

# Fostering Sustainable Community-Based Tourism in Marine and Coastal Regions: Examining the Influence of Destination Social Responsibility on Environmentally Responsible Behavior, Mediated by Destination Image

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**Abstract.** The study aims to explore the impact of Destination Social Responsibility (DSR) and Destination Image (DI) on Environmentally Responsible Behaviour (ERB)-based tourism. This study collected data using the convenience sampling method, specifically through a survey administered to residents in a community of marine parks. Initially, a total of 300 questionnaires were distributed, resulting in the return of 200 completed surveys. After removing incomplete surveys, a total of 195 usable questionnaires have been included in the analysis. Given that the study employed composite measures and focused on predictive as well as explanatory purposes, the researchers utilized Partial Least Squares-Structural Equation Modeling (PLS-SEM 4) to test the developed model. Moreover, the findings suggest that DSR positively influenced both ERB and DI. However, DI did not significantly impact ERB and did not act as a mediator between DSR as well as ERB. The findings show the local population's involvement entails mitigating detrimental environmental impacts in coastal and marine areas. The local community, as a key stakeholder in a tourism destination, plays a significant role in promoting sustainable tourism growth in the area. The study offers valuable insights for destination management organizations as well as stakeholders in formulating environmental policies to promote sustainable development in Redang's community.

## 1 Introduction

In the last two decades, there has been a push for the advancement of Sustainable Tourism (ST) as a viable alternative to conventional tourism development. Its primary objective is to foster holistic growth while mitigating the social, cultural, as well as environmental impacts associated with tourism. Additionally, various forms with regard to alternative tourism, which include Community-Based Tourism (CBT), ecotourism, rural tourism, volunteer

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tourism, agro-tourism, as well as responsible tourism, have been employed since the 1980s as flexible approaches to achieving ST development. Throughout the last forty years, a significant body of literature has emerged outlining the development of ST as well as CBT [1–3].

The potential of CBT to advance traditional rural industries has risen, as it brings about economic advantages for local residents [4], promote tourism destination [5,6], and offer traveler with high-quality experience as well as greater environmental awareness [7,8]. Tourism's ability to provide economic benefits to residents has made CBT a viable option for the additional rural industries that are growing. CBT in Malaysia is commonly linked to the principles of sustainable development and environmental conservation. Furthermore, the present administration of Malaysia has implemented a national policy that focuses on the advancement of CBT, especially in fishing villages, rural areas, as well as indigenous communities.

The establishment of marine parks as an ecotourism destination product in coastal marine areas embraces the growth of economic development for local communities in rural areas. In addition, Malaysia is regarded as one of Southeast Asia's most prosperous nations due to its abundant marine resources. This enables Malaysia to maintain its status as an exceptional tourist destination and has contributed to economic development, which has enhanced the living conditions with regard to the local population directly [9][10]. Nevertheless, Malaysia's Marine Protected Areas (MPAs) face significant challenges and barriers that impede their effectiveness. These include environmental degradation, inadequate enforcement, insufficient coordination, limited awareness, and low socioeconomic status. These factors collectively contribute to declining environmental conservation behavior within these areas. This premise assumes that the individuals in question possess limited resources and have significant challenges in effectively addressing a multitude of difficulties.

Moreover, the degradation of the environment has become a major impediment to global economic growth. The MPAs in Malaysia faced substantial challenges stemming from environmental degradation. This has resulted in unfavorable impacts on both human well-being and sources of livelihood, as well as the prosperity of communities as well as the safeguarding of natural assets. Regardless of the interconnections between biodiversity preservation, protected areas, as well as economic advancement, economists have overlooked investment in these protected zones at a large scale. Without intervention, factors like population expansion, economic progress, urbanization, and changing climate conditions will further worsen the worldwide biodiversity crisis and environmental decline.

Nevertheless, establishing MPAs is frequently contentious, and their effectiveness highly depends on the support they receive from the local community. Moreover, the economic challenges pertaining to establishing MPAs are typically at the centre of the debates surrounding this topic. The essence of ecotourism lies in tourism endeavors centered around the environment, encompassing not just nature but also the culture and livelihoods of the people in these destinations. Communities, integral to the tourism experience, should possess the capacity to oversee and plan the prospective growth of their area. Additionally, they should display the determination to progress collectively towards attaining shared success in the advancement of their village or residential area.

[11]found a link between how people felt about ecotourism and how much they knew about the environment. Local communities can be encouraged to participate in ecotourism using the right management strategies [12,13]. It aims to improve local knowledge of environmental problems, encourage positive attitudes towards ecotourism, and create environmental plans. A lack of knowledge about environmental problems makes people in the area act in ways that hurt the environment. Furthermore, community responsiveness to environmental issues is a pivotal aspect in supporting the development of tourism. Previous literature show that Environmental Responsible Behavior (ERB) of residents and tourist will

promote environmental sustainability and reduce negative environmental impacts with regard to ecotourism locations, which is critical for ST development [14,15]. Although the importance of ERB is acknowledged in the ecotourism literature, most research was undertaken from the perspective of visitors [16][17][18]. There has been a startling lack of travel tourism destination studies on locals' ERB. Residents are important stakeholders in ecotourism sites [19,20]. Tourism researchers have recently begun to be interested in residents' ERB. However, research on residents' ERB as well as the factors influencing this critical behaviour is scarce.

[21] advocate in their study that place image was shown to impact the sustainability of places as tourism destinations significantly. However, most previous research has only looked at place images from the standpoint of tourists or consumers. Meanwhile, previous literature exhibited that Destination Image (DI) [22–24] has only a handful concentrating on the perspective of the residents [21,25,26]. Furthermore, most studies only make a comparison of the different attributes in forming a place image as well as the perception from the perspectives of residents as well as tourists [27–29]. Hence, research on residents' place image is scarce. The limited amount of scholarly investigation into the relationship between residents' place image as well as environmental behavior in the Destination Social Responsibility (DSR) context can be ascribed to the overall scarcity of focus on the residents' viewpoint. The negligent environmental behaviors exhibited by residents have elicited substantial apprehension in the coastal tourism sector. The act of disposing of waste materials in the seawater and on the beach, removing flowers, vandalizing walls with graffiti, and applying paint to surfaces has resulted in adverse consequences for both the indigenous ecology and the visual attractiveness of the coastal locale.

This study aims to analyze the fundamental correlation between several elements that impact engagement with regard to local individuals in environmental conservation. The objective is to enhance the ability of communities to effectively and responsibly utilize natural resources inside MPAs in a sustainable manner. In essence, environmental knowledge and environmental behaviour are related. Therefore, enhancing residents' ERB can foster a positive attitude toward ecotourism [30,31]. The expansion of tourism can give rise to significant challenges for local populations, including the contamination of sewage, strained water resources and their management, and a decline in biodiversity. These concerns tend to arise when a tourism destination lacks adequate planning and environmental management with regard to the context pertaining to sustainable coastal marine tourism development [32–34]. By implementing a DSR program, we can actively engage with local communities, fostering a sense of shared responsibility toward sustainable development. This initiative will not only address environmental concerns but also support economic growth and social well-being, creating a harmonious and thriving community for present and future generations. Through collaborative efforts, we aim to improve the overall Quality of Life (QoL) in the region while preserving its natural and cultural heritage for years to come.

## **2 Literature review and hypothesis formulation**

### **2.1 Community-Based Tourism (CBT)**

This paper highlights the concept of CBT, focusing on the need to reconsider approaches as well as practices in the development of Malaysia's tourism community. It rectifies deficiencies in tourism planning by prioritizing practices that engage the local community and empowers them to autonomously strategize, cultivate, and oversee their own forthcoming tourism initiatives while embracing sustainability [35,36]. [37] and [38] suggested that promoting tourism within a community entails cultivating regional tourist attractions (goods)

derived from local natural as well as cultural resources. In this research, the CBT concept can be defined according to [39]. CBT is characterized by its tendency to operate on a limited scale, facilitating meaningful interactions between visitors and the local community. It is particularly suitable for rural and regional locations. CBT is widely acknowledged as a community-managed and community-owned initiative primarily designed to serve the best interests of the community.

According to the United Nations Environment Programme (2011), CBT, which emphasizes environmental, social, and cultural sustainability, plays an essential part in addressing the problems of ensuring global tourism's long-term viability. Within the CBT framework, members of the local community are seen as guardians of natural resources and regions, as well as experts in cultural, environmental, and livelihood matters. According to [40–42], CBT routinely raises environmental awareness among locals while also enlisting locals as participants in conservation efforts. An individual needs to have a comprehensive comprehension of environmental concerns in order to arrive at the correct choice when faced with a problem relating to the environment. Arising out of this, the government typically entrusts communities with exclusive rights and responsibilities for the management of natural resources. In line with previous studies, engagement in CBT within protected areas entails a government agency, such as the Wildlife Service and marine parks, actively interacting with communities that reside near these areas. The purpose of this outreach is to offer certain benefits, such as infrastructural development, in order to compensate for the restrictions placed on the community's access to natural resources within the protected area. This approach aims to prevent the local population from compromising the integrity of the protected area.

Academicians and professionals have realized that the critical of CBT is a technique that encourages the social organization of the local communities to engage in the creation of sustainable destinations [43,44]. Community- Based Tourism is predicated upon the essential involvement and proactive participation of pertinent stakeholders within the local tourism industry. According to [45] and [5], it is anticipated that local stakeholders will collaborate and pool resources in order to collectively pursue shared objectives. The CBT strategy entails the local community members in the process of decision-making pertaining to tourism development. Furthermore, it should be noted that community based tourism (CBT) is characterized by its participatory approach, as highlighted by [46] as well as [47]. The examination of residents' perspectives on the impacts of tourism has been imposed as an essential topic of interest within the field of tourism research.

## **2.2 Environmentally Responsible Behaviour (ERB)**

In light of severe climate change and escalating environmental challenges, advocating for ERB is seen as a potent strategy to alleviate environmental impacts and foster ST [48–50]. ERB refers to the actions undertaken by individuals residing in a particular location to actively reduce negative environmental impacts and promote environmental preservation without causing harm to the surrounding ecosystem [51–53]. On the flip side, different academic works towards environmental conservation by actively seeking remedies for issues rooted in the environment [54–56]. The contribution of inhabitants' ERB to tourism sustainability in a specific location necessitates an examination of the underlying factors that influence such behavior [14].

In more recent years, [57] and [58] have proposed that ERB encompasses a variety of aspects, including persuading action, legal action, physical action, educational action, financial action as well as civic activity. In contrast, the concept of ERB has been suggested across various domains, encompassing education, environmentally conscious consumption, political engagement, recycling practices, and community mobilization. Simultaneously,

prior research has undertaken the measurement and conceptualization of ERB through a more comprehensive perspective, proposing a more universally applicable metric for assessing ERB. In their study, [59] proposed a measurement tool to assess ERB in the context of CBT. They employed a comprehensive seven-dimensional framework, which included the following dimensions: pro-environmental behavior, financial action, sustainable behavior, environmentally friendly behavior, persuasive action, physical action, as well as educational action.

For all that, this current study employs the aforementioned seven dimensions to assess the ERB of the community on Redang Island to measure environmental behavior. In accordance with this aim, the present research also adopts the conceptual framework proposed by [59] for measurement purposes. This application was suggested by previous scholars that need to investigate the role of the community on environmental behavior rather than other stakeholders [53,60,61]. Furthermore, this study encounters a disparity between the conception as well as operationalization with regard to the ERB construct [15]. Likewise, [62] assert in their research that technology fosters a culture of ERB among stakeholders. However, this current study does not utilise the impact of technology to facilitate environmental sustainability.

### **2.3 Destination Social Responsibility (DSR)**

The adverse consequences of tourism development, which include the generation of waste, degradation of the environment, as well as depletion of natural resources, have been observed in certain destinations. Therefore, it is evident that in order to achieve ST growth, all parties participating in a destination must collectively fulfill their responsibilities [63,64]. DSR, or stakeholder responsibility in the tourism industry, encompasses the conceptions of obligations as well as activities that have been extended to several stakeholders, which include governments, investors, employees, community residents, tourists, suppliers, as well as rivals [65]. Echoing this concept,[66], DSR can be described as the state and behaviours that encompass all parties involved, such as governments, local residents, rivals, investors, tourists, suppliers, and employees, in line with their individual understanding of social obligations. Likewise, a vacation destination attains acknowledgment as a socially responsible location when all relevant parties, including both governmental and commercial entities, actively engage in endeavors that enhance the social responsibility initiatives of the tourist sector.

DSR is an expansion of the idea of CSR and refers to a set of duties and conduct expected of all stakeholders, which include the community, visitors, as well as the government. Additionally, the term "it" pertains to the societal obligation of the various parties involved in tourism destinations. The studies conducted by [67], [42] and [51] have mostly concentrated on the mitigation of adverse environmental consequences associated with tourist destinations. These studies have also explored the representation of stakeholders' actions in order to foster supplementary social, economic, as well as environmental advantages for the local community using DSR. Upon examining a previous study conducted by [68], it is suggested that there exists a dearth of consistency in the conceptualization of the dimensions or measurements pertaining to DSR. Therefore, this current study applies the DSR concept defined by [58] to measure DSR within the context of community coastal marine tourism destinations. In addition, [67] and [69] have described it as the shared ideology as well as initiatives in which destination stakeholders engage in. Moreover, they make it clear that DSR stands for everyone involved in the destination's responsibility to reduce negative effects on the ecology, economy, as well as society, foster community prosperity, and improve the wellbeing of local citizens. Hence, DSR enables positive enhancement of tourism destinations while reducing the negative impact on local residents

caused by the influx of visitors [65,70,71]. Specifically, it can be established that unique DSR is critical in differentiating strategies as well as enhancing environmental sustainability in CBT.

## **2.4 Destination Image (DI)**

The DI notion encompasses the collective beliefs, thoughts, as well as impressions that individuals hold regarding a particular location [72] and has been thoroughly researched in several fields, such as marketing, geography, as well as environmental psychology. Additionally, the environmental psychology field has extensively acknowledged the place image significance in comprehending the attitudes as well as behaviour of communities towards planned development initiatives. The tourism literature has devoted significant attention to the concept of place image, recognising its pivotal significance in shaping destination selection during travel [73] [25]. In light of the fact that tourism requires at least some level of engagement with host community members, previous research has emphasized the crucial role locals play in tourism as an intrinsic aspect of a destination as well as its image [68,74]. In research attempting to explain the construction of perceived tourist impacts and support for its growth, inhabitants' place image received just a scant amount of attention. Few studies support the notion that locals have opinions about their city or region and that those with more positive opinions are more likely to promote good word-of-mouth[26,62,75]. Several scholars have contended that the beliefs held by inhabitants of their locality significantly shape their attitudes as well as behaviour. This includes their perceptions of the impacts of tourism as well as their support level for its development [21,26,76].

## **2.5 Hypothesis development**

### ***2.5.1 Destination Social Responsibility (DSR) and resident Environmentally Responsible Behaviour (ERB)***

DSR was introduced as a distinctive concept and defined as “*the collective philosophy as well as efforts with regard to destination stakeholders to engage social activities as local residents perceive*” [65]. Referring to stakeholder theory, the key stakeholders in a community, namely its residents, have the potential to get several advantages from the implementation of DSR. These benefits include but are not limited to economic development, protection of the ecological environment, the ability to enjoy a visually appealing natural environment, an increase in QoL, and the promotion of social welfare among residents. With regard to tourist development, the social exchange theory application to citizens' sense of DSR is likely to influence their view of ERB as well as their support level with regard to the development of tourism [77].The exchange and ability to continue for an extended period of time provide advantages to both the destination and its population. Hence, this theoretical framework posits that the advantages of DSR serve as a compelling incentive for people to foster favourable beliefs and engage in beneficial behaviours, such as ERB.

Studies have shown that in the tourism literature, the DSR positively influences the ERB from the viewpoint of tourists and residents. For example, [77][42][78][79]postulated the influence with regard to DSR on ERB from a tourism perspective. A few studies, including [78][64] [80] have found a positive correlation between DSR and ERB after empirically examining the relationship. Existing scholarly research has established that local citizens play a critical role as primary stakeholders in a destination, as well as their daily adoption of ERB

significantly impacts the environment as well as sustainable development with regard to the destination. Therefore, the following hypothesis as follows:

**H1:** DSR is positively related to residents' ERB.

### *2.5.2 Destination social responsibility and destination image*

Place image or DI used interchangeably is significant to the tourism study and will affect the tourists' behaviour. Past studies have shown that various factors influence place image. According to [24][21], factors such as e-WOM and pro-environmental significantly affect DI. Meanwhile, [74] studied the cognition as well as the effectiveness of tourists and residents on DI, and the results showed a positive relationship. Furthermore, [81][82] discovered the relationship between cultural values on DI. Consequently, [83] integrated the framework to examine the antecedence, such as electronic word mouth, destination trust, and DSR on the DI. The study postulated that the authenticity of DSR, such as companies or stakeholders involved in tourism activities, positively affects DI.

DSR is crucial to the development image of the destination as well as the perceived benefits of DSR, which include rising income and improving good QoL. Therefore, it will contribute to the change of the destination [78]. However, limited studies show the DSR on DI. Thus, our study suggested that DSR will affect the DI of residents. Thus, the stakeholders, such as residents that involved in tourism activities and gain the DSR benefits, will shape the DI and the hypothesis below:

**H2:** DSR is positively related to DI

### *2.5.3 Destination image and residents' environmentally responsible behaviour*

In tourism research, DI is defined as people's impressions, emotions, beliefs, and experiences about a specific place [84][85]. Experiences in the nature of the environment can enhance positive emotion, which develops an understanding of the environment and encourages environmental behaviour [86,87]. Various research has looked at the relationship between DI as well as environmental behaviour in several settings, which include world heritage places, national parks, and ecotourism [88][27][24][89]. The findings demonstrated the importance of DI on ERB. Nevertheless, there is a lack of study with regard to island tourism. [90][91] indicate DI as the main predictor of ERB by residents of the land. Residents of the land play a vital role in developing environmentally friendly tourism development [72], and DI is an excessive benefit to improving environmental behaviour. Thus, this research was put forward to study the effect of DI on ERB in island tourism, and the following hypothesis was:

**H3:** Destination Image is positively related to residents' ERB.

### *2.5.4 Destination Image mediates between DSR and ERB*

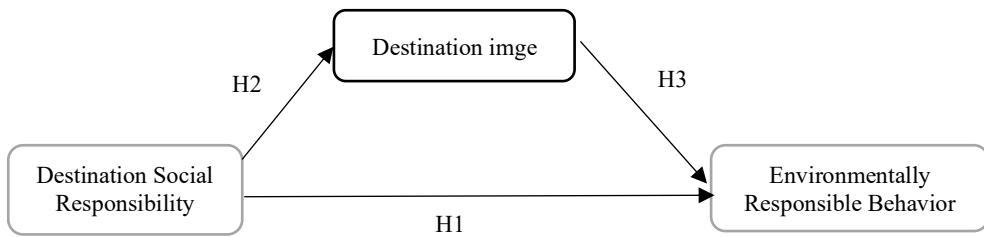
Past study has presented a substantial relationship that exists between DI as well as ERB [92][93]. According to [92] DI was identified as the leading role in predicting perceived environmental behaviour. Additionally, the study found that the residents are important stakeholders and have a strong bond with the destination due to their well-being close to the quality of the environment. A study by [25] and [94] discovered that local residents with a more favorable image of their place showed a greater level of support with regard to tourism and more positive behaviour, for instance, intention to suggest to others.

The previous research findings have consistently presented a correlation between DI and behaviours such as intention, revisit, and environmental behaviour. Moreover, [95] [78] [42]

found the DSR as an antecedence influences the DI. Relying on the findings, this research suggested that DSR influences the ERB through the DI and the DI as mediating effects between the DSR and ERB. Thus, the hypothesis was:

**H4:** Destination Image positively mediates the relationship between DSR and ERB.

After a thorough review of the relevant literature, let's suppose the researcher put forth a model in which the construct was measured as a composite of DSR, DI, and ERB (as shown in Fig. 1).



**Fig. 1.** Research framework of environmentally responsible behavior

### 3 Methodology

Among the many methods used by several authors in analysing tourism destinations' environmental behavior, the researcher used the Structural Equation Modeling (SEM) approach.

#### 3.1 Research Instrument

There were two sections to the questionnaire. It should be noted that the initial phase of the survey collected data on the socio-demographic characteristics with regard to the participants, which include gender, age, as well as marital status. Additionally, another section of the survey was dedicated to exploring the variables under research. The scales which had previously been validated in prior research have been adapted in order to test the variables which are under consideration. The items utilized in this study were derived from previous studies that pertain to the specific domains of inquiry. Specifically, DSR is the perception regarding responsibilities and tasks that pertain to all parties involved. It encompasses tourists, local residents, staff, investors, governments, suppliers, and rivals to conserve and preserve the environment's biodiversity [42], as well as require multiple resources. DSR with multiple dimensions has been adopted. This research has been measured by utilizing the 27 items multifaceted scale established by [77], relying on six dimensions: economic, environmental, social, stakeholder and voluntariness, which are fundamental for the perception of residents on DSR practices [65,96]. Subsequently, the DI is concern about an attribute of residents towards tourism destinations [97], was measured using the 36 items adopted from [98,99] consist seven dimensions: affective image, tourism resources, amenities, support system, travel environment and service quality. The ERB scale referred to [100] is based on seven dimensions, which comprise seven dimensions. The following factors are considered: financial action, environmentally-friendly behaviour, physical action, persuasive action, civil action, as well as sustainable behaviour. The participants have been requested to provide their responses using a Likert scale compromising of five points, which range from 1 to 5, in which 1 denotes "strongly disagree" while 5 refers to "strongly agree," for the construct of DI. Additionally, they were asked to use a Likert scale with seven points, which ranges from 1 to 7, in which 1 resembles "strongly disagree" while 7 indicates



"strongly agree," for the DSR concept. The reliability of all dimensions is sound, as evidenced by Cronbach's alpha values which surpass the suggested 0.70 threshold [101].

The study also concerns the second-order construct of each DSR, DI, and ERB, which is Type I (reflective-reflective). Hence, the guideline refers to [102] and [103]. We submitted an application for the development of the DSR, DI, and ERB scores. The utilisation of repeat indicators was employed to establish a higher-order latent variable by constructing a latent variable that incorporates all the variables observable inside the variables, which are fundamental lower-order latent [102].

### **3.2 Data Collection Sample**

The current study utilised a quantitative methodology, utilising a cross-sectional survey design. To examine and substantiate the research hypothesis, the study employed quantitative and cross-sectional research methodologies to gather data via a self-administered questionnaire. Consequently, the analysis unit was the Redang Island local residents, who are under MPAs and were one of the tourism destinations within the three months preceding the data collection period (December 2022-February 2023). Convenience sampling has been utilized to collect data from the island's local residents. Two trained enumerators conducted the survey. The researchers collaborate to intercept possible respondents at three distinct points of entry (namely, the ferry jetty, school, and grocery shop) throughout varied times and days, ensuring coverage of residents on both weekdays and weekends. The survey participants were inquired about their level of engagement in community initiatives pertaining to environmental conservation, environmental preservation, and the advancement of sustainable development. If they did, they were welcome to be part of this survey. Participation in the study was optional, and the collection of identifying information was not conducted to ensure the maintenance of respondent anonymity. Participants were encouraged to communicate with the enumerator in case of any issues or uncertainties regarding the study or the content of the questionnaire. Initially, a pilot study was performed in the second week of November 2023 for 40 people in selected coastal marine residents. Following the pilot study, the reliability of the scales as well as the clarity of the construct were assessed. Since no issues arose, the process of gathering the actual research data commenced. A total of 300 questionnaires were distributed, and only 200 were returned. Having eliminated surveys which are incomplete, only 195 usable questionnaires have been collected and utilised for further analysis with a 65% response rate.

Like other residents' ERB studies [14,42], the sample is characterized by males (53.3%) than females (46.7%). This is a relatively high level of education (62.6%) with a pass of secondary school certificate. Consequently, this is followed by the monthly household income of Redang island residents (49.7%) (RM1500-RM2999). Moreover, married respondents (75.9%) were predominant compared to single (21%), while most island residents were hotel and restaurant staff (21%).

## **4 Empirical analysis and results**

### **4.1 Data Analysis**

Partial Least Squares (PLS) modelling has been employed in this study, utilising the SmartPLS 4 version as the statistical tool [104]. PLS modeling was chosen due to its ability to accommodate non-normal data distributions, which is particularly relevant in survey research where normality assumptions are often violated[105].

## 4.2 Common Method Bias (CMB)

[106] stated that it is important to recognize that utilising single-source data has the potential to create Common Method Bias (CMB) during the data collection process. When a single participant provides responses for both the predictor as well as the criterion variables using the same method, it is crucial to consider as well as clarify the CMB issue. This is necessary in order to minimize any potential impact on the reliability and validity of the findings [106]. In the study conducted by [106], procedural as well as statistical techniques have been utilised to validate the absence of CMB in the data. Despite providing participants with information that there were no definitive correct or incorrect answers and that their involvement in the study was voluntary, a variety of anchor measures were utilised to evaluate predictor variables. These scales included a Likert scale ranging from 1 to 5 and another Likert scale ranging from 1 to 7.

Since the data have only been obtained from one source, we initially examined the potential for CMB by analyzing the full collinearity for the statistical methodology, as recommended by [107] as well as [108]. Table 1 presents the results of the whole colinearity test. Based on the findings of [109] and [110], it can be concluded that the Variance Inflated Factor (VIF) values were below the threshold of 5. This shows that there is no evidence of bias arising from the use of single-source data. Therefore, the presence of single-source bias

**Table 1.** Full Collinearity Testing

DSR	DI	ERB
2.621	1.647	2.481

**Note:**

DSR = Destination social responsibility,  
 PI = Place image,  
 ERB = Environmentally responsible behavior

## 4.3 Measurement Model

The model built utilizing a two-step approach was tested in accordance with the recommendations of [111]. Initially, the measurement model has been examined to ascertain the validity as well as reliability of the instruments used, adhering to the recommended protocols outlined by [112] as well as [113]. Correspondingly, the structural model has been executed in order to assess the hypothesis which has been formulated. The measurement model has been constructed after confirming convergent as well as discriminant validity [113]. Here, convergent validity for the reflective measurement entails verifying the reliability as well as the validity of all the items measuring the same concept. Convergent validity encompasses several indicators, namely loadings, Average Variance Extracted (AVE) as well as Composite Reliability (CR). Note that the loading values should have a threshold of 0.5 and above, the AVE should have a threshold of 0.5 and above, while the CR should have a threshold of 0.7 and above.

The AVEs, as well as CRs, are all greater than 0.5, as indicated in Table 2, and they are all greater than 0.7. The loadings exhibited satisfactory results, as indicated by the majority of loadings over 0.708 [112]. Our study incorporates three second-order constructs, which are: 1. Destination Satisfaction and Revisit Intention (DSR), 2. Place Image, and 3. Emotional Response to the Destination (ERB). The validity as well as reliability of the second-order constructs have been evaluated for each variable, as presented in Table 3. The validity as well as reliability of the second-order measurements have also been confirmed.

**Table 2.** Measurement Model with regard to the First Order Constructs

<b>First Order Constructs</b>	<b>Items</b>	<b>Loadings</b>	<b>AVE</b>	<b>CR</b>
<b>CSR Economic</b>	CSRE1	0.929	0.766	0.929
	CSRE2	0.902		
	CSRE3	0.730		
	CSRE4	0.924		
<b>CSR Environment</b>	CSREN5	0.905	0.800	0.950
	CSREN6	0.922		
	CSREN7	0.922		
	CSREN8	0.912		
	CSREN9	0.870		
	CSREN10	0.834		
<b>CSR Social</b>	CSRS11	0.927	0.802	0.960
	CSRS12	0.876		
	CSRS13	0.908		
	CSRS14	0.835		
	CSRS15	0.947		
	CSRS16	0.874		
<b>CSR Stakeholder</b>	CSRST17	0.926	0.843	0.974
	CSRST18	0.916		
	CSRST19	0.964		
	CSRST20	0.887		
	CSRST21	0.915		
	CSRST22	0.977		
	CSRST23	0.893		
<b>CSR Voluntariness</b>	CSR24	0.586	0.613	0.861
	CSR25	0.802		
	CSR26	0.856		
	CSR27	0.857		
<b>Affective Image</b>	AFI 1	0.550	0.696	0.898
	AFI 2	0.922		
	AFI 3	0.850		
	AFI 4	0.955		
<b>Tourism Resources</b>	DCI 1	0.811	0.594	0.852
	DCI 2	0.830		
	DCI 3	0.817		
	DCI 5	0.604		
<b>Amenities</b>	DCIA6	0.617	0.601	0.899
	DCIA7	0.766		
	DCIA8	0.882		
	DCIA9	0.881		
	DCIA10	0.783		
<b>Support System</b>	DCIS 13	0.813	0.642	0.898
	DCIS 14	0.888		
	DCIS 15	0.635		
	DCIS 16	0.880		
	DCIS 17	0.764		
<b>Travel Environment</b>	DCIT18	0.845	0.643	0.898
	DCIT19	0.815		
	DCIT20	0.916		
	DCIT21	0.874		
	DCIT 22	0.729		

First Order Constructs	Items	Loadings	AVE	CR
<b>Services Quality</b>	DCISQ 23	0.908	0.753	0.961
	DCISQ 24	0.792		
	DCISQ 25	0.882		
	DCISQ 26	0.841		
	DCISQ 27	0.869		
	DCISQ 28	0.889		
	DCISQ 29	0.869		
	DCISQ 30	0.892		
<b>Civil Action</b>	CA1	0.932	0.838	0.963
	CA2	0.898		
	CA3	0.878		
	CA4	0.927		
	CA5	0.942		
<b>Financial Action</b>	FA 6	0.835	0.790	0.957
	FA 7	0.943		
	FA 8	0.914		
	FA 9	0.861		
	FA 10	0.863		
	FA 11	0.912		
<b>Persuasive Action</b>	PA 12	0.895	0.825	0.959
	PA 13	0.928		
	PA 14	0.944		
	PA 15	0.941		
	PA 16	0.827		
<b>Physical Action</b>	PH 17	0.846	0.790	0.882
	PH 19	0.929		
<b>Environmentally-Friend Behavior</b>	EFB 20	0.751	0.572	0.800
	EFB 21	0.793		
	EFB 22	0.724		
<b>Sustainable Behavior</b>	SUB 24	0.861	0.716	0.883
	SUB 25	0.846		
	SUB 26	0.831		
	PEB 27	0.922		
<b>Pro-environmental Behavior</b>	PEB 29	0.911		

**Table 3.** Measurement Model with regard to the Second Order Constructs

Second Order Constructs	Indicator	Loadings	AVE	CR
Destination Social Responsibility	CSREC	0.887	0.799	0.952
	CSREN	0.911		
	CSRSL	0.914		
	CSRST	0.918		
	CSRV	0.838		
Destination Image	AF	0.786	0.706	0.935
	DCI	0.842		
	DCIA	0.871		
	DCIS	0.751		
	DCISQ	0.824		
	DCIT	0.880		
Environmentally Responsible Behavior	CA	0.805	0.583	0.906
	EFB	0.565		
	FA	0.801		
	PA	0.868		
	PEB	0.824		
	PH	0.672		
	SUB	0.769		

**Table 4.** Discriminant Validity (HTMT)

	1	2	3
1. Destination Image			
2. Destination Social Responsibility	0.639		
3. Environmental Responsible Behavior	0.843	0.537	

#### 4.4 Structural Model Evaluation

Table 5 presented findings showing the immediate impacts noticed through the structural analysis performed using PLS. The route coefficient ( $\beta$ ) represents the relationships that exist between the constructs as well as their statistical significance. To evaluate the strength as well as the statistical significance of the parameters that have been computed, we utilised the non-parametric resampling method called bootstrapping. Additionally, the procedure involves the generation of several bootstrap samples by means of a randomised, iterative sampling process from the original dataset [112].

According to [115], Table 5 illustrates that all the acknowledged direct effects remain statistically significant at a significance threshold of 95% based on percentile bootstraps. Based on these findings, we are able to derive the following conclusion: First, it is necessary to validate the normality distribution for analysis. The multivariate kurtosis as well as skewness were evaluated, as recommended by [112] and [116]. Moreover, the findings indicated that the obtained data did not exhibit multivariate normality, as evidenced by significant values for Mardia's multivariate skewness ( $\beta = 123.50$ ,  $p < 0.01$ ) as well as Mardia's multivariate kurtosis ( $\beta = 537.566$ ,  $p < 0.01$ ).

Consequently, in accordance with the recommendations put forth by [102], we presented the path coefficients, t-values, standard errors, as well as p-values with regard to the structural model by employing a re-sample bootstrapping approach with a sample size of 10,000 [112]. According to the critique presented by [117], the utilisation of p-values as a sole criterion for hypothesis significance testing is deemed inadequate. Instead, they propose employing a comprehensive set of criteria, for instance, confidence intervals, p-values, as well as effect sizes, to enhance the rigor and reliability of such testing.

Second, we examined the impact of the two predictors on ERB. The Coefficient of Determination ( $R^2$ ) was found to be 0.611 (with  $Q^2 = 0.607$ ), indicating that the two predictors collectively accounted for 61.1% of the variability observed in ERB. The acceptance of the hypothesis is contingent upon many criteria, as outlined by [118][110]. These criteria include the trajectory of the beta value aligning with that proposed by the hypothesis, a t-value more than 1.645, a p-value less than 0.05, as well as the absence of a zero value inside the confidence interval that exists between the Lower Level (LL) as well as Upper Level (UL) confidence interval. Therefore, our findings provide evidence that DSR exerts a substantial and favourable impact on ERB ( $\beta = 0.769$ ,  $p < 0.01$ ) as well as place image ( $\beta = 0.608$ ,  $p < 0.01$ ). Hence, the hypotheses H1 and H2 were supported. In contrast, the presence of PI possessed a negligible impact on ERB ( $\beta = 0.021$ ,  $p < 0.01$ ). Consequently, an examination has been conducted to examine the impact with regard to DSR on PI, yielding an  $R^2$  value of 0.365 ( $Q^2 = 0.366$ ). This finding suggests that DSR accounts for 36.5% of the variability observed in place image, supporting H2.

In order to examine the mediation hypotheses, we implemented the recommended approach of [119] by utilising bootstrapping to estimate the indirect effect. Additionally, using PLS-SEM to estimate the complete model has been discussed as a means to address contemporary concerns around the application of latent approaches in testing the mediation effect [120] researchers employ bootstrapping to generate the sampling distribution with regard to the indirect effect for either a single mediator or several mediators

[121][110][122].Furthermore, the utilization of bootstrapping is deemed enough for the interpretation of intricate mediating effects, as suggested by [118]. A single mediating effect was introduced, wherein the positive mediation of place image on the relationship that exists between DSR as well as ERB was seen ( $\beta = 0.013$ ,  $p < 0.05$ ,  $LL = -0.032$ ,  $UL = 0.067$ ). However, this impact was not found to be statistically significant, as shown in Table 6. The bias-corrected 95% confidence intervals likewise demonstrated intervals that encompassed a value of 0, corroborating our findings. Thus, the hypothesis H4 was not substantiated.

We followed [119] advice and bootstrapped the indirect impact to test the mediation hypotheses. Additionally, using PLS-SEM with regard to model estimation eased recent concerns about using the latent approach to analyze the mediation effect [103]. In assessing the mediating effect, researchers should bootstrap the sampling distribution with regard to the indirect effect for a sample or multiple mediators [109,110,113]. Moreover, bootstrapping is adequate to interpret complex mediating effects [103]. One simple mediating effect was introduced, which is place image positively mediates the relationship that exists between DSR and ERB ( $\beta = 0.013$ ,  $p < 0.05$ ,  $LL = -0.032$ ,  $UL = 0.067$ ). Therefore, it was not significantly illustrated in Table 6. The confidence intervals bias of 95% also showed intervals straddling a zero value, hence confirming our results was not significant. Therefore, H4 was not supported.

**Table 5.** Hypothesis Testing Direct Effects

Hypothesis	Relationship	Std Beta	Std Error	t-values	p-values	BCI LL	BCI UL	f <sup>2</sup>	VIF	Decisions
H1	DSR → ERB	0.769	0.045	17.174	0.000	0.690	0.839	0.967	1.576	Supported
H2	DSR → DI	0.608	0.066	9.203	0.000	0.486	0.703	0.576	1.00	Supported
H3	PI → ERB	0.021	0.049	0.437	0.331	-0.055	0.104	0.001	1.576	Not supported

Note: We utilize a 95% confidence interval with a bootstrapping of 10,000

**Table 6.** Hypothesis Testing Indirect Effects

Hypothesis	Relationship	Std Beta	Std Error	t-value	p-values	BCI LL	BCI UL	Decisions
H4	DSR → DI → ERB	0.013	0.030	0.430	0.333	-0.032	0.067	Not supported

Note: We utilize a 95% confidence interval with a bootstrapping of 10,000

In addition, PLSpredict has been proposed by [123]. The process described utilizes a holdout sample approach to make predictions at the case level for an item or construct. It employs the PLSpredict method in conjunction with a 10-fold procedure to assess the predictive relevance. As per [123], a strong predictive power may be inferred when all the item differences (PLS-LM) are lower. Additionally, if all the items are above a certain threshold, the confirmation of predictive relevance is not established. Inversely, if the majority of items fall below this threshold, there is a moderate level of predictive power. Consequently, a small proportion of differences among the items in the Partial Least Squares-Linear Modelling (PLS-LM) analysis indicates a limited level of predictive capacity. According to the data shown in Table 7, it may be established that the errors associated with the PLS model were consistently lower when compared to those of the LM. Hence, it may be inferred that our model's predictive capability is limited.

**Table 7.** PLS-Predict

Construct	Q <sup>2</sup> predict				
DI	0.356				
ERB	0.607				
	PLS		LM_RMSE	PLS-LM	
	PLS-SEM_RMSE	PLS-SEM_MAE	LM_RMSE	RMSE_PLS-LM	Q <sup>2</sup> predict
AF	0.919	0.763	0.886	0.033	0.164
DCI	0.909	0.702	0.889	0.02	0.183
DCIA	0.839	0.621	0.787	0.052	0.304
DCIS	0.847	0.65	0.829	0.018	0.291
DCISQ	0.903	0.694	0.857	0.046	0.194
DCIT	0.876	0.685	0.808	0.068	0.241
CA	0.84	0.722	0.839	0.001	0.302
EFB	0.848	0.671	0.782	0.066	0.29
FA	0.836	0.648	0.848	-0.012	0.308
PA	0.827	0.687	0.826	0.001	0.323
PEB	0.654	0.512	0.653	0.001	0.578
PH	0.921	0.674	0.91	0.011	0.161
SUB	0.795	0.602	0.81	-0.015	0.375

## 5 Discussion and Conclusion

This research assesses the relationship that exists between DSR on ERB through the place image of Redang's community. The researchers developed the findings from the PLS-SEM technique in line with the target sample with regard to the study. Based on findings, residents' DSR generally enhanced ERB towards the community. Even though the relationship between DSR as well as ERB has been supported by previous research [67,78], the current study fails to integrate the social psychological construct (residents' place image) to enhanced environmental sustainability in CBT in Redang's. In this situation, marine parks are often criticized for confining animals to relatively small spaces compared to their natural habitats. This can create the impression that residents are kept in an artificial environment against their will. Critics argue that this goes against the principles of conservation and respecting natural ecosystems. Besides, these marine parks may prioritize entertainment over education. Suppose the main focus is on spectacular shows or performances rather than teaching visitors about the importance of marine conservation and wildlife protection. In that case, it can lead to a negative perception. This can create the impression that residents are being exploited for profit rather than being part of a larger educational mission. Specifically, Some argue that marine parks do not contribute significantly to the conservation of species or their habitats. If residents are not actively involved in conservation efforts or the park does not engage in meaningful conservation initiatives, it can create the perception that the park is more focused on entertainment than genuine environmental stewardship.

As seen, this research addresses the gap by assessing the mediation effect of residents' image to support linkages of DSR with residents on ERB established by the previous study.

The notion of DSR is widely recognized as a significant environmental component that empowers local inhabitants to mitigate the adverse effects on the environment while simultaneously fostering social and economic advantages for the community[42][124][65]. Thus, the results of the study provide confirmation that DSR (Destination Social responsibility ) exhibits a statistically significant and positive correlation with inhabitants' ERB (Environmental Responsibility Behaviour) (Hypothesis 1). The findings are aligned

with prior research performed by [78] and [125]. Moreover, it is worth noting that no empirical research has been conducted to examine the influence of DSR on inhabitants' perceptions of DI. Hence, the present conceptual study model can be seen as a valuable addition to the current body of literature on tourism destinations. This is because it experimentally examines the causal connection between DSR and locals' image of their place.

This research results indicate that the inhabitants' DSR possesses a beneficial effect on their image (H2). Therefore, individuals residing in a tourism destination who exhibit a high level of social responsibility are more likely to contribute to the positive perception of local people in relation to the protection of the environment in tourism destinations. In contrast to initial expectations, the results of the present research did not provide support for the direct hypothesis (H3) or the indirect hypothesis (H4), suggesting that residents' destination satisfaction and loyalty were not influenced by their perception of the place image. Therefore, the present findings align with the findings of the prior study performed by [91][126] as well as [72], have demonstrated that negative perceptions of inhabitants towards a place can be attributed to a lack of emotional connection to the area and a general indifference towards community matters.

## **6 Theoretical and Practical Implication**

The aforementioned discoveries represent an original addition to the existing body of knowledge. The current research focuses on elucidating the concept of DSR in the context of environmental resource management. This is significant as prior scholarly works on residents' ERB have placed significantly less emphasis on destination factors influencing ERB [127–129]. The existing empirical evidence suggests that there is a significant relationship between DSR as well as resident ERB [130][131][68]. This relationship has been explored in the context of tourism destinations, as well as in non-tourist settings.

Furthermore, this present study extends existing research by examining residents' perception (image) of the destination as a mediator in the DSR influence on ERB residents. As far as the researcher is aware, no prior investigations have examined the connection between DSR as well as ERB, nor have there been empirical findings regarding mediating factors in this relationship. Thus, this investigation introduces innovation and enriches the current body of knowledge in this domain. Despite the indirect impact of DSR on ERB through DI not being supported, this mediating role sheds light on the underlying link between DSR and ERB, providing a valuable contribution to the literature.

The choice of inhabitants inside Redang's marine parks as a study setting presents numerous options to validate the suggested framework in comparison to other nature-based tourism destinations. Moreover, a cross-validation procedure was implemented to assess the reliability and validity of the conceptual model across various situations. The study's findings indicated that there was a consistent pattern observed throughout the samples. This phrase signifies or denotes. Our suggested approach has the potential to be applied to several sorts of destinations, including not just nature-based tourist contexts but also urban as well as cultural tourism heritages.

This study makes a scholarly contribution to tourism and environmental psychology by investigating the interplay between DSR, residents' place image, and ERB. Consistent with the proposed theoretical framework, the findings accomplished from this study indicate a statistically significant positive association between DSR and both place image and ERB. The results underscore the significant contribution of residents in community-based tourism (CBT), especially in the coastal area development context. Moreover, the results indicate the importance of government and practitioners in recognizing and addressing residents' attitudes and behaviors in a meaningful manner. For instance, it is imperative for the government to promote education actively as well as raise awareness among communities on the



significance of MPAs. This includes emphasizing their role in the preservation of biodiversity, maintenance of ecosystems, and support for local economic activities. Furthermore, it is crucial to cultivate a perception of ownership and stewardship by actively engaging local populations in the management and decision-making procedures of marine park-protected areas.

Encouraging residents to participate in cleanups, habitat restoration projects, and citizen science initiatives is a way to actively engage the community in environmental efforts. This engagement can help to create a sense of responsibility as well as pride in the preservation of the marine environment. Moreover, it promotes sustainable fishing practices, such as adhering to catch limits, using selective fishing gear, and avoiding destructive fishing methods. On the other hand, residents of the community must be educated about the importance of sustainable fishing for maintaining fish populations and ensuring the long-term viability of the marine ecosystem. Additionally, the necessity of regulating as well as mitigating negative environmental impacts in ecotourism locations arises from the suppressive effect these perceived consequences have on communities' ERB as well as support with regard to the development of tourism. Other than that, it has been assumed that the citizens serve as the primary stakeholders, while the natural environment as well as resources have been regarded as the principal elements. In the realm of tourism, it is commonly observed that practitioners exhibit a tendency to prioritize economic gains while allocating comparatively lesser consideration to the potential environmental repercussions associated with the development of tourist ventures and undertakings. Nevertheless, it is crucial to note that tourism activities could potentially yield negative consequences if not executed with caution [132][48]. It is imperative for the government to establish stringent guidelines and laws that unambiguously delineate the parameters and proscribed conduct pertaining to the activities associated with tourism development. The utilization of environmental impact assessment serves as a valuable tool in identifying underlying environmental issues [133].

## **7 Limitation And Future Research**

Similar to every scientific investigation, this work possesses certain constraints that present avenues for future scholarly inquiry. Using convenience sampling as a research strategy may limit the generalizability with regard to the study's findings. Additional investigation ought to be undertaken to enhance the design as well as the implementation of the survey by employing more suitable methodologies, such as systematic sampling. Furthermore, this research is constrained by its focus on a singular form of CBT being conducted within a marine coastal region as the designated study location. Hence, it is possible that future studies may propose varying degrees or orientations of associations within the model, provided that it is examined in alternative forms of CBT settings such as cultural heritage sites, national parks, and wilderness parks. In light of this perspective, conducting comparative studies that examine the responses of inhabitants in various types of CBT destinations to adverse environmental effects is valuable. Furthermore, the data were gathered at an ecotourism location during its first phase of tourism development, thereby constraining the generalizability of the findings. As the tourism industry progresses, there is a possibility for a shift in the attitudes and behaviors of local residents with regard to the development of tourism as well as the preservation of the environment. Hence, it is advisable to conduct longitudinal studies at a singular location or comparative studies across numerous destinations at distinct stages of tourist development.

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