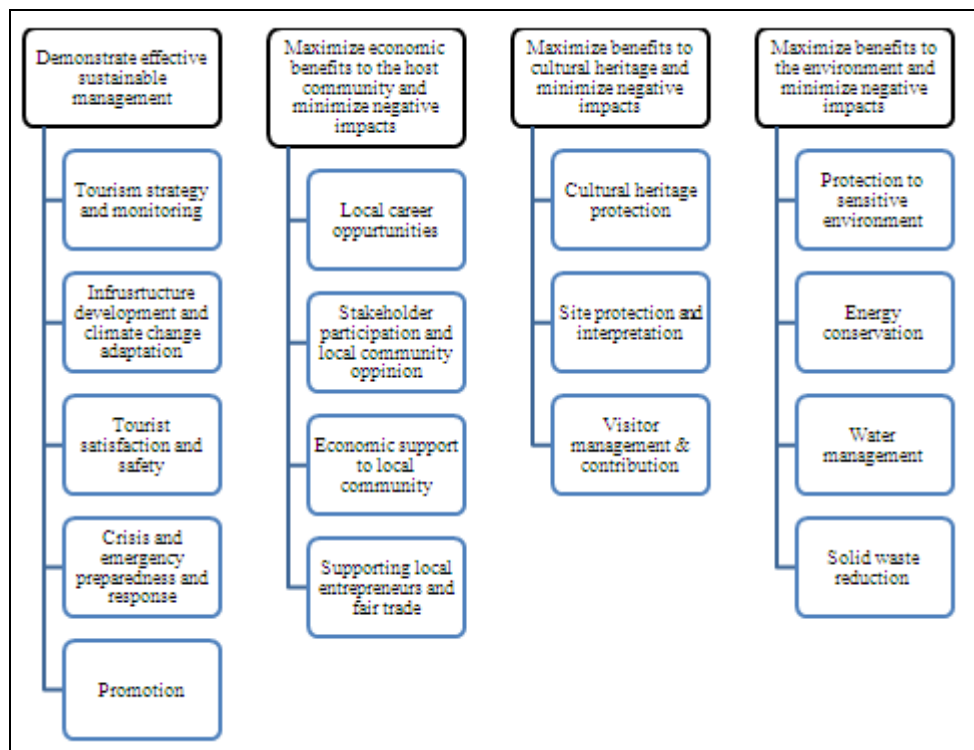


Figure 1: Criteria analysis for Sagar Island

Development of effective sustainable management is an important criterion to be fulfilled for sustainable tourism at any place. Under this category tourism strategy, infrastructural development and climate change adaptation, crisis management, tourist satisfaction and promotion are applicable to Sagar Island. Building construction and infrastructural development should be done keeping erosional zones in mind. The system has to be developed to identify challenges associated with climate change and encourage climate change adaptation strategies for development, siting, design, and management of tourism facilities. The system contributes to the sustainability and resilience of the destination (GSTC, 2012). Sometimes tourist satisfaction is neglected specially in pilgrimages in India for which corrective actions need be taken. The quality of tourism products offered by a region is a key factor for the economic success of tourism (Gebhard et al., 2007). Sustainable tourism could be a driving force for economic growth, employment, poverty alleviation and social equity in the host region. Tourism brings revenue, which contributes to the improvement of living conditions, to social security and stability and it opens up opportunities for development and self-sufficiency. Tourism can provide income for individuals, families or whole communities in many different ways. An estimated 67,500 man-days of jobs are created in the informal sector during the occasion of Ganga Sagar Mela (Basak, 2004). So it can be said, if Sagar Island, being capable in tourist attraction for the whole year, numerous job opportunities could be created. Any kind of tourism development must be approved by the local population. The participation of the locals in the decision-making process must be ensured by adequate means of stakeholder

involvement, notification and approval (Gebhard et al., 2007). To achieve the conservation of the natural and cultural heritage of a region, tourism should be regularized in a correct way. With proper visitor management and regulations, cultural heritage and site protection will be possible. The underlying concept of sustainable tourism is the balance between environment and tourism activities and long term protection of natural resources (Trumbic, 2005). During Ganga Sagar Mela waste of millions of pilgrims and other causes an undesirable change in the physical, chemical and biological characteristics of the air, water and land. Bacterial count increases in water, which harmfully affects the health of local inhabitants (Hajra et al., 2012). To achieve sustainable tourism, system has to be developed to protect the impact of tourism activities over sensitive environment, promote energy consumption and reduce fossil fuel consumption, adopt strategies for water quality management and waste reduction (GSTC, 2012). After selection of criteria, data have to be collected to understand the present condition and future probability. Data can be collected from secondary sources, planning, organization pollution control board and direct survey of local people and tourists. From the available information a perception study could be run in the study area. Several weighting techniques are being used for valuation of parameters (Saaty, 2008; Brandon & Lombardi, 2011) as weighting criteria involve complex interaction between society, economy and environment. To get the significance of each criterion, applicable to Sagar Island multiple correlation may be a way. But socioeconomic variables are very often categorical. In this case multiple linear regressions will not be able to meet the desired goal. Instead, logistic regression may be thought of as an approach that is similar to that of multiple linear regressions, but takes into account the fact that the dependent variable is categorical (Tranmer & Elliot, 2008).

The statistical model for logistic regression is

$$\log(p / 1-p) = \beta_0 + \beta_1 x,$$

Where  $p$  is a binomial proportion and  $x$  is the explanatory variable. The parameters of the logistic model are  $\beta_0$  and  $\beta_1$  (Moore et al., 2012).

The binomial proportion value ( $p$ ) will be within  $0 \leq p \leq 1$

$P$  can be computed from the regression equation also, i.e.,

$$p = \frac{\exp(\beta_0 + \beta_1 x)}{1 + \exp(\beta_0 + \beta_1 x)},$$
 where  $\exp$  is the exponent function (Newsom, 2012).

Multiple Logistic Regression will give each criterion an impact factor value. Depending on those values, criteria are being ranked as per the following scale (Table1).

Severe	Moderate	Low	No impact	Low	Moderate	Severe
-3	-2	-1	0	1	2	3

Table 1: Ranking Scale for Criteria

In the final step the Potential Sustainability Tourism Score can be calculated by averaging the aggregated value of all criteria used for the analysis of the above purpose. Next by fitting the score in the above said rank scale it will be easy to assess the probability of sustainable tourism in Sagar Island.

#### 4. Conclusion

The concept of sustainable tourism in fragile environments sounds simple in theory, though it is difficult to implement due to the involvement of many stakeholders with conflicting agendas in any destination. Also, inconsistency and unavailability of data are key problems in assessing the scale, importance and impacts of tourism. This approach is primarily based on criteria analysis, which needs more case specific analysis to figure out the comprehensive feasibility study of sustainable tourism. This framework can certainly point out the necessity for extensive study in the future.

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