Abstract

Land degradation – defined by the millennium ecosystem assessment report as the long-term loss of ecosystems services – is a global problem, negatively affecting the livelihoods and food security of billions of people.

Intensifying efforts, mobilizing more investments and strengthening the policy commitment for addressing land degradation at the global level needs to be supported by a careful evaluation of the costs and benefits of action versus cost of inaction against land degradation.

Consistent with the definition of land degradation, we use total economic value (TEV) approach to determine the cost of land degradation. Within this analysis, remote sensing data and global statistics databases are employed to determine the cost of land degradation.

Our results show that the annual cost of land degradation due to only land use and land cover change (LUCC) dynamics is about US$ 244 billion per year or about 0.4% of the global GDP of US$56.488 trillion in 2007. The loss is especially high in sub-Saharan Africa, where land degradation is most severe. However, the local tangible losses (mainly provisioning services) account for only 38% of the total cost of land degradation and the rest of the cost is due to loss of global benefits such as carbon sequestration, biodiversity, and genetic information. This implies the global community bears the largest cost of land degradation. This suggests that efforts to address land degradation should be done bearing in mind that the global community incurs larger losses than the local communities experiencing land degradation.

The results also show that the benefit of taking action against land degradation through sustainable land management measures is much greater than costs of inaction. Investments into addressing land degradation are likely to provide with high rates of economic, environmental and social returns.