

# International Conference

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## Session 2: Geospheric Implication for Biosphere

Session 2 organized by Initiative 2 focused on the Geospheric Implication for Biosphere. Issues discussed were learning from the dynamics of geosphere and biosphere (Masayuki Yanagisawa, Center for Integrated Area Studies (CIAS)), the interrelationship between hydrological cycle and human activities (Osamu Kozan, Center for Southeast Asian Studies (CSEAS)), biodiversity and ecosystem functions in human-made landscapes: birds transport human-derived nutrients into urban forests (Motoko Fujita, Center for Southeast Asian Studies (CSEAS)) and coping with natural and socio-economic uncertainty in arid Africa (SUN Xiaogang, Center for Southeast Asian Studies (CSEAS)).

Attending to the dynamics of Geosphere and Biosphere, Masayuki Yanagisawa explained the direction of Initiative 2 to creating a new paradigm for relationships between nature and humans.

Osamu Kozan examined the impact of human activity and its irreversibility in nature, using the degradation of hydrological cycles and ecosystems caused by human activity in Central Asia as a case study. Hydrological cycles and climatic variation affect human activities. However, in some cases, human activities could lead to irreversible environmental destruction and hydrological change. Almost all causes of water problems in this region are due to human activity and poor water resources management. These problems must be solved using the scientific, engineering and political approaches.

Motoko Fujita examined the impact of urbanization on geochemical cycles, using data of soil nutrients transported by birds from garbage dumps to forests. In urban landscapes, bird species decrease and biomass increases compared to forest-dominated landscapes. Urban birds contribute to a flow of allochthonous nutrients from residential areas to fragmented forests by consuming food in residential areas and depositing feces in forests. Urban landscapes support high avian biomass, which provides a large nutrient

input to fragmented forests.

Attending to the human activity under the unstable natural and social condition in northern Kenya, Xiaogan Sun explored the importance of understanding not only their adaptation but their way of life. In search of a coexistence of human and nature in the arid area of Africa, a comprehensive approach combining field observations with a longitudinal and comparative study on the Rendille pastoralists of northern Kenya was attempted. The case study suggests that it is necessary and important to understand the functions of local technologies and institutions, and encourage the mobility, flexibility, and creativity of pastoralists for future sustainable development.