

Cost, drivers and action against land degradation through land use and cover change in Russia

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The natural conditions and socio-economic factors determine the structure and the principles of land use in Russia. The increasing degradation of land resources in many parts of Russia manifested in numerous forms such as desertification, soil erosion, secondary salinization, water-logging and overgrazing. The major drivers of degradation include: climatic change, unsustainable agricultural practices, industrial and mining activities, expansion of crop production to fragile and marginal areas, inadequate maintenance of irrigation and drainage networks. Several methods for estimating Total Economic Value of land-use and land-cover change were used: 1) the cost of production per hectare (only provisional services were included); 2) the value of ecosystem services provided by Costanza et al, 1997; 3) coefficients of basic transfer and contingent approaches based on Tianhong et al, 2008 and Xie et al, 2003, who interviewed 200 ecologists to give a value of ecosystem services of different land types in China; 4) coefficients on a basic transfer and contingent approaches based on author's interview of 20 experts in Lomonosov Moscow State University. In general, the estimation of the prices for action and inaction in addressing the degradation and improvement of the land resources on a national scale (the Federal districts) with an emphasis on the period of economic reforms from 1990-2009 in Russia, where the area of arable lands decreased by 25% showed that the total land use/cover dynamic changes are about 130 mln ha, and the total annual costs of land degradation due to land-use change only, are about 189 bln USD in 2009 as compared with 2001, e.g. about 23.6 bln USD annually, or about 2% of Russia's Gross Domestic Product in 2010. The costs of action against land degradation are lower than the costs of inaction in Russia by 5–6 times over the 30 year horizon. Almost 92% of the costs of action are made up of the opportunity costs of action.

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