

Modern Conditions of Biodiversity Conservation in Russian Coal Mining Sector

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Abstract. Today biodiversity is the important factor of sustainable development of industry mining sector. The world community offers various guidances for business to biodiversity conservation, their cornerstone is the hierarchy of mitigation of negative impact “avoid-reduce-restore-offset”. Particular significance is payed to offset compensations. Russia was the participant of the international project under the guidance of the United Nations Development Programme and the Global Environment Facility since 2013. It was gained the positive experience in using of tools and practices of biodiversity conservation at the coal industry enterprises. Implementation tools of results of UNDP/GEF Project aren't still created. Biodiversity of the Kemerovo region and other mining regions is under the threat of destruction.

1 Introduction

Biodiversity conservation is one of the most urgent problems which people try to solve within 3 decades. Nevertheless, the speed of disappearance of species on the planet doesn't decrease, but even grows (up to 10 thousand species annually). Biodiversity is reduced because of following reasons: 1) environmental pollution, 2) climate change, 3) overexploitation of natural resources, 4) destruction of natural habitats, 5) implementation of infective species.

The world expert community (UNDP, UNEP, WWF, IUCN) has come to understanding that business is the important factor of biodiversity preservation. In view of reduction of natural ecosystems, business can't ignore any more serious ecological consequences of its activity results. As a consequence, many companies include aspects of biodiversity in business models and the corporate strategy of sustainable development. The completed guidances for business on fulfilment of obligations in solution of the problem of biodiversity conservation and ecosystems restoration are made today. For example, ICM– Mining and biodiversity good practice guidance [1], TEEB– The Economics of Ecosystems and Biodiversity Report for Business [2], WBCSD– Guide to Corporate Ecosystem Valuation [3], IFC– Performes Standard №6. Biodiversity conservation and sustainable management of living natural resources [4], EBRD– Mining Operations Policy [5], Codex Bettercoal for Coal industry [6]. Initiatives in the sphere of business and biodiversity in the countries with the

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developed mining industry (Great Britain, Germany, France, Canada, Brazil, the Republic of South Africa and others) became systemic.

Conscious business support of environment-oriented projects is based on acceptance of two statements on obvious interaction of enterprises with environment. On the one hand, all companies depend on the environment benefits (water, air, wood, construction materials). The lack of the mentioned components can significantly influence on business success. On the other hand, companies influence on environment and impair environment conditions and people environmental conditions. Such impacts can indirectly influence on business success (for example, financial expenses because of reputation damaging or causing damage to biodiversity). These correlations show the situation in the world when there are dangerous risks and new favorable opportunities for business against the background of fast biodiversity reduction.

2 Project of the United Nations Development Programme and the Global Environment Facility

The Russian Federation is the country with the huge natural capital playing a significant role in maintenance of biosphere stability. Russia is the participant of international conferences on environment protection and sustainable development, is the party of signing of the major documents and tries to fulfill the obligations to partners. Nevertheless, there is considerable lag in using by the Russian business of the best practice which is gained by the western companies for more than one and a half decades [7].

It is possible to tell that the Russian coal sector business has for the first time got a real overview about biodiversity in 2013, thanks to Project of UNDP-GEF / Ministry of natural resources and environment of the Russian Federation "Mainstreaming biodiversity conservation into Russia's energy sector policies and operations". It was offered to Kuzbass coal companies to participate in development and approbation of methods of biodiversity conservation in coal mining according to the hierarchy of mitigation of negative impact "avoid-reduce-restore-offset". 25 projects have been carried out over 5 years of the international project activity under constant control of foreign experts and auditors in the coal sector together with 6 companies (4 – from Kuzbass and 2 – from the Republic of Khakassia). The coal companies have got an opportunity to apply tools and technologies of biodiversity conservation at all stages of life cycle: predesign territory inspection for researching of biodiversity initial condition; conservation of species by ex situ and in situ methods; ecological monitoring with the use of biological indicators; restoration of vegetation cover with restoration of structural and functional indicators of zonal vegetation communities and participation of rare and vanishing species of flora; ecological assessment of industrial territories condition; compensation for damage to biodiversity in natural form, creation of nature reserves. Realization of these projects has allowed the companies to understand how these works are carried out in practice and that the incurred expenses don't influence significantly on production economics.

Regarding interaction with the regional power in questions of biodiversity management the works allowing to provide conservation of fragile ecosystems, populations of rare and vanishing species of plants and animals in the long term were realized for the first time. Within the Project, the information-analytical system (geoportal) on biodiversity of the Kemerovo region (with Internet access) is developed. The system has various information layers of GIS and analytical modules, for example, for defining of zone of influence of mining operations taking into account natural and technological parameters. However the main advantage of the system is the service for identification of risks for conducting economic activity, operating by the principle of the traffic light. Allocation of any land plot on the geoportal map, will allow system to identify the existing legal limitations for carrying

out a required kind of activity (coal mining, wood preparation, agriculture, etc.) and to issue information with the color indicator. Red – there are serious limitations, yellow – limitations are not considerable, green – activity is allowed.

Geoportal database provisioning is carried out by annually conducted researches at the expense of the budget of the region within powers of diverse departments responsible for forest health, state of nature reserves and monitoring of species included in the Red Book of the Kemerovo region.

The methodology of carrying out complex geocological assessment (which includes landscape researches) is developed for territories of districts (municipalities). The degree of economic use, anthropogenic load, territory fracturing and biodiversity index are calculated on the basis of the indicators system. On the basis of this information it is possible to range landscape areas on resistance to negative impacts, to identify zones of ecological threat where economic activity is forbidden or its conducting has to be carried out with taking into account of all measures of mitigation of negative impact and achievement of zero losses of biodiversity.

This research is a basis for making strategic ecological assessment of social-economic development programs, both in municipality, and in the region. Essential addition is assessment of ecosystem services – value terms of locals income from traditional ways of use of various ecosystems benefits (recreation, hunting, fishery, preparation of firewood and wild herb, etc.). In spite of the fact that the locals income can be quite considerable, nevertheless, it substantially concedes to profits of mining companies. But it shouldn't be unconditional justification of subsurface resources use because use of collective goods implies not only conservation, sustainable use of natural territories, but also fair distribution of benefits from carried-out business activity. Such strategy should be extended and stimulated in the companies for achievement of real results in fight against biodiversity loss.

3 Tools of implementation of the Project results

The gained experience and extended coverage in media of results of the PROON-GEF Project/the Ministry of Natural Resources and Environmental Protection of the Russian Federation, certainly, can help the companies to increase their ecological culture. However the level of threat to biodiversity in Kuzbass (and in other mining regions of Russia) remains extremely high today. The reason is the lack of systematic changes in the federal legislation regarding use of subsurface resources and biodiversity management at the regional level. In fact, the question "preserve biodiversity or not", directly depends only on desire of the company owners. But it is obviously not enough. The business community always hopes for cooperation with the government and is ready to have effective dialogue and to realize the ideas. But for this purpose it is necessary to activate tools of state policy which in the conditions of the market will create economic motivations for accounting of questions of biodiversity and ecosystems value in acception of business decisions. The more companies will participate in this process, the more fair playing field will be between them, the less opportunities will be for the companies with low social and environmental responsibility. The relation of companies management to biodiversity has to become a factor of success and failures of any mining enterprise.

State tools of formation of new companies policy are in the sphere of effective tax concession, the procedure of issue of licenses for use of subsurface resources, in the system of regional laws and programs of regions territorial development, developed on the basis of strategic ecological assessment and also public presentation of ecologically significant information via the corporate state websites, including regional information-analytical systems on the basis of GIS-technologies.

4 Conclusion

The indicator of creating favorable conditions for biodiversity conservation in the region will be the activity of mining companies in the development of environmental policy: increase in the staff of ecologists and creation of departments on biodiversity, development of corporate documents of new environmental policy of the companies with inclusion of biodiversity aspects, development of detailed and informative ecological sections at companies websites, keeping of non-financial accounts showing ecological and social actions.

Today cases of prevention and compensation for damage to biodiversity are single. The mining companies don't know much about the hierarchy of mitigation of negative impact which isn't taken into account in development of EIA. As a consequence, pro-active measures for prevention, exception or minimization of impacts on biodiversity aren't carried out.

References

1. International Council on Mining and Metals ICMM, *Good practice guidance for mining and biodiversity* (Law Office, Moscow, 2006)
2. Ministry of natural resources and ecology of the Russian Federation, *Biodiversity conservation in the Russian Federation: The Vth national report* (Law Office, Moscow, 2015)
3. Yu. A. Manakov, UN in Russia, 6:102, 11-13 (2015)
4. *The collection of innovative solutions on biodiversity preservation for the coal-mining sector* (InEcA, Kemerovo-Novokuznetsk, 2017)
5. O. L. Giniyatullina, E. L. Schastlivtsev, I. E. Kharlamenkov, Rational development of mineral resources, **3**, 70-74 (2017)
6. S. G. Platonova, V. V. Skripko, T. O. Strelnikova, A. A. Adam, *Geoecological assessment in the coal mining areas (on the example of Novokuznetsk district). Problems of industrial botany of industrialized regions proceedings* (Kuzbass Botanical garden, Kemerovo, 2015)
7. *Practical guide to the organization and conduct of strategic environmental assessment in the Russian Federation* (Law Office, Moscow, 2017)