

Consortium for the Interdisciplinary Study of Human and Nature Symbiosis in Island Systems: FY 2009 Activities

Summary

Tokyo Metropolitan University has been developing this distinctive research topic since FY 2009. The university is seeking to become the nucleus of an international network and create a research center for this subject. This research consortium was formed with the intent of attracting participation inside and outside of the university as well as increasing the appeal of the university's distinctive features to the outside community. The consortium is working to establish a new academic field for empirical research using islands as research models to address the cultural, socioeconomic and natural conditions governing the sustainable symbiosis of humans and nature in “spatially limited ecosystems.” During FY 2009, two workshops were held, at Izu Oshima and Tokyo Metropolitan University (TMU), with participation by researchers from TMU and other universities, local NPOs and staff from local governments. The theme of the first workshop was “Looking for symbiotic systems on islands.” Professor Takakazu Yumoto of the Kyoto University Research Institute for Humanity and Nature introduced topics including island abundance and poverty, island diversity and endemism, and islands in the century of the environment that set the stage for brainstorming. The second workshop included presentations by Adjunct Assistant Professor Sho Kasuga of the Osaka University Center for the Study of Communication-Design on “The Science Shop as a research and development center bearing on local issues” and by Vice Director Hajime Suzuki of the Institute of Boninology on “Good intentions are not adequate for human and nature symbiosis: Trial and Error in the Bonin Islands” that set the stage for discussions of interdisciplinary research using islands as models. Plans for an international symposium scheduled during FY 2010 were considered during the workshop. A website for the Consortium for Interdisciplinary Study of Human and Nature Symbiosis in Island Systems was established based on these two workshops (<http://www.comp.tmu.ac.jp/island/index.html>).

1. Introduction

Since FY 2009, Tokyo Metropolitan University has been developing this distinctive research topic since FY 2009. The university is seeking to become the nucleus of an international network and create a research center for this subject. This research consortium was formed with the intent of attracting participation inside and outside of the university as well as increasing the appeal of the university's distinctive features to the outside community. Rather than being an organization for conducting research, the consortium has been positioned as an organization for conducting discussions and disseminating information to facilitate research and collaborative research through workshops and symposiums.

The Consortium for the Interdisciplinary Study of Human and Nature Symbiosis in Island Systems is a research consortium established to create a new research field investigating islands as models for approaches to human and nature symbiosis. Tokyo includes island chains scattered over 1000 km of ocean from the Izu islands to the Bonin Islands. These islands have various characteristic natural environments and have developed unique histories and cultures. A wide range of disciplines at this university, from anthropology and sociology to natural sciences, engineering, health and welfare, have developed field research on these islands. In particular, research on the Bonin Islands has been a particular research area for TMU. The missions of this research consortium are to integrate this interdisciplinary island research, develop proposals for collaborative research with investigators at other domestic and overseas institutions and build a research network to promote information exchange as well as establish a new academic field that uses islands as research models to address the cultural, socioeconomic and natural conditions governing the sustainable symbiosis of humans and nature in spatially limited ecosystems. During FY 2009, two workshops were held with participation by researchers from TMU and other universities, local NPOs and staff from local governments (Table 1). This English report has been compiled based on the Consortium for the Interdisciplinary Study of Human and Nature Symbiosis in Island Systems FY 2009 Report, which can be downloaded from <http://www.comp.tmu.ac.jp/island/discourse.html>.

Table1. Participants in Consortium for the Interdisciplinary Study of Human and Nature Symbiosis in Island Systems Workshop in 2009

	Name	Institution	1st	2nd
From outside of TMU	Takakazu Yumoto	Research Institute for Humanity and Nature, Professor	○	
	Yasuhiro Yoshikawa	Graduate School of Agricultural and Life Sciences, Tokyo University, Professor	○	
	Kenji Tezuka	Save Pinus amamiana Movement Group, CEO	○	
	Shunsuke Nagashima	Research Center for the Pacific Islands, Kagoshima University, Professor	○	
	Shuzo Ito	Nagasaki University, Honorary Professor	○	
	Hironobu Yamagami	The Japan Society of Island Studies, Director	○	○
	Akira Kato	KGK Co., Ltd., Research Staff	○	
	Hajime Suzuki	Institute of Boninology, Vice Chairman of theBoard of Directors		○
	Sho Kasuga	CSCD, Osaka University, Research Assistant Professor		○
	From inside of TMU	Daniel Long	Graduate School of Humanities, TMU, Associate Professor	○
Masami Sugamata		Graduate School of Human Health Sciences, TMU, Professor	○	
Tetsuaki Murakami		Graduate School of Science and Engineering, TMU, Professor	○	○
Naoki Kachi		Graduate School of Science and Engineering, TMU, Professor	○	○
Makoto Kurokawa		Graduate School of Science and Engineering, TMU, Associate Professor	○	○
Shinya numata		Graduate School of Urban Environmental Sciences, TMU, Associate Professor	○	○
Masahiro Hukushi		Faculty of Health Science, TMU, Professor		○
Fumiko Takakuwa		Graduate School of Humanities, TMU, Professor		○
Shin Kawahara		Graduate School of Urban Environmental Sciences, TMU, Associate Professor		○
Junpei Sakai		Graduate School of Social Sciences, TMU, Professor		○
Staff	Naoko Sakamoto	Research Assistant, TMU	○	○
	Hinako Kondo	General Affairs, TMU	○	

2. First Consortium for the Interdisciplinary Study of Human and Nature Symbiosis in Island Systems Workshop

The Consortium for the Interdisciplinary Study of Human and Nature Symbiosis in Island Systems held its first workshop on October 10, 2010 at the Oshima Branch Office Meeting Room on Izu Oshima. The objectives were to engage in an exchange of views on “Looking for symbiotic systems on islands” and organize the issues. After Professor Takakazu Yumoto introduced topics including island abundance and poverty, island diversity and endemism, and islands in the century of the environment, questions were raised and issues organized and considered. Also, discussions included the positions of various disciplines relative to establishment of the new academic field and the types of research that should be conducted to help the islands in the future.



Figure 1 First Workshop (Izu Oshima)

The topics discussed by Professor Takakazu Yumoto are summarized in the following. As islands are surrounded by the ocean and separated from the mainland, they have developed unique ecosystems and cultures. Also, due to their limited areas, such ecosystems are vulnerable to environmental change and unbalanced social structures are observed. Although nature and cultures have been well protected due to delayed development, the delays in development of social capital have been the cause of increasing depopulation problems. Islands that have had success with tourism have problems with overuse and other environmental issues. Ecosystem issues such as invasion of non-native species

and the coming of outsiders have resulted in important issues for the continuity of nature and culture on these islands. With these issues as a background, the role of islands in the century of the environment was considered. In order for humans and nature to have a sustainable symbiosis, a lifestyle of abundance must be sought while maintaining low environmental impact. Knowledge and social structures are required for using the limited resources of island environments, and these can be studied by investigating the islands.

What types of research do islands require now? This research includes: 1) finding endemic value and continuing to develop it, 2) renewal and strengthening of natural capital and 3) disseminating the message of achieving lifestyles of abundance with low environmental impact through the development of knowledge for conserving resources and energy. The perspectives of both researchers and island inhabitants are necessary for this research. When modeling islands as subjects for research, natural factors (size of the island, distance from the mainland, climate zone, etc.) and societal factors (population, economic strength, etc.) need to be organized to understand the type of island. These factors are the relative coordinates for considering various islands. Also, geopolitical factors such as national boundaries and the 200 nautical mile territorial waters are absolute coordinates for considering specific islands.

The following discussions were conducted regarding establishment of the new academic field. The first topic regarding the new academic field was the position of the various research areas in relation to the new academic field. Having clear common themes is the key for success for the various differing research areas included in the new academic field. For example, a tool for accumulation of integrated spatial and temporal data was identified as possibly being useful. The philosophy for establishing the new academic field could be “understanding islands to serve as a mirror for understanding cities,” with raising quality of life (QOL) as one of the ultimate goals. Focusing on QOL, which is a social foundation that does not change with politics, means that it would be possible to address island needs as they change.

The second topic was organized research that takes into account the future of islands and dissemination of the content and results from activities. Islands with

no industrial infrastructure are seeking alternatives to support in the form of assistance and remittances from emigrants, and it is thought that the organization that would be built up by the new academic field could be solution. For example, active participation by local universities and the promotion of education and research would help maintain ongoing involvement with the island and would bring information acquired by these activities to the islands. In such cases, it would be important for researchers to disseminate their specialized evaluations and the value of the islands in easily understood words. In addition, the so-called insular syndrome (island syndrome) that occurs as a consequence of being an island is a phenomenon common to islands, so developing activities that link islands together has the merit of allowing mutual sharing and utilization of resources. Also, there are many ways that the new academic field could be helpful such as conducting social and other assessments prior to major impacts on the islands. To conduct comprehensive research on islands, it will be necessary to comprehend various mutual interactions including humans and nature, humans and humans, humans and things and humans and systems. The creation of an organization that can cover all of these is required. Building the strength of the localities is an issue for islands to be able to conduct operations for sustainable local development and energize the communities.

3. The Second Consortium for the Interdisciplinary Study of Human and Nature Symbiosis in Island Systems Workshop

The theme of the Second Workshop for the Consortium for the Interdisciplinary Study of Human and Nature Symbiosis in Island Systems was “Interdisciplinary research using islands as models.” The workshop was held on March 14, 2010 at Tokyo Metropolitan University. A report from a local NPO looking for the symbiosis between humans and nature on islands and Science Shop utilizing localities as research and development sites provided topics for discussion including symbiosis on islands, invasive species issues, research and development closely linked to localities. The workshop provided an opportunity for considering plans for the International Symposium scheduled for FY 2010.



Figure 2 Second Workshop (Tokyo Metropolitan University)

3.1 Science Shop for the Bonin Islands: Research and development for localities (Sho Kasuga)

Science Shops are organizations for promoting research and development by scientists based on the needs of local society. Their main activities are accepting research topics proposed by local residents and NPOs and matching these to appropriate experts. This differs from contract research conducted for corporations in that it is in the form of a non-profit organization and cannot collect personnel expenses and research funds from clients such as local citizens and NPOs. In general, these are recognized as university affiliated organizations or take the form of NPOs. In Europe, there are many countries with universities that have science shops. For example, Utrecht University in the Netherlands has the longest history of science shop activity. At Utrecht University, the science shop is positioned as educational work for professors and students participate in science shops as classes. These classes include lectures on press release methods. Since these are part of the education, they do not result in burdensome excessive activities. In the United States there are NGO type science shops.

In Europe, the European Commission is currently stressing science communications. The foundation of public science education is the understanding of science (public understanding of science). On top of this, is being able to use this scientific knowledge as a basis for thought (public awareness of science). Furthermore, rather than scientific decisions being made solely by experts, public

dialog should inform decision making (public engagement in science). As shown by the science shop movement, there is participation in science (public participation in science). Figure 3 shows the structure of the levels of education in science.

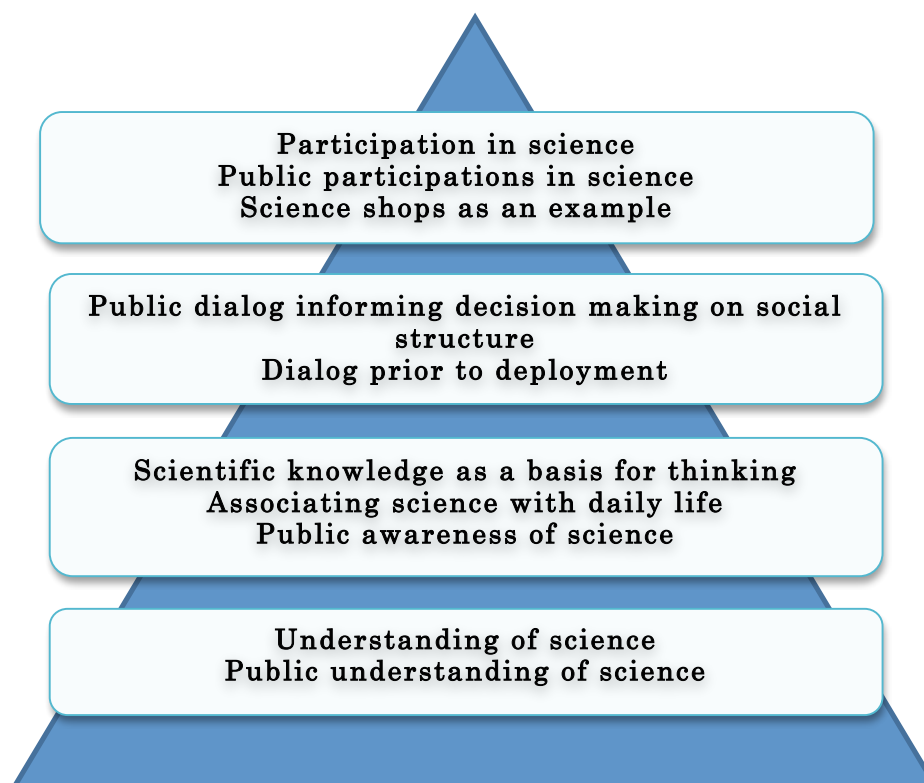


Figure3. Structure of Levels in Science Education

There are three types of beneficiaries of science shops. Citizens are able to utilize the human resources of universities and benefit from dialog with researchers. Universities are able to provide training opportunities for students, strengthen their connections with their localities and demonstrate their originality. Also, researchers are able to obtain evaluations from perspectives other than colleagues in the same field.

What issues will there be for science shops in Japan? In the Netherlands, expensive equipment purchased with funds obtained by teaching staff becomes the property of universities and student groups are able to use the equipment freely. This is very different in Japan and would be an issue for science shops in Japan. Also, other issues include the low level of activity by NPOs that would be clients, the almost total lack of public foundations and lack of a base of individual

donations. The main activities of Japanese NPOs are translation of overseas reports for educational purposes and this does not give rise to motivation for donating funds. On the other hand, overseas NPOs have research staff that actively release reports, have earned the trust of local citizens and are therefore able to raise funds through donations. This funding results in positive feedback due to the ability to conduct better research.

The State of Kerala in India is one of the most successful examples of cooperation between scientists and localities. Although Kerala has one of the lowest per capita GDPs in India, it has a very high average life expectancy; infant mortality is similar to the low levels in advanced countries, and the region is known as a social science miracle. The most important reason for this so-called miracle is the high literacy rate, and one factor is a network of scientists called the People's Science Movement of Kerala. The movement had its beginnings as group to popularizing science by translating scientific literature. During the 1970s, it opposed the Indian central government's construction plan for a dam, and development of good cooking pots and other activities were part of its involvement in sustainable development. Thus, a demand for a certain level of scientific knowledge can be seen even though it is not state of the art. There is much science that can be adapted to localities, and science shops work to collect it.

A question and answer session followed the presentation. An active exchange of opinions included questions on whether there are cases in Europe where science shops come to a standstill and how science shops are evaluated by communities.

3.2 Good intentions are not adequate for human and nature symbiosis: trial and error in the Bonin Islands (Hajime Suzuki)

The Bonins are oceanic islands, and there are many unique plant and animal species due to the isolated environment. Also, due to its vulnerability to invasive species and environmental stress, it is a fragile ecosystem. In 2005, the breeding of katsuodori (brown booby) and Onaga-mizunagidori (wedge-tailed sheerwater) was investigated on the Minamizaki Peninsula of Hahajima, the last inhabited island in the Bonins with breeding grounds for seabirds. From the start of the investigation no living birds were seen. Only the corpses of adult birds were seen.

An investigation using an automatic camera captured the scene of a cat attacking the seabirds. Many adult sea birds have long lives, and their breeding system involves raising one chick per year. Thus, injury to parents is an extremely serious problem, and the breeding grounds might disappear. As a result of trapping cats and preventing their entry by installing a fence, seabird bodies were no longer seen. Also, reproductive activity by the wedge-tailed sheerwater was confirmed. The resumption of reproduction by the brown booby is yet to be confirmed.

The threatened species Akagashira-karasubato (Japanese wood pigeon) is found on Chichijima. The Japanese wood pigeon feeds and breeds while on the ground. In 2002, the presence of the Japanese wood pigeon was confirmed throughout the Bonin Islands and the importance of these breeding grounds has increased. On the other hand, the cat problem has become very serious. Cats were observed in the Japanese wood pigeon breeding area in 2005 and were later trapped. As a result, the fledgling chicks were observed. A Japanese wood pigeon workshop was held in the Bonins in 2007. During the event, it was said that “this was an historical event since it was the first time in the postwar period that private citizens and not the government had said something about nature.” This indicated that frustration was felt about not being able to say anything about nature on the islands (most of the Bonins being government land or national parks). The trapping of cats has continued since 2005, and Japanese wood pigeon breeding has been observed every year.

Are cats are really a problem as an invasive species? Every year in the Bonins 100 to 120 carcasses of protected wildlife are found, and about 10% are due to biological factors. During the past 10 years, all deaths due to biological factors were caused by cats. On oceanic islands, sea birds serve to transport nutrients from the ocean. This supports the growth of plants, adds nutrients to the island that promote the growth of coral and results in enrichment of the coast. Cats are thought to destroy the chain of this. Resolving the issue of cats and the Japanese wood pigeon is an urgent matter.

On the other hand, cats are a predator for rats, which are an invasive species. Rats compete with Japanese wood pigeons for food, and it is possible that they are predators for chicks or eggs. Furthermore, rats are prey for the Bonin endemic

species Nosuri (eastern buzzard) and Eastern Buzzards are predators of Japanese wood pigeons. Invasive species now play complex roles in the Bonin ecosystems, and it is an unpredictable situation. Although the cat problem needs to be dealt without delay, careful monitoring taking into account the interactions among species is necessary. The Bonins have problems with other invasive species such as goats, Japanese toads and African land snails. Even if such species are actively prevented from invading in the future, dogs, cats and other pets will continue to be present as long as humans are present.

In terms of the issue of cats as an invasive species, it must be assumed that cats will continue to be present. Currently, trapped cats are sent to mainland Tokyo in cooperation with the Tokyo Veterinary Medical Association. In order to promote appropriate care and breeding of cats, a safe environment for keeping pets (veterinarian visits, etc.) is being created. The cat problem is an issue of the coexistence of humans and pets with nature. Although removal of cats from the mountains was an objective for wildlife protection, consideration had to be given to how cats should be kept in the community. If the cat issue is recognized as a problem of coexistence, it is understood that elimination is not a solution. If the theme is “coexistence”, the need for specific methods becomes apparent. If the specific needs are understood, experts can participate in developing plans, and the government can call for specific requirements. It is very important that the problem of invasive species be dealt with on a continuing basis, and it will be important to ensure that they are not introduced in the future.

According to the reporting on the World Heritage Site issue, many lives are lost daily in the Bonins. This is painful to the people of the islands. If the islanders become uncooperative, measures to address the invasive species problem cannot continue and will probably fail. It is important to deal with these emotions to continue the program. Many invasive species were intentionally introduced, and removal of them without communicating with the people has historically been rejected. Just giving removal from the habitat as a reason will not assuage the feelings about continuing the killing. It has been recognized that ideals, or vision, rather than reasons are important for treating emotions with care. Government and researchers have techniques in common. In the case of the cat problem, another other factor is the feelings of the residents. For issues with invasive

species, these techniques are at the center of the three circles of government, researchers and local needs. These techniques need to be determined on a species by species basis.

4. Consortium for the Interdisciplinary Study of Human and Nature Symbiosis in Island Systems Website

The Consortium for the Interdisciplinary Study of Human and Nature Symbiosis in Island Systems website has been established on the university servers for project related discussions, reports and announcements of symposiums. The address is <http://www.comp.tmu.ac.jp/island/index.html>. Regular updates of the website are planned.

概要・目的 | 島嶼共生系学際研究環 10/04/13 18:42

島嶼共生系学際研究環
Consortium for the Interdisciplinary Study of Human and Nature Symbiosis in Island Systems

お問い合わせ ▶ island@tmu.ac.jp
〒192-0397 東京都八王子市南大沢1-1
首都大学東京 理工学研究所 生命学科専攻 教授 可知直樹

人と自然の共生をめざして

- ◆ ホーム
- ◆ 概要・目的
- ◆ 組織
- ◆ 活動実績
- ◆ 今後の会議案内
- ◆ 論文・報告書
- ◆ リンク

首都大学東京
TOYO UNIVERSITY

小笠原研究委員会

大島プロジェクト

概要・目的

研究の概要

東京都には、伊豆諸島から小笠原諸島まで1000 kmにわたって海洋に点在する島嶼群があります。これらの島々は、それぞれ特徴的な自然と独特な歴史・文化を育んできました。首都大学東京では、これらの島々をフィールドとして、人文・社会系から、理学系、工学系、健康福祉系まで多様な分野の研究が展開されています。

本研究環により、これらの島嶼研究を学際的に融合させ、「島嶼共生系」の持続可能性に関する新学術領域の確立をめざして学外、海外を交えた共同研究提案、情報交換を活性化するための研究ネットワークを構築します。

Figure 4 The Consortium for the Interdisciplinary Study of Human and Nature Symbiosis in Island Systems website

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