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Potential Construction of a Geopark in Small Islands: Preliminary Qualitative Action Research on the Geopark Concept in the Mishima Village, Kagoshima Prefecture, Japan

Fukami, Satoshi*

Abstract

Geotourism is a new form of tourism, and the potential of constructing a geopark was examined with respect to a small-sized community facing with aging and depopulation—the Mishima village in Kagoshima Prefecture, Japan. Among the associate members of the Japanese Geoparks Network aiming at the authorization of geoparks, only the Mishima village consists of islands as of September 2013. The present study is the first to address, at least in Japan, Korea, and China, the issue on the potential functionality of geotourism in small islands. Qualitative action research by a hearing investigation was conducted to collect views about the Mishima village geopark concept from Mishima village office staff and Satsuma Iojima residents. The present study revealed the theoretical potentiality of the concept, the small island’s advantage of being a “gateway for socioeconomic vitalization.” based on spatial completeness. Geopark and geotourism can be geoeccological approaches that contribute to the formation of a sustainable community and sustainable tourism in small islands.

Keywords: geoeccology, geopark, geotourism, tourist-oriented tourism, community-oriented tourism, small islands, Satsuma Iojima, depopulation

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I. Introduction

1. Issues and the objective of the study

The total number of authorized geoparks in Japan became 32 by adding new seven areas in September 2013. Of these, Toya Caldera and Usu Volcano Geopark, Itoigawa Geopark, San’in Kaigan Geopark, Oki Island Geopark, Muroto Geopark, and Unzen Volcanic Area Geopark are authorized Global Geoparks (Figure 1).

![Distribution of Japanese geoparks](image)

<Figure 1> Distribution of Japanese geoparks

Geoparks promote the protection and conservation of earth heritage (geoheritage),
including “sites of natural or cultural value,” and enrich a sustainable community through tourism and environmental education. In parallel with an increase in the number of authorized geoparks, geoparks are gaining greater awareness in Japan. Geopark awareness seems to have gained speed, especially after the authorization of three Global Geoparks in 2009 (Mokudai et al., 2012). Currently, Japan is in a stage where we learn the cases of so-called “Geopark-advanced areas”—Europe and China in search for the high-quality, Japanese-style geoparks. As the background for the attempt, tourism exhibited essential changes in its nature since the 2000s: remarkable shifts from “tourist-oriented tourism” to “community-oriented tourism” and from “sightseeing” to “on-site experience.” In other words, we are entering an era of evolved tourism in which local residents are proactively and somehow involved in regional tourism, and “geopark” exactly represents the subject of interest as a geoecological framework that is in perfect harmony with the relevant shifts.

Attention must be paid to the fact that many of Japanese geoparks are distributed in depopulated areas. Among them, it is of note that several small islands considered to be less favored areas have gained authorization. The aforementioned “Oki islands”, “Izu Oshima”, “Amakusa Goshoura”, and “Oita Himeshima” are all relatively small islands in Japan, where low birth rates and aging are causing severe depopulation. The local governments controlling these islands have considered the community’s natural and human resources as “geoheritage” and have intended to construct geoparks in efforts to raise geotourism that utilizes them. The authorization of geoparks brought a certain level of improvements in awareness (Kawanabe, 2012; Hayashi et al., 2013).

On the other hand, the issues inherent to small islands have been indicated in relation to their geographical features. In particular, there are many cases of 1) huge public fund investments as the measures for small island promotion to arrange infrastructures such as ports and roads, as well as of 2) resort developments by central major capitals (Yamada, 2004; Fukami, 2011). Nevertheless, it is very doubtful whether these attempts successfully brought the initially expected economic effects and to overcoming of disadvantageous conditions. Such approaches are rather featured by the public project-dependent creation of short- to medium-term employments at the local area, and we must to look straight the fact that there are an absolutely limited number of cases in which approaches were successfully transformed to sustainable tourism effects making use of the area’s human and natural resources (Kobayashi, 2012).
Acknowledging the problems described above, the present study focuses on geotourism as a new form of tourism. The objective of the study was to examine the potential of forming a sustainable community and sustainable tourism through geoecological approaches—geopark and geotourism—in small islands.

2. Current reality

To explore the potential of constructing a geopark in small islands, the present study deals with the geopark concept in the Mishima village, the only area consisting of small islands that aims at the authorization of a geopark among the associate members of the Japanese Geoparks Network (JGN) as of September 2013. This concept covers, as the major area, the inhabited islands (Kuroshima, Satsuma Iojima, and Takeshima) of the Mishima village in the Kagoshima district. Especially, the local authority in Satsuma Iojima shows concrete actions towards the authorization of a geopark around 2015.

II. Definitions of geopark and geotourism

1. What is “geopark”?

The term geopark was first used in 1991 to describe the geological observation site at the Fossa Magna Museum in Itoigawa City, Niigata Prefecture (Hirano, 2008). Later, in 2001, the United Nations’ Educational, Scientific and Culture Organization (UNESCO) decided to support the activities of geopark that was becoming a topic of discussion in various countries of the world. The Global Geoparks Network (GGN) was founded in 2004. Itoigawa was authorized as a global geopark in 2009.

Geoparks are sometimes presented as the “geological version of world heritage.” This is attributed to the facts that the UNESCO is involved as it was with the world heritage system and that efforts are made to preserve entities of global and universal value. According to the “Guidelines and Criteria for National Geoparks Seeking UNESCO’s Assistance to Join the Global Geoparks Network (April 2010)”, concretely, the geopark concept adds “a new dimension to the 1972 Convention” and is featured to provide the written role of “highlighting the potential of interactions between the development of
society, economics, and culture and the protection of natural environments.”

The GGN defines the geopark according to the following six criteria:

1) To be an area with clearly defined boundaries that includes not only many geological heritages showing the intelligible geologic history of and phenomena in the region, but also sites of archaeological, ecological, or cultural value;

2) To have the steady governing structure by a public institution, local community, and private entity and to have administrative and financial plans;

3) To foster the sustainable society and economic development in the region through geotourism and other measures;

4) To conduct education and promulgation activities on earth sciences and environmental problems through museums, natural observation paths, and guided tours;

5) To protect without fail geological heritages in accordance with the traditions and rules of the area; and

6) To interchange information reciprocally as a member of the GGN, to participate in conferences, and to proactively activate the network.

The area can identify itself as a global geopark by acceding to the GGN, and the review of the accession must incorporate the above viewpoints. Activities and others will be assessed once every 4 years after accession, and the GGN can invalidate the authorization in certain instances. National level organizations, such as the JGN, are established as entities under the control of the GGN. In fact, accession to the national geopark network is the first barrier when intending to become a global geopark (Figure 2).

According to the definitions of geopark, one can figure out broadly-defined geoheritage that contains “sites of ecological and cultural value.” Furthermore, geopark calls for not only conservation and protection but also “sustainable community and economic development” through “geotourism.” Therefore, these features are noteworthy, keeping a distance from world heritages whose main objectives are conservation and protection.

Based on these findings, heed should be given to the fact that geopark does not target at narrowly-defined geology only. For example, geopark is written “地質公園” in China. In previous times, this nomenclature was used as the parallel translation for geopark also in Japan. It was the Geological Society of Japan that proactively presented the concept of geopark in Japan. In countries of same culture and species—China and Taiwan, geopark is translated into Chinese as “地質公園”, and some investigators considered it advisable to
unify the description in the Chinese character culture sphere. Furthermore, some views are found sporadically that lead to the comprehension of the entire geocology by using a part of its definitions, namely, involving a risk of leading to a situation where the concept is distorted (Tanabe, 2008).

**Figure 2** System of geoparks in Japan

Created by the author with reference to the website of the Japanese Geopark Committee (https://www.gsj.jp/jgc/organization/index.html (accessed 31 October 2013))

**Figure 3** Human life on the foundations of “geo”

Adapted from Kohmoto (2009)

When intending to directly interpret these aspects, therefore, it would be easy to
understand geopark as “geoheritage” containing “sites of ecological or culture value.” Furthermore, geopark has “clear boarders” but does not mean the arrangement of some visible infrastructures. Regarding this aspect, geopark is easier to understand when considering it as a conglomerate of given faces among a geoecological mechanism by which interrelations are established between the geological bases to support the ecological system and human life (Figure 3).

2. What is “geotourism”? 

As described above, geopark allows for local residents’ initiatives and the formation of sustainable community and stresses the importance of broad education and promulgation of environment affairs by using “geoheritage” as a momentum. From the viewpoint of sustainability, especially tourism plays the critical roles for the success or failure of geopark (Newsome & Dowling, 2006; Watanabe, 2008). Geotourism is especially important in tourism to be developed in geopark. In geotourism, learning the earth scientific processes constitutes a pillar of the sites with earth scientific attractions (geosites), and archeological, ecological, and cultural values are also managed as part of geological heritage. Furthermore, geotourism has a great feature of not being simply statistic tourism. Namely, geotourism is not a mere visit on geosites such as picturesque and museums, but is an active field activity—“knowing the history of a picturesque spot that was created by the earth’s movements, learning about the entire picture of geoheritage at the museum, and reaping the direct benefits from it through reliving.”

The definitions of geopark stress the importance of geotourism’s initiatives that use local geoeccological resources as one of the mechanisms for the formation of sustainable community and tourism. Namely, it is not exaggerative that the success or failure of geopark is determined by the rootage of geotourism (Iwata, 2012).

The number of books describing geotourism as a form of tourism is still limited among a number of books specialized in tourism that have been published to date. However, this situation might be unavoidable in consideration of the fact that the activities of geopark supported by the UNESCO were established in the 21th century. However, the term geopark appeared in Europe in the mid-1990s—the days prior to the emergence of the term geopark. Attempts were made to define the term thereafter. At the early stage after
the emergence of the term, geologists predominantly considered geotourism not as “a simple look at geological phenomena or fossil collection” but as knowing nature-formed sceneries through earth science-based correct processes to “experience, learn, and enjoy these heritages of the earth.” (Yokoyama, 2010). A recent view is that “geotourism is a class of natural area tourism paying attention to geology and landscape and forests tours to geosites, the protection of geological diversity, and comprehension about earth science” (Farsani et al., 2010). The contents of these definitions accurately cover one aspect of geotourism.

In the course of gradually deepening discussion about geopark at the UNESCO, geopark was considered as “an area not for the mere collection of geologically important sites but where consideration should be paid to themes not related to geology—natural geography, ecology, archeology, history, culture, and others.” A movement expanded that considered geotourism as tourism by which geopark is developed through “the linkage among the expansion of geological knowledge of the general public, education, and protection.” (Hirano, 2008). Furthermore, the views emerged that stressed the association between natural environments and human environments by defining geotourism as “tourism that deepens learning of the geological features including environments where local residents live, culture, heritage, and others, and that leads to conservation.” (Boley et al., 2010; Koizumi, 2011).

In general, there is a gap in social awareness between the terms geotourism and ecotourism, principally due to a difference in the duration of use of these terms. In addition to these terms, each of “XXX tourism” has a background history about its emergence that should naturally be respected. Concurrently, there is a need to clarify the definitions of these terms while paying attention to both their logical positioning and their use on site.

With all abovementioned contents in mind, I analyze the relation between “geo” and “eco.” The feature shared by these terms is directability towards the relationship between natural and human environments. Furthermore, “geo” has an implication of giving light to the interactions between natural environments including living things and human environments while centering especially on geological bases in “eco.” Kawamoto described this as “Geo as Eco” and proposed to consider geotourism as “ecotourism principally targeting at earth science (ecological) resources (Kohmoto, 2011). The author also considers
that this thought is most appropriate. “Eco” is a comprehensive term encompassing natural environments as a whole, including both living and nonliving things. Regarding “geo”, on the other hand, it is important to construct stories as “geoheritage” by which humans have been involved with geology and landscape. Geotourism is not “a mere look at geological phenomena or fossil collection” but is “sustainable tourism that does not harm landscape or environments of an area where valuable or important geological or topographic scenery is conserved (Yokoyama, 2008). The essence of geotourism is to utilize sites reflecting the diversity of local features (geosites) in a geopark that potentially provides the site of learning for different generations from children to adults and leads to the opportunity of fostering human resources.

III. Hearing investigation on the Mishima village geopark concept

The author conducted a hearing investigation at the Mishima village office and in Satsuma Iojima on September 6 to 8, 2013. The subjects for the investigation were village office staff and residents of Satsuma Iojima. Concretely, the following four persons kindly underwent the investigation: Mr. Satoshi Hidaka, village mayor; Mr. Hidehito Oyama, head of General Affairs Department; a man in his sixties who had come from Satsuma Iojima and returned to reside in the island after retirement; and a woman in her twenties who migrated to the island. The author endeavoured to collect uncontrolled voluntary talks during the investigation and gained an understanding of the following two major points: “personal history” of the subject; and views about the Mishima geopark concept as an objective fact. The author extracted, to the ranges not harming the context, the contents of the talks that were in line with the objectives of the present study and describe them in Section 3.

(1) Overview of the study target area

Satsuma Iojima, which is located in the center of the Mishima village geopark concept, is a small island with a population of 107 residents (according to the basic resident register, as of April 1, 2013) (Figure 4). The contemporary population of the Mishima village, Kagoshima district—to which Satsuma Iojima belongs—was 326 residents, 45.1%
of whom were aged 65 years or higher; namely, the community is a typical depopulated area. There is no senior high school in the island, and job opportunities are scarce. Therefore, there are currently no ways to curb the trend for population decline.

In “Research Report on Comprehensive Interaction Support Project for Remote Islands” published by Remote Islands Development Division, Ministry of Land, Infrastructure, Transport and Tourism in 2001, on the other hand, natural environments and landscape were assessed as tourism resources of highest value. In consideration of the fact that these resources show little changes still today, no large alteration can be noted in the external assessment that the utilization of regional resources is expected to activate tourism. The village office itself recognizes that the “unparalleled and untouched beauty of nature” is a tourism feature of the village. Especially, Satsuma Iojima is gifted with an active volcano, Mount Iodake, hot springs, riches of the soil such as Sinobambusa tootsik and crested leopard, and fruits of the sea such as striped beakfish. Namely, the potentiality that the geopark mechanism by which these resources are rated as “geoheritage” functions effectively is high.

It was the opening of Yamaha Resort Corporation’s Ashizuri Hotel invited by the Mishima village in 1974 that drew attention to Satsuma Iojima as a tourism target. Nature of a southern region was stressed for tourism. The airport was also arranged but was
closed in 1982 due to the effect of the reversion of Okinawa to Japan in 1972. Currently, the airport is used principally by private owners for their small aircrafts as the first village-operated airport in Japan. Village-managed ferries assume the cardinal role in transporting local residents and tourists between the island and the mainland of Kagoshima Prefecture. Since 2009, the operation system was adopted with an aim to ensure one ferry service a day.

Over the past several years, the annual number of tourists to the Mishima village has ranged between 4,000s and 7,000s. No extreme changes have been found in the number itself. However, a new attempt—the “Mishimanian Project”, a community-oriented approach initiated by Kagoshima Prefectural Travel Agency Association—is observed.

1. What is the Mishima village geopark concept?

The Mishima village became an associate member of the JGN in May 2012 and started as an area aiming at the official authorization of a Japanese geopark, and then a global geopark. Mishima Village Promotion and Liaison Council placed in the village is a promotion entity presided by the village major. In the same month, Kikai Caldera Museum was opened within Mishima Development Comprehensive Center in Satsuma Iojima; the diorama, video pictures, and materials of Kikai Caldera—the core of the present concept—can be seen in the museum that is rated as a geosite center to promulgate and enlighten the present concept to local residents and tourists.

Two inquiries on efforts to obtain the authorization of a geopark were made in the general inquiry session of the regular village meeting that was held in the next month after associate membership acquisition. The village major replied, “Efforts will be made to gain the understanding of village residents about the meaning and relevance of a geopark through activities to further their comprehension about the geopark, conduct of workshops, training of geoguides, and conduct of geopark tour.” In September 2013, the first pamphlet for tourists related to this concept, entitled “Mishima village—unparalleled, untouched islands with immaculate landscapes: Driving for a geopark” was published (Figure 5). In October 2013, a staff member specialized in earth sciences was allocated in charge of the geopark. Thus, the small-sized local government and the driving council in small islands are collectively making a steady step in efforts to obtain the authorization.
3. Results of the hearing investigation

(1) Opinions of the local government

The development of a large-scale resort invited by the village in the 1970s was aborted, and the tourism form changed dramatically (increasing interest toward community-oriented tourism) in recent years. Therefore, we are willing to thoroughly stick to form an area that maximally makes use of the features of the island itself. Namely, we are willing to respect the original thought—the island has its own ways of living and procedures. For this aim, we consider the mechanisms of geopark and geotourism best to gain attention as a tourist spot. The village major knew these mechanisms when presented by the major, Sado City, Niigata Prefecture, who participated in Mishima Cup Yacht Race in 2010. In those days, Sado City just became an associate member of the JGN. In September 2013, Sado City was authorized as a Japanese geopark. The Mishima village, which similarly consists of islands and was seeking for ways to revitalize the area, decided to select the option of constructing a geopark under the leadership of the village major.

The number of tourists visiting the village has not reduced to an extent eliciting concern. However, we do not recognize an increase in the number. As an administrative
body, we will intend to increase the number of tourists (visitors to the island and candidate inhabitants to the island) to create industry. Namely, we consider that sustainable community cannot be formed unless we are aware that tourism brings the creation of industry in the area. Naturally, we will endeavor to establish a system for acceptance, such as arrangement of a guide system, to develop geotourism, and to bring monetary benefit to the local area. A definition of geopark mentions the development of regional economics, which led us to judge it worth trying the mechanism.

The geopark concept already deems the following as a geosite (attractions of geoheritage): contents derived from natural environments (e.g., Kikai Caldera including the sea bed); and contents derived from human environments (e.g., histories related to Sou Shunkan represented by Shunkan Kabuki and to Heike, original folk events, mining heritage of Mount Iodake, and the unique school in Japan that offers learning of jembe, the African drum). There are many regional resources in Satsuma Iojima, just for an example. We are consistently preparing pathways to make use of these viewpoints of geopark and to gain the good understanding of local residents about geopark. We will intend to enforce the paths also in the future.

We—a small-sized local government consisting of small islands—never consider it easy to form human and organized systems driving for the authorization of a geopark. However, we have obtained a given level of geological and histological assessments on the values of regional resources from academic experts. In the future, we will make an effort to satisfy each of the criteria to obtain the authorization of a Japanese geopark (achievements of area formation making use of the geopark mechanism). There are many issues to address, e.g., arrangement of accommodation facilities and securement of transport convenience for sea roads and mobility in the islands (e.g., especially rental cars and rental bicycles). As an administrative body, however, we are willing to have an immediate aim of obtaining the authorization of a Japanese geopark around 2015 by maturing the concept through the geopark expert who works as a core staff member. Nevertheless, we are aware that the acquisition of authorization is the objective but is not the whole. It is rather more important to compile outcomes of working with the potential of such mechanisms together with islanders, and we are willing to stress the efforts in full cooperation with local residents. Geopark is gradually gaining awareness from residents through leaflets published by the village, opening of a museum, conduct of monitor tourism, and others. However, efforts are still not sufficient. We are willing to emit information while adopting a slogan
Fukami, Satoshi

of “the smallest geopark of the smallest village.”

(2) Views of local residents
(Mr. A, man in his 60s, returning resident)

Mr. A left the islands after graduating from junior high school and got a job after graduating from senior high school in Kagoshima City. He thought about staying in Kagoshima City on days just before retirement but decided to return to the island because of no need to concern about job opportunities unlike his working days and of his will to do something for his old hometown where depopulation is progressing.

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I think that the movement toward the construction of a geopark is beneficial for this small island. Especially in recent years, the village was selected as a site for on-the-spot research in a scientific conference of the International Association of Volcanology and Chemistry of the Earth’s Interior held in Kagoshima City in July 2013. I saw groups of researchers from Japan and other countries visiting Satsuma Iojima and could understand that here is a site of global interest. On the other hand, all of previous attempts to promote tourism through nation-assisted projects were not decisive, and tourism failed to root. There is no marked industry other than stock farming, and I feel that stress should be laid on tourism. However, aging of islanders has advanced meanwhile and am skeptical about whether the area is capable of sustaining tourism. Of course, I think that the area is full with charms of attractive untouched regional resources but have a critical feeling about the fact that the number of residents to make use of them is decreasing. I think it is the high-priority issue to establish systems allowing for part-time tour guidance and for inn operation.

I cannot help but feel suddenness about the topic of geopark construction because administrative body took initiative. Although the outstation of the Mishima village office is placed in each island, the main government office is located in Kagoshima City. Therefore, I cannot deny a feeling of a distance from the administrative body. It is somewhat unavoidable for me to feel so not only for the construction of a geopark. We need to do what we can do under the current status where aging and depopulation have advanced and the village is nearly becoming marginal. I request the administrative body be active to further the tourism scheme with greater consistency. I am expecting the geopark in this sense. The creation of togetherness of islanders is still insufficient, although the village is
Potential Construction of a Geopark in Small Islands

a small community. It is necessary to thoroughly make the area’s advantages known with outside help.

(Ms. B, woman in her 20s, resident who has moved into the area)

Ms. B came from the Tokyo Metropolitan area and worked in a company there after graduation from university. She had the option to continue working there but has recently moved to Satsuma Iojima after applying to the Ministry of Internal Affairs and Communications scheme, “Community Revitalization Cooperation Corps System” (a system by which a resident in a major urban area really resides in a depopulated area to which he/she applies and is engaged in efforts to revitalize the area for a maximum of 3 years, in principle).

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I originally had interest to be involved in area revitalization, e.g., agriculture, and decided to apply to the system. My migration is limited in duration, and I am willing to live without inhibition and to find activities that serve for islanders. First, I regularly emit information on my living through blogs or other media.

I feel the great potential of the movement to construct a geopark. I started to live in the island as an absolute alien resident, and the utmost impact for me was the presence of hot springs welling out in Mount Iodake and different sites of the area, as well as of numerous magnificent sights formed by Kikai Caldera. On the other hand, I was surprised by the plenitude of regional resources not limited to natural environments and landscape, e.g., production and marketing of soaps and cooking oil that originated from camellia oil, a new staple, activation of jembe school, folk events with long tradition such as Hassaku Odori.

There are some residents who are willing to do what they can like Mr. A. Some private inns devise hospitality by providing original dishes that make use of seafood, mountain vegetables, bamboo shoot, and others.

On the other hand, I am concerned about the following two points probably because I am a person who moved from the capital region: first, I see no consciousness shared by administrative body and residents with respect to the creation of an even if small-sized, economical environment by making use of local resources; and second, I feel it difficult to raise tourism industry through a geopark by islanders only because there are many drawbacks caused by aging and depopulation, e.g., deficient manpower. These problems are not limited to the construction of a geopark. It might be easier to form shared
consciousness in a narrow community like here Satsuma Iojima, a small island. On the other hand, I think there is a need to follow a considerably careful efforts to accumulate prior sober activities, e.g., change of mind and motivation leading to the formation.

I consider it easier to solicit cooperation or coalition inside or outside the island if atmosphere is fermented in which an outsider resident like me can contribute to revitalization of the area as an uncolored person.

**IV. Discussion**

I described the definitions of geopark and geotourism and showed the results of a hearing investigation to collect the views of the stakeholders about the Mishima village geopark concept to construct a geopark.

The present study discloses that geotourism is stressed as a geoecological approach to form a sustainable community in geopark and embossed the following issues: I) in the first place, “geoheritage”-related discussion about the question—what are geopark and geotourism?; and II) the urgent need to compile discreet discussion to form consensus about geopark construction in consideration of the drawbacks of a small island—aging, depopulation, and confined community—before seeking for a cooperation between local government and residents when proceeding with the geopark concept in small islands.

Regarding the issue I, geoheritage includes geoecological and cultural aspects based on geographic bases, e.g., geology and topography—“Geo as Eco.” The presence of this concept was recognized prior to the emergence of geopark as a global structure. In fact, however, focus was frequently placed on geological layers as imaged from the term geology in its narrow sense and on landscape formed by rocks; such situation occurred also in Japan. Therefore, there was a critique that the inclusion of involvement with human environments would rather cause confusion about what is “geo.” Under the above circumstances, the interpretation of geopark as “one of territorial identity projects subject to the earth’s nature, cultural and social sciences, and events caused by the interactions thereof (Farsani et al., 2011)” can be considered to represent the deepened definition of the terms “geopark” and “geotourism.”

Regarding the issue II, both local government and local residents understand the geopark
structure and expect its construction in the Mishima village. In Japan, several small islands have already been authorized as Japanese geoparks. Therefore, the geographical condition—small islands—is not considered to be disadvantageous for the authorization review. It is rather necessary to intend the penetration of geopark and geotourism into the site while constantly clarifying and verifying their definitions. According to the definition, a small island holds promise to function as a gateway for socioeconomic vitalization because of its high spatial completeness. Namely, the attractive parts of geopark (geosites) never exist for free, and it would be necessary to found an optional cooperation money system by which the proceeds are designated to use for the protection thereof and for the propulsion of research and environment education. In an amusement park, it is natural to pay a fee in compensation for admission. In Japanese geoparks, however, one can enter the vast majority of open-air geosites for free. It is relatively easy to identify tourists to the geopark in a small island. Therefore, geopark can be expected to play a role of implanting consciousness of geotourism under the concept of “Geo as Eco” not only to tourists but also local residents.

Furthermore, the following facts were embossed: 1) human and economic difficulty in supporting the geopark mechanism by local residents only due to the nature of a small island; and 2) deficient substantiation of the discussion led by local residents with respect to the sustainability of community and tourism, which was attributed to the previous history of large-scale resort development abortion and to the mental and physical distance of local residents toward the local government because the village office is located in Kagoshima City away from the Mishima village. The present study has the practical relevance of revealing the above two facts and indicates the critical importance of initiating to address them before the onset of constructing a geopark. Regarding the fact 1), an alliance effort is already noticed between migrants to the area and the local cooperative association. Whether or not to newly gain consent about the objective to construct a geopark will be a turning point. Regarding the fact 2), there is absolutely no problem about the fact that local government played an initiative role to present the geopark mechanism to local residents. What important is that local residents should take initiative as the persons in charge of practically developing geotourism. Otherwise, the failure same as the previous one might be repeated. The success of constructing a geopark will largely depend on the creation of a community that constructs personal associate-independent,
categorized networks by further enforcing the alliance currently being formed and by incorporating persons other than islanders, e.g., non-profit organization members. It is indispensable to share among stakeholders the presumed awareness that the community involves a risk of becoming unsustainable, unless the understating of local residents about the geopark concept is obtained.

In the future, further efforts to gain the authorization of a geopark will be made in an underpopulated area including small islands. I consider that geopark and geotourism discussed in the present study can be geoecological approaches that are beneficial for the formation of a sustainable community and tourism in the relevant area. In a geopark about which self-motivated efforts of the community are fundamental, the dissociation between theoretical potential and real difficulty, e.g., human size limitation, needs to be considered as an urgent issue to address. Required stages should be cleared cautiously for the successful construction of a geopark.

V. Conclusion

The present study has the practical relevance of revealing the following two facts: 1) human and economic difficulty in supporting the geopark mechanism by local residents only due to the nature of a small island; and 2) deficient substantiation of the discussion led by local residents with respect to the sustainability of community and tourism. Therefore, the present study provides basic material for the conduct of future full-scale action research in the Mishima village and suggests that geopark and geotourism are geoecological approaches that can contribute to the formation of a sustainable community and tourism in small islands.

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(J): written in Japanese

(JE): written in Japanese with English abstract

(E): written in English
小島嶼におけるジオパーク構築の可能性
－日本国鹿児島県三島村のジオパーク構想に関する実践的研究－

要約
ジオツーリズムは、観光の新規の形態であり、ジオパークを構築する可能性が高齢化や過疎化に直面する小規模な地域社会にあたる日本国鹿児島県三島村に関して検討された。ジオパークの認定を目指している日本ジオパークネットワーク(JGN)の準会員のうち、三島村のみが2013年9月現在の時点で島嶼地域にあたる。本研究は、小島嶼におけるジオツーリズムの潜在的特性に関する問題に取り組んだ、少なくとも日本、韓国および中国での最初の研究である。聞き取り調査による定性的な現地調査を実施し、三島村役場の職員と薩摩硫黄島の住民から三島村のジオパーク構想に関する見解が収集された。本研究から、本構想に理論上の可能性があること、すなわち本小島嶼には空間的完結性にもとづく「社会経済の活性化のためのゲートウェイ」であるという利点が備わっていることが明らかになった。ジオパークおよびジオツーリズムは、小島嶼における持続可能な地域社会と持続可能な観光の形成に寄与する地生態学的な手段となり得る。

キーワード：地生態学、ジオパーク、ジオツーリズム、発地型観光、着地型観光、小島嶼、薩摩硫黄島、過疎化

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