

Impacts of Global change to the Environment and Development in Mongolia

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Mongolia lies in the heart of the Central Asia between the Russia in the north and the People's Republic of China in the east, west and south. The terrain is landlocked mountainous and isolated from the sea at minimum 1600 km distance from Pacific Ocean others even greater. In Mongolia the Global Change is seen more explicitly as Climate Change effect. During the last 60 years the annual mean air temperature has increased 1.620C. It is evident that this process has direct result in land degradation and decreasing of surface and ground water resource which are considered as two main components of ecosystem. Although the human induced activities contribute to these environmental changes, the anthropogenic impact may be less than Global change since only 1.54 persons per square kilometer of territory in this country.

At present about 80% of the total territory is affected by land degradation and the surface water resource has decreased by 15-35 %. It is clear that above problems are effect of both

Global Climate change and anthropogenic factors.

According to the our research there are some environmental changes in Mongolia such as climate change has gone up by 1.62 C°; 78.4 percent of the total territory is degraded at certain degree classified as degraded, severely or deserted area; 1.4 million hectares of forest have destructed by forest fire, wood cutting, insect infection; river water level decreased in last 40 years; and natural disaster frequency increased and yearly disaster occurrence is approximately 20 – 30. In last 5 years about 683 rivers, 1484 springs and 760 lakes dried up due to Global Climate Changing and human-induced activities.

According to the 2000-2001 our estimation 44.7 percent of total area of Mongolia is Gobi desert and Desert steppe region. This ratio was 41.3 previously. Within ten years it increased by 3.4 percent. And in case of Steppe, Desert steppe, Forest steppe 33.6 percent of total area have degraded.

The previous studies made up to 1990, furthermore total size of degraded area increased by 8-10 percent in last ten years. Impacts of Global Change adversely affect environment and development in Mongolia resulting in climate change, land degradation, scarcity of water, deforestation, biodiversity loss and poverty.

With economy dominant by pastoral livestock sector, Mongolia is one of the developing countries in the world. Agriculture in Mongolia has been the key economic sector long time and will be the same for many years ahead.

Continued impact of Global Change such as land degradation and decrease of water resource affect to the socio-economic of the country. For example, the agricultural productivity which occupied more than 40% of GDP 10 years ago has decreased by 20% according to statistical data. Because of continued land degradation, numbers of livestock as well as pasture and crop yield are decreasing. Due to the combined effects of drought and dzud (severe winter), over 12 million head of cattle has been lost and loss is estimated by 380 million USD in total during 1999-2002. More than 7000 herd's families are suffering from the loss of cattle and their life is in threat of poverty, hunger, and insecure life situation. Land degradation from overgrazing is taking a heavy economic toll in the form of lost livestock productivity. In Asia, including Mongolia the annual loss of

rangeland productivity is estimated at 8.3 billion USD. Agriculture, as it was organized in many regions of Mongolia (and continues to be practiced elsewhere in Inner Asia), presents a threat to sustainable land use.

Land degradation and unsustainable agriculture technology are affecting badly for yields and it is getting lower year to year. Decreasing number of livestock and agricultural production are threatening with the food security. In past years, instead of agricultural sector, mining industry takes the biggest place in GDP even it destroys land and water resource. In one hand, it contributes a lot to economic growth, in other hand, the environment and nature has been destroyed by its effect. Such changes like land degradation, soil erosion, deforestation leads to decrease of natural sink of greenhouse gases emissions and Global Change effect.