

THE EFFECTS OF THE MINING INDUSTRY ON THE JIU RIVER IN THE OPINION OF THE CITIZENS. CASE STUDY

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Abstract: Mining activities for the extraction and efficient use of mineral substances have opened the way to civilization, progress and well-being for many countries of the world, including Romania. This paper analyzes the intramontane area of the Jiu Valley. This paper is based on a public opinion poll conducted in Jiu Valley. The survey was conducted between 16.07.2020 and 16.09.2020 on a sample of 2000 persons, adults over the age of 18 years.

Keywords : environment, contamination, mines, pollution

1. INTRODUCTION

Mining activities for the extraction and efficient use of mineral substances have opened the way to civilization, progress and well-being for many countries of the world, including Romania.

The extraction and processing of raw materials on the Romanian territory have been known since ancient times. The mining industry in Romania experienced a continuous and accentuated development until the last decade of the 20th century, when it entered a period of transformations and adaptations.

The deposits of mineral substances in Romania are numerous and present a great diversity of types, for example: mineral fuels of all types, ores of precious metals, ferrous and non-ferrous ores, ores with rare and radioactive metals content, salt, useful rocks of all sources etc.

From a geographical point of view, natural deposits are spread throughout the country, ferrous ores being found in mountainous areas, while coal and non-ferrous

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substances in hilly areas and in intramontane depressions.

Each of the elements specific to the mining industry in Romania represents unfavorable factors for environmental protection because they are manifested in all phases of the technological processes of exploitation and preparation regardless of the method applied.

Regardless of the method applied, for the recovery of a deposit, numerous physical and chemical operations and processes are required obtaining the useful mineral substance and the gangue (waste material) extracted from the deposit.

The specific conditions of the deposits influence the environment as follows:

- occupation and degradation of large areas of land for the activities of exploitation and storage of mineral substances, as well as for the location of industrial facilities necessary for productive processes;
- the generation of large quantities of polluting residues (solid, liquid and gaseous) with different harmfulness, due to the diversity of exploited deposits;
- elimination of harmful substances with a negative influence on the atmosphere, flora and fauna of the area;
- surface water pollution, modification of hydrogeology and groundwater pollution;

If the negative influence of the mining industry on air and water suddenly decreases or even disappears completely when mining ceases in the area, the impact on the territory (soil, flora, fauna, landscape) caused by the construction of dumps, tailings and industrial facilities, has a high intensity and is durable over time.

This paper analyzes the intramontane area of the Jiu Valley. Jiu Valley is an intermountain depression located at the foot of the Parang Mountains, on the banks of the Jiu River. The main economic activity in the area is coal extraction, especially black coal. In the Jiu Valley, the mines that have remained are Lonea, Lupeni, Livezeni and Vulcan, two of them being in the process of closing.

2. METHODOLOGY AND RESULTS

This paper is based on a public opinion poll conducted in Jiu Valley. The survey was conducted between 16.07.2020 and 16.09.2020 on a sample of 2000 persons, adults over the age of 18 years.

The purpose of the study is to find out the opinion of the population on how coal mining in the area affects the environment and what solutions can be used to improve it. The survey was based on a set of 20 questions, of which the most significant were used in this paper. The questions that have been chosen for this paper are:

- Do you think that the mining industry is irreparably affecting the environment?
- Do you think that the process of coal extraction, transport, deposit and processing affects the fertile properties of the soil?

- Which do you think would be the best decision: to close the mines for environmental protection or to modernize them so that pollution is considerably reduced?
- Do you think you live in a polluted area?

From these questions we obtained the results presented below. Based on the question "Do you think that the mining industry is irreparably affecting the environment?", 50% of the population surveyed considered that the mining industry has affected the environment, while a percentage of 40% of the people asked consider that the environment is not affected by the mining industry.

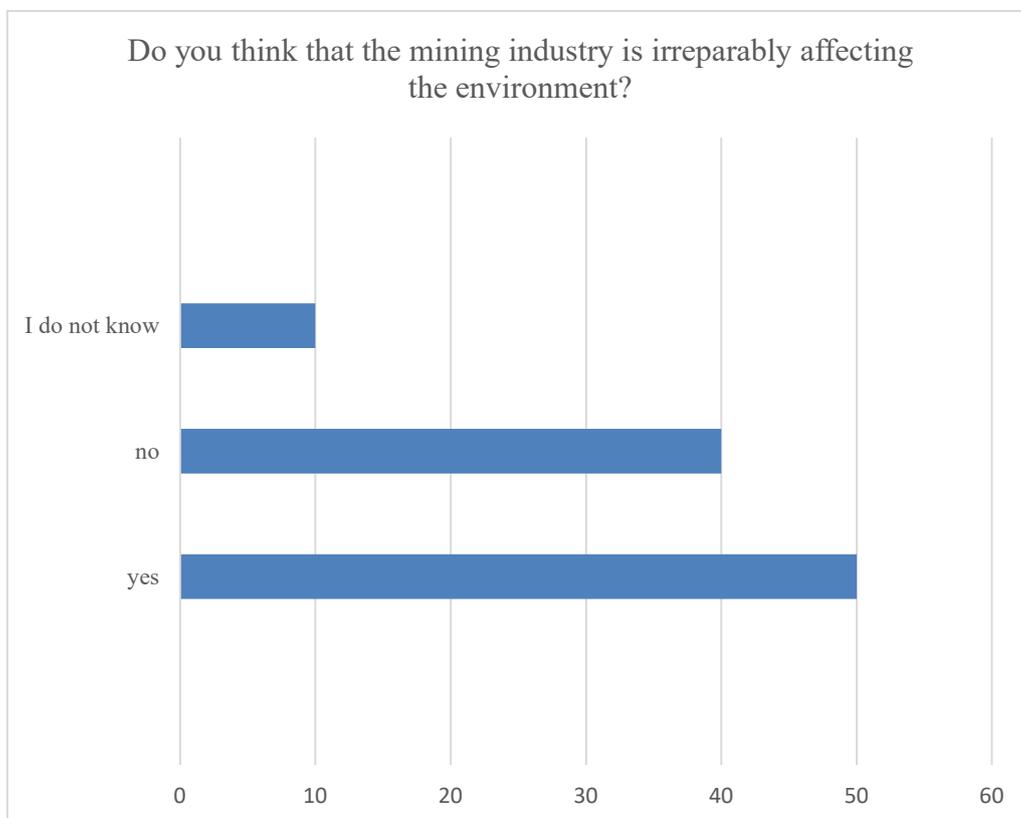


Fig.1 Graphical representation of the obtained answers for question no. 1

The second question addressed to the population was: " Do you think that the process of coal extraction, transport and processing affects the fertile properties of the soil?", where 30% of the population surveyed think that the process of coal extraction, transport and processing affects the fertile properties of the soil, and 50% of the population considers that the process of coal extraction, transport and processing do not affect the fertile properties of the soil.

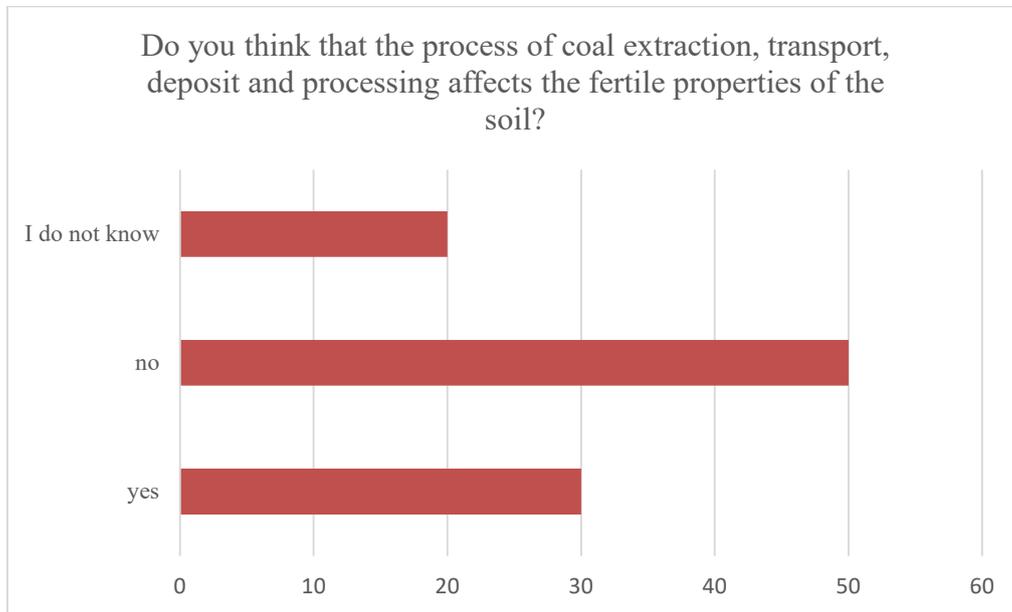


Fig.2 Graphical representation of the obtained answers for question no. 2

The next question addressed to the people was “•Which do you think would be the best decision: to close the mines for environmental protection or to modernize them so that pollution is considerably reduced? ” where most people think that mines must be modernize and not closed.

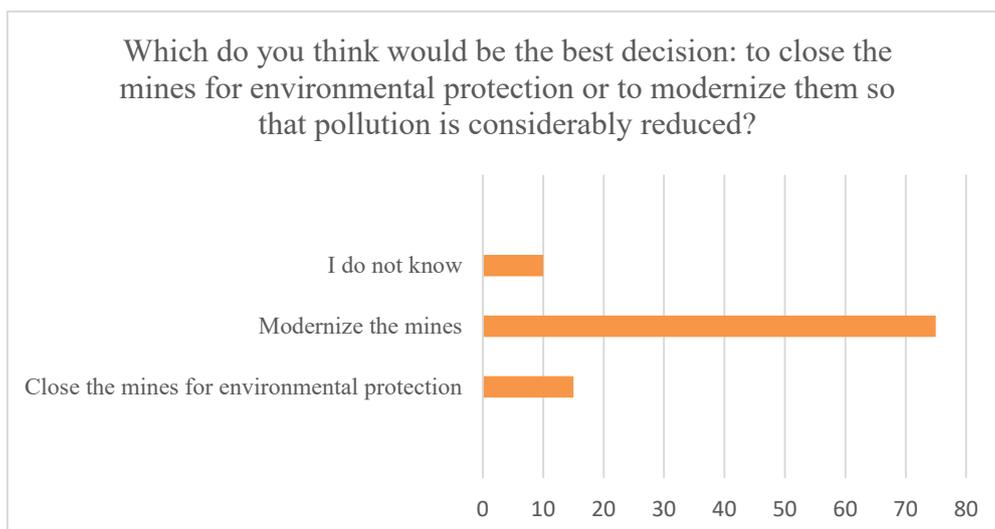


Fig.3 Graphical representation of the obtained answers for question no. 3

When we asked "Do you think you live in a polluted area?", most people believe that their cities and the Jiu Valley are places with a low degree of pollution. The proportion of negative answers being 46%.

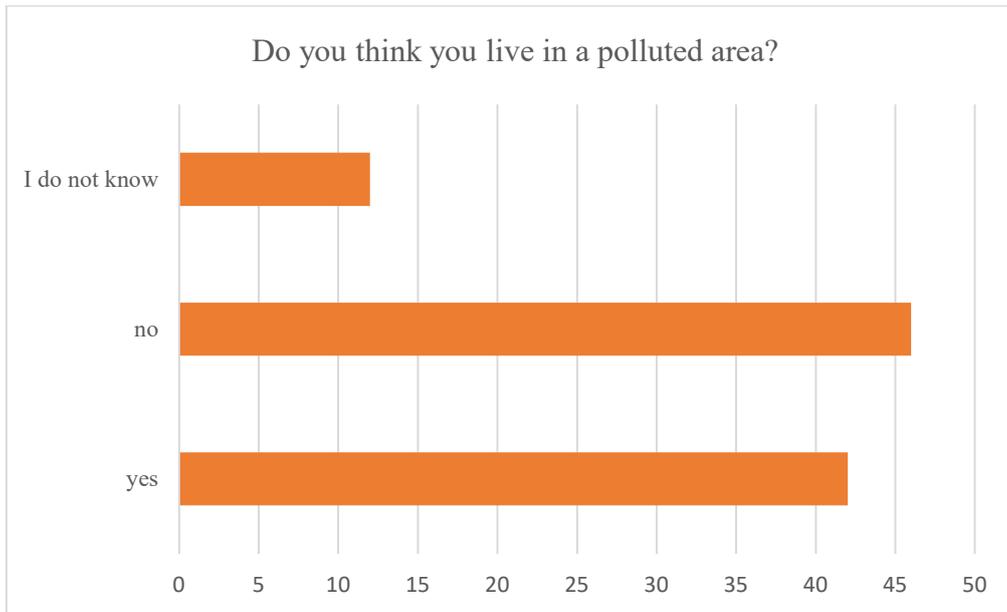


Fig.4 Graphical representation of the obtained answers for question no. 4

3. CONCLUSIONS

The quality of the environment is considered good in the Jiu Valley, and most of the surveyed citizens consider that mining does not irreparably affect the environment.

The importance of the environmental problems differs depending on the demographic and social characteristics of the inhabitants of Petrosani.

One way to reduce the pollution generated by mining is to improve the way coal is extracted, transported, stored and processed so that the resulting residues are less and less both qualitatively and quantitatively.

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