

MIS01-P01

Room:Convention Hall

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## Destruction of geomorphological environment caused by large-scale development in Japan islands.

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Japan has a large population in its limited area. Therefore, there are many destruction of nature. Especially, geomorphological environments such as mountain, river and shore area are not appreciated in Japanese society. I analysing the development progressing at present in Japan by angle of geomorphology and sustainable development.

Keywords: Linear Chuo Shinkansen, coral reef, landfill, dam construction, mining development

## Issues among conservation on local level -Through the case of Hakusan-

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Conservation of local natural environment including geological or geographical features is essential to sustainable local development using local resources. In Japan, international programs such as biosphere reserves (for ecosystem conservation) or geoparks (for geoconservation) are carried out in the local (municipalities') level. It seems that promotion for conservation at local level is prepared, but in actual fact the efforts has not always succeeded. In this presentation, an attempt will be made to arrange the issues among conservation on local levels through the case of Hakusan from two points: the social situation and natural environment in Japan.

### 1. Social situation

Biosphere reserves focuses on the three functions; conservation, development, and logistic support, while geoparks focuses on conservation, education, and sustainable local development through geotourism. Conservation is a common element among these two.

But in Japan, even biosphere reserves or geoparks don't carry out so much conservation activities. In contrast with education or development activities, conservation activity tends to be passive which restricts someone to do something. To restrict someone, you need a legal framework. In Japan, most of the legal frameworks related to conservation are under the control of national or prefectural governments.

For example, there are some natural parks in Hakusan such as Hakusan National Park or Hakusan Ichirino Prefectural Natural Park. Moreover, there are some protected forests such as Hakusan Forest Ecosystem Reserve in the national forests. But these are managed by the national or prefectural governments, so municipalities' governments could not set up or manage them on their own.

In addition, some of the locals are not sure what to do as conservation activities. In many cases, conservation activity tends to be thought as an activity to spread the idea of conservation. But in these cases, it is hard to distinguish conservation activities from educational or public awareness activities.

### 2. Natural environment

Japan locates on a mobile belt, where four plates bump each other, volcanoes are active, and earthquakes occur frequently. Moreover, there is high risk of land disasters or snowslides because of the high precipitation, especially heavy snowfall on the Japan Sea side. For example, in Hakusan, a settlement was buried under the ground due to the land disaster which occurred in 1934.

Concerning on conservation at such a changing earth, a doubt comes up: what should be preserved? In Hakusan, because of the volcano and snowfall, sediment discharge is constantly occurring. Considering the huge land disasters occurred in the past, the construction of erosion control dams (*sabo*) has been carried out to protect the residents' lives. This construction should be against the concept of conservation, since human is stopping the sediment discharge. On the other hand, concerning on the safety of residents' lives, it is difficult to deny *sabo*. Besides, it may be said that *sabo* is keeping the stability of the earth in the point of erosion control.

There is a dilemma in ecosystem conservation too. In Hakusan, lowland plants are invading the alpine zone by their seeds carried by the climbers' shoes. They breed and encroach on the niche of alpine plants. In Hakusan, removal of these lowland plants is carried out currently. This removal is in accordance with the concept of conservation from the position of alpine plants. But from the position of lowland plants, it could be said that a newly acquired niche was taken away by human, resulting some residents to be negative with this removal.

Keywords: conservation, Japan, local, management, natural parks, *sabo*

## What are the Drivers of Environmental Degradation? A River Basin Scale Investigation at Takatsu River Basin Shimane

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This poster presentation discusses a peculiar and challenging case of degradation of the natural environment in a river basin that is generally considered to have excellent ecological parameters. The 81 Km long Takatsu River in Shimane is a rare large river without a dam. It had topped the water quality surveys in the past. However, in recent years the river has shown clear trends of degradation, decline of fish species, lack of flow volume, and rise in turbidity in the pools. Our survey found that despite the general perception of a healthy and clean river, Takatsu River is subjected to a number of stress factors, which are distributed very diffusely on the spatial scale. These are, qualitative change in the upland forest cover, increase in pollution in tributaries, presence of numerous check weirs that inhibit nutrient and material flow to the rivermouth and disturbance of the pool riffle sequence due to the combined effect of all the above factors, as well as changes of land use pattern around the stream. A local NPO Andante 21 is conducting surveys on a key species, the Hamaguri clam, that almost disappeared from the rivermouth. Currently citizen efforts are somewhat successful in prohibiting catch of clams, and the population has rebounded to a degree. As this key species shows, poorly understood mechanisms of nutrient flow from upstream to downstream can have swift effects on key species, thereby reducing the ecosystem diversity. The research suggests that it is imperative to understand the manifold ways of landscape connectivity, and how species depend on these connections, in order to address problems like degradations in a large spatial scale such as a river basin.

## Use art to raise awareness of landslide hazard

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The role of art as means of conveying complex scientific concepts has largely been neglected probably due to that scientists do not have art skills and also few artists are knowledgeable in science. By working together, researcher and artist are trying to bridge the gap between both sides and are in an attempt to raise general public awareness of landslide hazard. We conducted field geological and geomorphological investigation to study basic causes of the 2009 Typhoon Morakot induced the most catastrophic landslide at the Shiaolin Village, southern Taiwan and by which to enhance communication and understanding. We used traditional Chinese painting with selected important graphical elements such as rainstorm, dip slope, precursory topography, and dissected paleosurface to convey the idea that landslide hazards and risks are exposed in our community but people can reduce the risk by avoiding hazardous areas. We also plan to accumulate more landslide cases and include modern art as another form of graphic element of visual performance as a prospective study in the future.

Keywords: landslide, art, Chinese painting, graphical element

## Geoeducation on Conservation in a case of San'in Kaigan Geopark

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There are one national park, two quasi national parks, the downstream area of the Maruyama River and nearby paddies registered as wetlands under the Ramsar Convention, cultural properties designated by the Act on the Protection of Cultural Properties and wild fauna and flora prohibited under the Law for the Conservation of Endangered Species of Wild Fauna and Flora in the territory of the Sanin Kaigan Global Geopark. The Ordinance to Protect and Nurture the Tottori Sand Dunes, the Greatest Sand Dunes in Japan is one of unique regulations in Japan. Geosite inspections and surveys are carried out by municipal governments and those who are staff members of the Preservation and Conservation Group and the Academic Group. In addition to weeding the Tottori sand dunes, the Tottori Sand dunes Reclamation Conference monitors sand dune drift and compiles reports on survey result. Geoeducation plays the important role to conserve geoh heritage. For a long time, the importance of geodeucation has been ignored here. After becoming a member of GGN, however, people provide various geodeucational programmes for the improvement of awareness. Therefore, the aim of this presentation is to report on geodeucation for conservation of environment in a case of Sanin Kaigan Global Geopark.

Keywords: San'in Kaigan Geopark, geodeucation, conservation