

平成18年度 長崎大学熱帯医学研究所・全国共同利用研究施設・共同研究
「アジア・オセアニアの人口・健康・栄養転換の統合的研究」

Annual meeting of a research project for Institute of Tropical Medicine and Hygiene,
Nagasaki University. “Demographic, health and nutritional transition in Asia and
Oceania regions: Review of the case studies” January 28, 2007.

研究集会プログラム

日時：2007年1月28日

会場：長崎大学熱帯医学研究所

9:30-10:05

**1. Nutritional Ecology of Tongans: Study on Food Intake and Physical Activity Pattern
in a Population with High Prevalence of Obesity**

Shoko Fukuyama, Department of Human Ecology, University of Tokyo

10:05-10:40

**2. Changing Ethnobotanical Knowledge of the Roviana, Solomon Islands: Quantitative
Approaches on Acculturation**

Takuro Furusawa, Division for International Relations, The University of Tokyo

10:40-11:15

**3. *Schistosoma japonicum* infection and time allocation studies of the behaviors
associated with water contact in a rural village, the Dongting Lake region, China**

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University, Sichuan, China, 4 National Institute for Environmental Studies, Tsukuba,
Japan, 5 Department of Human Ecology, School of International Health, Graduate
School of Medicine, the University of Tokyo, Japan*

11:15-11:55

**4. Exploring the land use strategies of two hamlets in Hainan Island of China: An
application of GIS**

Hong Wei Jiang, Department of Human Ecology, University of Tokyo

12:00-13:00

Lunch

13:00-15:00

**5. Researching pig management strategies in Sinasina, Simbu Province, Papua New
Guinea: a retrospective**

*Robin Hide, Visiting Fellow, Dept. of Anthropology and Resource Management in
Asia-Pacific Program, Australian National University, Canberra, Visitor, Sato Project,
Research Institute for Humanity and Nature, Kyoto*

15:00-

Discussion and Excursion

<Abstract>

1. トンガ人の栄養生態学： 高肥満割合の集団における食物摂取と身体活動量の研究

1. Nutritional Ecology of Tongans: Study on Food Intake and Physical Activity Pattern in a Population with High Prevalence of Obesity

福山祥子 (東京大学人類生態学教室)

Shoko Fukuyama (Department of Human Ecology, University of Tokyo. E-mail: moe@humeco.m.u-tokyo.ac.jp)

The Kingdom of Tonga shows the second highest prevalence of obesity ($BMI \geq 30$) (47% in males and 70% in females) in the world. Based on a nutritional ecological approach, I aimed to clarify environmental and behavioural factors that are contributing to their large body size. The first part of the study focused on physical activity pattern and the second part on food intake pattern of Tongan adults.

Physical activity level (PAL) was estimated from time allocation study that is based on activity observation for six days targeting 58 (22 males and 36 females) adults. For the food consumption survey, repeated 24-hour recall was conducted for total of 14 days targeting 34 adults (15 males and 19 females). Energy and nutrients intake level of the population was estimated and the most contributing food items to each nutrient are described. Daily fluctuation of energy intake is discussed with interest in the role of “feasts”. Finally, I suggest that within-population variation in obesity could be linked to difference in a specific eating pattern.

トンガ王国の肥満割合 ($BMI \geq 30$) (男性 47%, 女性 70%) は世界で 2 番目に高い。栄養生態学的アプローチによって、彼らの肥満に貢献する環境・行動要因を明らかにすることが本研究の目的である。前半はトンガの成人の身体活動パターン、後半は食物摂取パターンについて論じる。

身体活動レベル (Physical Activity Level: PAL) は、58 人 (男性 22 人, 女性 36 人) を対象とした 6 日間の行動観察によるタイムアロケーションのデータから推定した。食事調査は、34 人 (男性 15 人, 女性 19 人) を対象として繰り返し 24 時間法を用いた。集団のエネルギーと栄養素摂取レベルを推定し、それぞれの栄養素に最も貢献していた食物について記述する。また、エネルギー摂取量の日間変動について “feast” の役割に着目しながら論じる。最後に、集団内の肥満の個人差が特定の食行動パターンによって説明できる可能性についてふれる。

2. ソロモン諸島ロヴィアナの民族植物知識の変化：文化変容に対する定量的アプローチ

2. Changing Ethnobotanical Knowledge of the Roviana, Solomon Islands: Quantitative Approaches on Acculturation

Takuro Furusawa (Assistant Professor/Lecturer, Division for International Relations, The University of Tokyo)

While decrease of traditional ethnobotanical knowledge is recognized as an irreversible loss of human property, it has little been clarified how such knowledge changes in

quantitative relationships with modernization. The Roviana people (approximately 12,000 in number) in the Solomon Islands share one cultural origin and similar ecological settings, while the modernization varies within it. This study aims to reveal the acculturation in ethnobotany by analyzing the similarities of knowledge and differences of modernity among villages in the Roviana. Informants from 7 villages (6 – 17 informants were randomly selected from each village) were asked whether or not each of 20 plant species was used as (1) food, (2) building, (3) medicine, (4) tool, (5) fuel, (6) ritual, and (7) cash income; questionnaire was made based on detailed ethnobotanical surveys. Adjusted agreement of answers between informants was treated as a ‘similarity of knowledge’ which was used for measuring inter-village similarity. In addition, first principal component of 14 modernity variables was used as a ‘modernity score’ which measured relative inter-village differences. As the result, difference in modernity and similarity of knowledge were negatively correlated ($r = -0.95$, $p = 0.003$) when all villages were referenced to the lowest-modernity village, while they were not significantly correlated when all villages were done to the highest-modernity village. The modernity score was significantly correlated with the number of known plants useful for cash income ($r = 0.85$, $p = 0.015$) but not with those for other purposes. Finally, multiple regression analyses revealed that individual ethnobotanical competences were affected by household and/or individual characteristics/modernity (e.g., cash income, housing style, and age), though such characteristics were not effective in the village with the highest modernity. It was thus assumed that the modernization not only increased Western knowledge in the Roviana’s ethnobotanical system but also decreased inter-village diversities or uniqueness of indigenous knowledge; even at individual level, individualism in modernized village might have declined the diversity.

3. *Schistosoma japonicum* infection and time allocation studies of the behaviors associated with water contact in a rural village, the Dongting Lake region, China

3. 中国湖南省洞庭湖周辺地域の日本住血吸虫症蔓延地の漁村における日本住血吸虫症感染と水接触行動に関する村民の生活時間調査

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Abstract

Schistosomiasis control is a serious challenge for public health even in the 21st century. In mainland of China, schistosomiasis japonica remains a major public health problem in eight provinces. As *schistosomiasis japonica* is transmitted through contacts with infected water, it is important to identify the high-risk behaviors and adopt specific

preventive measures. Thus, more detailed quantifications, based on direct observation of the residents' entire life with age, time and other factors, are required, and the water contact behavior should be observed together with the other activities by season to develop the most effective control strategies against *Schistosoma japonicum* infection.

In this study, the author conducted both the behavioral survey by means of a time-saving spot-check method and parasitological evaluation by Kato-Katz thick smear method in the hamlet located in the Dongting Lake region in October and November 2004 and May 2005.

The field behavioral survey was completed for 112 participants. In this hamlet, there were seasonal differences in the time allocation of the behaviors on the marshland among adults. Moreover, there were seasonal differences by type of behaviors conducted on the marshland.

Parasitological studies were performed in October for 122 participants. Eighteen persons (14.8 %; 95% confidence interval: 8.5, 21.0) were positive for *S. japonicum*. The sex differences in prevalence of *S. japonicum* were observed in younger adults but not in older adults. A significant positive correlation between worm intensity and the time spent on repairing ships on the marshland was found ($p < 0.001$).

In the study area, seasonal differences in the place where the residents spend their time and in the type of their behaviors were observed by the time-saving spot-check method. Although such differences have remained undetected as the behavioral risk factors for *Schistosoma japonica* infection, the time-saving spot-check method more reasonably demonstrated the risks rather than activity diary or interview.

4. Exploring the land use strategies of two hamlets in Hainan Island of China: An application of GIS

Hong Wei Jiang, Department of Human Ecology, University of Tokyo

We have conducted human ecological study in the inland of Hainan Island since 2000. Our major concern was to reconstruct the transformation of the human-environment relationships in the communities under drastic change. In the target communities, enforcement of new government policy was regarded as the fundamental trigger of change. Tourism policy, for example, together with environment conservation policy, affected the people's daily subsistence behaviour. Economic development policy initiated change in the indigenous food production system toward the market economy by introducing cash crops. Transformation in land use, resource management and social organization followed, which eventually have affected health status and welfare of the people, as well as the biomass and biodiversity of the natural environment surrounding the communities.

The fieldwork was conducted in two Li ethnic minority villages, Shuiman and Paoli. Shuiman village had 190 people (32 households), while Paoli village had 179 people (28 households) in 2001. Shuiman village lies at the foot of Mount Wuzhishan and has been influenced by tourism development, while Paoli stands on provincial road No. 29 (constructed in 1965) and has sought to increase income with cash cropping. On the basis of reconstruction of land use over the last 20 years, I tried to clarify the characteristics of land use strategies for the two hamlets. GIS software was used to investigate to what extent the land use strategies were influenced by the geographical conditions of their territory.

5. Researching pig management strategies in Sinasina, Simbu Province, Papua New Guinea: a retrospective

“Remarkably little is known about the ecology, nutrition, and demography of pigs (in New Guinea)” (Brookfield 1973:135).

Robin Hide (Visiting Fellow, Dept. of Anthropology and Resource Management in Asia-Pacific Program, Australian National University, Canberra, Visitor, Sato Project, Research Institute for Humanity and Nature, Kyoto)

Over 18 months in 1972-73, as a young anthropologist undertaking human ecology research, I studied Sinasina domestic pig management by monitoring intensively the pigs held in two neighbouring communities at different stages of their “pig cycles” (periodic, large scale, ritual/ceremonial pig killings). In this paper, I first describe the study: its origins, aims, methods, results and implications. I then take advantage of hindsight to evaluate some of its weaknesses and gaps: what, for instance, I would want to include if I were starting such a study today.