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Evaluation and Control of Soil Degradation in Russia on the Basis of the Assessment of Soil Ecological Functions

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Sustainable development of the territory is possible only under certain environmental requirements. These requirements are based on the implementation of the concept, conventionally called "zero land degradation", which cannot be reached in the process of real land use. "Zero degradation" is the establishment of acceptable ecological state of the environment and permissible anthropogenic impact on it, wherein self-healing of nature quality is possible and there is no accumulation of irreversible environmental damage.
The values of parameters that characterize the relationship between the ecological state of the environment, in particular, land degradation, and the socio-economic development of the Russian Federation are represented in the materials of recent issues of the Russian State environmental report (2012 – 2014). Environmental problems in Russia are actively discussed in relation to issues of environmental and socio-economic development of the neighboring countries of the Eurasian region. So the Law "On Soil Protection", which was developed and adopted by the Union: Russia, Belarus, Kazakhstan, is dedicated to the protection of soil and soil degradation control.
Ecological Doctrine of Russia (2012) and the State Environmental Program (2012-2020) identify the main strategic steps to combat land degradation in our country. In the first place, it has been tasked to identify and eliminate past environmental damage followed by the organization of nature "from scratch", in accordance with environmental regulations.
Currently the Ministry of natural resources of Russia started implementation of the Federal program on environmental-economic assessment and the elimination of past environmental damage. The main steps of this program are: the works related to the inventory of degraded and contaminated lands and their subsequent reclamation and return to the appropriate land use system. The territory must comply with officially approved environmental requirements. The list of requirements can be divided into two areas:
- the standards and norms of environmental assessment for all components of environment,
- requirements to the level of environmental stress on the land when designing the system of nature management.
Environmental requirements for components of the environment are based primarily on stringent environmental and health standards (maximum permissible concentration, permissible residual oil content in the soil, etc.), compliance of which involves the maintenance of the ecological state of nature in close to background rates. The assessment of environmental stress in planning and land management is not provided with official regulations and is based primarily on expert opinions. However, projects and land use programs must pass the corresponding procedure of environmental expertise.
Rating, ranking and regulation of soil and land quality allow to establish the level of its disturbance and the ability to heal itself, according to the methodological approach developed and adopted by several Russian Agencies (Environmental, Agricultural and Land use Agencies). The basis for assessing the ecological status of soils was based on the five-level evaluation scale according to which a fairly conventional boundary of reversibility is considered to be the third (threshold) level, and irreversible accumulation of environmental damage occurs when reaching . fourth and fifth level of loss of environmental quality of soils. According to a separate study in the field of environmental regulation irreversible changes occur in the loss of more than a quarter of Bioorganic capacity of soils. The main condition for sustainable development is the development, which does not cause irreversible damage to nature and society, based on compliance with environmental quality requirements for components of the environment, particularly soils and lands and secure planning and safe placement of the productive forces.

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