

ORIGINAL ARTICLE

Roles of policies, regulations and institutions in sustainability of ocean tourism

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ABSTRACT

Sustainable ocean tourism is required to establish a balance between the environmental, economic, social and cultural aspects of ocean tourism development. Sustainable ocean tourism also contributes to local and national economies, enhancing the quality of social life and protecting the ecology. Sustainable ocean tourism expands the positive contribution of tourism to biodiversity conservation and poverty reduction and aims to attain the common goals of sustainable developments for ocean tourism. Sustainable ocean tourism is possible due to the roles of regulators and private and government institutions. Government policies, regulations and guidelines play vital roles towards achieving the sustainability of ocean tourism. However, the role of institutions also cannot be ignored, which provide support in the innovation of technologies and the implementation of policies. The paper targets to investigate the roles of regulations, policies and institutions in the sustainability of ocean tourism. A primary online survey on the perception of tourism experts was conducted for this study using Google Forms. The tourism experts were invited from all over the world to participate in the survey. The study received a total of 33 responses, out of which only 30 valid responses were considered. Using the Tobit regression model, the study found that, while regulations in India relative to foreign countries significantly boost the sustainability of ocean tourism, government policies and public institutions in India relative to foreign countries remain insignificant in predicting the sustainability of ocean tourism. Therefore, government policies and public institutions in India need to be revised and reformulated to make them important drivers of the sustainability of ocean tourism.

Keywords: *ocean tourism; sustainable development; environmental protection; government institutions and regulators*

1. Introduction

Tourism is generally conducted for business, family pleasure and visiting divine places for a limited duration. Tourism may be organized for any place, such as hills, deserts, oceans and valleys. Mainly, it is when people leave their homes for activities such as traveling, lodging, boarding, hospitality and entertainment. Due to the involvement of

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various activities, the corresponding sectors/industries, such as tour & travels, restaurants, hotels, local retailers, transportation, etc., are primarily affected. It also affects local residents and natural resources. Tourism makes a huge contribution to the local as well as the national economy. As per present statistical information, tourism is one of the largest and fastest-growing sectors (Brokaj, 2014). The economic position of tourism varies from one place to another; however, it can contribute to the prosperity of the nation. Tourism has the potential to make substantial impacts on employment; redistribution of income and poverty alleviation; contribution to native craft revival, festivals and traditions; and improvements to infrastructures, health and social well-being (Jamieson et al., 2004). Nevertheless, tourism has unwanted impacts on the lifestyle, culture, cultural heritage, traditions, environment, ecology, resources of the local/surrounding area. Ocean tourism is also not different from the other categories of tourism. It has similar impacts on the economy, society and environment.

Ocean tourism has favorable, as well as undesirable, effects on the economy, society and environment/ecology. There have also been some noticeable social changes, such as environmental awareness and cultural sensitization, resentment with available goods and services, realization of the vulnerability of precious resources and change in the attitude of tourists, developers and tour operators (Liu, 2010). As ocean tourism cannot be compromised due to the ill effects, a balanced approach needs to be adopted. Such a balanced approach is called “sustainability”. The concept of sustainability gained momentum and became popular in the early 80s by small groups of environmentalists and environmental economists. Later on, it became a matter of international political agenda and its popularity rapidly grew from the mid-1980s.

A report by the World Commission on Environment and Development, which is popularly known as the Brundtland Report, defined sustainable development as the development that “meets the needs of the present without compromising the ability of future generations to meet their own needs” (United Nations, 1987, para. 27). Sustainability is an integrated approach, which indicates the sustainability of the environment, society and economy. Thus, social, economic and environmental dimensions are the three pillars of sustainability, which need to be socially equitable, economically viable, and environmentally protected, respectively (Dalei and Gupta, 2014; Arowoshegbe and Emmanuel, 2016).

Furthermore, scholars such as Elkington (1997), Balabantaray (2013), Dalei and Gupta (2014; 2017; 2019) and Dalei and Heggde (2021) observed sustainable development as the simultaneous interaction between the economy, the environment and society. Mueller and Mueller (2011) stated that sustainable development emphasizes the trade-off

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between the present prosperity and the future availability of natural resources. Moreover, sustainable development may be defined as a development that needs to be sustainable economically, environmentally and socially, which may be measured by the Triple Bottom Line (TBL) model provided by John Elkington in the 1990s (Elkington, 1997). Economic, social, and environmental lines are the three arms of the TBL model. The impact of an organization's business practices on the regional and national economy is considered as the economic line (E_c). The economic growth of a country as a result of various business activities is measured by the economic line. The fair and beneficial business practices of various organizations led by their workforce and human capital are measured by the social line. The impact of an organization's business practices on the environment is measured by the environmental line (E_n) of the TBL model. The long-term success of businesses depends on the efficient utilization of natural and environmental resources. For sustainable tourism, there are a number of definitions provided by many authors. The United Nations' World Tourism Organization (UNWTO) defines sustainable tourism as tourism that meets the needs of present tourists and host regions, while protecting and enhancing opportunities for the future. Rather than being a type of product, it is an ethos that underpins all tourism activities. As such, it is integral to all aspects of tourism development and management rather than being an add-on component. According to Beech et al., (2006) sustainable tourism is that tourism which should be economically, socioculturally and environmentally sustainable. With sustainable tourism, sociocultural and environmental impacts are neither permanent nor irreversible.

In aiming for the sustainable development of ocean tourism, there must be accountability not only from the financial perspective but also from the perspective of social development and environmental protection. The aim of sustainable ocean tourism is to establish a balance between the environmental, economic, social and cultural aspects of ocean tourism development. The central objective is to minimize the adverse impact of the development of ocean tourism on the surrounding environment and the local culture so that these can be preserved for future generations. Sustainable ocean tourism also contributes to local and national economies, thereby improving social life and protecting the ecology. Sustainable ocean tourism expands the positive contribution of tourism to biodiversity conservation and poverty reduction and seeks to achieve the common goals of sustainable development for ocean tourism. A continuous process shall be followed to achieve sustainable tourism, which requires continual monitoring of effects and introducing essential precautionary and/or remedial measures whenever needed (Jahan and Rahman, 2016). Sustainable ocean tourism is possible due to the roles of the government, private institutions and regulators. Government policies, regulations and guidelines play vital roles towards achieving the sustainability of ocean tourism. However, the role of institutions also cannot be ignored, which provide support in the innovation of technologies and the implementation of policies. The study's main aim is to analyze the roles of regulations, policies and institutions in the sustainability of ocean tourism. The rest of the paper is classified into five sections, including the present one. Section 2 presents the review of earlier literature. Section 3 presents the discussion on the data and methodology, Section 4 presents the result and discussion and Section 5 presents the conclusion and policy recommendations.

2. Literature review

The word "sustainability" came into light after the concept was published in the report by the

World Commission on Environment and Development (WCED) in 1987. This document is more widely known as the Brundtland Report and described sustainability as the development that “meets the needs of the present without compromising the ability of future generations to meet their own needs” (United Nations, 1987, para. 27). There have been noticeable changes due to environmental awareness and cultural sensitization, resentment with available goods and services, realization of the vulnerability of precious resources and the change in the attitude of tourists, developers and tour operators that enable the concept of sustainability to be used in the tourism sector (Liu, 2010). Therefore, the term “sustainable tourism” came into the picture. The concept of sustainability in ocean tourism addresses the undesirable impacts of tourism and preserves its long-term feasibility. The concept of ecotourism also helps to achieve tourism sustainability. As per Baker (2008), there are two main principles of sustainability that apply to ecotourism: firstly, promoting the preservation of the environment and, secondly, supporting the local economy, which is the backbone of ecotourism. Tao, Eagles and Smith (2010) mentioned that ecotourism, which provides education for the preservation of the environment and nature, is required for sustainable environmental management. Sustainable development for tourism can be considered as the economic sustainability of tourism, in which the basic goal is to make travel activity feasible (Huy and Khin, 2015).

To make ocean tourism sustainable, all stakeholders of ocean tourism (government, regulatory body, tourists, residents, retailers, tour operators, environmentalists, economists, etc.) need to work together. This may be achieved by incorporating the stakeholders’ relationship in tourism planning that complies with the consideration of natural, social and economic resources and the conservation of the resources for future generations (Rodríguez-Díaz and Espino-Rodríguez, 2016). Some authors also stated that government regulations and policies and the involvement of institutions contribute to the development of sustainable ocean tourism. Zhao, Chen and Liu (2015) studied the influence of government regulations and policies on sustainable tourism and mentioned that government regulations are a useful method to make tourism sustainable to a large extent. The government’s role is very crucial in the development of a framework and in encouraging actions to ensure that tourism becomes more sustainable in the future (Brokaj, 2014). Government policies, rules and regulations have direct impacts on the development of sustainable ocean tourism, providing a coherent and comprehensive policy framework that ensures the integration of sustainable tourism into the country’s overall economic, social and environmental policies (UNCTAD, 2013). Sustainable tourism policies, while developing tourism, can motivate people to understand the integrity of tourism and the environment. It also encourages environmentally friendly tourism development that meets the goal of social and economic sustainability (Guo et al., 2019). The development of policies for sustainable tourism is not very obvious because it interfaces with the other policies and there is a need for interactions with those policies. Therefore, policymakers need to act on such policies, along with raising awareness of the policies of sustainable tourism, so that sustainable tourism goals can be achieved (Dodds and Butler, 2010).

The local government is more responsible for the implementation of policies at the ground level. The members/officers of the local government get involved and transform the principles of sustainable tourism development into action (Cameron et al., 2001). In addition, the roles of public and private institutions cannot be ignored. As sustainable development involves modern technologies, supportive policies and the ethics, attitude and behavior of individuals, the involvement of relevant institutions is a must, which integrate the requirements of sustainability

and support the government financially (Elobeid, 2012). There are different types of institutions on the basis of their domains. Some have domains such as governing the reproduction of society, individuals, etc., and some others regulate interactions and codes of conduct in political, economic and social domains, which influence the outcome (United Nations, 2016). Through the backing of institutions, ocean tourism can become sustainable.

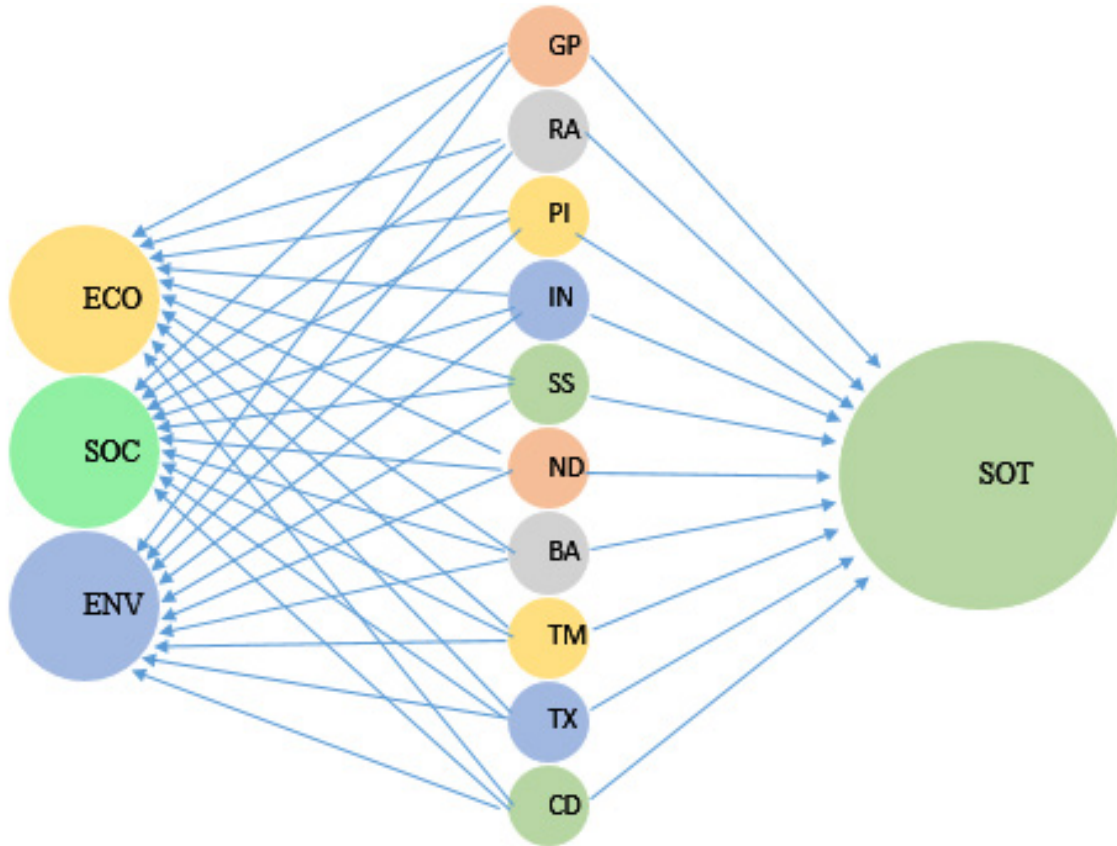
2.1. Theoretical underpinning

Many scholarly studies describe an intrinsic link between sustainable development and tourism. Most of the studies, while highlighting the three pillars of sustainable development as an integral dimension, have studied the sustainability of the tourism sector. A study by Ranjbari et al. (2021) found the tourism industry as one of the most frequently used in the literature. Based on a systematic literature review, they found that the environmental pillar of sustainability depends on waste management, pollution and the airline industry, whereas socio-economic sustainability depends on Sustainable Development Goals (SDGs), social media, information systems and education. In SDGs, tourism has been positioned to realize sustainability (World Tourism Organization and United Nations Development Programme, 2017). SDG 8, SDG 12, and SDG 14 have been given due priority to the tourism sector due to its capability for equitable distribution of wealth and income, gender empowerment and the reduction of poverty in order to have sustainable economic growth and employment, sustainable production and consumption, and sustainable development and growth of the blue economy (Boluk et al., 2019). The development of the blue economy has a vital link with the prevailing environment and available resources of the ocean (UNCTAD, 2014). Sustainable use of such resources provides not only sustainable livelihood but also protects the ecological health of the ocean (World Bank, 2017). Historically, human beings have been associated with the global ocean socially, culturally and emotionally for their livelihood and survival, using it for purposes of tourism, fishing, trade, energy, and mineral resource extraction. However, prioritizing the alignment of local requirements with local development may give a pathway to realize the SDGs rather than if the focus is based on outside priorities in local development (Gegeo, 1998). Despite the tourism development in the Pacific Islands (Cheer et al., 2018), New Zealand (Amoamo et al., 2018) and Australia (Higgins-Desbiolles and Akbar, 2018), policies and regulations have failed to address the challenges in realizing holistic and sustainable development. Therefore, it is important to understand how policies, regulations and institutions influence sustainability in various sectors, especially the tourism sector.

The underpinning theory and literature on ocean tourism have largely failed to capture how Sustainable Ocean Tourism (SOT) is influenced by Government Policies (GP), Regulatory Authority (RA), Public Institutions (PI), Investment (IN), Safety & Security (SS), Natural Disasters (ND), Basic Amenities (BA) and Tourist's Moral (TM), as shown in **Figure 1**. Therefore, this study is one unique study of its kind, adding new knowledge to the existing theory and the literature in order to bridge the available gaps.

3. Data and methodology

This study intends to capture the influence of government policies, regulations and institutions on Sustainable Ocean Tourism (SOT). Initially, the following the ordinary least-squares (OLS) method was formulated to estimate SOT:



Note: SOT: Sustainable Ocean Tourism; CD: Country Dummy (Indian Experts = 1; Foreign Experts = 0); TX: Experts having work experience in ocean tourism; GP: Government Policies; RA: Regulatory Authority; PI: Public Institutions; IN: Investment; SS: Safety & Security; ND: Natural Disasters; BA: Basic Amenities; TM: Tourist's Moral; ECO: Economic sustainability of ocean tourism; SOC: Social sustainability of ocean tourism; ENV: Environmental sustainability of ocean tourism

Figure 1. Sustainable ocean tourism's model (Source: Authors)

$$SOT_{it} = \beta_1 + \beta_2 CD_{2i} + \beta_3 TX_{3i} + \beta_4 GP_{4i} + \beta_5 RA_{5i} + \beta_6 PI_{6i} + \beta_7 IN_{7i} + \beta_8 SS_{8i} + \beta_9 ND_{9i} + \beta_{10} BA_{10i} + \beta_{11} TM_{11i} + \varepsilon_{it} \quad (1)$$

where SOT is Sustainable Ocean Tourism, CD is Country Dummy (Indian experts = 1; foreign experts = 0), TX is experts having work experience in ocean tourism, GP is Government Policies, RA is Regulatory Authority, PI is Public Institutions, IN is Investment, SS is Safety & Security, ND is Natural Disasters, BA is Basic Amenities and TM is Tourist's Moral.

However, in the present study, the dependent variable SOT is a censored variable having restrictions in its values, which ranges from -1 to $+1$ theoretically. Therefore, given that range, OLS may be inappropriate. In order to control for such a limited range in the dependent variable, the Tobit model has widely been adopted in the literature (Asongu and Andrés, 2017). Therefore, Eq. (1) is again revised using the Tobit model, as given below:

$$SOT_{it} = \begin{cases} SOT_{it}^* & \text{if } SOT_{it}^* > \gamma \\ 0 & \text{if } SOT_{it}^* \leq \gamma \end{cases} \quad (2)$$

where SOT_{it}^* is a latent variable and α_i is a nonstochastic constant.

The econometric specification of the Tobit model can be written as:

$$SOT_{it}^* = \beta_1 + \beta_2 CD_{2i} + \beta_3 TX_{3i} + \beta_4 GP_{4i} + \beta_5 RA_{5i} + \beta_6 PI_{6i} + \beta_7 IN_{7i} + \beta_8 SS_{8i} + \beta_9 ND_{9i} + \beta_{10} BA_{10i} + \beta_{11} TM_{11i} + \epsilon_{it}; \epsilon_{it} \sim N(0, \sigma^2) \quad (3)$$

3.1. Data and variable construction

Data on the variables used in the study were collected through a pre-designed questionnaire. Using Google Forms, respondents from all over the world were invited through various social media and research networks to participate in the Sustainable Ocean Tourism Survey. Out of the total of 30 participants with valid responses, 33% of the respondents were from foreign countries of Switzerland, Germany, China, Turkey, South Africa, France, Mauritania and Bangladesh.

3.1.1. Economic sustainability of ocean tourism

The local economy, profits earned by tourism companies, the occupancy of ocean tourists' places, adequate port infrastructures and connectivity to ocean tourists' places are all measuring factors of the economic sustainability of ocean tourism. Their importance in the economic sustainability of ocean tourism was captured in a Likert scale of 0 to 5, with higher values indicating higher importance in measuring the sustainability of ocean tourism. Then, the following formula was used on their row-wise mean values to construct the index of the economic sustainability of ocean tourism (ECO):

$$ECO_i = \frac{x_i - \bar{x}}{MaxX_i - MinX_i} \text{ for } i = 1 \text{ to } n \quad (4)$$

where $X_i = \frac{\sum_{j=1}^m X_j}{m}$ for $i = 1$ to n .

3.1.2. Social sustainability of ocean tourism

Social value & local culture, cultural heritage, socio-cultural problems, local employment, household income, wealth & standard of living, and public health & safety are all measuring factors of the social sustainability of ocean tourism. Their importance in the social sustainability of ocean tourism was captured in a Likert scale of 0 to 5, with higher values indicating higher importance in measuring the sustainability of ocean tourism. Then, the following formula was used on their row-wise mean values to construct the index of the social sustainability of ocean tourism (SOC):

$$SOC_i = \frac{Y_i - \bar{Y}}{MaxY_i - MinY_i} \text{ for } i = 1 \text{ to } n \quad (5)$$

where $Y_i = \frac{\sum_{j=1}^m Y_j}{m}$ for $i = 1$ to n .

3.1.3. Environmental sustainability of ocean tourism

Natural resource utilization, pollution & waste, environment protection, climate change and construction activities are all measuring factors of the environmental sustainability of ocean tourism.

Their importance in the environmental sustainability of ocean tourism was captured in a Likert scale of 0 to 5, with higher values indicating higher importance in measuring the sustainability of ocean tourism. Then, the following formula was used on their row-wise mean values to construct the index of the environmental sustainability of ocean tourism (ENV).

$$ENV_i = \frac{Z_i - \bar{Z}}{MaxZ_i - MinZ_i} \text{ for } i = 1 \text{ to } n \quad (6)$$

where $Z_i = \frac{\sum_{j=1}^m Z_j}{m}$ for $i = 1$ to n .

3.1.4. Sustainability of ocean tourism index

The weighted average values of ECO, SOC and ENV were considered as the Sustainable Ocean Tourism index, as given below:

$$SOT_i = W_j * \frac{\sum_{j=1}^m T_j}{m} \text{ for } i = 1 \text{ to } n \quad (7)$$

where W_j is the weight assigned to each index and T_j is the j^{th} value of each index. Then, the importance of factors driving SOT, such as Government Policies, Regulatory Authority, Investment, Safety & Security, Natural Disasters, Basic Amenities and Tourist's Moral, was collected in a Likert scale of 0 to 5, with higher values indicating higher-impacting SOT factors, using a pre-designed questionnaire via Google Forms.

4. Result and discussion

The descriptive statistics of all variables used in the study are presented in **Table 1**. The Sustainable Ocean Tourism index ranges from -0.105 to 0.128 with a mean value of -0.002 .

Table 1. Summary of descriptive statistics

Variable	Variable Description	Obs.	Mean	Std. Dev.	Min	Max
ECO	Economic Sustainability of Ocean Tourism	30	-0.014	0.223	-0.423	0.577
SOC	Social Sustainability of Ocean Tourism	30	-0.007	0.237	-0.378	0.622
ENV	Environmental Sustainability of Ocean Tourism	30	-0.005	0.233	-0.394	0.606
SOT	Sustainable Ocean Tourism	30	-0.002	0.060	-0.105	0.128
CD	Country Dummy (Indian Experts = 1; Foreign Experts = 0)	30	0.667	0.479	0	1
TX	Experts having work experience in ocean tourism	30	5.133	3.627	0	14
GP	Government Policies	30	3.600	0.770	2	5
RA	Regulatory Regime	30	3.667	0.758	2	5
PI	Public Institutions	30	3.633	0.999	2	5
IN	Investment	30	3.500	1.196	1	5
SS	Safety & Security	30	3.633	1.245	1	5
ND	Natural Disasters	30	2.867	1.042	1	5
BA	Basic Amenities	30	3.300	1.208	1	5
TM	Tourist's Moral	30	3.767	1.135	1	5

Source: Authors' own calculation

The variable of Government Policies is one of the important drivers of SOT and ranged from 2 to 5 with a mean value of 3.6. Regulatory Regime had the same range of 2 to 5, with a mean value of 3.667. The variable of Public Institutions is also one of the important determinants of SOT, which in this study ranged from 2 to 5, with a mean of 3.633. The rest of the descriptive statistics of the variables are presented in Table 1.

Policies, regulations and institutions need to be designed effectively to boost the sustainability of ocean tourism. Efforts were made in this study to explore the perception of experts regarding what roles that policies, regulations and institutions play in India, as compared with those in foreign countries, in enhancing the sustainability of ocean tourism.

4.1. Drivers of economic sustainability of ocean tourism

Respondents with experience in the ocean tourism sector have a statistically significant (1%) influence on the economic sustainability of ocean tourism almost in all models, as shown in **Table 2**. This is due to the fact that experienced people can make correct decisions when working in the tourism industry and hence help ocean tourism become sustainable.

Regulatory Regime (on ocean tourism) impacts the economic sustainability of ocean tourism statistically and positively at 5% level of significance (please see the Tobit model). This shows that the experts in the ocean tourism industry very significantly suggested Regulatory Regime as one of the important variables for the economic sustainability of ocean tourism. However, the ocean tourism experts observed Government Policies as statistically insignificant in predicting the economic sustainability of ocean tourism, as shown in Table 2. The ocean tourism experts viewed that Basic Amenities influence the economic sustainability of ocean tourism statistically and positively in all models. Other things remaining constant, Basic Amenities can boost the economic sustainability of ocean tourism significantly. Other things remaining constant, Tourist's Moral has a negatively significant relationship with the economic sustainability of ocean tourism. This may be due to the fact that tourists are not taking care of the infrastructures and resources properly when using them. Therefore, awareness among the tourists needs to be created to preserve the resources. The coefficient of Country Dummy suggests that the economic sustainability of ocean tourism in the case of India has declined significantly, while controlling all other factors. Therefore, a sustainable ocean tourism policy towards economic sustainability is needed in India. However, the interaction of Country Dummy with Regulatory Regime suggests that Regulatory Regime in India, as compared with that in foreign countries, statistically and positively impacts the economic sustainability of ocean tourism at 1% level of significance. However, controlling all other factors, Government Policies and Public Institutions in India, as compared with those in foreign countries, remain insignificant in predicting the economic sustainability of ocean tourism.

4.2. Drivers of social sustainability of ocean tourism

The experts' view as per the result in **Table 3** suggests that, *ceteris paribus*, the social sustainability of ocean tourism has declined significantly in India in comparison with that in foreign countries. Therefore, stringent ocean tourism policies towards social sustainability need to be introduced in India. Keeping other things constant, Regulatory Regime in India, as compared with that in foreign countries, has a statistically positive impact on the social sustainability of ocean tourism at 1% level of significance. Even in this case, Government Policies and Public Institutions

Table 2. Estimation of economic sustainability of ocean tourism

ECO	OLS	Tobit	Tobit with CD Interaction
TX	0.047*** (0.015)	0.047*** (0.012)	0.039*** (0.010)
GP	-0.038 (0.056)	-0.038 (0.045)	-0.011 (0.055)
RA	0.119* (0.066)	0.119** (0.052)	-0.074 (0.069)
PI	-0.030 (0.045)	-0.030 (0.036)	-0.112** (0.049)
IN	-0.044 (0.043)	-0.044 (0.034)	-0.038 (0.028)
SS	0.017 (0.055)	0.017 (0.044)	-0.042 (0.039)
ND	0.075* (0.040)	0.075** (0.032)	0.045* (0.026)
BA	0.106* (0.061)	0.106** (0.049)	0.192*** (0.049)
TM	-0.115** (0.048)	-0.115*** (0.039)	-0.136*** (0.032)
CD	-0.103 (0.088)	-0.103 (0.070)	-1.250*** (0.319)
GP × CD			-0.022 (0.075)
RA × CD			0.245*** (0.082)
PI × CD			0.090 (0.064)
_cons	-0.419 (0.336)	-0.419 (0.267)	0.602* (0.327)
Obs.	30	30	30
F(10, 19)	3.07		
R-squared	0.6178		
LR chi ² (10)		28.85	44.23
Pseudo R ²		-4.9536	-7.5929

***, ** and * indicate significance at 1%, 5% and 10% level respectively.
Source: Authors' own estimation

Table 3. Estimation of social sustainability of ocean tourism

SOC	OLS	Tobit	Tobit with CD Interaction
TX	0.015 (0.021)	0.015 (0.017)	0.003 (0.010)
GP	-0.076 (0.076)	-0.076 (0.061)	-0.006 (0.056)
RA	0.148 (0.089)	0.148** (0.071)	-0.257*** (0.070)
PI	-0.037 (0.061)	-0.037 (0.049)	-0.112** (0.050)
IN	0.012 (0.058)	0.012 (0.047)	0.022 (0.028)
SS	0.167** (0.075)	0.167*** (0.059)	0.040 (0.039)
ND	0.069 (0.055)	0.069 (0.043)	0.032 (0.027)
BA	-0.125 (0.083)	-0.125* (0.066)	0.079 (0.050)
TM	-0.046 (0.066)	-0.046 (0.053)	-0.108*** (0.033)
CD	-0.131 (0.120)	-0.131 (0.096)	-2.056*** (0.323)
GP × CD			-0.070 (0.077)
RA × CD			0.560*** (0.084)
PI × CD			0.040 (0.065)
_cons	-0.386 (0.457)	-0.386 (0.364)	1.245*** (0.332)
Obs.	30	30	30
F(10, 19)	1.13		
<i>R-squared</i>	0.3722		
LR chi ² (10)		13.97	46.95
Pseudo R ²		-6.4083	-21.5447

***, ** and * indicate significance at 1%, 5% and 10% level respectively.

Source: Authors' own estimation

remain insignificant in predicting the social sustainability of ocean tourism in India as compared with those in foreign countries. Therefore, tourism policies towards the social sustainability of ocean tourism must be reformed and reintroduced in India.

4.3. Drivers of environmental sustainability of ocean tourism

Respondents with experience in the ocean tourism sector have a statistically significant (1%) influence on the environmental sustainability of ocean tourism almost in all models, as shown in **Table 4**. This is because experienced people can make correct decisions when working in the tourism industry and hence help ocean tourism become sustainable.

Table 4. Estimation of environmental sustainability of ocean tourism

ENV	OLS	Tobit	Tobit with CD Interaction
TX	0.065*** (0.015)	0.065*** (0.012)	0.068*** (0.012)
GP	-0.115** (0.053)	-0.115** (0.043)	-0.060 (0.065)
RA	0.168** (0.063)	0.168*** (0.050)	0.189** (0.082)
PI	-0.083* (0.043)	-0.083** (0.034)	-0.156** (0.058)
IN	0.080* (0.041)	0.080** (0.033)	0.093** (0.033)
SS	-0.002 (0.052)	-0.002 (0.042)	-0.012 (0.046)
ND	0.012 (0.038)	0.012 (0.030)	-0.0001 (0.031)
BA	0.106* (0.058)	0.106** (0.046)	0.087 (0.058)
TM	-0.154*** (0.046)	-0.154*** (0.037)	-0.146*** (0.038)
CD	0.170* (0.084)	0.170** (0.067)	0.268 (0.378)
GP × CD			-0.097 (0.089)
RA × CD			-0.039 (0.098)
PI × CD			0.114 (0.076)
_cons	-0.422 (0.320)	-0.422 (0.255)	-0.403 (0.388)
Obs.	30	30	30
F(10, 19)	4.07		
R-squared	0.6818		
LR chi ² (10)		34.35	36.63
Pseudo R ²		-10.8296	-11.5469

***, ** and * indicate significance at 1%, 5% and 10% level respectively.

Source: Author's own Estimation

4.4. Drivers of sustainability of ocean tourism

Respondents with experience in the ocean tourism sector have a highly statistically significant (1%) influence on the sustainability of ocean tourism almost in all models, as shown in **Table 5**. This is due to the fact that experienced people can make correct decisions when working in the tourism industry and hence help ocean tourism become sustainable.

Regulatory Regime impacts the sustainability of ocean tourism statistically and positively at 1% level of significance (see the Tobit model in Table 5). This shows that the experts in the ocean tourism industry significantly suggested Regulatory Regime as one of the important variables for the overall sustainability of ocean tourism. However, Government Policies and Public Institutions both significantly impact the sustainability of ocean tourism statistically and negatively, while other things remaining constant, as shown in Table 5. Other things remaining constant, Tourist's Moral has a negative and significant relationship with the sustainability of ocean tourism. This may be due to the fact that tourists are not taking care of the infrastructures and resources properly when using them. Therefore, awareness among the tourists needs to be created to preserve the resources. The coefficient of Country Dummy (in the model of Tobit with the CD Interaction) suggests that the sustainability of ocean tourism in the case of India as compared with that in foreign countries has declined significantly, while controlling all other factors. Therefore, an ocean tourism policy towards sustainability is needed for India. However, the interaction of Country Dummy with Regulatory Regime suggests that Regulatory Regime in India, as compared with that in foreign countries, statistically and positively impacts the sustainability of ocean tourism at 1% level of significance. However, controlling all other factors, Government Policies and Public Institutions in India, as compared with those in foreign countries, remain insignificant in predicting the sustainability of ocean tourism.

5. Conclusion and policy recommendations

Policies, regulations and institutions play important roles in the sustainability of ocean tourism. Therefore, efforts were made in this study to explore the perception of experts regarding the impact of policies, regulations and institutions on the sustainability of ocean tourism. First, their impacts on each dimension (economic, social and environmental dimensions) of the sustainability of ocean tourism were explored. Subsequently, efforts were made to investigate the experts' perception regarding the roles of policies, regulations and institutions in predicting the overall sustainability of ocean tourism.

The study found that respondents with experience in the ocean tourism sector have a statistically significant impact on the economic sustainability of ocean tourism because experienced people can make correct decisions when working in the tourism industry and hence become the driver of promoting the economic sustainability of ocean tourism. The perception of the experts in the ocean tourism industry revealed Regulatory Regime as one of the important variables significantly promoting the economic sustainability of ocean tourism. However, the experts perceived Government Policies as statistically insignificant in predicting the economic sustainability of ocean tourism. The ocean tourism experts' perception is that Basic Amenities enhances the economic sustainability of ocean tourism significantly, while controlling all other factors. This is because the provision of basic amenities attracts more tourists and increases tourism revenue, and hence boosts

Table 5. Estimation of sustainability of ocean tourism

SOT	OLS	Tobit	Tobit with CD Interaction
TX	0.015*** (0.004)	0.015*** (0.003)	0.014*** (0.003)
GP	-0.029* (0.015)	-0.029** (0.012)	-0.011 (0.015)
RA	0.051*** (0.018)	0.051*** (0.014)	0.001 (0.019)
PI	-0.020 (0.012)	-0.020* (0.010)	-0.045*** (0.013)
IN	0.011 (0.012)	0.011 (0.009)	0.015* (0.008)
SS	0.017 (0.015)	0.017 (0.012)	-0.001 (0.011)
ND	0.014 (0.011)	0.014 (0.009)	0.006 (0.007)
BA	0.012 (0.016)	0.012 (0.013)	0.035** (0.013)
TM	-0.038*** (0.013)	-0.038*** (0.010)	-0.044*** (0.009)
CD	0.008 (0.024)	0.008 (0.019)	-0.244*** (0.087)
GP × CD			-0.025 (0.021)
RA × CD			0.066*** (0.023)
PI × CD			0.029 (0.018)
_cons	-0.137 (0.091)	-0.137* (0.072)	0.097 (0.089)
Obs.	30	30	30
F(10, 19)	3.11		
R-squared	0.6211		
LR chi ² (10)		29.11	43.67
Pseudo R ²		-0.3457	-0.5186

***, ** and * indicate significance at 1%, 5% and 10% level respectively.

Source: Authors' own calculation

While the Government Policies variable influences the environmental sustainability of ocean tourism significantly, Regulatory Regime significantly impacts it, keeping all other factors constant. Interestingly, none of the interaction dummies remain significant in predicting the environmental sustainability of ocean tourism. This shows that there is a need for a drastic revision of government policies and regulations related to public institutions towards the environmental sustainability of ocean tourism.

the economic sustainability of ocean tourism significantly. This study also found that tourists are not taking care of the infrastructures and resources properly when using them. Therefore, awareness among the tourists needs to be created to preserve the resources for the economic sustainability of ocean tourism. The most important finding of the study is that the economic sustainability of ocean tourism in the case of India as perceived by the experts has declined significantly, while controlling all other factors. Therefore, sustainable ocean tourism policies towards economic sustainability will certainly boost it for India. However, the experts perceived that Regulatory Regime in India, as compared with that in foreign countries, enhances the economic sustainability of ocean tourism significantly. However, the experts' perception regarding Government Policies and Public Institutions in India, as compared with those in foreign countries, was that both show insignificant relationships with the economic sustainability of ocean tourism.

The experts' perception revealed that the social sustainability of ocean tourism declined significantly in India as compared with that in foreign countries and thus stringent ocean tourism policies towards social sustainability need to be introduced in India. However, the experts perceived that Regulatory Regime in India, as compared with that in foreign countries, boost the social sustainability of ocean tourism significantly. In the case of government policies and public institutions, the experts perceived that both influence the social sustainability of ocean tourism insignificantly in India as compared with that in foreign countries. Therefore, tourism policies with respect to government policies and public institutions towards the social sustainability of ocean tourism must be reformed and reintroduced in India, in comparison with those in foreign countries, in order to make significant impacts on the experts' perception.

Respondents with more experience in the ocean tourism sector are a significant driver of the environmental sustainability of ocean tourism because experienced people can make correct decisions when working in the tourism industry and hence help to boost the environmental sustainability of ocean tourism. The experts perceived that both government policies and public institutions are ineffective and thus have deteriorated the overall environmental sustainability of ocean tourism significantly. Therefore, there is a need to revisit both government policies and public institutions, which can help to boost the environmental sustainability of ocean tourism. The experts' perception is that, *ceteris paribus*, there is a need for a drastic revision of government policies and regulations related to public institutions in India, as compared with those in foreign countries, towards the environmental sustainability of ocean tourism.

The study found that experts with experience in the ocean tourism sector are the most significant driver promoting the sustainability of ocean tourism. Experts perceived that Regulatory Regime is one of the most significant variables boosting the sustainability of ocean tourism. However, their perception was that both government policies and public institutions have failed to enhance the sustainability of ocean tourism significantly. Therefore, again, there is a need to revisit both government policies and public institutions to become drivers in boosting the sustainability of ocean tourism significantly. In addition, the experts perceived that, controlling other factors, tourists are not taking care of the infrastructures and resources properly when using them. Therefore, awareness among the tourists needs to be created to preserve the resources. The experts also perceived that the sustainability of ocean tourism in the case of India, as compared with that in foreign countries, has declined significantly, while controlling all other factors. Therefore, an ocean tourism policy towards sustainability is needed for India. The experts' perception also revealed that regulations in India, as

compared with foreign countries, significantly boost the sustainability of ocean tourism. However, controlling all other factors, government policies and public institutions of India as compared with foreign countries remain insignificant in predicting the sustainability of ocean tourism. Therefore, again, government policies and public institutions in India need to be revised and reformulated to make them important drivers of the sustainability of ocean tourism.

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