

The future of Islands

Takakazu YUMOTO

Research Institute for Humanity and Nature, 457-4 Motoyama,
Kamigamo, Kita-ku, Kyoto 603-8047, Japan
yumoto@chikyu.ac.jp

ABSTRACT

Islands have been blessed by their unique biota, culture, and language, depending on affluent ecosystem services and subsistence economy. Island life was one of the good examples of a sustainable way of life. But globalization destroyed its subsistence economy and made their lives unsustainable. Trans-disciplinary research is needed to restore and reconstruct island lives as well as ecosystems, in order to utilize the rich biodiversity and cultural diversity of islands for green development as ecotourism, sustainable forestry and fishery, and handicrafts. Local knowledge of islands is a treasure box for future sustainable lives with “low environmental loads and high quality of live”.

Keywords: Biodiversity, Endemic culture, Limited resources, Sustainability, Traditional ecological knowledge

INTRODUCTION

Islands have two contrasting aspects: affluence and poverty. 1) Each island has its endemic culture and nature, depending on its history of isolation from the mainland. However, the amount of natural resources including water is quite limited and the environment is usually vulnerable owing to the confined area. 2) Most islands have kept their own culture and nature very well because they are always behind the mainland in development. On the other hand, many islands are suffering from serious depopulation due to less development of infrastructure. 3) Because islands surrounded by the sea provide fish and other foods, people live on rich ecosystem services without using money. But there are few job opportunities to earn money and people are poor in sense of monetary income. 4) Some islands have produced job opportunities for younger generations by promoting tourism. But tourists cause many environmental and cultural problems, i.e. garbage, water shortage, overuse and transformation of natural and cultural heritages. Islands, also, have been drawing a lot of attractions of scholars. The endemic culture, languages, landscape, biodiversity and organisms are always targets of serious research in their origin, phylogeny, historical transformation, transmission, and contemporary crisis and threats.

RYUKYU ISLANDS

Ryukyu Islands are one of the fascinating islands among them (Fig. 1). Amami Islands and Okinawa Islands are separated by Tokara Gap and Kerama Gap by more than 1,000 m in depth, from other islands ca. five million years ago, and are the home of high biodiversity with many endemic plant and animal species. Among terrestrial vertebrates, six mammals, four birds, 13 reptiles and 10 amphibians are endemic species to these islands (Abe et al. 1992; Uchiyama et al. 2002). Most of them are endangered except for several very common species. As for marine organisms, coral reefs around Okinawa Islands which accommodate 75 endangered species of fish, corals, conches and prawns is considered as one of the hotspots of biodiversity as a coral reef (Roberts et al. 2002).



Fig. 1. Ryukyu Islands.

For human dimension, the oldest bones excavated in the Japanese Archipelago was Minatogawa man (18,000 yr. BP) in Okinawa Island (Fig. 2). Quite recently, older bones were found in Ishigaki Island and were dated back as 15,000 – 20,000 yr. BP. Stone Ax Culture (12,000 – 10,000 yr. BP) represented by Kakoinohara site in Kagoshima was closely connected to Taiwan and Northern Philippines through Yaeyama Islands to Okinawa Islands (Fig. 3). In Jomon Period, Ichiki-style Pottery of Kagoshima extended their distribution to Amami-Oshima Island, Toku-No-Shima Island and Okinawa Island which indicates that the influence of Kyushu culture attained to these islands (Fig. 3). In Yayoi Period and Kofun Period (2,000 – 1,500 yr. BP), a Road of Shell Bracelets existed. The artifacts made of conches from coral reefs have conveyed as evidences of leaders' prestige to the mainland of Japan (Fig. 4). The Islands have been playing a bridge which connects culture from north to south and south to north.

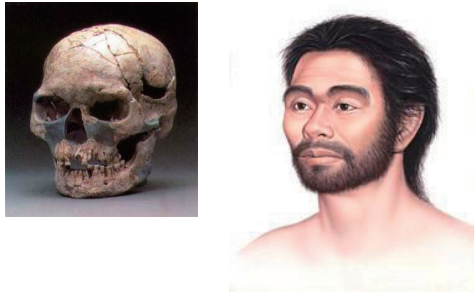


Fig. 2. Minatogawa man (18,000 yr. BP).

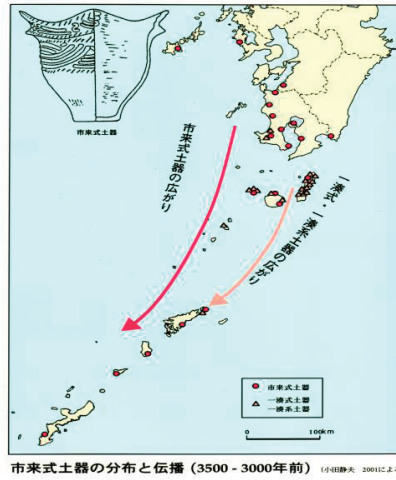


Fig. 3. (Left) Distribution of Stone Axe Culture (Oda 2000). (Right) Distribution of Ichiki-style Pottery (Oda 2000).

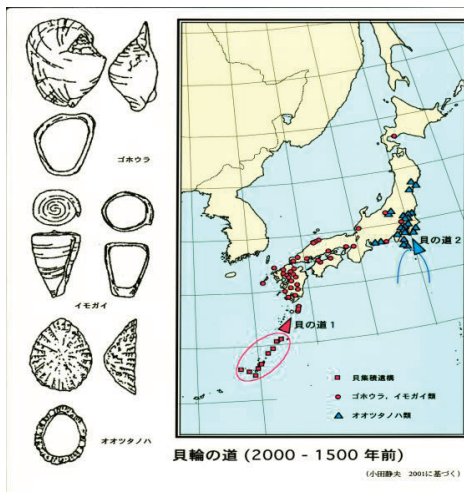


Fig. 4. Road of Shell Bracelets (Oda 2000).

Ethnologue report for Japan (http://www.ethnologue.com/show_country.asp?name=JP) recognizes 15 languages in the Japanese Archipelago; Ainu, Amami-Oshima (Northern), Amami-Oshima (Southern), Japanese, Japanese Sign Language, Kikai, Korean, Kunigami, Miyako, Okinawan (Central), Oki-No-erabu, Toku-No-Shima, Yaeyama, Yonaguni, and Yoron. Among them, 11 languages are those in Ryukyu Islands, and it is noted that Ryukyuan languages are 62-72 % cognate with Tokyo dialect of Japanese. UNESCO Atlas of the World's Languages in Danger 2010 (<http://www.unesco.org/culture/languages-atlas/>) shows 8 languages in Japan are in danger: Ainu, Yaeyama, Yonaguni, Okinawa, Kunigami, Miyako, Amami, and Hachijo. Again, 6 languages among them are those in Ryukyu Islands.

ISLAND CULTURE AS A MODEL OF SUSTAINABILITY

Island culture which has developed in confined area contains, more or less, the wisdom to utilize limited resources efficiently and in a sustainable way without exhausting. Although Ryukyu Kingdom depended on international trade among China and Japan, people lived on island ecosystem services forming subsistence economy. Fiber banana, *Musa balbisiana* Colla, a species of banana which produces fiber, was cultivated in many islands (Fig. 5), and women engaged in processing fiber and weaving textiles not only for themselves but also for tax per capita in Ryukyu Kingdom (Fig. 5). Coral reefs provide daily foods for people: fish, mollusks and seaweeds (Fig. 6). The traditional ecological knowledge to collect such natural resources has been passed down from generation to generation. Houses were constructed using domestic wood, thatch, stone and coral. These housings contain a rich knowledge of protection against damaging strong winds of typhoons and termite attack, and to keep lives comfortable without artificial air conditioning (Fig. 6). Island life in old days is definitely one of the models of sustainable lives. After World War II, lives on the islands drastically changed as lives in the mainland did. Globalization brought cheap materials from abroad, which totally destroyed island subsistence economy. The knowledge to utilize limited resources was lost, and lives of high-energy consumption prevail even in remote islands.



Fig. 5. (Left) Fiber banana, *Musa balbisiana*, in Amami-Oshima Island. (Right) Textiles made of fibers from bananas in Taketomi Island.



Fig. 6. (Left) Collecting seaweeds in a coral reef in Ishigaki Island. (Right) Traditional housing in Taketomi Island.

NEEDS OF ISLAND STUDIES FOR THE FUTURE OF ISLANDS

The situation of islands under the globalism is critical. Affluence aspect is diminishing and poverty aspect is increasing. We have to seek a way which island lives and economy can survive. There are several issues to be considered. 1) How can we reinforce the natural capitals of islands? Although islands were blessed with nature, the modern development has destroyed affluent ecosystems: forests, mountains, mangroves, seashore, tidal flat, coral reef and so on. We have to restore these natural capitals for green development such as ecotourism, sustainable forestry and fishery, and handicrafts. 2) How can we reevaluate endemic culture and nature, and how can we transmit them to the next generation? Each island has its own culture and nature, but the social capital in islands is becoming weak because of depopulation and aging. We have to reevaluate island culture and nature and utilize them for green development. As island life in old days is one of good examples of sustainable lives, trans-disciplinary research is needed to find the key factors for sustainability ecologically, economically and sociologically. Local knowledge of islands is a treasure box for future sustainable lives with “low environmental loads and high quality of live”.

REFERENCES

- Abe, E., Ishida, N., Kaneko, N., Maeda, K., Miura, S. & Yoneda, M., (1994) Mammals in Japan. Tokai University Press, 195 pp. (in Japanese)
- Oda, S. (2000) Archaeology in Black Current Zone. Dai-ichi Shobo, 310 00. (in Japanese)
- Roberts, C. M., McClean C. J., Veron, J. E. N., Hawkins, J. P., Allen, G. R., McAllister D. E., Mittermeier, C. G., Scueler, F. W., Spalding M., Wells, F., Vynne, C. & Werner, T. B. (2002) Marine biodiversity hotspots and conservation priorities for tropical reefs. *Science* 295: 1280-1284.
- Uchiyama, R., Maeda, N., Numata, K. & Seki, S. (2002) Reptiles and Amphibians in Japan. Heibonsya, 335 pp. (in Japanese)