

Раздел 4. «Экономика. Общеобразовательные, социально-гуманитарные и фундаментальные дисциплины»

IRSTI 87.15.07
UDC 622.33:504.05:502.55

[DOI 10.53002/105](https://doi.org/10.53002/105)

Kolomoyets R. A.

*Cyprus International University, Nicosia, Cyprus
(E-mail: romeo180608@gmail.com)*

Environmental impact of coal mining

Coal mining has a negative impact on the ecosystem as a whole. In unstable earth conditions, restless humanity uses different resources in everyday life. In India, Coal has been considered the main source of energy for many decades and provides about 27% of the world's commercial energy needs. Coal mining is mainly carried out by two methods: open and underground mining. Geological conditions determine the production method. Coal mining is often associated with the degradation of Natural Resources and the destruction of the habitat. This leads to the spread of foreign species in the region and threatens biodiversity. As a result of various mining operations in coal mining areas, a large amount of waste is formed. If measures are not taken to properly dispose of waste, it is harmful to the environment. The waste disposal method affects the land, water and air, negatively affecting the quality of life of the surrounding population.

Keywords: coal mining, development, migration, explosives, pollution.

Introduction

Mining activities, especially during the development of forest areas, put a lot of pressure on the local flora and fauna. An important issue is also the impact of mining on underground water levels, turbidity of surrounding bodies of water, and land destruction. Although coal mining makes a significant contribution to the economic development of the country, it also negatively affects human health. In addition, coal mining also affects the socio-cultural life of miners and the population living in this region. Therefore, when carrying out mining activities, a comprehensive approach is needed, taking into account the impacts on the local habitat and ecosystem.

To do this, various factors must be taken into account, such as determining the places where minerals are found, correctly calculating the slope angle of the dumps, safe disposal of waste and the effective use of turbidity control structures. In India, coal mining companies are implementing "clean coal" strategies that aim to reduce the impact on the environment. Reducing the amount of ash by washing coal increases combustion efficiency, and this directly contributes to reducing the emission of pollutants. Although the process of washing coal requires additional water, it allows you to step towards a pollution-free society.

During the combustion of coal, harmful substances such as sulfur dioxide, nitrogen oxide, carbon dioxide, as well as dust and ash particles are released. In areas where coal is burned, the level of air and water pollution can reach dangerous degrees. It is recognized that coal mining around the world has a negative impact on local and global ecology. It destroys vegetation at the local level, causing soil erosion and disrupting the balance of microorganisms. And globally, methane gas is released from coal seams, which creates a greenhouse effect 30 times stronger than carbon dioxide. Thus, coal mining has a negative impact on air quality standards. Underground mining contributes to soil degradation, leading to groundwater depletion and land subsidence in many regions.

In the event of land subsidence beyond the threshold, it is necessary to replenish it. There are also socio-cultural negative consequences of coal mining, such as the migration and resettlement of people, changes in cultural heritage, as well as an outbreak of criminal and other illegal activities in the region due to a sharp increase in economic development through mining.

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However, mining projects also have positive effects, including changes in the employment structure, increased sources of income, infrastructure development, and community prosperity. Changes in transport, communications, the education system, trade, recreation and medical services are also among the positive effects of coal mining. Thus, it is obvious that coal mining is harmful to the environment, however, it contributes to economic development, as well as increasing the level of self-provision through the effective development of Natural Resources.

Although it is not possible to move mining operations to another location, it is possible to reduce the damage to the environment by choosing the right production site and introducing new technologies.

Methodology

Noise pollution is currently recognized as an important health risk factor. It is dangerous not only because it causes discomfort, but also because of its harmful effect on the human body. Long-term exposure to noise can lead to partial hearing loss in the ear and even permanent damage to the inner ear.

The problem of noise in underground mines is of particular concern, as acoustic features in confined spaces contribute to the spread of noise and its impact on workers.

The main sources of noise in underground mines:

1. coal cutting machines;
2. coal conveyors and wagons (tubes);
3. coal blasting process;
4. production, ventilation and drilling equipment;
5. main and secondary fans, air blowing systems.

Table 1: noise level in underground coal mines

Research location	Average noise level (дБ)
Near the mine scraper	96
Transfer point	99
Conveyor belt end	89
Hydraulic pump	91

Increased noise is often due to poor equipment maintenance. In most mines, noise exceeds the permissible level of 90 dB (A), and this is a safe limit for 8 hours of Operation per day.

A study carried out by the DGSHB (General Directorate of mine safety):

The results of the study showed that drilling rigs, crushing and conveying systems emit noise exceeding the level of 90 dB (a). This poses a serious threat to the health of miners and requires urgent introduction of noise protection measures.

Research results

The development and Land Use Plan of the field should include the stage of preparation of the mine for preliminary operation, the operational stage and the post-operational stage. The plan should clearly state the goals of Post-Operational Land Use and describe the measures necessary to achieve this goal.

When developing this plan, it is necessary to take into account not only direct mining operations, but also the terrain around and the peculiarities of the ecosystem.

In the description of the region, several main components are taken into account. First of all, the current land use model of the region and the general characteristics of human settlements are considered. In addition, the natural features of the local ecosystem, climatic conditions and the most important characteristics of the

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terrain are analyzed. Data related to the terrain include such features as geomorphological conditions, topography and drainage system, cracks and crevices in the geological structure, as well as hydrogeological indicators—the location of permeable layers, the relationship of underground and surface waters and their hydraulic parameters. At the same time, the ability of natural soil and water to absorb pollution, as well as the distribution area and reserves of fertile soil, are also taken into account.

The state of transport and communication infrastructure in the region also plays an important role. In addition, information on mining operations will be considered, information on the types of extracted minerals, methods of production and stationary installations used, the volume of waste and methods of their disposal, the risk of land subsidence and landslides will be studied. Also, the requirements for the transport infrastructure necessary for production and the characteristics of the services and facilities to be installed are taken into account.

Conclusion

Mining has a significant impact on the economic, social and environmental structure of neighboring regions. Although mining provides economic development in a given region, it causes land destruction and causes environmental and socio-economic problems.

To solve the problem, important environmental factors must be taken into account. Each mine head must maintain an environmental checklist in accordance with the government of India's mining license terms and environmental management plan. By systematically reviewing this information, specific environmental issues of the mine can be identified. Low environmental performance can accelerate situations that require strict regulation.

The cracks caused by the subsidence (sitting) of the Earth have left many places infertile and unstable. Also, the seating of the land led to the drying of nearby reservoirs and Wells. However, through the joint efforts of coal mining companies and local authorities, it is possible to recycle these lands and return the product to use. However, consistent and coordinated work is not being done in this direction.

The main thing is to close the cracks. It is not necessary to restore the dug land to its original state, even if it is used for agriculture, landscaping or housing construction. According to some researchers, it is necessary to improve the water storage capacity of the dugouts under the soil.

According to scientists, before starting work on the restoration of the land, the purpose of its future use must be determined in coordination with local residents. The most important thing is to seal the cracks, and it is not necessary to restore the dugout to its original relief, it can be used for the purpose of agriculture, gardening or housing construction.

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Көмір өндірудің қоршаған ортаға әсері

Көмір өндіру жалпы экожүйеге кері әсерін тигізеді. Жердің тұрақсыз жағдайында тынышсыз адамзат күнделікті өмірде әртүрлі ресурстарды пайдаланады. Үндістанда Көмір көптеген ондаған жылдар бойы энергияның негізгі көзі болып саналды және әлемдегі коммерциялық энергия қажеттіліктерінің шамамен 27% қамтамасыз етеді. Көмір өндіру негізінен екі әдіспен жүзеге асырылады: ашық және жерасты өндіру. Геологиялық жағдайлар өндіріс әдісін анықтайды. Көмір өндіру көбінесе Табиғи Ресурстардың деградациясымен және тіршілік ету ортасының жойылуымен байланысты. Бұл аймақта бөтен түрлердің таралуына әкеліп соғады және биоәртүрлілікке қауіп төндіреді. Көмір өндіретін аудандардағы әртүрлі тау-кен жұмыстарының нәтижесінде қалдықтардың көп мөлшері пайда болады. Егер қалдықтарды дұрыс жою бойынша шаралар қабылданбаса, бұл қоршаған ортаға зиянды. Қалдықтарды кәдеге жарату әдісі құрлыққа, суға және ауаға әсер етіп, қоршаған халықтың өмір сүру сапасына кері әсерін тигізеді.

Түйін сөздер: Көмір өндіру, даму, қоныс аудару, жарылғыш заттар, ластану.

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Влияние добычи угля на окружающую среду

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Добыча угля негативно влияет на экосистему в целом. В условиях нестабильной земли неутомимое человечество использует различные ресурсы в своей повседневной жизни. В Индии уголь считается основным источником энергии на протяжении многих десятилетий и обеспечивает около 27% мировых коммерческих потребностей в энергии. Добыча угля в основном осуществляется двумя методами: открытой и подземной добычей. Геологические условия определяют способ добычи. Добыча угля часто связана с деградацией природных ресурсов и разрушением среды обитания. Это приводит к распространению чужеродных видов в регионе и угрожает биоразнообразию. В угольных районах в результате различных горных работ образуются большие объемы отходов. Если не будут приняты надлежащие меры по удалению отходов, это нанесет ущерб окружающей среде. Метод утилизации отходов влияет на землю, воду и воздух, отрицательно влияя на качество жизни населения в окрестностях.

Ключевые слова: Добыча угля, развитие, миграция, взрывчатые вещества, загрязнение.

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