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サイタニー郡における生業複合と資源利用の多様性
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Subsistence Complex and Diversified Resource Use in Xaythani District

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要旨：本研究は，ラオス、ビエンチャン平野の稲作地帯、サイタニー郡を中心とした共同調査の中で，生物資源利用に注目して，この地の生物多様性と環境の変動性への適応の仕方を明らかにした。

Preface

This study aims to clarify how the people utilize the diversified natural resources for their living and form subsistence activities connected with seasonal change. The connection of subsistence activities as well as land use and habitat is also focused on. Various subsistence activities and land use in the wetland of Lao are characterized by rice farming and paddy fields. The village and land use are formed on the basis of rice cultivation. The paddy fields and their surroundings are regarded as the ecotone where creatures live in dependence on the environment in which rice growing takes place. With rice, water, trees, and wild animals and plants, the paddies in our research area have complex ecological characteristics.

The purpose of this paper is to clarify the subsistence complex that is reflected in local people's daily use of animals inhabiting the fields, including fish and miscellaneous invertebrates in Xaythani district. The data was collected through the fieldwork and direct observation mainly in 2003 to 2004.

Resource use in the paddy field and surroundings

The people use plenty kinds of wild animals and plant for daily materials as well as food resources. Through our survey, at least 50 fishes and aquatic animals, 40 insects, 40 wild plants, 26 bamboos, and 26 mushrooms have been listed by the Zubzub team survey. The best example of the resource use of diversity and seasonality is seen in paddy field. Natural resources coming from the activities concerning rice cultivation are found in the paddy fields throughout the year (figure 1). From the time when the fields are irrigated and filled with water till the end of rice harvest and even after the harvest, animals and plants



Fig1. Seasonal change in the paddy field

live in the paddies, adjusting themselves to the conditions there.

Some examples to show how people use such natural resources according to the seasonal change of rice cultivation is shown below.

The paddy fields filled with water provide fish and other aquatic animals with places to grow. So small-scale fishing is practiced in many paddies. Even small children are seen catching fish so easily in the rainy season. When it rains, children go to the paddy field instead of school, as the increasing water by the rain prompt fishes to run away from the paddies. Local people usually catch fish and other aquatic animals in their fields and near their communities (figure 2). This may be very natural, but is an interesting case from the viewpoint of catching animals, as it is not common to have such easy access to food resources.

Figure 3 shows that there was a man who caught 12 species of fish from one small basin while his wife and families was harvesting rice. Then the fish were dried out on the spot for self-sufficient. This example shows the place promote fishes to grow.

When the pond which was used for providing water for the paddy drained after the harvest, it become good fishing places with easy gears, as fish are retard from moving. Local people gather in the pond to fish and sell the catch to middlemen. This activity certainly has economic value but at the same time gives seasonal joy to the people who join it.

They also catch other small animals, such as grasshoppers, in order for them to consume as well as to sell. A variety of tools they use are interesting as shown in figure 4. They reflect people' s eagerness to catch such animals.

Stink bugs inhabiting the rice and trees in the paddies may be something to be detested, for they smell bad as the name indicates (Figure 5).

Many local people, however, eat them because of the delicacies' taste as well as in an attempt to exterminate the stinkbugs. This may be regarded as a kind of resource development.

Various insects and small animals are eaten as delicacies. Local people can tell their difference according to species and the life stage in taste and characteristic.



Fig2. Small fishing scale



Fig3. Fishes caught from small pond



Fig4. Grasshopper collecting

Chain and network

The network and chain developing in relation to rice growing in the paddies, including the environment reclaimed by human activities is emphasized.

The links between water buffaloes and humans may be explained with an example of dung beetles that feed on water buffaloes' faeces (figure6). Dung beetle larvae are considered delicacies by local people. They say that it is very good to stew them.

As shown in the figure, there is the chain of the field, water buffaloes growing on the field, dung beetles feeding on the buffaloes' dung, and people who eat the beetles including worms. If the place is completely wild, it is not only difficult for buffaloes to inhabit but also it requires great effort for humans to find the worms. All the parties in the chain can enjoy easy access to their food in the places like this.

Another example is that of termite (figure 7). Termite mounds may be obstacles for farming. They, however, provide habitats for cicadas, which are also delicacies. The soil forming the mounds is good as materials for kilns to make charcoals. Termites themselves are useful as food and sometimes considered to make human bodies stronger.



Fig5. Stinkbug collecting and eating



Fig6. Dung beetle and rice cultivation

Structure of subsistence complex

A variety of wild plants and small animals are utilized for their daily diet, and also some plants and animals are savored as delicacies. Variations of resource use and its spatial network relating subsistence activities to farming on the land were examined in this study.

Rice is so important to the Lao people that what is essential to them is to improve production techniques to increase the production of rice. The products from the paddy fields, however, are not limited to rice, but various resources shown here are harvested. Diversified uses of bio-resources, represented by water use, rice growing and fisheries, are an important aspect of human life, for various materials and food become accessible to humans so that they can enrich their life.

It means the paddy field and human activities related with rice cultivation



Fig8. Structure of subsistence complex

promote the proper habitat for these creatures. They enrich local people's life as they increase the variation of food not only in quantity in diet and but also quality as delicacy. These resources also have economic value. The creatures represent rich biodiversity of the fields and bring about good natural environment not only to the places but also to larger areas along the watershed containing the places beyond Xaythani district.

I have propounded a concept of Nora, which is the place of coexistence where living things depend on each other as well as nature and humans interact with each other. There people do not manage creatures but assist them with their development, while letting nature take its course during their work. With the changes and successions of the environment, the varieties of living creatures that inhabit there may not be fixed. It is suggested that the subsistence complex is regarded as a form merged by human activities and the environment as Nora.

As a conclusion, the relations are established between the living things that come to inhabit the place and the people who in turn use the creatures through subsistence activities and land use. The holistic structure will be a key to consider the sustainable life both of human and nature there.

Abstract

This study aims to clarify people's animal use for daily life including fishes and miscellaneous invertebrates as subsistence complex in Laos. Special attention is paid for the subsistence activities of diversified resource use and environmental cognition related with agricultural land use and seasonal ecological change. Changing of them by the effect of urbanization and land reclamation is also important matter.

The case study was conducted in Xaitany district. The data was collected through the interview and direct observation of subsistence activities in the villages and local markets. Variation of resource use and its spatial network related between subsistence activities and farming on the land were examined.