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メタデータ	言語: 出版者: 琉球大学法文学部 公開日: 2018-02-27 キーワード (Ja): キーワード (En): 作成者: Miyakuni, Kaoruko, 宮国, 薫子 メールアドレス: 所属:
URL	https://doi.org/10.24564/0002008884

Exploratory Study on Sustainable Tourism Based on Residents' Perceptions toward Tourism Impacts and Ecocentric Attitudes: The Case of Iriomote Island, Okinawa Prefecture, Japan

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Abstract

Islands differ from continents economically, socially, and environmentally. As tourism in Okinawa Prefecture in Japan grows, many of its remote islands have been expending great efforts into tourism development. This study aimed to determine the status quo of Iriomote Island through the examination of residents' perceptions toward tourism impacts and ecocentric attitudes, one of the factors predicting residents' perceptions toward tourism. The results were obtained through a survey conducted in Iriomote Island, Okinawa Prefecture, in 2011. The examination of the factors allowed several development directions for remote islands of Okinawa to be suggested.

Introduction

Islands exhibit different economic, social, and environment characteristics than continents. Given the expansion of tourism in Okinawa Prefecture in Japan, many of the prefecture's remote islands have been placing considerable emphasis on tourism development. Okinawa has approximately 120 islands, 60 of which are inhabited. Among these are various remote islands such as Miyako, Ishigaki, Iriomote, Kerama, Kume, Daito, and Yonaguni, which are prioritizing tourism as part of their development strategy. Since island destinations have special characteristics that attract tourists and tourism development is an important development strategy, managing sustainable tourism is essential for the development of Okinawan islands.

The literature review discusses research on residents' attitudes toward tourism, characteristics of island destinations, and tourism development of Okinawa Prefecture and Iriomote Island.

Literature Review

Research on residents' attitudes toward tourism

Many national and local governments promote tourism because of its potential positive economic impacts on local economies. Tourism also have positive social and cultural impacts on local economies. It can support cultural revitalization, leading to increased cultural pride, and can facilitate educational, scientific, and aesthetic advantage of cross-cultural contact (Preister, 1989). However, tourism may bring various negative impacts, such as traffic congestion, noise, litter, vandalism, higher prices for goods and services, stress on infrastructure, drug abuse, and alcoholism (Pizam, 1978). Any tourism impacts that cause annoyance or irritation in the host community can lead to problems with the sustainability of the industry. If tourism is not carefully planned, tourism development can result in environmental degradation such as loss of vegetation and habitat, overcrowding, pollution of natural areas, overbuilding, sewage problems, and housing problems (Goeldner, Ritchie, & MacIntosh, 2000). Thus, for tourism to be accepted and supported by communities, taking the views of the host communities into account is important (Belisle & Hoy, 1980; Doxey, 1975)

Tourism scholars have been conducting research on residents' attitudes toward tourism since the 1960s. During the 1970s, researchers focused on the impact of tourism on local communities. In the late 1990s, various models were proposed and tested for describing residents' attitudes toward and support for tourism (McGehee & Andreck, 2004). However, research on residents' perceptions toward tourism on islands has been limited and more studies are needed (Andriotis, 2005).

This study seeks to determine how sustainable tourism development can be achieved in Iriomote Island by examining published materials and a 2011 survey of Iriomote Island residents' perceptions toward tourism.

Island Tourism and Characteristics of Island Destinations

Islands present different opportunities for tourism development; people are drawn to island locations for various reasons. Relaxation, unique cultural experiences, and sightseeing are common reasons for tourists to visit islands. There are popular islands that offer various unique tourism experiences; for instance, the Galapagos Islands are famous for their prehistoric wildlife. Small island nations of the Maldives and the Republic of Palau boast beautiful oceans and coral reefs. Gibraltar attracts tourists with its multicultural characteristics that stem from its historical and political situation.

In these ways, islands offer various interesting experiences compared with destinations on the larger mainland. However, islands are constrained and limited by their characteristics. Economically, they are limited in agricultural resources, thereby impacting their self-sustainability. Environmentally, their geographical positioning (surrounded by water) leaves them more vulnerable than large continents to natural disasters (Briguglio, 1996).

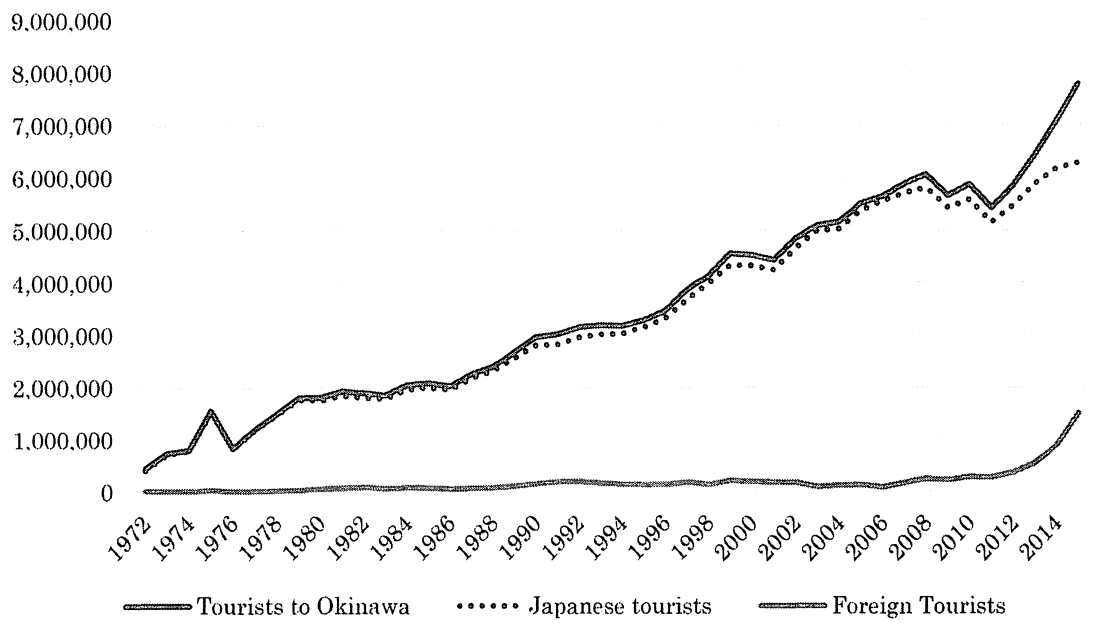
Tourism in Okinawa Prefecture and on Iriomote Island

Okinawa Prefecture began to grow as a tourist destination in the 1960s, and the number of tourists visiting the prefecture has been increasing since the 1970s. The Okinawa Ocean Expo in 1975 brought an unprecedented surge in the number of tourists. Major events such as the restoration of Shuri Castle in 1992, the 28th G8 Summit 8 (Kyushu-Okinawa Summit) in 2000, and the World Heritage Designation of The Gusuku Sites and Related Properties of the Kingdom of Ryukyu in 2002 have steadily increased the number of tourists. Moreover, despite negative external events (e.g., the 9/11 terrorist attacks in 2001, SARS in 2007, the Lehman Shock in 2009, The Great East Japan Earthquake in 2011), the number of tourists to the prefecture doubled from approximately 4 million to 8 million in 2015.

The number of foreign tourists has also been growing since 2005 because of

the prefectural government’s efforts to expand tourism. Following a surge in Chinese tourists due to the introduction of the multiple visa entry system in 2011, the number of foreign tourists reached 861,000 in 2016 (Okinawa Prefectural Government, 2017).

Figure 1. Number of Tourists visiting Okinawa by Year:
Developed from Kanko Yoran 2016



Iriomote Island is an outer island of Okinawa Prefecture that falls under Taketomi-cho. Iriomote has the second largest land area (289 km²) after Okinawa’s main island (1,208 km²). It is famous for its prehistoric nature and is often described as the “Galapagos of the Orient.” Iriomote Island has been recognized as an important site for ecotourism and marine tourism destinations. Iriomote Island is famous for its environment, and it was designated as a national park in 1972 for its abundant natural beauty. In August 2007, the park was expanded to include the coastline of Ishigaki Island (Ministry of Environment, 2017).

In 2011, when the survey was conducted, the population of the island was

2,203 and the number of households was 1,057 (Okinawa Prefectural Government, 2011). The population density was 6.5 per kilometer², compared with 20.5 per kilometer² on Okinawa's main island. Residents employed in the primary industries (agriculture 15%, fishery 2%) accounted for 17% of all employed residents. They produced pineapples, sugarcane, mangos, rice, and beef. Residents employed in manufacturing industries (construction 7%, manufacturing 4%) accounted for 11% of all the total employed residents. Among these, residents employed in tourism industries (tour companies, restaurants accommodations, and transportation) accounted for more than 30% of all employed residents. Iriomote Island had six elementary schools and four junior high schools. Figure 2 shows a map of Iriomote Island and its location.

Figure 2. Map of Iriomote Island and Its Location: Developed from Kanpira-so 2017

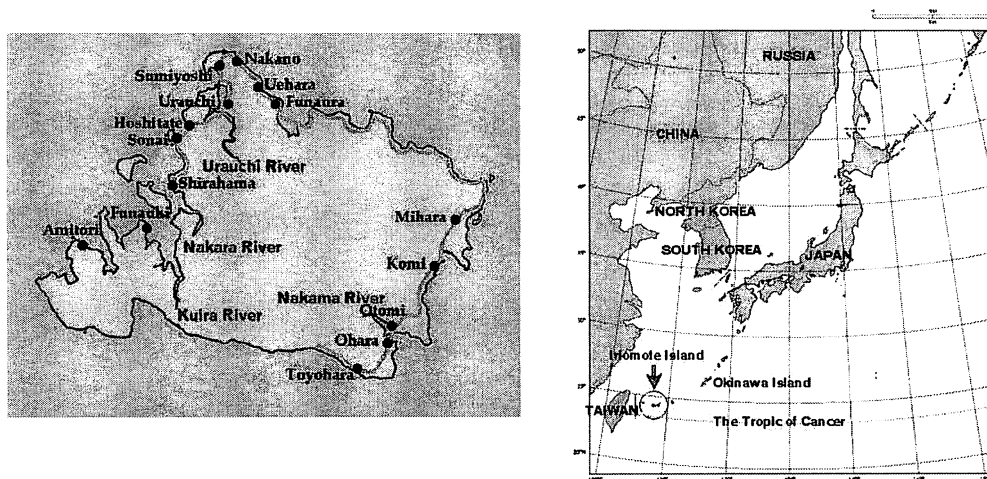
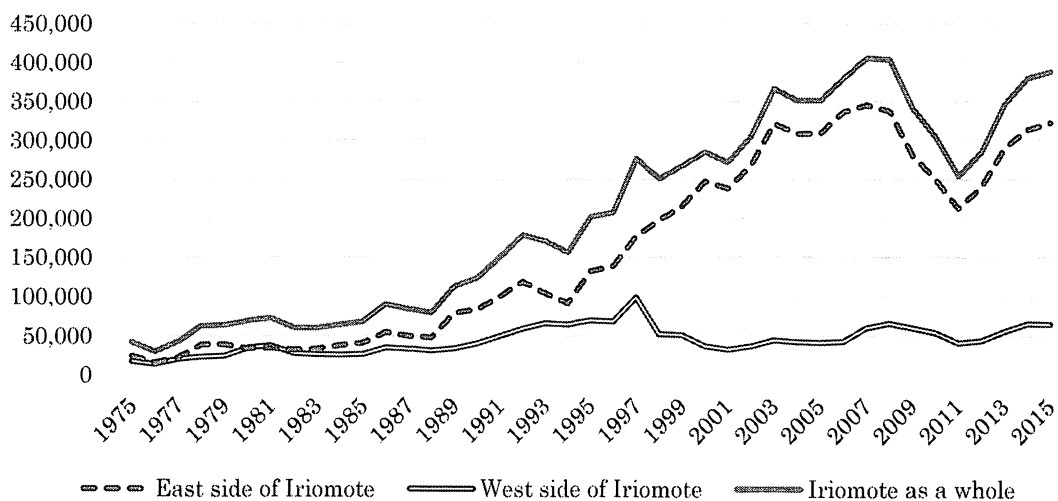


Figure 3 shows the number of tourists visiting Iriomote Island. Visits to Iriomote have been growing since the early 1970s (Tomikawa, 2003). Throughout the 1970s and 1980s, the number of tourists remained under 10,000. From the 1990s, the number of tourists remained steady and then rose rapidly up to 400,000 in 2007. The number of tourists sharply declined in 2007 because of the Great East Japan Earthquake in 2011. However, the number rose again to more than 350,000 in 2016. In Figure 3, the dotted line shows the number of tourists in the western part of the island, where tourist attractions (Nakama River cruises, the Yufu-jima Botanical Park) are clustered. The double line in Figure 3 shows the number of tourists visiting the eastern part of Iriomote, where many traditional villages exist.

Figure 3. Number of Tourists Visiting Iriomote Island by Year. Source: Developed from the statistics published by Okinawa Prefectural Government (2017)



Methods

For this study, various published materials (books, reports, and newspapers) and a 2011 survey of Iriomote Island residents' attitudes toward tourism were examined. Surveys were distributed door to door to every second household, starting from the east

end to the west end of the community. The surveys were collected a week after they were distributed. In this survey, 179 out of 300 participants (67%) responded.

The survey questionnaire consisted of four sections. Section 1 focused on residents' opinions about various impacts of tourism (economic, social and cultural, and environmental). Section 2 was concerned with residents' relationship with their community and environment. Section 3 explored residents' relationship with tourism resources and economic development. Finally, Section 4 collected demographic information. The questionnaire was checked by professors at Michigan State University, faculty members at the University of the Ryukyus, and key persons in the local community of Iriomote Island.

Results

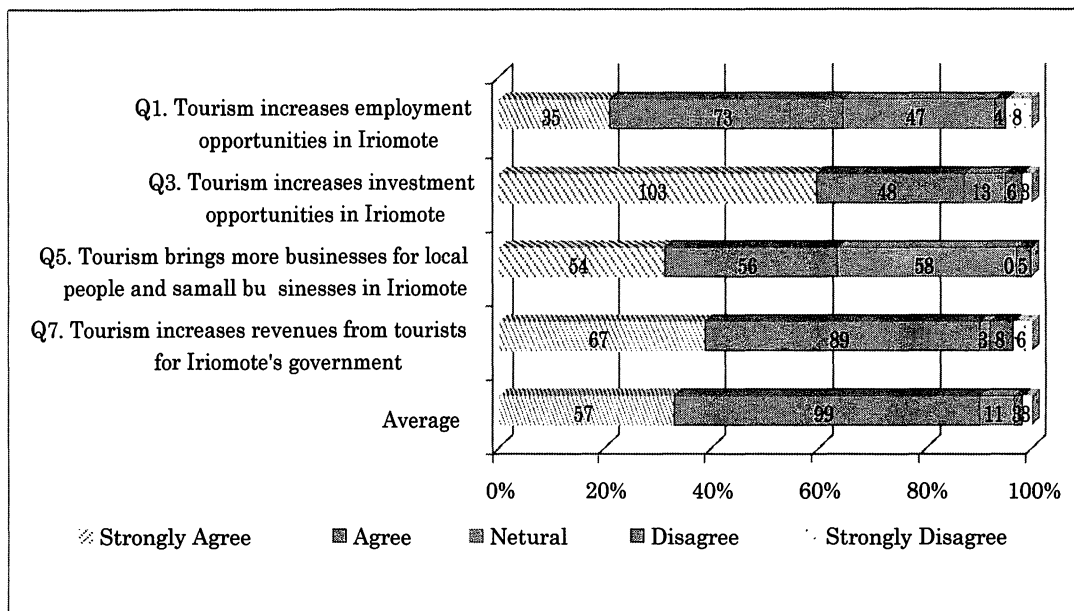
In this section, the results of the survey are discussed. The graphs in this section show the levels of agreement to the statements regarding various impacts of tourism development (residents' perceptions of the economic benefits, economic costs, social and cultural benefits, social and cultural costs, environmental benefits, and environmental costs related to tourism, and ecocentric attitudes of residents). By plotting the level of agreement on graphs, certain trends in perceptions of economic benefits can be obtained.

Economic benefits accrued from tourism development

Figure 4 shows the respondents' agreement on the positive economic impacts of tourism development. Figure 4 demonstrates that most respondents held favorable opinions regarding the economic impact of tourism development. More than 60% of the respondents agreed with the following statement: "Tourism increases employment opportunities in Iriomote Island." More than 80% of the respondents agreed with the following statement: "Tourism increases employment opportunities in Iriomote Island." More than 60% agreed with the following statement: "Tourism induces local and small

businesses in Iriomote Island.” More than 80% agreed with the following statement: “Tourism increases revenue for Iriomote Island’s government.” Hence, most residents held positive views toward the economic impacts of tourism development.

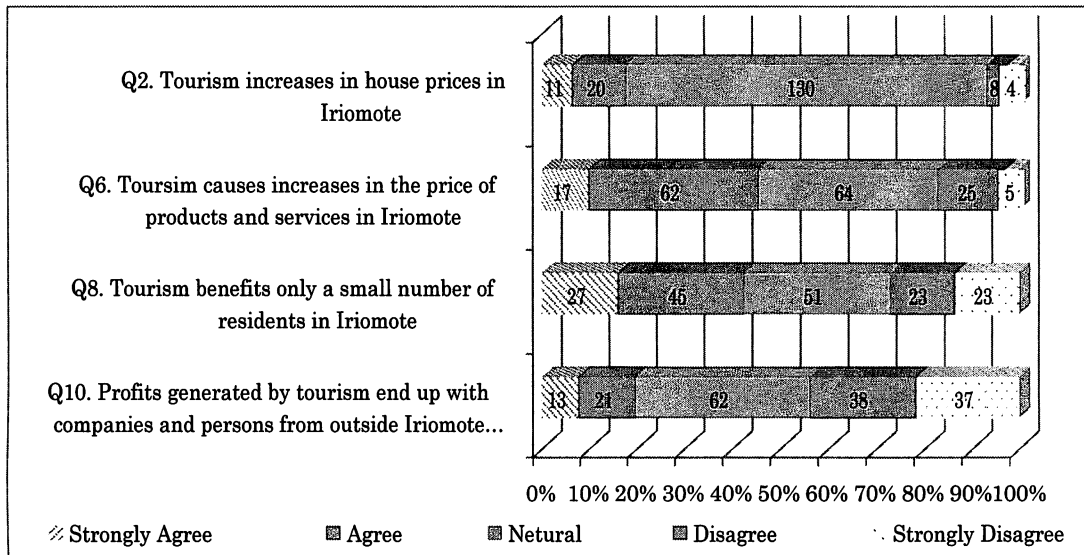
Figure 4. Iriomote Island Residents’ Perceptions of Economic Benefits



Economic costs incurred from tourism development

Figure 5 shows residents’ perceptions of economic costs incurred from tourism development. Residents’ overall assessment of economic impacts was not negative. Less than 20% agreed that “Tourism increases house prices in Iriomote.” Less than 40% agreed with the statement “Tourism causes increases in the price of products and services in Iriomote.” Less than 40% agreed with the statement that “Tourism benefits only a small number of residents in Iriomote.” Less than 20% agreed that “Profits generated by tourism end up with companies and persons from outside of Iriomote.” Thus, most residents in Iriomote do not perceive a negative economic impact from tourism development. However, more than 50% agreed with the statement that “Profits generated by tourism end up with companies and persons from outside of Iriomote.”

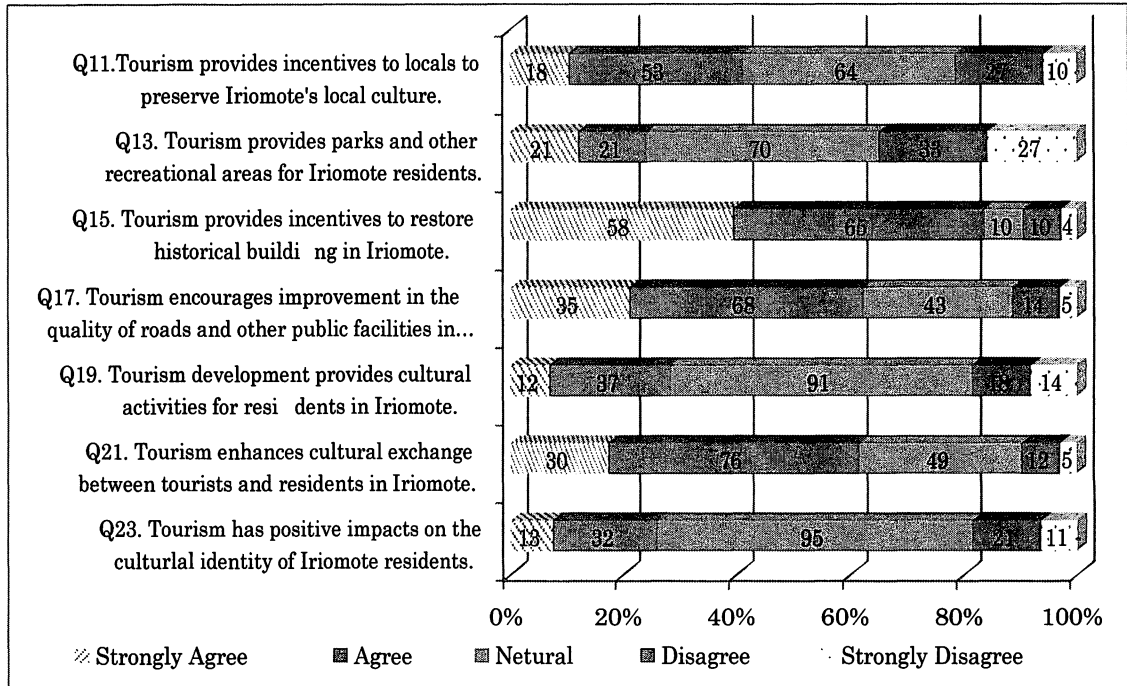
Figure 5. Iriomote Island Residents' Perceptions of Economic Costs Incurred by Tourism Development



Social and cultural benefits accrued from tourism development

Figure 6 shows residents' perceptions of the social and cultural benefits of tourism development; overall, residents had somewhat favorable views. For example, more than 80% agreed with the statement that "Tourism provides incentives to restore historical buildings in Iriomote Island." More than 50% agreed that "Tourism encourages improvement in the quality of roads and other public facilities in Iriomote Island." In addition, more than 50% agreed that "Tourism enhances cultural exchange between tourists and residents in Iriomote Island." However, less than 30% of residents agreed with the statement that "Tourism provides incentives to locals to preserve Iriomote Island's local culture". Respondents showed an even smaller percentage of agreement with certain statements. For example, just 22% agreed with the statement that "Tourism provides parks and other recreational areas for Iriomote Island residents." Less than 30% agreed that "Tourism development provides cultural activities for residents in Iriomote Island". Finally, less than 30% agreed with the statement that "Tourism has a positive impact on the cultural identity of Iriomote Island residents".

Figure 6. Iriomote Island Residents' Perceptions toward Social and Cultural Benefits of Tourism Development



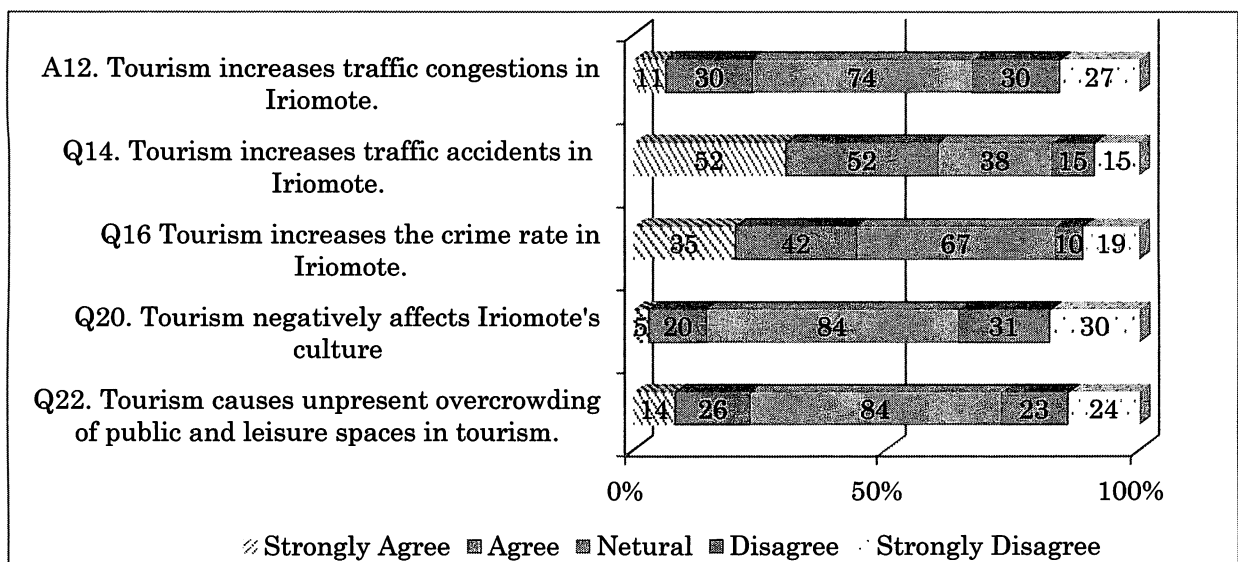
Social and cultural costs incurred from tourism development

Figure 7 shows residents' perceptions of social and cultural costs incurred from tourism development. For certain items, the level of agreement with the statement about negative social and cultural costs was strong. For example, more than 50% agreed that "Tourism increases traffic accidents in Iriomote Island." Similarly, more than 40% agreed with the statement that "Tourism increases the crime rate on Iriomote Island." Residents often hear news that Iriomote mountain cats have been hit by tourists' rented vehicles; this may have influenced many residents' decision in agreeing with the statement.

However, the level of agreement with other statements was rather low. About 20% agreed with the statement that "Tourism increases traffic congestions in Iriomote Island." Less than 20% agreed with the statement that "Tourism negatively affects

Iriomote Island's culture." Finally, less than 20% agreed that "Tourism causes unpleasant overcrowding of public and leisure spaces." The majority of tourists visiting Iriomote Island come as part of package tours and travel by buses, so residents may not feel overcrowding. Also, tourists usually spend only a few hours or a whole day on the island and do not spend the night; thus, residents may not feel much cultural disturbances.

Figure 7. Iriomote Island Residents' Perceptions of Social and Cultural Costs Incurred by Tourism

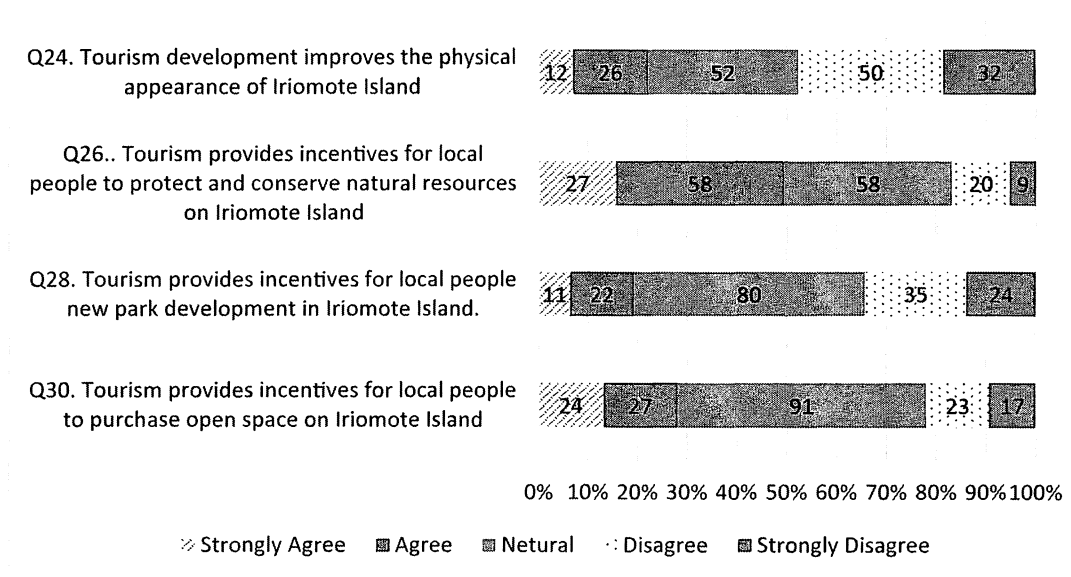


Environmental benefits accrued from tourism development

Figure 8 shows residents' perceptions of environmental benefits from tourism development. With the exception of the statement "Tourism provides incentives for local people to protect and conserve natural resources in Iriomote Island"—with which 40% of residents agreed—all other answers showed that residents did not perceive environmental benefits from tourism development. Less than 22% agreed and more than 40% disagreed with the statement "Tourism development improves the physical

appearance of Iriomote Island.” Similarly, less than 20% agreed that “Tourism provides incentives for local people to develop new parks in Iriomote Island.” Less than 30% agreed that “Tourism provides incentives for local people to purchase open spaces in Iriomote Island.” Large percentages were shown as being neutral on these last two questions. This may indicate that residents were unsure whether there is a relation between tourism and parks or tourism and purchase of open land.

Figure 8. Iriomote Island Residents’ Perception toward Environmental Benefits from Tourism Development

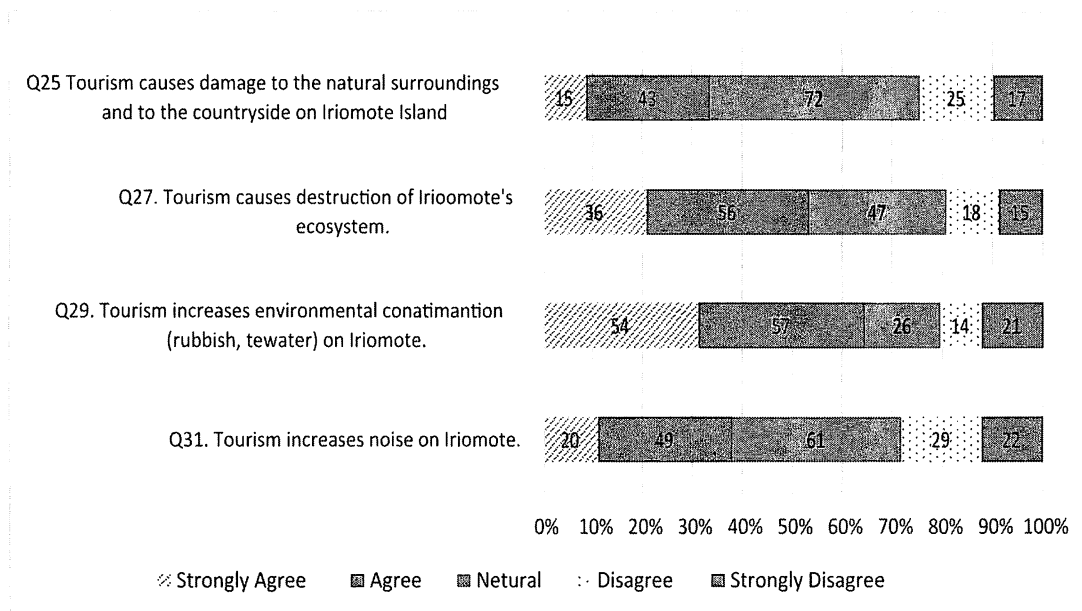


Environmental costs incurred from tourism development

Figure 9 shows residents’ perceptions of environmental costs incurred by tourism development. Overall, more than 30% agreed that there are environmental costs incurred by tourism development. For example, more than 60% agreed that “Tourism increases environmental contamination (rubbish, wastewater) in Iriomote Island.” More than 50% agreed that “Tourism causes the destruction of Iriomote Island’s ecosystem.” More than 35% agreed with the statement that “Tourism increases noise in Iriomote

Island.” Finally, More than 30% agreed that “Tourism causes damage to the natural surroundings and the countryside in Iriomote Island.” Thus, most residents perceived that there are environmental costs incurred by tourism. In response to an open-ended question about the problems of tourism, residents expressed concern about trash on the trails and a lack of public bathrooms. Thus, residents feel that tourism has a negative impact on Iriomote’s natural environment.

Figure 9. Iriomote Island Residents’ Perceptions of Environmental Costs Incurred by Tourism



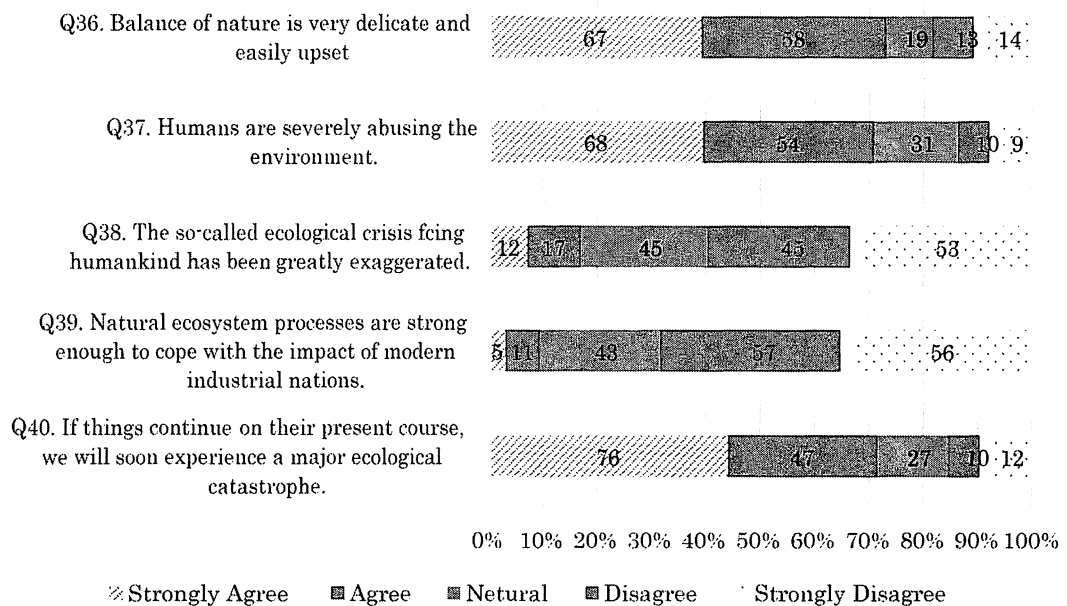
Ecocentric Attitudes of residents in Iriomote Island

Figure 10 shows residents’ ecocentric attitudes. Ecocentric attitudes demonstrate an inclination toward natural environment conservation. This study used the New Ecological Paradigm (NEP scale) as a measure of “ecocentrism” (Dunlap & Van Liere, 1978; Dunlap, Van Liere, Mertig, & Jones, 2000). It has been used to measure residents’ attitudes toward tourism in several previous studies. People on islands have

stronger attitudes toward natural environment because many islanders have livelihoods that involve proximity with the natural environment and some are even dependent on subsistence economy. The ecocentric attitudes of people who live on islands are usually stronger than those of people who do not. Residents on Iriomote Island are not an exception, and the results of the survey show strong ecocentric attitudes among them.

More than 70% of respondents agreed that “The balance of nature is very delicate and easily upset.” More than 40% of respondents agreed that “Humans are severely abusing the environment,” More than 50% disagreed that “The so-called ecological crisis facing humankind has been greatly exaggerated.” More than 60% disagreed with the statement that “Natural ecosystem processes are strong enough to cope with the impact of modern industrial nations.” Furthermore, more than 70% agreed that “If things continue on their present course, we will soon experience a major ecological catastrophe.”

Figure 10. Ecocentric Attitudes of Iriomote Island Residents



Conclusion

This study was conducted on the basis of previous studies on residents' attitudes toward tourism. The tourism impact statements and ecocentric attitudes, one of the factors predicting residents' perceptions of tourism were obtained from previous studies. The results of the study were analyzed primarily using a descriptive study of the agreement on the impact statements and on the factor and were confirmed by the answers from the open-ended questions in the survey. The results showed that Iriomote Island residents perceived various impacts. Residents strongly perceived that there were economic benefits accrued from tourism development. This perception could be partly explained by the fact that approximately more than 30% of residents were employed in the tourism industry and Iriomote Island's economy largely depended on tourism. Residents also perceived that there were economic costs incurred from tourism development. Among these statements, residents strongly perceived that the costs of goods and services became higher because of tourism development. Residents also perceived that there were social and cultural benefits accrued from tourism. That is, residents perceived that there was improvement in historical buildings and infrastructure because of tourism development. However, residents perceived that there were environmental costs incurred from tourism development. One of the reasons may be that residents often hear that Iriomote mountain casts were hit by tourists' rented car. Other reason may include that that condition of the trails to the waterfalls were deteriorated due to increase in tourism. Furthermore, this study found that the majority of the residents in Iriomote had higher level of ecocentric attitudes as shown in previous studies of residents in island destinations.

Examining residents' attitudes toward tourism, this study delineated the problems and opportunities for tourism development in Iriomote Island. One implication of this study is that for tourism to be accepted, tourism planners must minimize economic, social, and cultural costs incurred by tourism development. In addition, tourism planners may have to disseminate information about the various benefits of tourism. For tourism to be accepted on islands, reaching out to residents with higher ecocentric orientations may be effective.

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