

Household and construction waste pollution of Sarnena Gora Mts, a case study

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Abstract. A total of 23 individual illegal dumps were located at the 5x5 km sample area around the villages of Hrishteni and Kolena. About $\frac{1}{4}$ of them were situated near the Medven Hill, bordering with some agricultural lands. Their surface area can be spotted even on satellite images. Even the studied area is small it represents the real situation not only in the region of Sarnena Gora, but in the whole country.

Key words: pollution, ecological problems, Bulgaria.

Introduction

Household hazardous waste, sometimes called retail hazardous waste or 'home generated special materials', is post-consumer waste which qualifies as hazardous waste when discarded. It includes household chemicals and other substances for which the owner no longer has a use, such as consumer products sold for home care, personal care, automotive care, pest control and other purposes. These products exhibit many of the same dangerous characteristics as fully regulated hazardous waste due to their potential for reactivity, ignitability, corrosivity, toxicity, or persistence. Examples include drain cleaners, oil paint, motor oil, antifreeze, fuel, poisons, pesticides, herbicides and rodenticides, fluorescent lamps, lamp ballasts, medical waste, some types of cleaning chemicals, and consumer electronics (such as televisions, computers, and cell phones) (https://en.wikipedia.org/wiki/Household_hazardous_waste). Construction and demolition materials are created during the process of creating a new building or structure or when renovating or demolishing an existing structure. These materials are usually heavy materials used in large volumes in modern construction, such as concrete, steel, wood, asphalt and gypsum (https://en.wikipedia.org/wiki/Construction_waste).

In this case study I would like to emphasize a very pressing problem in Bulgaria - the dumping of waste in illegal landfills.

Material and Methods

A sample area of 5 square kilometers was selected in the area of the villages of Hrishteni and Kolena - the southern slope of Sarnena Gora, east of Stara Zagora city (Fig. 1). The area has been monitored on feet for a period of five years, and the location of illegal dumps has been located both using a GPS and Google Earth satellite images.

POLLUTION

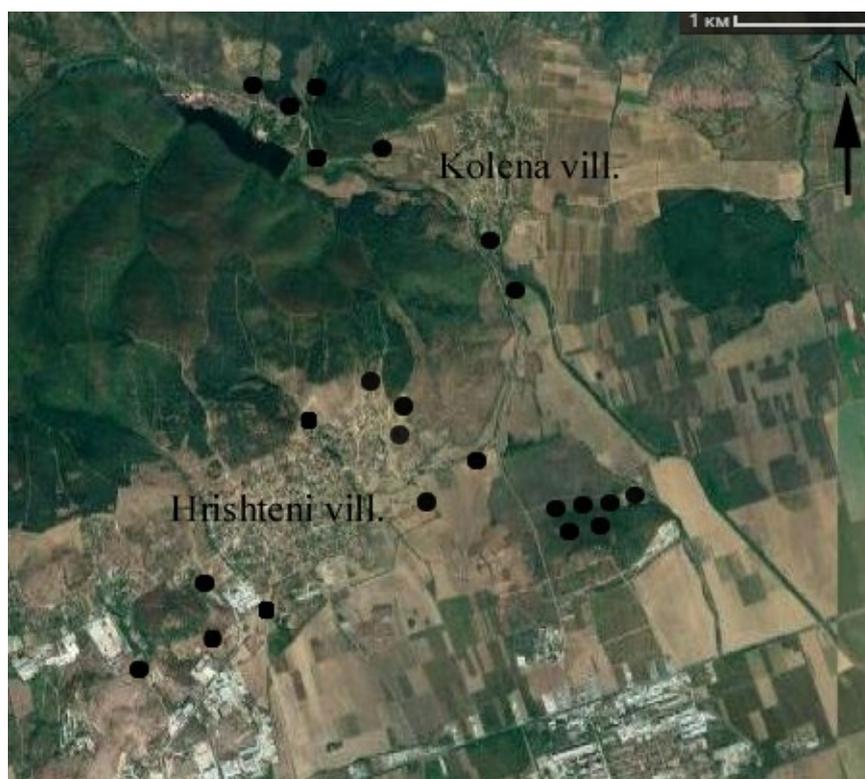


Fig. 1. Position of the illegal dumps in the study area (black dots) (modified Google Earth satellite image).

Results

A total of 23 individual illegal dumps were located at the 5x5 km sample area around the villages of Hrishteni and Kolena. About $\frac{1}{4}$ of them were situated near the Medven Hill, bordering with some agricultural lands. Their surface area can be spotted even on satellite images (Fig. 2, 3).



Fig. 2. Position of the largest illegal dump at the area, near the Medven Hill. Left - modified Google Earth satellite image, the object is pointed by an arrow, right – view from the dump site.

POLLUTION

Landfills have also been recorded in human health important areas: on the hills of the mountains above the water supply zone of the Hrishteni village, and near agricultural lands. Such dump sites are often met and near or in the forests, streams and other natural habitats, important for the wildlife (Fig. 4).

Even the studied area is small it represents the real situation not only in the region of Sarnena Gora, but in the whole country. Many illegal dumps are now an integral part of the landscape. Even travelers on Bulgaria's main roads and highways can observe piles of dumped construction and household waste. Garbage is dumped even in city parks, canals, rivers and dams. Some of the illegal dumps are so large that they can be seen on Google satellite images.



Fig. 3. A small dump site near the largest one at the area of Medven Hill.



Fig. 4. A dump site in the forest, NE of the wall of Kilena Dam.

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If extrapolated for the whole area of Stara Zagora municipality (85.11 km²), it can be speculated that the number of individual illegal dump sites is around 400 (!). Such (growing) numbers of pollution for sure is a serious threat to the nature of the area and is a big danger for the human health. In particular, combined with other important aspects, concerning the destruction of nature such as the chemical and waste water pollution, poaching and illegal logging. Much more measures are needed to prevent such illegal activities and strengthen the control of the municipality and the country as a whole.

References

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