

HRE032-01

Room:203

Time:May 22 16:30-16:45

## Issues on the use and management of water and forest resources in East Africa

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In rural East Africa, it has been a matter of grave concern that the problem develops of scarcity in natural resources, and of smallholders' differential access to these resources. This study presents cases of irrigation water and forest resources with a view to pointing out some of more general issues to be examined concerning natural resource use and management.

The first two cases are of irrigation water use and management in Central Kenya and Northeastern Tanzania, and relate to (i) the impact of globalization, (ii) the socio-economic stratification among resource users, and (iii) the potentiality of their self-organised governance system for common pool resources. Commercial horticultural production is widespread in semi-arid areas in Central Kenya. Contract farming of various vegetables for the European market has collectively reached a considerable size, hardly fitting into the existing rotation system of water distribution at the research area. The unequal distribution of water has accentuated socio-economic stratification, and a new management system is yet to be agreed, allowing individualised water use and potential overuse. In Northeastern Tanzania, economic liberalisation policies stimulated the mining sector for export that created a huge demand of workers on food. The smallholders in the irrigated research area started to supply them with food crops, well exceeding their subsistence production level. In contrast to the Kenyan case, however, temporary reallocation of land among the water users has alleviated unequal land and water distribution at least partly, and the entire irrigation system continues to be managed collectively.

Next two cases are concerned with forest resource use in the same two research areas. For these several years, both countries have institutionalised Participatory Forest Management (PFM) in order to attenuate forest degradation. The issue is more broadly around (iv) the dichotomous prescription of total acceptance of local knowledge on resource use or simplistic exclusion of resource users, and (v) the legitimacy of both the existing resource use and the introduced forest management system, in addition to the above issues (i), (ii), and (iii). In the research area, Central Kenya, the local people have degraded the forest reserve, maximising short-term benefit at the expense of longer-term resource sustainability. An optimistic application of the notion of "ecologically noble" local institutions for communal resource management is clearly untenable. With no sign of "community forest association" formation stipulated by the forest act, the authorities argue that the declining economic value of the degraded forest reserve reduces the economic incentive for the local to be actively involved in PFM, even implying the denial of their resource use right. Meanwhile, the Tanzanian case has undergone institutional reform at the local level, thus introducing joint forest management between the local users and the authorities on the one hand, and a system of community-based forest management by a village committee for environment and forest, on the other. Although the new system has faced problems and the forest and wood resource use of the local people are differentiated by their socio-economic status, the need of land poor households which have no choice but to rely on wood resources from governmental forest plantation has been accommodated in the new institutional situation. This is realised through "domesticating" the PFM system in the local context and giving it legitimacy, which is again in a stark contrast to the Kenyan case.

All of these five issues and factors that create differences concerning these issues, as well as "scale gap" between detailed case studies and broader perspectives, are to be examined for sustainable use and management of natural resources, and for users' right, and more equal access, to natural resources.

Keywords: water resources, forest resources, co-management, East Africa

HRE032-02

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## What is sustainability of swidden agriculture?

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The purpose of this study is to discuss on the conditions under which forest resource use and management are kept sustainable or not, with special focus on temporal analysis of location of swidden fields as well as their impact on the forest under various socioeconomic conditions, from the case of South-Western Ethiopian forest, where a small scale society (the Majangir, a Surmic speaking ethnic group) have been engaged in swidden agriculture (shifting cultivation) as well as honey collecting and hunting.

The Majangir used to live in small settlements which they often abandoned and moved within several years. They would clear swidden fields adjacent to their huts. Though their settlements and swidden fields were dispersed in the forest, reconstructed settlement location data in the last 100 years suggest that they had repeatedly settled at limited area while the rest of the forest had been kept uncleared, because several factors including water supply limited their settlement location. This traditional settlement and land use pattern greatly changed the recent 30 years in which they had settled into newly shaped large scale sedentary villages under the government policy. Sedentarization brought concentration of population and land use of agriculture around large villages and as a result, fallow period was shortened in such areas. However, most of small settlements that had been once dispersed in the forest were abandoned and reforested, so in effect sedentarization didn't make deforestation totally. As swidden agriculturalists generally prefer labor productivity to land productivity, it is reasonable to suppose that they preferred proximity for land selection at the expense of land productivity caused by fallow shortening.

It seems obvious that forest resource use among the Majangir had been sustainable both before and after sedentarization. It is probably not because they were aware of vulnerability of forest so that they consciously practiced limited resource use. Rather, it can be said that they fundamentally behave so as to maximize their labor productivity. It is likely that absence of market incentive and ethnic occupation of forest resource use (absence of ethnic competition over the same resource) were advantageous to make sustainable use of the forest. Recent movement such as resettlement of Ethiopian highlanders to villages in the forest and a plantation project planned by a foreign enterpriser, however, could menace indigenous sustainable resource use in the near future.

Keywords: swidden agriculture, sustainable forest resource use, commons, ethnic relations, Ethiopia

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## Changes in Land and Forest Resource Uses of Rural Laos

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Rural residents of Laos in mainland Southeast Asia obtain essential commodities such as food, materials and biological resources for the main cash income source from their natural surroundings. They had been getting along better with nature for many centuries. From the end of 20th century, however, Laos has faced the powerful tide of globalization and implemented economic reform as in many other socialist countries. As a result, forest in Laos is rapidly started to develop by promoting foreign direct investment due to the transition to a market economy. At the same time, by increasing momentum toward environmental conservation, the government created national biodiversity conservation areas and enforced the Forest Act and the Land Act in order to control swidden agriculture in the late 1990s. At present, forest use by rural residents was heavily restricted. The change of the relationship between nature and human activities that Laos is experiencing presently represents the environmental issues among developing countries.

In the presentation, the mechanism that occurs problems related land/natural resource uses would be discussed from the viewpoint of political ecology in addition to clarifying the current status of diversified natural resource uses of rural residents in Laos.

Keywords: land use, forest resource use, political ecology, laos

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HRE032-04

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## Use of natural resources in traditional charcoal production

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The purpose of this study is pointing out the characteristics on forest use for charcoal production, in terms of natural resource management, based on a few field data from hilly area near Sendai, northeast Japan. Former charcoal production worker made a charcoal producing kiln selectively on concave break of slope, because such location in hillslopes satisfies various requirements from working processes of charcoal production. Material for making kiln was sandy clay and gravel collected from topsoil in surrounding slopes. Woods were gathered from slopes situated on upside of the kiln. These characteristics suggest that former charcoal production in hills multifariously utilized natural resources, such as forest, microlandform, and surface geology.

Keywords: fuelwood forest, natural resources, hilly area

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## Geomorphic Changes and Agricultural Landuse: Cases in the Inner Mongolia and the Kenyan Central Highlands

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Land condition of tillage areas, one of physical environmental resources for agriculture, essentially has an important role in agricultural landuse and management. The objectives of this presentation are to discuss actual relationships among geomorphic processes, intensity of geomorphic changes, and landuse in the several areas, the middle to west of the Inner Mongolia and the Kenyan central highlands.

In conclusion, detailed relationships between ethnopedological knowledge and geomorphic processes in each area, should be further clarified, and it is expected that the importance of land condition as physical environmental resource increases due to these.

Keywords: Land condition, geomorphic process, agricultural landuse, Inner Mongolia, Kenya

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## Terraced paddy development by ethnic minorities in northern Vietnam: a preliminary study

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Ethnic minorities in Sapa, Lao Cai Province, in northern Vietnam are developing terraced paddy at a large scale. Facing a rapid population increase of about 3% per annum, the agricultural system of the region shifted from slash and burn cultivation to wet rice production; Boserupian agricultural intensification occurring in one go. This study reports results from our recent interviews to farms in this region. We attempt to demonstrate that (1) number of male siblings determines the area of new developments, (2) development through mutual labour exchange reduces income disparity among households, but (3) subject to availability of land for new development.

Keywords: terraced paddy development, agricultural intensity, ethnic minority, South East Asia

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## Agricultural Land- use and Sunflower Cultivation of Eastern Margin desert in the Yellow River Basin

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The purpose of this research is to figure out the issues on current agricultural land- use, and the formation of sunflower producing area in Alashan zuo qi Bayan Xigui village. This village is located between eastern margin of the Ulan Buh desert and Yellow River basin. There are sunflower cultivation areas in the east side of the village. On the other hand, the west side is troubled area that attacked by sand- buried since desertification 1980s.

Keywords: sunflower, desertification, agricultural land-use, Inner Mongolia