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# The Buried Secrets of Coal

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September 2015

**GREENPEACE**

# Executive summary

## Report on soil contamination and mercury pollution as a result of the activities of the coal industry in Bulgaria.

In the last three years Greenpeace Bulgaria has researched, documented and publically presented the harmful impact the coal industry has had on the human health and the environment. In our previous reports we have focused our attention on the devastating impact coal mining and burning have on the quality of air and water. Now we are paying attention to two well-buried consequences of the coal activities. In the first part of the report we are discussing how coal mining activities are negatively affecting the quality and integrity of the soils in Bulgaria. In the second part, we look into a threat that is mainly caused by the coal activities but is usually ignored and left undiscussed – namely the mercury emissions and their impact on human health and the environment.

As a result of coal mining in Bulgaria in recent decades about 30 000 hectares of land (0.03% of the total territory of the country) have been affected and damaged. The processes of land reclamation and restoration are slow and the results are unsatisfactory. This creates the need to expropriate more agricultural and forestry land as well as land used for residential purposes. In recent years we have witnessed how entire villages have been removed in order to expand the excavation sites of the coal mines and how the government remains indifferent to this human tragedy while at the same time grants more land to the mining companies.

In addition to the physical changes, soils are subjected to pollution resulting from the operation of coal-fired power plants. Burning coal comes with the release of harmful gases, dust, sludge and heavy metals, which get into the soil, and from there into the water and air. The quality of soils is an insufficiently studied issue that deserves the attention of the responsible institutions and the public especially considering that coal burning

releases heavy metals. This report attempts to shed light on the pollution caused by one of these metals – mercury. The presence of mercury in increased quantities threatens human health and the environment. Coal plants are a major source of mercury in the environment. For the period 2010 - 2013, in Bulgaria are released more than 3.3 tons of mercury, as about 1/3 of this amount comes from thermal power plants and household heating. Despite the severity of the emissions and the presence of mercury in the environment, this remains hidden for the society problem.

As a result of a detailed analysis of the available research and science papers, key data and arguments were gathered and summarized in the paper. Few of the key findings of this report:

- **Over 700 kg of mercury** is released every year in the air as a result of burning coal in Bulgaria from three main sources – households, thermal power plants and large industrial installations (including electricity production);
- The shares of mercury emissions from households, thermal power plants and large industrial installations (including electricity production) are **overall increasing** over the period 2005 – 2013;
- **Over 20 000 hectares** of land is destroyed as a result of the activities of the state-owned mining company “Mini Maritsa-iztok”. **Only about 4 800 hectares** are re-cultivated and deemed “re-claimed”

- There are **no obligatory requirements** on national and European level to report mercury emissions from coal power plants;
- **There is an overall lack of information** and awareness about the health and environmental impact producing and burning coal have;

Greenpeace-Bulgaria believes the coal sector still has well-buried secrets which while important to the people and the environment remain hidden and not fully researched. Soils (their integrity and quality) are one of the founding elements for the life on Earth. Ignoring this fact could lead to serious consequences for the future generation as well as for the environment. This is why the report is aiming at bringing the attention to protecting the planet and keeping it away from one more danger resulting from the always increasing need of the humanity for energy and resources.





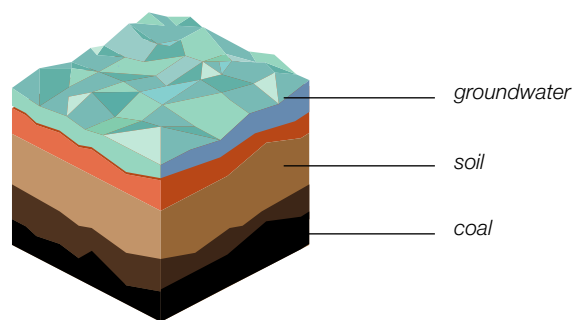
## Key messages and recommendations

This report attempts to open the door to some of the secrets that the coal industry has buried well deep into the ground.

In recent years we have been working hard to bring to the spotlight the dangers producing and burning coal hide. After examining the impact on air and water now we are focusing on soils and their integrity and quality. Additionally we pay special attention to one of the most serious outcomes from the coal activities – mercury pollution.

The systematic destruction of soils at the expense of the production of fossil fuels that have already played their historic role in the industrial development, is unacceptable in the 21st century. By artificially maintaining the coal sector, the state not only does not encourage rapid and efficient recovery of damaged areas, but also supports additional seizure of lands from forest and agricultural funds and fund settlements. Thousands of hectares of brownfields, contaminated soils, hundreds of people displaced from their homelands – these are just some of the negative consequences of coal mining in Bulgaria.

We believe that a more systematic and regular studies of the soils in order to monitor their quality and level of contamination is needed, especially in the area of the industrial complex “Maritsa East”. At the legislative level changes are needed to establish strict limit values for mercury discharges from coal TPPs, to require plants to report periodically and to make the results available to the public and stakeholders. Most importantly, the government and the responsible authorities can take steps to improve the soil quality and limit the emissions from coal power plants. One of the global trends in this direction is the shift to renewable energy sources that are more environmentally-friendly, drive the economy and satisfy the energy needs of the society.



To achieve this Greenpeace insists on:

- **Legislative and regulatory changes that define limit values for mercury in air and monitor compliance with norms;**
- **Systematic and regular monitoring of soils to ensure their quality and level of contamination;**
- **Promote energy efficiency measures and expansion of small scale (up to 30 kW) of RES installations in households, small businesses and municipalities that reduce the need for coal power plants.**

The Bulgarian energy sector can emerge from the dark mine galleries, where it is at the moment, and focus on a future that is cleaner, safer and more secure. Key to this is to focus on policies to promote energy efficiency measures and expansion of small renewable energy (up to 30 kW) systems at the level of households, small businesses and municipalities.







Path of mercury in the Environment

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