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INDUSTRIAL WASTE AND ITS IMPACT ON PUBLIC HEALTH

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✓ ***Resume***

The article describes the main problems of industrial and other waste, the volume of which is increasing from year to year. The growth in recent years of household waste is shown, which has a very negative impact on the environmental situation in a number of regions, including the city of Samarkand and the Samarkand region. Attention is focused on the volume of solid and other types of waste in conditions of urbanization and increased anthropogenic factors. related to human factors.

Keywords: Ecology, waste, household and medical waste, water, air, soil, food, plastics, metals.

ПРОИЗВОДСТВЕННЫЕ ОТХОДЫ И ИХ ВЛИЯНИЕ НА ЗДОРОВЬЕ НАСЕЛЕНИЯ

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✓ ***Резюме***

В статье описаны основные проблемы промышленых и других отходов, объем которых увеличивается из года в год. Показан рост за последних лет бытовых отходов, который оказывает весьма негативное влияние на экологическую ситуацию ряда регионов и в том числе города Самарканда и Самаркандской области. Акцентировано внимание на объём твердых и других видов отходов в условиях урбанизации и усиления антропогенных факторов. Связанных с человеческими факторами.

Ключевые слова: экология, отходы, бытовые и медицинские отходы, вода, воздух, почва, продукты питания, пластики, металлы.

ISHLAB CHIQARISH CHIQINDILARI VA ULARNING AHOLI SALOMATLIGIGA TA’SIRI

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✓ ***Rezyume***

Maqolada yildan-yilga ortib borayotgan sanoat va boshqa chiqindilarning asosiy muammolari tasvirlangan. So'nggi yillarda bir qator hududlarning, shu jumladan Samarqand shahri va Samarqand viloyatining ekologik ahvoliga salbiy ta'sir ko'rsatayotgan maishiy chiqindilarning ko'payishi ko'rsatilmoqda. Urbanizatsiya va antropogen omillarning kuchayishi sharoitida qattiq va boshqa turdagi chiqindilar hajmiga e'tibor qaratildi. Inson omillari bilan bog'liq.

Kalit so'zlar: ekologiya, chiqindilar, maishiy va tibbiy chiqindilar, suv, havo, tuproq, oziq-ovqat, plastmassa, metallar va boshqalar.

Relevance

In recent years, Uzbekistan has generated more than 100 million tons of industrial and per year (14% of which is toxic waste), about 35 million tons of household waste. Considering that landfills and waste storage facilities store about 2 billion tons of industrial, construction and household waste, and they occupy an area of 12 thousand hectares, it is not difficult to imagine the negative impact of waste. Environmental protection from production and consumption waste is inextricably linked with the problems of rational use of natural resources and the introduction of environmentally friendly technologies. For many centuries, improper waste management has led to changes in natural resources, unexpected changes in nature [1,5,7].

Moreover, medical waste poses a danger not only of direct but also indirect spread of infectious and non-communicable diseases among the population due to pollution of the environment and almost all its elements - water, air, soil, food, and all this requires a serious environmental approach to this problem. In addition, 80% of these wastes are organic substances, and when they are processed, a large amount of energy and energy carriers can be obtained. Experts say that household waste is a cheap raw material all over the world.

According to statistics, in Japan, 34 percent of rubber and cable products, 43 percent of glass products and 54 percent of paper and cardboard are recycled. The Chinese experience in this regard is even more amazing. They get 33% of their products from metals such as aluminum, iron, copper, and 34% of wool, silk, and leather products as a result of recycling various wastes, etc.

Purpose and objectives. It should be noted that the measures taken are aimed at preventing the destruction of valuable substances and materials along with waste, preventing environmental pollution with toxic industrial and medical waste, and collecting and disposing of solid waste. In 2002, the Waste Law was adopted to regulate relations in the field of waste management and to implement an environmental policy on waste. The main task of the law is to prevent the harmful effects of waste on the life and health of citizens, the environment and reduce waste generation [2]. Regardless of the form of ownership, standards are set to reduce the negative impact on the environment, human health and property by creating conditions for legal entities working in this field, organizing the processing of industrial waste, and recycling household waste. It is advisable to establish the use of economic methods in the development of the waste recycling industry, open the way for foreign investment, strengthen the legal framework for the introduction of modern waste-free and low-waste technologies through the modernization of production [3].

Currently, the Ministry of Health is working on the elimination and neutralization of medical waste, that is, special waste contaminated with pathogenic microorganisms. However, there is no article in this law on the category of such waste and how to handle it. Therefore, it is proposed to include the concept of "special (specific) biomedical waste with hazardous properties" in the law. It is also proposed to add foreign investments to the list of sources of financing in the field of waste collection and processing [4].

In particular, the consistent implementation of reforms aimed at protecting the environment, public health, rational use of natural resources and environmental safety, strengthening the legal framework for solving the waste problem is important in the interests of the electorate of our party [5].

Material and methods

Waste is one of the main modern environmental problems, which carries a potential danger to human health, as well as a danger to the environment. In many countries, there is still a problem of misunderstanding the seriousness of the problem of solid household waste, and therefore, there are no strict regulations, as well as the necessary regulatory legal acts regulating issues related to waste and garbage.

Result and discussion

The severity of the waste problem has not been so noticeable before. Until a certain time, nature coped with recycling itself, but the technological progress of mankind played an important role in this moment. New materials have appeared, decomposition or recycling, which can naturally last for hundreds of years, and nature can no longer withstand such anthropogenic loads. Yes, and a lot of important factor is the modern volume of waste produced. It's just huge. But today, waste and garbage can be considered as raw materials. They can be recycled and reused. For every urban resident,

approximately 500 to 800 kg of waste per year is accounted for. In some countries, up to 1000 kg. And this number is growing all the time.

Modern incinerators and waste recycling plants with all their arsenal are a kind of whole industry for processing and recycling solid household waste of the urban population. What kind of waste are there? [8,9].

Household or communal – a huge variety of liquid and solid waste emitted by humans, as well as generated as a result of human activity. These can be spoiled or expired food, medicines, household items and other garbage.

Industrial – raw material residues that were formed as a result of the production of any products, production work and have lost their properties in whole or in part. Industrial waste can be liquid and solid. Solid industrial waste: metals and alloys, wood, plastics, dust, polyurethane foams, styrofoam, polyethylene and other debris. Liquid industrial waste: wastewater of varying degrees of contamination and its precipitation [10,11,12].

Agricultural – any waste generated as a result of agricultural activities: manure, rotten or unusable straw, hay, remnants of silos, spoiled or unsuitable compound feed and liquid feed. Construction – they appear as a result of the production of construction and finishing materials (paints, thermal insulation, etc.), during the construction of buildings and structures, as well as during installation, finishing, cladding and repair work. Construction waste (both solid and liquid) can be expired, unusable, defective, superfluous, broken and defective goods and materials: metal profiles, metal and nylon pipes, plasterboard, gypsum fiber, cement-chipboard and other sheets. In addition, various construction chemicals (varnishes, paints, adhesives, solvents, antifreeze, antifungal and protective additives and products). Radioactive waste is the production and use of various radioactive materials and substances (Table 1).

Table 1

The number of people suffering from anemia in cities and districts of the Samarkand region (compared to 100,000 people)

№	Cities and districts	2011	2012	2013	2014	2015	2016
1.	Samarkand	133958	145787	147040	143165	146032	144194
2.	Kattakurgan	12092	13390	10625	11244	11326	10985
3.	Surgut district	42849	42856	33171	49442	47525	39623
4.	Samarkand district	70967	47880	43335	35652	34956	38022
5.	Tailyak district	40922	45112	45658	39847	41256	43212
6.	Bulungur district	21826	21233	15226	16425	17023	19366
7.	Dzhamboiskiy district	25444	22823	25432	25057	24856	21412
8.	Akdarya district	27178	22179	20991	22763	23666	26332
9.	Payaryk district	34565	30603	25494	33762	29658	31855
10.	Ishtikhansky district	33698	41329	33889	18931	21332	22432
11.	Pastdargom district	56637	57813	49411	53198	55656	54003
12.	Nurabad district	14103	14803	14051	23517	18802	16089
13.	Kattakurgan district	25842	26889	46862	50332	49856	42362
14.	Kushrabad district	28272	18754	21892	23361	23998	22698
15.	Narpai district	44115	49357	20610	20543	21056	25213
16.	Pakhtachi district	17396	21814	15862	25448	24099	26658

The severity of the impact of waste treatment and disposal on the environment and public health depends on the volume of waste produced, its composition, the amount of illegally buried waste, the amount of waste disposed of in landfills and standards at waste treatment plants. The future impact of the waste management process will depend on how these factors change. The final treatment of waste, today, means either their burial in a landfill or incineration, and these two types of final treatment have different, but in both cases negative, effects on the environment and public health.

One of the main sources of pollution in urbanized areas are industrial waste generated as a result of the production process and solid household waste (MSW) that arise during human life in housing and depreciation of household items. Urban wastewater, which combines industrial, household and rainwater, is also of equal importance as an environmental pollutant.

Now we know more about the dangerous properties of many chemicals. More and more hazardous substances that used to be placed in landfills are now being collected and processed properly, but not all of them. For example, used electrical appliances and electronics (televisions, refrigerators, etc.) continue to be taken to landfill, although harmful substances are present in them. Old landfills contain a large amount of harmful waste and toxic chemicals that have been placed on them for years and penetrated into the environment. Since toxic waste poses a significant danger to the environment, including human health, their disposal and burial should be carried out in strict accordance with existing rules and standards [12].

The disposal of waste in landfills leads to the release of methane, one of the greenhouse gases and dangerous chemicals that have a harmful effect on the environment. Waste incineration leads to the release of gases from the pipes of the plants burning them. These gases contain dangerous chemicals such as cadmium, mercury and lead. The toxicity of heavy metals in their isolated effect on a warm-blooded organism has been sufficiently studied. It is known that when ingested, they can affect the function of hematopoiesis, cause changes in the morphological composition of peripheral blood, block sulfhydryl groups, and pose a danger, contributing to the development of carcinogenic, genetic, and other long-term biological effects. In addition, the natural environment is influenced by the release of biogas - methane, oxygen, carbon dioxide, the content of which can be tens of percent. These values exceed sanitary standards and can cause suffocation of a person. Biochemical decomposition and chemical oxidation of landfill material can be accompanied by the formation of heat release foci with an increase in temperatures up to 75 ° C, i.e. spontaneous combustion of waste is possible. Rotting of solid waste material is accompanied by the spread of odor over a distance of more than 1 km (Table 2).

Table 2

External causes and general morbidity rates in 2020

№	Name of Shahar and districts	2020 г			
		Whole	Children under 14 years old	A teenager aged 15-17 years old	Adults
1	Bulungur district	0	0	0	0
2	Jambai district	0	0	0	0
3	Kattakurgan district	6422	1724	1287	3411
4	of Kattakurgan	0			
5	Kushrabad district	0	0	0	0
6	Narpai district	0	0	0	0
7	Akdarya district	0	0	0	0
8	Payaryk district	0	0	0	0
9	Pastdargom district	0	0	0	0
10	Pakhtachi district	1287	0	1287	0
11	of Samarkand	1307	81	5	1221
12	Samarkand district	0	0	0	0
13	Tailyak district	0	0	0	0
14	Urgut district	0	0	0	0
15	Ishtikhansky district	15892	2048	1035	12809
16	Nurabad district	0	0	0	0
	By region:	24908	3853	3614	17441

Harmful effects on humans are the effects of environmental factors that pose a threat to human life and health, or a threat to the life or health of future generations.

During the inspections, the following main violations were identified:

-there is no fence around the waste disposal facility;

-the isolation of the disposed waste is not carried out;

- industrial laboratory control of the impact of landfills and landfills on the external environment, including radiological studies of incoming waste, is not carried out;

-no disinfectant barrier is used.

Industrial and agricultural waste is commonly referred to as industrial waste or industrial waste. As a rule, these are toxic and non-toxic waste and garbage. Toxic – waste that can affect a living being in a

damaging or toxic way. There is a huge amount of toxic waste on the territory of Russia. They occupy large storage areas. The Ural region is the most polluted by waste. About 40 billion tons of various wastes have accumulated in the Sverdlovsk region. Every year, between 150 and 170 million tons of waste are generated, some of which are toxic. Only a small part of this waste is disposed of and neutralized. There is a strong load on the environment, which poses a danger to the multi-million population.

The planet is literally filled with garbage. Solid household waste is diverse: wood, cardboard and paper, textiles, leather and bones, rubber and metals, stones, glass and plastics. Rotting garbage is a favorable environment for a variety of microorganisms that can cause infections and diseases.

Plastics are dangerous in their own way. They are not subject to destruction for an extended period of time. Plastics can lie in the ground for dozens, and some species for hundreds of years. More than a million tons of polyethylene are spent on single-use packaging. Every year in Europe, millions of tons of plastic waste end up in the trash. There are innovative methods for obtaining diesel fuel and gasoline from waste plastic products and materials. This method was developed by Japanese scientists. This technology allows you to get up to 5 liters of diesel fuel or gasoline from 10 kg of plastic waste. Such methods can not only provide economic benefits, but also reduce the anthropogenic impact on the environment.

The use of waste and garbage as raw materials makes it possible to use natural resources more efficiently and reduce harmful emissions into the atmosphere and wastewater discharges. For example, using waste paper as a raw material for the production of paper, it is possible to reduce harmful emissions into the air by 70-80%, pollution of water bodies by 30-35%, compared with the use of primary raw materials. About four cubic meters of wood can be saved by using one ton of waste paper. Thus, thousands of hectares of forest lands are preserved, which in turn work to purify atmospheric air from carbon dioxide. It is possible and necessary to avoid an environmental catastrophe and the depletion of natural resources. In England, boxes are being installed to collect old, read newspapers, where the population throws newspapers, and they are sent for recycling.

Waste paper collection is not the most important process in the chain of production of materials from recycled materials. Factories must be equipped with all necessary production facilities. In Russia, this industry is poorly developed. To get newsprint from recyclable materials, it is necessary to remove the paint, clean the mass and bleach it. The process is not quite simple and not cheap. And all economically unprofitable processes in Russia end before they even begin.

In Europe, thermal insulation material from waste paper has been made for a long time. The so-called eco-wool (thermal insulation) has gained popularity not only among builders, but also among the average buyer. This is an ecological material that is completely safe for humans and the environment. The Japanese went even further. They make toilet paper from recycled train and subway tickets. Cardboard containers are also made from these tickets.

Pollution by non-ferrous metal waste. Hundreds of thousands of used batteries are exported to city landfills. Along with the garbage, hundreds of tons of mercury, tin, and light bulbs with tungsten end up in landfills. It is several times more profitable to recycle secondary raw materials in the form of waste than to produce from primary. Obtaining metal from ore is 25 times more expensive than collecting and processing recycled metal. The production of aluminum from primary raw materials consumes 70-80 times more electricity compared to the remelting of waste.

Glass containers are lying around in mountains in every city, and not only in disadvantaged areas, but also in the very center of the city, such a phenomenon is not uncommon. Glass containers either reach a solid waste landfill, landfill, or an incinerator. Although the reusable use of glass containers is economically more profitable than the production of a new one, this point has not been developed properly.

With the growth of the automotive industry, the negative impact on the environment has increased. In addition to batteries, plastics, and metal, cars emit a huge amount of waste in the form of rubber tires. The main problem with such garbage is that nature is not able to cope with rubber. It is possible to avoid environmental pollution by car tires by processing them into rubber grits, up to 5 mm in size. After that, the production of various products is possible from the resulting material. The Russian scientist Platonov invented a method of obtaining fuel from old tires. The tires are placed in a special reactor and filled with a chemical solution. After a couple of hours, a liquid similar to oil is obtained, which can be distilled into gasoline. Having processed 1000 kg of tires in this way, you can get about 600 kg of oil-like liquid, which then turns out to be 200 liters of gasoline and 200 liters of diesel fuel.

Radiochemical plants, nuclear power plants, scientific research centers produce one of the most dangerous types of waste – radioactive. This type of waste is not only a serious environmental problem, but can also create an environmental disaster. Radioactive waste can be liquid (most of it) and solid. Improper handling of radioactive waste can seriously worsen the environmental situation. The flow of radioactive

waste to Russia from other countries is prohibited, there are enough of their own. There is also a sad experience of acquaintance with radioactive waste – the Chernobyl accident. This type of pollution is global.

In Russia, the situation with garbage and waste leaves much to be desired. Most of the garbage turns sour in landfills and landfills, only 3-4% are recycled. There is a clear shortage of waste recycling plants. The presence of several incinerators only turns one type of waste into another. This approach will not solve the environmental problem of garbage and waste in Russia.

In addition, Russia attracts European companies that are ready to build modern waste recycling plants for free, in return for importing a certain amount of their waste. Thus, Russia can turn into an international dumping ground. To eliminate environmental problems associated with waste, an integrated approach is required, including an assessment of the situation, the development of a strategy to reduce waste generation, and the introduction of waste-free or low-waste technologies in production. Types of waste. According to the legislation of the Russian Federation, garbage is divided into groups according to criteria such as the source of occurrence, aggregate state and recycling possibilities. Waste is also classified according to the level of danger it poses to the ecosystem.

- Waste is generated mainly from the following sources:
- Warehouses for storing raw materials.
- Production, as a result of which residual materials appear.
- Construction sites.
- Broken equipment.
- Energy and electrical waste that is difficult to dispose of.
- Facilities that ensure the vital activity of people.
- Regardless of the origin, all waste is classified to minimize its harm to the environment, as well as to create optimal sanitary conditions to prevent the spread of viruses, infections and other pathogenic microorganisms.
- According to the source of origin. Depending on the source, waste is divided into two main groups: production and consumption waste. The first are the remnants of raw materials that were used to make new products and for some reason lost their properties in part or in full. Such materials cannot be used for their intended purpose and must be disposed of in accordance with legal requirements.
- Let's highlight the main types of industrial waste:
- Waste from mines and mines.
- Residues of agricultural raw materials.
- Materials that have lost their performance characteristics.
- Consumption waste is generated as a result of the use or wear of the original product. This group also includes solid waste, including: metal, textiles, plastic, glass, paper, food waste and others.
- Most consumer waste is recyclable and can be used for secondary production. However, most of the garbage is incinerated or sent to landfills for burial and long-term, natural decomposition.classifications.In order to systematize different types of garbage, the Government in 2003 developed a Federal Waste Classification Catalog, which contains a list of all waste, their characteristics and hazard class. According to the FCCO, by the nature of origin, waste can be:
- Chemical. Substances or a complex of substances that have been obtained in chemical laboratories or factories. Such waste can harm human health and disrupt the ecological balance. Chemical wastes such as mercury, alkali, acids, solvents, pesticides, oils and electrolytes are most common.
- Mineral. This category includes products with minerals in their composition that have expired or have been damaged. Such waste usually occurs as a result of the mining and glassworking industries, as well as in the manufacture of fertilizers and building materials.
- Organic. This is garbage that is able to decompose independently and form nutrients. This category includes missing food products, as well as animal and human waste.
- Communal. Residues of consumer or industrial products that have lost their properties during use. These include packaging, furniture, equipment and tools.All these wastes arise as a result of the activities of industrial enterprises and humans.Types of waste.The aggregate state is one of the criteria for the classification of waste, which helps to determine how they are stored and transported. Waste can be: solid, liquid, pasty, gel-like, etc.

An important criterion in the FCCO is the classification of waste according to the degree of danger. which defines 5 hazard classes of garbage according to the degree of their harmful effects on the ecosystem. Extremely hazardous waste cannot decompose on its own, which is why it does not decompose and causes irreparable damage to the environment. The first class includes waste containing mercury, polonium and others.

These are mainly medical instruments, appliances and lamps, as well as transformers.

The second class includes high-risk waste that has been decomposing for at least 30 years. Such garbage is less dangerous than the first class, but it also severely destroys the environment and harms flora and fauna. These are mainly waste products of oil refining, as well as chemical and transport enterprises. The second class of waste includes:acidic and alkaline solutions, rubber tires, rechargeable batteries and others.

• The main danger in such waste is chemical compounds and harmful substances, for example, arsenic, phenol, lithium, sulfuric acid.

The third hazard class is moderate. Third-class waste can decompose naturally over decades. The average period of complete destruction of moderate-hazard garbage is at least 10 years. At the same time, in the process of decomposition, waste pollutes nature, releases harmful substances into the atmosphere and soil. The waste of the third class includes: refined petroleum products, cement chips and dust, and others. The most frequent sources of third-class waste generation are agricultural and oil refining enterprises.

The fourth class consists of low-hazard waste, which minimally harm the environment and decompose within 3 years. After exposure to low-risk debris, nature can recover on its own. The third class of waste includes: furniture, tires, glass, bitumen and others.

Medical waste. A separate classification of waste is medical waste, the rules of handling of which are regulated by the requirements of the SanPiN. According to these requirements, medical waste is divided into safe, epidemiologically dangerous, extremely epidemiologically dangerous, toxicologically dangerous, and radioactive.

The collection, sorting and storage of waste in medical institutions and laboratories should be strictly controlled by local authorities in order to prevent toxic substances from entering the open nature and the spread of infections.

Recycling of waste. Most waste groups are suitable for recycling, which makes it possible to stop the growth of landfills and save natural resources. According to this criterion, waste can be divided into two groups: Suitable for the creation of recyclable materials and subsequent use in production. Despite the processing costs, it is economically feasible to recycle such waste by obtaining secondary raw materials. Recycling waste includes wood, paper, plastic, polyethylene, and food.

• To be destroyed or buried in their original form. This category includes garbage that is impossible or economically unprofitable to recycle. The number of processing plants in Russia is growing every year, however, due to the high cost of technology, this method of disposal will not be able to surpass landfill and incineration for a long time.

Cleaning. There are several solutions for waste treatment, including recycling, treatment and disposal. Recycling is the process of converting waste into new products, reducing the amount of waste that goes to landfills. Treatment includes the treatment of hazardous waste to make it less harmful before disposal includes the safe disposal of waste in landfills or other facilities.

The best cleaning solution. The best cleaning solution for waste depends on the type and amount of waste generated. Recycling is the best option for non-hazardous waste, as it reduces the amount of waste going to landfills. Treatment is the best option for hazardous waste because it reduces the amount of harm it can cause. Recycling should be the last medium and is only used for waste that cannot be recycled or treated.

Industrial waste is a serious problem that has a significant impact on the environment, human health and sources of industrial waste, and its impact is crucial for the development of effective cleaning solutions. Recycling, treatment and disposal are all options, but the best solution depends on the type and amount of waste generated.

Conclusion

- Thus, the above allows us to draw the following main conclusions. Authorities dealing with all types of waste should take into account:
- create collection points, recycling and recycling of household and industrial waste with mandatory registration of a license for hazardous waste management activities; determine the procedure for the activities of organizations engaged in the disposal and processing of these wastes;
- organize the selective collection of solid waste with the further involvement of production and consumption waste into economic circulation as additional sources of raw materials;
- create specialized municipal organizations for the removal of solid and liquid household waste in the territories of municipal districts with mandatory registration of a license for hazardous waste management

activities. To establish the working hours of municipal organizations providing services for the removal of household waste;

- in the absence of municipal organizations providing services for the removal of household waste organizations to local governments of municipalities, conclude contracts with specialized enterprises and individual entrepreneurs licensed to handle hazardous waste for the removal of household waste and garbage from the territories of municipalities;
- determine deadlines for the removal of household waste, approve tariffs for the provision of waste removal services, establish payment benefits for certain categories of consumers;
- regularly carry out work on the elimination of unauthorized landfills, eliminate their formation;
- organize work on the creation of landfills with subsequent reclamation of existing authorized landfills.
- It is recommended to the population for the collection and disposal of household waste:
- ensure separate collection of household waste (textiles, glass, waste paper, plastic) and removal to separate labeled containers or to hand over to specialized enterprises for payment and benefit.
- observe a culture of waste disposal and do not pollute the environment and teach your children proper waste management.
- be aware of first-class hazardous waste generated in everyday life (mercury lamps, accumulating batteries (chargers) requiring special storage, collection and disposal conditions.
- do not collect or store household waste (especially especially dangerous) in the dwelling, as administrative measures may be taken for storing waste improperly.
- burial and incineration of waste that pollutes the environment and affects the health of the population is not allowed.

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