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## Global Warming and the Human-Nature Dimension in Siberia

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Siberia is one of the areas where global warming will be evident. Perceivable changes in the ecosystem and cryosphere environment have already been reported such as damage to the forest or frequent flood. We have launched a research project in 2009 at Research Institute for Humanity and Nature (RIHN) to elucidate following three aspects in Siberia, from both the natural and the human social science perspectives. These are, 1) grasp of variations in water and carbon cycles and predictions into the near future, 2) field observation of the characteristics of the water and carbon cycles including those environmental driving forces, and 3) understanding of the capability of multi-ethnic people, who have historically unique social systems, to adapt to the changes in climate and terrestrial ecosystem. The Lena River Basin in Eastern Siberia, in which larch forest occupies the region in spite of little precipitation because of the existence of permafrost, has been selected as the epitome of the global warming. In order to achieve the goals, three research groups were organized. The Siberia bird's-eye group (Group 1) tries to understand the climate and the social changes using climatic and satellite remote sensing data, from the bird's eye point of view. The water cycle and ecosystem interaction process study group (Group 2) makes clear interaction between the climate and the vegetation through dendrochronology, isotope-analysis, flux monitoring, and hydrological aspects. The human ecology group (Group 3) seeks to elucidate influence level on the residential life in the city and agricultural districts in Eastern Siberia. The culture and the social system of the minorities are also studied to address the environmental adaptation. In this presentation, we will introduce the research structure and some new results of this project.

Keywords: global warming, permafrost, taiga, flood, adaptation