

## The Development of Large-scale Upland Farming and Farmland Use in Hokkaido : A Case Study of Otofuke Town

SASAKI, Toru<sup>1\*</sup>

<sup>1</sup>Sapporo Gakuin University

Japanese agriculture falls into a decline. Especially, farmland resources very important as a factor of production are decreasing. From 1961 to 2010, farmlands decreased by 25% in Japan. On the other hand, in Hokkaido, farmland is not decreasing so much.

This presentation tries to explain the characteristics of large-scale upland farming and condition of farmland use in Otofuke town.

Keywords: Farmland use, Upland crops, Wheat, Large-scale Farming, Otofuke Town

## Change of forest use and current state of coppice forest in Nenoshiroishi near Sendai

MATSUBAYASHI, Takeshi<sup>1\*</sup> ; KANO, Arika<sup>2</sup> ; UCHIGASAKI, Aya<sup>3</sup>

<sup>1</sup>Tohoku Fukushi University, <sup>2</sup>Research Student, Miyagi University of Education, <sup>3</sup>East Japan Railway Company

Coppice forest had been repeatedly felled in an interval of about 15 to 30 years in order to produce and provide fuel wood and charcoal. A charcoal production worker produced 1,500kg of the charcoal in the winter of 2009-2010 in Nenoshiroishi near Sendai. The felled area is approximately 800 square meters. The amount of production of charcoal was approximately 3,000,000kg per year in Nenoshiroishi in the 1930s, therefore the felled area is calculated approximately 1.6 square kilometers per year at that time. After the fuel revolution in the late 1950s and the early 1960s, felled area rapidly decreases, and trees have grown to large sized. In recent years, mass mortality of oak trees has been expanding rapidly in Nenoshiroishi. Growth of the tree is considered to one of the causes of mass mortality of oak trees.

Keywords: coppice forest, forest use, mass mortality of oak trees, Sendai

## Utilization of local resources in agricultural cooperatives in Inner Mongolia,China

SEKINE, Ryohei<sup>1\*</sup> ; SASAKI, Toru<sup>2</sup> ; SUDE, Siqin<sup>3</sup>

<sup>1</sup>Tohoku University, <sup>2</sup>Sapporo Gakuin University, <sup>3</sup>Inner Mongolia University

This study considers about the regional action mainly on the sales of dried beef established with agricultural cooperative modality in Xilingol League, Inner Mongolia Autonomous Region, China that it lived by mainly in live stock farming before 1990s. Agricultural cooperative in China is a new co-operative association institutionalized from 2007 as a position improving local economy. Dried beef is winter excellent products in this area. The agricultural cooperative targeted in this study produces dried beef by oneself, and sells it by oneself at the store established in Xilinhot City that is local metropolis of Xilingol League. It is administered by 25 households live in Bulgan County. They got an adjunct to 300,000 yuan from the government in 2009 to establish this cooperative. This study discusse about the business processes after the establishment of this cooperative and the relations with local resources.

## Placing sediment budgets in the socio-economic context for management of sedimentation in Lake Inle, Myanmar

FURUICHI, Takahisa<sup>1\*</sup> ; WASSON, Robert<sup>2</sup>

<sup>1</sup>Department of Science, IT, Innovation and Arts, Queensland Government, Australia, <sup>2</sup>National University of Singapore, Singapore

In soil erosion and sedimentation research in developing countries, scientists are expected to be better involved in quantifying mechanisms and rates of sediment movement and objectively demonstrating their impacts. Soil erosion and sedimentation in the ca. 3,800km<sup>2</sup> Lake Inle catchment, Myanmar have been of both local and national concern given the significance of the lake to the economy, environment, and culture. Sediment budgets that include a focus on different sedimentation rates in various sink environments around and in the lake were constructed for this lake catchment. The sediment budgets showed that deltas stored more than half of the sediment transported to the lake area, and that, despite the relatively smaller storage mass, the highest specific storage was found at river mouths. Socio-economic assessment identified diverse perspectives on impacts of sedimentation. Of those perspectives, increasing difficulty in water transportation was recognized as a common, significant problem among stakeholders. Proposals for management of sedimentation therefore emphasize that a priority should be given to controlling sedimentation at river mouths.

### <Reference>

Furuichi,T., Wasson, R.J., 2011. Placing sediment budgets in the socio-economic context for management of sedimentation in Lake Inle, Myanmar (Burma). In: *Sediment Problems and Sediment Management in Asian River Basins* (ed. Walling, D.E.), IAHS Red Book 349, 103-113.

Keywords: sedimentation, sediment budget, socio-economic assessment, Lake Inle, Myanmar

## Regional Governance of Forest and its Fringe - case of South India -

KIMOTO, Koichi<sup>1\*</sup> ; S., Arun das<sup>2</sup>

<sup>1</sup>Hiroshima Jogakuin University, <sup>2</sup>University of Mysore

In recent years, on a global scale, forest issues are being "organized". The "facts" of a serious deforestation and "needs" of appropriate protection, as the international public opinion, becomes the general framework of forest policy in each country and region, and under the framework various policies have been implemented. In the late of the 1980s, it may be said that the short turn from the timber-oriented forest government to the community based forest management and governance is a beginning of such a trend. Since the 1990s, many of research such as various case studies of the present situation of forest, a critique of forest policies and foreign aids, and theoretical studies including the commons theory, have been accumulated.

In India, Joint Forest Management (JFM) which was launched at the beginning of 1990s has been showing a certain "recovery" in the forest rate. However, since the late 1990s, various problems such as land acquisition and competition and the human ? wildlife conflict spout out. Indeed, under the JFM program, we might be able to recognize the results of certain "improvement" in both the macro level of forest rate recovery and micro level of participatory activities in village. On the other hand, it has been overlooked the issues related with the forest "region" including the forest and its fringe areas. The success of forest policy, so to speak, has dug out the forest "region" issues.

Even if the community based forest management will be developed continuously, the problem of the forest "region" must be considered with a peculiar frame of its own. As the forest "purification" by the setting of "National Park" and an enclosing of legal and/or physical, the doughnut-shaped chaotic area around the forest appears like sprawling phenomenon in the sub-urban area.

In this study, we are trying to overview of the problems in the forest "region" based on our field survey in Karnataka, India.

Keywords: Protected Areas (PAs), National Park, Region, Governance, India

## Hydrologic Environment in Rangwa Caldera on Lake Victoria, West Kenya

OTSUKI, Yoshinori<sup>1\*</sup> ; UEDA, Gen<sup>2</sup>

<sup>1</sup>Graduate School of Science, Tohoku Univ., <sup>2</sup>Graduate School of Environmental Studies, Tohoku Univ.

In this presentation, we discuss on the hydrologic and physical geographic environment of sustainable settlements in the Rangwa Caldera, situated on the coast of the Lake Victoria, west Kenya.

## Borehole use and management in agro-silvo-fishery settlements around Lake Victoria, Kenya: water use rules

UEDA, Gen<sup>1\*</sup> ; OTSUKI, Yoshinori<sup>2</sup>

<sup>1</sup>Graduate School of Environmental Studies, Tohoku University, <sup>2</sup>Graduate School of Science, Tohoku University

This study is an interim report on the use and management of boreholes, whose importance as a domestic water source becomes greater as one goes far from Lake Victoria, in the sub-area (former Suba District) of Homa Bay County, Nyanza Province, Kenya. As for one of the boreholes outlined in 2013, the water level rose during the rainy season, the daily change in the water level corresponded to control by the water users' association, and not all member households could fetch water within the daily stipulated time table. Water use of this particular borehole was on the "first come, first served" basis, and it alternated between one queue for those who transported water with a donkey and the other queue for those carrying by human power. Individual boreholes scattered in the research area had a variety of "queueing system" rules reflecting different geographical and other conditions. The water use rule of each borehole can be seen as a historical product of people's attempt to level off inequality in water use in each settlement. It is indispensable for a better understanding of sustainable water use and livelihood security to investigate such rules.

Keywords: water resources, rule, Kenya, Tropical Africa

## Pig raising frontiers in Tropical Africa: Changing small and medium sized piggeries and their regional system in Kenya

UEDA, Gen<sup>1\*</sup>

<sup>1</sup>Graduate School of Environmental Studies, Tohoku University

Although Eastern and Southern African regions have experienced dramatic growth in the pig raising industry since the early 1990s, its enterprise reality has not yet been well researched. This study takes Nyeri County, Central Province and Homa Bay County, Nyanza Province, both in Kenya, as examples of "pig raising frontiers" in Tropical Africa where pigs are introduced as new livestock. It examines changing entrepreneurial activities that small- and medium-sized pig raisers have performed since their beginning, particularly between 2009 and 2012. Zero-grazing is affected by increasing feed prices, and free ranging/scavenging in urban and peri-urban areas causes crop damages and hygienic problems. These are pointed out as the main reasons which stimulate shift among breeding, fattening and integrated production in an enterprise, and which even trigger withdrawal from pig husbandry. The study also illuminates locational conditions and the regional system of rural and urban pig raising, all of which influence the change in the economic sector. Since the frontier experiences constitute a variety of trial and error, and changes, in achieving a success, their cases suggest potential factors that may promote distribution and sustainability of pig husbandry in Tropical Africa as a quick means to supply food and alleviate poverty.

Keywords: pig husbandry, small and medium sized producers, Kenya, Tropical Africa



## The value of coral and its change in Kushimoto, southern Kii Peninsula

SAKITA, Seishiro<sup>1\*</sup>

<sup>1</sup>Graduate School of Environmental Studies, Nagoya University

In the tropical and subtropical regions, coral is given the status important as one of the symbolic living things of the marine environment. Especially, in the consideration of resource use, coral is generally treated as a physiographic factor which provides a coral reef ecosystem and is often related to local fishing. Meanwhile, the use of coral itself has been seldom brought up for discussion.

Kushimoto is one of the regions in Wakayama Prefecture, and is located in the southernmost end in Kii Peninsula. Owing to the influence of the Kuroshio Current, the subtropical marine biota, typified by coral assemblages, has been produced in the western coastal waters of Kushimoto, and some local residents who lived in the area have collected and used coral as resources. In Kushimoto, coral was usually collected by gathering the casted corpses on the littoral zone, and sometimes by skin diving. Mainly, people has used coral as a material of slaked lime to make mortar, or for processing as a souvenir thing. The scale of these productions was not much extensive, but the use of coral in Kushimoto has been practiced and continued in relation to other local resource uses. For instance, to make mortar, other materials which were collected or produced in the region, such as seaweed and whale oil, were also used with slaked lime made from coral. And when making slaked lime, old timber and thinnings were used as fuel at the sequence of calcination.

Such collection and use of coral in Kushimoto were at least continued until 1970s, and then, these activities have been completely abandoned now. Instead, since the designation of some parts of the coastal area in Kushimoto as a national park in 1970, the coral and coastal environments have become an object of conservation. Therefore, a collection and use of the coral which inhabits the coastal waters of Kushimoto have been forbidden. And also, following such a increasing of the evaluation to the coral as an important factor of the marine environment, it brings an expectation of the value of coral as tourist attractions.

Besides, in recent years, the temperature of the nearshore waters in Kushimoto tends to rise notably, and it brings about the increase of a number of species and cover degree of coral which inhabits the coastal waters of Kushimoto. Given this situation, the increase in coral has a negative effect on regional fishery. On the other hand, large amounts of corallivorous organisms such as *Acanthaster planci* and *Drupella* spp. have been caused a problem for the conservation of coral since 2000s. Thus, the conditions of natural and social environments which surround the coral inhabits the coastal waters of Kushimoto have been constantly changing.

In this presentation, I would like to show the structure of resource use focusing on coral once formed in Kushimoto, and examine how the value of coral has been changed up to the present to consider the relationship between coral and people.

Keywords: coral, natural resource use, marine environmental conservation, Kushimoto