

Environment Change and Soil Degradation in Mongolia

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The Mongolia is Central Asian country with extra-continental nature climate conditions and domination of dry steppe and Gobi-desert nature. Over the centuries living people on this land employ by nomadic husbandry. The nature condition of this land was keep pristine feature after long time harmonic relation between human, livestock and nature. These ecosystems have developed under highly variable climates, and are sensitive to grazing management and to changes in rainfall and temperature. The pristine grassland ecosystems develop rich fertile soil that have supported nomadic pastoralists for centuries.

Soil degradation and pollution becoming very serious problem in Mongolia, recently. Now, up to 60 % of soil cover affected by soil erosion and soil fertility declining. Soil degradation appears as a major limitation for increased food production. Causes of Soil degradation is climate warming and human negative impact. Last 60 years air temperature increase is 1.9°C, (world 0.6°C), this is 3 times faster than world average, precipitation decrease 10 % and permafrost melt accelerating. Human negative impact such as: pasture pressure, overgrazing, mining, agriculture soil erosion, road erosion is accelerating last decades. Number of livestock in 2007 reached up to 40 million head. Increase 15,7 % or 5,5 mln comparing 2006. In Mongolian land number of livestock never reached 40 mln. Number of Goats increasing due of high price of cashmere. 2007 counts 18 mln or 45.6 % of total livestock. Goat is most destructive animal for pasture and soil, eat grass with roots.

Over 60% of total pastureland is overgrazed. Pasture capacity overloading. But result of surface water shortage many of pastures not used.

Soil and pasture degradation accelerating desertification in Mongolia. 44,5 % or 700 thousand km² area is occupied by arid land or Gobi desert vulnerable for soil degradation. 90 % of territory is affected by desertification by 2006. From them, 37,2 % slightly, strong 34.0 % slightly, 7.0 % very strong level desertification. Last 40 years sand area has increased by 3800 km². This is 8.7 % of all sand area of country, in the Gobi region 3360 km² or 88%, in the Khangai region 460 km² or 12%. Between 1990 and 2005 arid area increased by 5,4 %.

Agriculture soil degradation. 46.5% of arable land was degraded: 12.9% - strong, 28.2% - medium, 58.9 % slightly degraded. Nearly 60% of total arable land or 0.7 million hectare area have not used any more as a result of degradation.

Mining soil erosion. Since 1975 total mining eroded land was 500 mln m³ 300 mln m³ soil eroded 1990 after "Gold" programme. Soil pollution in Mongolia is increasing, due to gold mining where using mercury and cyanides. Soil pollution impacted on ground and surface water quality. Result of soil pollution in several places in Mongolia includes death of livestock and human health problem, such as Khongor, Boroo, Bayankhongor and others.

Last decades soil degradation in Mongolia has increased as a result of climate warming and human impact. It is necessary to develop comprehensive methods and approaches against soil erosion and pollution

problems. This problem threatens not only food production of country also whole economic development.