

Resilient Development of Pastoral Social-Ecological Systems in the Mongolian Gobi

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The Mongolian Gobi's future is at the bifurcation stage with exploration of huge mining resources. We are proposing to make the Gobi region as cultural and natural heritage of the World, and its technological transformation.

Why the Gobi region should become as a World Cultural Heritage Site?

- Nomadic culture was emerged as a human adaptation to climate variability in the Gobi region, which has aridlands with non-equilibrium dynamics;
- Nomadic culture is being lost everywhere in central Asia. The Mongolian Gobi is a place where nomadic culture as a resilience mechanism still persists;
- Social resilience also still exists in the Gobi due to its remoteness;
- Finally, the nomadic pastoral system should be considered as a "globally significant agricultural heritage systems" too (FAO).

Why the Gobi region should become as the World Natural Heritage Site?

- Diversity of landscapes and biodiversity is still in existence;
- The largest (5.3 million ha) in Asia "The Gobi strictly protected areas" are located on border with China;
- This region is a home for few remaining wildlife such as the Gobi bear, wild camels, snow leopard, the wild donkeys, argali sheep, wild goat, saiga, black tail gazelle etc.
- Conservation of large scale ecosystems is critical in face of climate change.

Nomadic culture in central Asia is unique human resilience mechanism to survive for variable environment, temporally in climate and spatially in landscapes. However, nomadic culture (civilization) is still in existence in Mongolia, compared to other surrounding countries like in China, Russia and central Asia. It is likely that nomadic pastoralism will transit to more sedentary modes in relatively humid and aridlands like steppe and forest steppe regions of Mongolia. Nomadic pastoral social-ecological system is still conserved better in the Gobi region compared to other ecological regions of Mongolia.

Technological transformation of the Gobi with conservation of nature and culture

- Opportunity of wireless communication technology to support nomadic culture;
- Low carbon society with use of renewal energy;
- Ecological and cultural tourism development opportunity;
- Organic food production system.

Plausible news for the Mongolian pastoral systems is that we have relatively high education level. A technological transformation as a part of globalization process is already happening with high speed in the Mongolian rangelands. Nowadays 129,000 herder households have solar/wind energy access out of

171,000 of herder households. 111,700 herder households have TV. 1.7 million people out of 2.7 million have cellphone, and it became common that herders use cellphone.

Many development actions may become mal-adaptive to climate change if they are not strengthening social-ecological resilience. The resilient development strategy is to provide human development (economic growth with improved education and health services), and at the same time increasing ecological resilience. Introduction of renewable energy, satellite communication technology, distance learning and diagnosis, development of enterprises to add value to animal raw materials, and ecological and cultural tourism are the ways for sustainable transformation of pastoral systems.