

## ***Environmental Sustainability and the Future of the Cruise Tourism: A Suggested Model***

*Çevresel Sürdürülebilirlik ve Kuruvaziyer Turizminin Geleceği*

Ruheet GENÇ<sup>1</sup>

### **ABSTRACT**

In this study, the role of environmental sustainability in current cruise tourism activities will be discussed in detail. The paper will first start with the discussion of cruise tourism with respect to the threats of cruise tourism on environmental sustainability. After this, the manuscript will suggest a model where the impact of cruise tourism will be explained on the basis of three variables, namely, total revenues derived from tourism activity, the increase in the quality of life for tourists as well as local stakeholders, and the degree of environmental degradation as a result of cruise tourism. In short, the paper will conclude that environmental sustainability in cruise tourism practices are important for future activities, as protection of environment and measures that prevent environmental pollution will contribute to tourism revenues as well as life satisfaction of participants in the future terms. The main contribution of this study is enabling the use of quantitative measures in the analysis of the relationship between cruise tourism activities and environmental sustainability so that objective findings supported by mathematical and statistical can be obtained.

**Keywords:** Cruise tourism, sustainability, quality of life

### **ÖZ**

Kuruvaziyer turizmi, turizm endüstrisi içinde hızlı gelişen bir bölümdür. Daha önceki çalışmalar dünyada Kuruvaziyer turizminin ekonomik ve kültürel etkilerini incelediler ve özellikle bu tür turizmin önemli olduğu Karayipler ( Jamaika ve Kosta Rika gibi ) aynı şekilde Avrupa ve Avusturalya gibi yerlerde yapıldı bu çalışmalar. Tarihi gelişmeler incelendiğinde, Kuruvaziyer Turizmi ticari olarak ilk 1880 lerde Pasifik bölgesinde gemi şirketleri tarafından onların ticari güzergahları dışında düzenlenmeye başlandı. Bu tür turizmin çevre üzerine olan etkileri Deniz tabanı kirliliği, kıyı ve liman kirliliği gibi muhtelif alanlarda görülmekte olup kirli suların ve atık maddelerin çevreye zarar vermeden tekrar kullanım zinciri içinde yer almasındaki başarı bu sektörün geleceğini belirleyen faktörler olacaktır. Bu çalışmada Kuruvaziyer turizminin çevreye olan etkilerinin bu sektöre ve onun geleceğine dönük karşılıklı etkileri incelenecektir.

**Anahtar Kelimeler:** Kuruvaziyer turizmi, çevresel sürdürülebilirlik, turizmin geleceği

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<sup>1</sup> Doç.Dr., Türk-Alman Üniversitesi, İ.İ.B.F., İşletme Bölümü, [drgench@gmail.com](mailto:drgench@gmail.com)

## Introduction

Cruise tourism is one of the growing segments in international tourism industry. Previous research have studied the economic and cultural impacts of tourism industry throughout the world, especially the major cruise tourism areas including the countries in Caribbean region, which accounts for the 50% of total world capacity placement (Dwyer & Forsyth, 1998), such as Costa Rica (Brida & Zapata, 2010), Jamaica (Chase & McKee, 2003), as well as Europe (Dragin, Jovičić & Bošković, 2010) and Australia (Dwyer & Forsyth, 1996). Historically, cruise tourism has developed in a commercial sense from the early 1880s in Pacific region by tour offerings of shipping companies for leisure tour which are irrelevant from their regular trade routes (Steel, 2016). On the other hand, studies related to sustainability of cruise tourism on the basis of environmental considerations have been limited to first-order effects on the ecosystem, but the second phase of the research linking these impacts to tourism does not exist (Moreno & Amelung, 2009).

There are numerous impacts of cruise tourism on environmental degradation. As Uebersax (1996) describes, a complex downside to the cruise industry includes pollution of sea floors, harbors and coastal areas; degradation of scarce water resources; destruction of coral reef habitat; public health concerns ashore; and pressures resulting from waste disposal problems for communities that are already unable to deal with their own domestic commercial municipal waste. Yet, no further research has been done to explain the impacts of these environmental problems created by cruise tourism on the future of cruise tourism itself.

In this manuscript, it has been aimed to focus on the environmental degradation with respect to cruise tourism industry and the results of this environmental degradation on the future of cruise tourism. It will start with introducing possible threats of cruise industry to the environmental sustainability and then it will move to discuss the real-world reflections of these threats to the future of cruise tourism and tourist preferences. This paper is intended to be a review paper. Related articles and books will be taken into account. Moreover, a model will be suggested in order to discuss the effects of environmental sustainability on the future of cruise tourism.

## Threats of Cruise Industry to the Environmental Sustainability

Sustainable tourism is an alternative way of tourism which embraces sustainability principles with respect to environmental carrying capacity, social responsibility and the integration of tourism with the wishes of local people (Johnson, 2002). Although conventional mass tourism is often seen as an important source of economic development, it has been associated with numerous negative impacts varying from the destruction of ecological systems to the loss of cultural heritage (Lansing & De Vries, 2007). For instance, studies have shown that cruise ships tend to produce waste on home ports contributes to pollution of seas, land and air and decreases the impact of tourism services (Butt, 2007). Promoting and maintaining a region's cultural richness

and natural beauties play a significant role in the development of cruise tourism (Taua'a, 2013).

According to marine pollution analysts, a large ship is capable of burning at least 150 tons of fuel a day, and emitting more sulphur than several million cars, more NO<sub>2</sub> gas than all the traffic in a medium-sized town and more particulate emissions than thousands of London busses. For a comparison, emissions from a large cruise ship to the equivalent number of cars are as following: 83,678 cars for CO<sub>2</sub>, 421,153 cars for NO<sub>x</sub>, 1.05 million cars for particle emissions and 376 million cars for sulphur dioxide (Vidal, 2016). These numbers clearly depict the environmental devastation caused by cruise tourism sector.

Moreover cruise tourism contributes to climate change by changing sea-ice levels in Arctic areas (Stewart & Draper, 2006; Stewart et. al., 2007). Greenhouse gas emissions, on the other hand, lead to the melting of iceberg by increasing the temperature in arctic climate (Eijgelaar et. al., 2010). As a result, cruise tourism causes environmental and social degradation in polar regions, by worsening the potential for arctic tourism in next periods as well as contributing to the climate change at a global scale (Lamers & Amelung, 2010; Lück et. al., 2010).

Although self-regulation, i.e. voluntary practices for environmental regulation has been accepted as preferable to traditional command-and-control forms of regulation by allowing companies to adopt environmentally sustainable practices to increase competitive advantage, critics reflected that such measures will not produce effective outcomes (Forsyth, 1997). Parallel to the deterritorialization trend of contemporary globalization which carries the touristic activity beyond an immediate geographical location (Wood, 2002), cruise tourism has gained importance by allowing customers to visit multiple destinations in one touristic activity package and cruise tourism takes place across several countries. Therefore international organizations collaborated with local governments as well as stakeholders in touristic destinations are expected to come together to find a solution for regulatory practices at international level.

In addition to international organizations, management strategies of cruise tourism companies play an important role in preventing tourism destinations from environmental degradation (Krippendorf, 1987). As long as stakeholders are aware of the fact that they need to protect environment not only for its own sake but also for the maintenance of their profit, responsible cruise tourism will develop and environmental sustainability goals will be achieved through the efforts of global companies (Klein, 2011).

### **Model**

There are three main factors that can be used for measuring the impact of cruise tourism. First of all, tourism revenues reflect the improvements in welfare of people in a particular destination with respect to cruise tourism activities. Cruise tourism is likely to increase the financial well-being in a tourism location and economic gain is an

important aspect for sustainable cruise tourism activities. Therefore, the revenue received by stakeholders and distributed among service providers can be considered as an indicator for the impact of cruise tourism. Secondly, changes in overall life quality of tourists as well as service providers can also become an indicator for measuring the impact of cruise tourism. As argued previously, cruise tourism positively affects the well-being of individuals who engage in touristic activities either as a service taker or as a service provider. Furthermore, environmental degradation as the result of cruise tourism activity can be added into the model while measuring the impact of cruise tourism. Environmental degradation has a negative effect on cruise industry, since pollution of oceans will decrease the attractiveness of natural beauties visited by cruise ships.

Hence our model can be considered as:

$$(1) CT = \beta_0 + \beta_1.TR + \beta_2.QL - ED^t + \varepsilon$$

where,

CT implies the *impact of Cruise Tourism*

TR implies *Tourism Revenues*

QL implies *Quality of Life for Tourists and Service Providers*

t implies *Time*

ED implies *Environmental Degradation due to Cruise Tourism Activity*

$\beta_0$ ,  $\beta_1$ , and  $\beta_2$  imply coefficients, and

$\varepsilon$  implies residual (i.e. the effect of other variables).

In general, the impact of cruise tourism is dependent on three variables, namely tourism revenues, quality of life of tourists and service providers and the environmental degradation. Starting with the tourism revenues, facilitation of cruise tourism routes and investments in direct or indirect sectors for cruise tourism such as accommodation facilities, restaurants, transportation services or travel organizations brings revenue to the tourism destination. The increase in revenue, in turn, contributes to the increase in economic welfare not only local but also national scale. Thus, the economic contribution of cruise tourism can be also measured as a part of GDP.

Another important factor for measuring the impact of cruise tourism is quality of life. In general, innovations take place in order to increase the satisfaction of tourists which they receive from their touristic experiences. Moreover, the increase in the quality of life of service providers is also important since their satisfaction within the economic activity has a direct impact on the sustainability of this activity. There are objective and subjective measures for quality of life and the focus of this manuscript will be on

objective indicators such as economic indices (GDP, poverty rate, etc.), social indicators such as unemployment rate, school attendance etc., life expectancy and literacy rate in accordance with scientific purposes (Genç, 2012:151).

Third, environmental degradation has an adverse impact on cruise tourism. Although both local governments, stakeholders and international organizations involve in precautionary policies regarding to environmental sustainability, cruise tourism may cause environmental problems such as pollution, waste disposal, urban sprawl and so on which influence the physical and psychological health of people living in a specific destination. These impacts on health decrease the quality of life of people. The natural drawback is also subject to time variable, since environmental depletion grows exponentially.

Lastly, there may be other variables that can explain the variance in the level of social inclusion that this model has not captured. For that reason, a residual is presented in the model, which denotes the variance that cannot be explained by the three main variables.

The model is suitable for any type of numerical data as the target of this model suggested in the study is to measure the effect of cruise tourism in a quantitative manner. By modelling the impact of cruise tourism with respect to three main variables, which are total tourism revenues, life satisfaction tourists and local stakeholders and the degree of environmental degradation, the research enables the measurement through statistical analysis and a mathematical structure instead of subjective methods that would decrease the objectivity and reliability of the findings.

### **Concluding Remarks**

As one of the major growing sector, cruise tourism has to deal with environmental problems, since, in the end; these environmental problems significantly affect the future of cruise tourism itself. Sustainability of environment is not only necessary for providing the future generations a better world, but it is also crucial for the future of economic activities which are not restricted to short-run gains, and they should also be maintained in the next periods.

In this respect, sustainable tourism is required to be achieved on the basis of four reasons. First, sustainable tourism operates within the natural capacities for the regeneration as well as the future productivity of natural, social and cultural resources (Johnson, 2002). Since resources are crucial elements for the maintenance of touristic activity, use of these resources in tourism sector should be planned in a sustainable manner. For instance, waste disposal of cruise tourism operators should be regulated by international organizations on the basis of international law.

Secondly, sustainable tourism considers tourism experience as a contribution of communities, customs and lifestyles in past time as well as present time (Johnson, 2002). Tourism experience consists of interaction with elements which belong to the past, such as cultural heritage or historical sites. Also, tourism experience may include

recent activities and newly emerging technological inventions which are capable of making tourism experience more sophisticated.

Third, sustainable tourism allows service providers and stakeholders in a particular destination to share the economic benefits of tourism sector in an equal manner (Johnson, 2002). Providing real rates of return for both local and overseas investors and worthwhile job opportunities for the workforce is seen as fundamental for sustainable tourism (Taua'a, 2013). Economic sustainability is an important factor for the continuation of tourism services. If the service providers in tourism sector are not satisfied with the benefits that they receive from tourism activities, they may shift to other sectors where they can make much more money, since this is the basic mechanism that governs the economic activities in any type of sector and tourism is not independent from the mechanisms of economy.

Lastly, sustainable tourism is dependent on the decisions and activities of all stakeholders, local people and communities in host areas (Johnson, 2002). Therefore, collective decision making is possible for future investments by considering the capacity of a destination for resources and labor force for the next periods. As the main actors in tourism sector as an economic activity, stakeholders provide investment for touristic facilities and their expectations for revenues derived from tourism is determinant for the future of tourism sector. As they are more likely to continue to invest in tourism activity, they have to consider ecologically sustainable ways of tourism since protection of environment preserves the authenticity of region which in turn lures more tourists to see natural beauties of a particular destination (Lester & Weeden, 2004).

In conclusion, environmental devastation will be a main cause for the decreasing efficiency in cruise tourism. As long as environmental degradation is not managed, there will be fewer visitors for the polluted oceans and extinct natural beauties. Protecting the environment is one of the fundamental parts for the sustainability of cruise tourism, along with economic investments such as education, infrastructure and involvement of more stakeholders. All in all, sustainability of cruise tourism industry is directly linked to sustainability of environment itself and therefore government, local authorities and stakeholders should act together in order to overcome with the possible threats of environmental degradation as a result of cruise tourism activity.

### **Limitations and Future Suggestions**

There are several limitations that future studies on these subjects need to improve in order to achieve more reliable results. First, the model has not been supported by real world data, and the assumptions of the model are still on a theoretical basis. In real world, the interaction among variables may lead to different results; hence a model supported by empirical findings will have more explanatory power. In addition to this, the model currently considers three major variables to explain the variance in the cruise tourism impact, however there may be many other variables such as the degree of restrictiveness of international legal regulations for environmental pollution or

competition among cruise tourism organizations, which this model has not captured. Although the model include a residual variable, future studies need to clarify the extents of impact and reshape the model accordingly.

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