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Solving the problem of waste

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Abstract

The man is directly connected with the natural environment and he changes and adapts it according to his needs. However, the Earth is one and only, this is where we live and where we should create for ourselves and for future generations such environmental conditions which will enable the man's survival. The present generation should not feel as an heir of the Earth from the previous generations, but it should borrow it and then give it back to the next generation with all its beauties and values and in a genuinely functional condition.

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1. Introduction

The rapid development of the modern industrial production in the world, and the increasing irresponsibility of people towards natural environment in which they live are the main reasons for the enhanced pollution of soil, water, air and food products, which are the elementary factors for normal life and development of the man and the flora and fauna as well.

There are very few untouched natural areas on the globe and even those that are untouched are threatened by a catastrophe. The water is getting more and more polluted, and the soil is becoming saturated with waste that is the result of production, and with a myriad of toxins used in agricultural production aiming at multiple increases of food products. The air is over saturated with dust, radioactive particles, sulphuric and nitric oxides, bacteria, mercurial, lead, potassium, phosphoric and other vapors from toxic elements that mixed with the damp air create smog and have a harmful influence on the man's health. It is often thought that the chemical materials in use are not harmful because they disjoin into simple, non-toxic substances once they are exposed to air and soil, but those toxins poison not only the plants we use as food but also the underground waters. Such substances are well soluble in water; however, people usually think that underground waters are always as clear as crystal, but chemical analyses of water often show the opposite.

Solid waste materials (plastic, glass, metal) in the environment are also dangerous. Nowadays the problem of waste can be solved in several ways:

Dumping (lodgment). This procedure is carried out on especially professionally prepared dumps that have an impermeable bottom and solid sidewalls. When the dump is filled with waste, it is then covered with several

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centimeters of ground, and grass or other plants with wide leaves are implanted onto this surface. After 15-20 years the content of such dumps can be used for fertilizing agricultural ground as organic fertilizer.

Pyrolysis. This represents a procedure for unbuilding of solid metal things, alloys and other inorganic impurities under the influence of high temperature and repeated usage of waste in the process of production (Magazine *Ekologija*, 2005).

Composting. This process relates to the usage of fertilizers representing a mixture of various materials collected as waste in households, schoolyards, industrial and agricultural areas; materials hard at decomposing are being separated and then they are fragmented into small pieces and mixed with various additives such as sulfur, whitewash, calcium cyan-amide and other oxidizers.

Compost includes kitchen waste, garbage from yards and houses, mortar fallen from buildings, ashes from stoves, leaves from trees, and other organic waste. Compost does not include iron, glass, toxic materials for the protection of plants from easily spread diseases, as well as animals that died of infectious diseases.

The collected waste is put into holes prepared in advance. The compost is maintained by adding water and mixing at least once a month. The ready compost is similar to dung, and it is suitable for fertilizing crops after 3 to 5 years from its forming.

Combustion. This procedure is carried out in special devices - stoves that are suitable for removing waste that easily burns, but during combustion, attention should be paid not to create toxic gases that could pollute the atmosphere.

Compression. By compressing waste such as metal chips and pieces of sheet metal in special moulds we can get blocks of solid metal material. These metal blocks can be used in architecture as metal blocks with great strength for building industrial objects, halls etc., or they can be taken back to ironworks for melting again.

Recycling. By recycling waste material (old paper), we can get raw materials through which waste can be used again in the production process, if there is such need, and if there is a surplus of paper it can be used again for paper production.

People should be conscious today of the danger threatening them because of the increasingly great pollution of the Earth's surface caused by harmful unusable materials and unsuitable usage of industrial waste. They could make something good only if the population is appropriately included into working actions for cleaning and maintaining of the environment. Only in that case there would be positive results concerning people's health, their being content, and the future of all the citizens of the Earth.

Until the scientific-technological revolution (1957) the man was not greatly capable of influencing the external surrounding. The dynamic development of new technologies and automation on the other side cause an increasingly inconsiderate attitude of man towards the nature, destruction of the flora and fauna, endangering natural areas, extinction of some animal and plant species, reduction of some kinds of wild flora and fauna, air and water pollution, etc. All this causes changes in the man's way of life and negatively influences his development and health. Each day we receive an abundance of data about pollution and destruction of the environment in the world and its consequences:

About six million tons of oil and its derivatives, two hundred thousand tons of lead compounds, five thousand tons mercury and great quantities of pesticides are left out into water systems.

Because of the inappropriate clean water supply for the population, an expanding cholera epidemic spread over Peru.

The citizens of Sofia spent the 1995 New Year's Eve with the lack of drinking water (Risteski & Davitkovski, 1997).

Because of the presence of many harmful industrial waste (pesticides, radioactive materials), there is less and less drinking water, and, as a result of this in the last hundred years hundreds of species of animals and birds were destroyed, and several more thousands of species are on the verge of extinction.

Urban and industrial waste started to change the environment so much that it caused endangering the flora and fauna that are necessary for the survival of man.

Low temperatures in California which are said to be the result of exhaust fumes of vehicles lead to the creation of the greenhouse effect (the phenomenon of harmful materials being deposited at a certain height and they do not allow any circulation of air).

The protective ozone layer of the Earth is twice as thin as it was predicted - for the last 13 years this layer was reduced for 4-5%. It is predicted that if this continues with the same intensity, in the next fifty years we could expect new 200 000 cases of skin cancer.

The ozone hole above the Antarctic at the beginning of October 1995 reached its record size of 20 million kilometers, which is the equivalent to two surfaces of Europe, and the reduction of the ozone layer will be even more expressed at the end of the year and it will become faster in the next few years (<http://www.eko.net.mk>).

The damage of the ozone layer is the reason for frequent cancerous diseases of the inhabitants of the Andes; such is also the case with the inhabitants of Bangladesh who are exposed to waters that rose as a result of increased temperatures.

Global warming and climate changes in the coming fifty years will lead to the disappearance of one fourth or a million species of land animals and plants.

The quantity of the energy of the sun reaching the Earth's surface is being considerably reduced. There is a 22% reduction of the energy of the sun. In the USA the radiance of the sun decreased 10%, in some parts of the former Soviet Union almost 30% and 15% in England. Global decline moves from 1 to 2% each decade in the period between the fifties and the nineties of the twentieth century ((Magazine Ekologija, Nr. 92, 2005).

The qualitative reduction of the energy of the sun or the so called global fading is caused by air pollution through combustion of hard coal and wood for households and liquid fuels in cars which leads to the creation of carbon dioxide. The visible pollutants send the sun's energy back into space, thus preventing its reaching the surface; they also have influence on the structure of the clouds which in turn influences their permeability of the sun's rays.

The European Agency for the environment emphasizes that the warming of Europe causes great droughts and floods, rising of sea level and dying out of the part of flora.

The damages from the increased emitting of harmful gases into atmosphere and from the global warming are already visible in Europe where the temperatures are constantly rising, and it is supposed that by 2050 one third of the glaciers in the Alps will disappear (Risteski, Ekoloska kriza).

The concentration of carbon dioxide in the lower layers of the atmosphere is at the moment at the highest level and is for % higher than the concentration of the carbon dioxide before the industrial revolution.

In the course of the previous century the average temperature in Europe increased for 0.95°C, and it is predicted that in the next hundred years the temperature will rise for another 2 to 6°C. The sea level is 2 to times greater than its rise in the last century which amounted from 0.8 to 3mm per year.

By 2050 Australia will have lost 90% of its famous coral reefs. Unless global warming is prevented, in 2050 seas will be warmer at least by 1.5°C. Otherwise the heat can separate the algae from the corals that now exist in symbiosis.

By means of nuclear fission in 1939. the man opened a new page in getting new kinds of electricity from a new source called nuclear reactor. But this also means a new source of polluting the environment and endangering the human organism. The structure of the radioactive elements is different. The dominant ones are: carbon-12, calcium-40, uranium-235, and uranium-239. The atoms are not always stable and can decompose naturally radiating so called X-rays (<http://www.soros.org.mk>)

The increase in the number of hungry and poor people at the end of the eighties of the XX century had a negative reflection upon forests which were reduced for 17 million ha, while only in 1980 that surface was reduced for 11 million ha.

During the last four centuries 654 species of plants and about 100 animal species too.

Rivers, lakes and forests are dying out, granaries more and more grow crops under the influence of chemical compounds - around 300 million tons of artificial fertilizers and about 4million tons of insecticides and herbicides enter the soil per year.

In the last hundred years emissions of carbon dioxide released into the atmosphere by using fossil fuels are increased for 100%) which in turn increases the average temperature of the land by 10 to 15cm. If this tendency of

increasing emissions of this pollutant continues to the level of its doubling, that would cause, through the "greenhouse effect", the increase in the average temperature on the Earth for around 3-5 °C, rise of several meters in sea and ocean levels, i.e. drastic consequences on the climate by melting of the surfaces covered with ice.

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