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## Climate change and historical interactions between human activities and the environment in Central Eurasia

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In this paper, a multi-disciplinary research project for understanding historical interactions between humans and the natural environment in arid to semi-arid Regions in Central Eurasia will be outlined.

Historically and geographically, Central Eurasia has been a key area of interaction, transit and exchange between East and West. While many Central Eurasian peoples are well recognized in historical records as skilled nomads, merchants and traders, it is more recently acknowledged that these peoples also assimilated the ideas and artifacts passing through their territories into their own cultures, often with material effect on landscapes and livelihoods. At the same time, Central Eurasia is an excellent location for tracing human reactions to both past climate changes and anthropogenic activities. In this climatically sensitive area, which alternates between semi-arid and arid conditions, human influence can be historically traced. The area with extended arid and semiarid deserts has potential agricultural plains along rivers, flowing from high mountains with many glaciers, which were actively cultivated far back in historical time. These border regions could record both natural environmental and anthropogenic changes very sensitively.

Although interactions between environmental changes and human reactions have rarely been studied in Central Eurasia, agricultural development in the Aral Sea basin has caused the severe lake-level regression that started in the 1960's. Recent agricultural development in arid to semi-arid regions, especially in the latter half of the 20th century associated with modern irrigation technology, has contributed to increasing agricultural production. However, considerable environmental issues have resulted. It is important, therefore, to balance resource development and preservation in arid and semi-arid regions.

This project aims to study and clarify the historical interaction between human activities and natural systems in the semi-arid region of Central Eurasia. The project attempts to clarify historical changes, the rise and fall of nomadic groups and countries, their removal, changes in subsistence, the use of natural resources, and climate change through the analysis of historical documents and archaeological investigations as well as various natural proxies such as ice cores, lake sediment samples, tree rings and wind-blown deposits. At the same time, we will investigate the present status of the area and the effects of human activities on the natural environment, with particular emphasis on their social, religious and cultural background.

Keywords: human societies, environment, historical interaction, arid regions, climate change