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Solid Waste Recycling

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A B S T R A C T
The article describes what Solid domestic waste and solid municipal waste are, what kind of threat is the storage of garbage on huge landfills of the planet. The practical development of the waste separation infrastructure into sections, depending on the material, is investigated. The analysis of the further use of warehousing and incineration as the main method of solid waste disposal is carried out. The probability of destruction of some animal species and pollution of the environment with toxic resin has been investigated. Statistical data in percentages and specific numbers are given, which show the real amount of garbage thrown out by a person during one year. Tips are given on the proper use of household waste to avoid further damage to the earth and animal organisms. The possibility of recycling MSW by heat treatment without harm to the environment, thanks to the additional processing of toxic gases, is considered.

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The article says that the Earth is currently experiencing an ecological garbage crisis. The main reason for this situation is the frequent use of plastic containers, which after use do not give up in the right places, but simply go to rot in landfills and landfills.

The Accounting Chamber in 2019 showed statistics according to which in 30 years humanity should drown in landfills of organic and inorganic waste. Back in 2019, the population of Russia threw 65 million tons of garbage into the garbage dumps. At the same time, the number increases by one or two percent every year. By 2050, the amount of discarded raw materials will reach 100 million tons per year.

At the same time, more than half of the discarded material is plastic devices.

At the same time, the territory, which is littered with mountains of garbage, occupies the same area on which the entire population of Switzerland lives. A year later, it will no longer be possible to leave garbage at such landfills, because there simply won't be enough space. At first, only 17 regions will be littered with garbage, and then 15 more regions will be covered with it.

Approximately four and a half million tons of Municipal Solid Waste (MSW) are recycled every year. This number is only 7 percent of the amount of human waste products thrown away. The National Research University Higher School of Economics (HSE) conducted a study that shows that only 12 percent of plastic materials are recycled, 42 of which are polyethylene terephthalate (PET) containers.

At the moment, there are four plants on the territory of the Russian Federation that burn the waste of human existence — an Incineration Plant (MSZ). At the same time, the government plans to build about thirty more similar enterprises by the year 27. Because of this seemingly good event, more toxic ash will appear which also negatively affects the ecology of the planet.

Developed countries that recycle waste cannot achieve the ideal. Many countries of the European Union

recycle only half of plastic and the United States of America even less than ten percent.

The problem will be less relevant if we deal not only with the destruction of the material used, but also with the reasonable creation of new packages.

The main problems are the following facts:

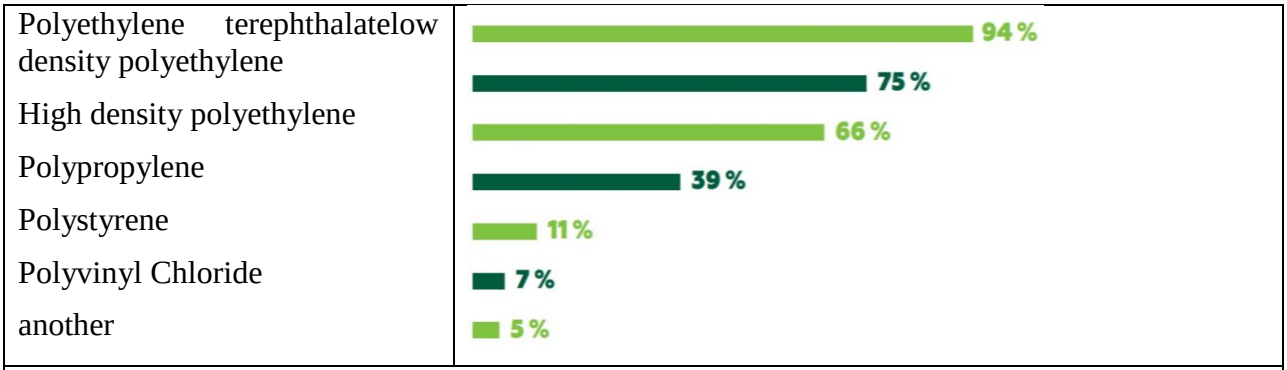
1. Only ten percent of secondary raw materials are processed.
2. Even if residents sort the waste themselves, they will still be thrown out in droves. In many regions and even megacities, there are no special separate containers where glass, paper, plastic, metal and organic matter could be stacked separately. Only every third inhabitant of large cities has the opportunity to use such garbage chutes.
3. Many containers have a sign on the label indicating that this item can be recycled. In reality, this does not always turn out to be true. MSZ refuse to accept a container that is made even of easily recyclable material. They do not accept rare colors of plastic, dirty containers or vessels that have shrink wrap on them.
4. Not every plastic can serve as a material for creating a new, similar-quality container. Only 17 percent of plastic is used to create new PET bottles. The rest of the recyclables are subjected to downsizing (the process by which the goods of the lower classes are obtained). [The book "Zero Waste" by Robin Murray]

In 2021, the international organization for the protection of environmental stability "Greenpeace" published statistics according to which humanity will drown in garbage layers by 2060.

At the moment, humanity has turned from creators and creators into consumers. Now they produce a lot of household goods. Clothing, technical devices, paper products, metal structures and the most dangerous — plastic containers — can be purchased at any store. However, consumers, instead of taking such materials to the right place, prefer to throw it in the trash. They are taken out of the garbage dumps to where they cause enormous damage to the ecology of the earth — to landfills.

Such landfills occupy huge areas, and most importantly — because of gases and decomposition of toxic elements, the fertility of the earth and even the air within a radius of several kilometers suffers. Toxic materials release gases into the atmosphere that negatively affect the air envelope of the Earth. Birds suffer because of such substances. In addition, materials that fall into landfills are also moved to reservoirs. This situation kills not only individual representatives of aquatic inhabitants, but also entire races. Soon, if this process is not stopped, humanity will kill with its own hands many populations that could benefit.

The purpose of the work is to explore the possibilities of recycling and recycling of solid household waste, to understand why the change in the ecological situation on the planet should begin with changes in every person.



Picture 1. How many Russian manufacturers accept different types of plastic?

Figure 1 shows a graph that shows how much and what materials are accepted by incineration and waste processing enterprises in the territory of the Russian Federation. The data were published on the scientific website "Greenpeace" according to the calculations of information about household hikes collected in

2021 [1].

At the moment, the indicators could change, but the digital deviation is insignificant, because the problem of environmental pollution and the release of toxic gases into the atmosphere does not solve the issue of MSW processing.

Solid waste recycling

Most of the garbage generated on the territory of the Russian Federation consists of solid household waste — one fourth of all waste is solid materials. At the same time, only 4 percent of household waste will be recycled, while the rest will be buried in landfills. The volume of products consumed by the earth's population is constantly increasing, which leads to the filling of polygons. To pile garbage in mountains means, firstly, to litter the planet, and secondly, to dispose of waste incorrectly. To recycle solid household waste and use it usefully in the future means to solve the problem of filling free space and use the resource rationally.

The history of the need for the processing of MSW

Since the human race appeared on earth, garbage has also appeared. Ancient cities and small settlements were equipped by people of that time with special places where waste products could be planned. During the middle Ages, various diseases began to manifest themselves (plague, leprosy, leprosy and many others) mainly due to the fact that sewage accumulated on city streets. It was during that period that it was decided to set aside a separate place where the waste of human existence would be stored.

Even in the 19th century, garbage could still cause an epidemic, which posed a threat to human existence. At that time, people threw out only organic garbage, as well as substances that did not affect environmental pollution.

As soon as the industry appeared, the problem of waste storage became one of the most common. With the increase in production enterprises, the amount of raw materials unsuitable for further use increased. When oil processing plants appeared, the problem only became more urgent. This problem has become more difficult to solve, since now the resources being thrown away have not decomposed even for 100 years.

In the 20th century, a "brilliant" solution was found that allowed America and Eurasia to get rid of pollution. Now plastic and other elements that decompose for a long time were transported to African countries. Because of this, entire settlements were littered with garbage walls. In the 21st century, the specialists who came up with this ingenious solution doubted their genius. At the moment, the problem of preserving the ecological situation is relevant in a way that it was not relevant in the Middle Ages.

What impact do landfills have on nature

Many people do not even suspect what kind of problem was created by the hands of consumers. Due to the production of a large number of goods in plastic packages, a large consumption of technical means, which after the termination of work are simply laid out by people on the street, and not disposed of properly, nature suffers — plants, animals and the fertility of the earth. Due to the occurrence of gases, a greenhouse effect appears which everyone knows about from school, but does not think about its danger. Due to the greenhouse effect, global warming appears, the occurrence of which leads to the extinction of many animal species and to the filling of many not only islands, but also continents.

Important! The most dangerous substance for nature is plastic ($(C_3h_4o_2)$□). Due to the large consumption of products stored in plastic packages, thousands of kilometers of the earth's territory are polluted, which could yield crops and feed thousands of animals. This substance enters landfills in catastrophic volumes and is discharged into reservoirs. This leads to the destruction of birds and marine life. This has a devastating effect on the ecosystem of our planet [7].

In addition, many types of garbage do not decompose in a year, they need millennia for this process. One person's waste will decompose as long as not only his grandchildren and great-grandchildren exist, but also subsequent generations.

Polygons occupy a huge area of the Earth. After storing garbage on the territory, the land will be

unsuitable for growing plants and simple life — so many toxic substances are eaten into the ground and spread into the atmosphere.

Formula for calculating the atmospheric pollution index:

In = ∑ = ∑ (Xi/ПДКi) Ci (1).

In this formula, Xi is the average annual concentration of gases i, Ci is a coefficient that shows what danger the gas (i) carries in comparison with the degree of influence of sulfur dioxide, In is the value of ISA. If the result is less than 5, then atmospheric pollution is normal, 5-8 — increased pollution, 8-13 — high, from 13 — heavy pollution [3].

On the territory of the Russian Federation, such a problem should be solved first of all. Due to the occurrence of an unauthorized landfill, which can often be found in the middle of a residential city street, the land is polluted even in residential areas. In addition, due to the low consumption of culture, as well as due to the fact that the population is irresponsible about waste disposal, the environment gets even more harm. This problem is solved relatively easily, but you need to devote time and some resources to it.

What can be solid household waste

Solid household garbage is characterized by heterogeneity of materials. It contains both organic remains and non-organic items that were thrown away due to the inability to function anymore. There is also a big difference in the aggregate state, origin, level of threat that may arise from the release of such things, composition and shelf life (use). The tasks of the subject directly affect the classification of the latter, which entails a division into non-homogeneous fractions.

For example, as many experts tell the population of Russia, organic garbage should be thrown into separate containers and not interact with non-organic materials. Due to the joint storage of such substances, inorganic materials are not subject to further processing.

On the territory of the Russian Federation, garbage is divided into two types — dry and wet. The first includes materials that can be recycled without additional cleaning. The latter are organic things or things that have traces of interaction with organic matter.

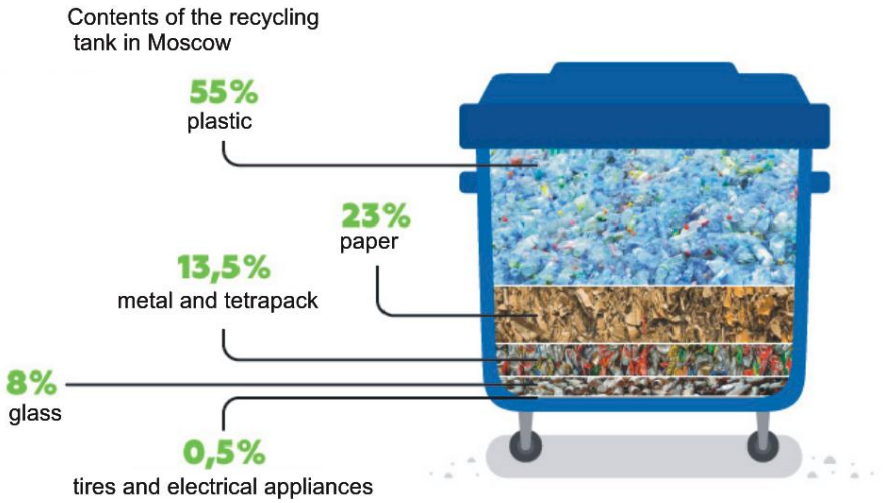


Рис. 2 Содержимое бака для вторсырья в Москве

Figure 2 shows a graph that was published on the official website of the scientific company for the preservation of the ecological balance "Greenpeace". According to this graph, it can be seen that 55 percent of the garbage cans in the city of Moscow are occupied by plastic garbage. Paper is in second place in terms of the amount of waste and is 23 percent. Metal occupies 13.5 percent of the total place. Glass is 8 percent, rubber and electrical appliances are only 0.5 percent. Of course, the data are average. Indicators may vary in different districts and at different times. However, this does not change the fact that plastic is thrown away the most.

Why it is necessary to recycle household garbage

Every year, the reports of the Russian Federation receive about seventy million tons of solid household garbage. Only officially registered landfills (and there are 15,000 of them) are located on an area of 40,000 square kilometers.

It is not known what territory the unregistered landfills occupy, but after clarifying this issue, the data showed that there are about 40,000 such objects in the country. As the number of people living on the plan increases, the amount of waste also increases. In the Russian Federation, every person throws out more than one kilogram of garbage on average per day. In the United States of America, this figure is twice as high.

The system that is responsible for the rational turnover of garbage is not fully established, which is why the available area intended for garbage disposal is reduced. In addition, due to the irrational use of funds, the economic situation suffers. Solid household garbage decomposes from two years, while there is no maximum time for its decomposition (this process can last a thousand years or more). Therefore, the area intended for storing such materials will not be released in the near future.

How MSW can be recycled and disposed of

The method of disposal of materials is influenced by the characteristics and methods of interaction with substances. In order to recycle solid waste as efficiently as possible, it is necessary to introduce some auxiliary elements. For example, during the production of packaging, a special code marking is written on the latter, which allows you to correctly dispose of waste after consuming the thing. In order to dispose of materials correctly, you need to follow the system of separation of used funds.

If you distribute the incoming raw materials into sections, it will be easier to clean it in the future. However, such distribution is possible only with proper disposal of garbage — when the latter is decomposed into appropriate containers (organic matter, glass, plastic, and so on). This helps to recycle, burn or generate energy in the most basic optimal way.

MSW can be:

1. Buried;
2. Briquetting;
3. Recycle chemically, thermally or mechanically;
4. Compost

Step-by-step disposal of solid debris.

Materials are disposed of in just three stages. They need to be collected, taken out, recycled or disposed of in another way. In this case, each step can consist of several actions. For example, when substances are collected, in some cases they need to be further sorted. They are exported by certain groups, and at the same time they are cleaned and pressed. The availability of additional actions will depend on how the garbage is disposed of. If the landfill disposal option is selected, the waste is collected in one pile, which can then be pressed. At the same time, it is necessary that all the objects that come together are homogeneous.

Landfill warehousing.

As mentioned above, this option is the least optimal. In this case, large areas are needed where the heterogeneous composition could be folded. When garbage is stored even according to all requirements, landfill gas still appears which arises due to the interaction of different materials. Toxins are produced from the contact of fresh and rotten substances, solid and liquid, toxic and non-toxic.

Garbage collection with briquettes

Some industrial sectors receive materials during work that cannot be used a second time. For example, at a wood processing plant, residues in the form of chips, sawdust and dust will often be happy. Such materials cannot be recycled, but they can be used as fuel. Then the event collects such waste, puts it under the press, then stores and transports briquettes.

Other materials are subjected to briquetting to increase the density. If the raw material is not homogeneous, it is pressed with an average of 240 kilograms per cubic meter. Рециклинг

Metals, polymeric substances and glass can be used in the future after the first use. These substances are good secondary raw materials; the quality is not inferior to the original products. Secondary products can serve during the production of new products or be an addition to the latter.

Glass can be recycled many times (there is no maximum number), since the material does not lose its characteristics. The characteristics of secondary metal products are directly affected by their appearance. The noble metal retains its qualities after processing, thanks to which it can be executed as an independent raw material. The base metal loses some of its properties, so it is used as a supplement.

Polymer processing is carried out on the same principle as the processing of metal products. For example, it will be possible to use wooden products again only a few times, while after each subsequent procedure, the quality of the items will only get worse.

Compost of MSW

Organic waste is usually composted. This is the main way to get rid of raw materials. When organic matter begins to rot, biogenic diamines (ptomains), gaseous substances (ammonia, hydrogen sulfide, methane and others), as well as protein compounds enter the soil, which increases the fertility of the earth.

In order for useful properties to be formed, it is necessary to comply with certain requirements when insisting waste:

1. Observe the balance of carbon and nitrogen substances in a ratio of four to one.
2. Maintain high humidity and temperature so that chemical processes proceed faster.
3. The container can be closed or open, different substances require different aerobic procedures.

Composting takes place from 20 days to 12 months. The result of the process will be the appearance of a dry homogeneous mass. Such methods can be used independently, while getting rid of your own garbage yourself.

Thermal procedure

The thermal method of getting rid of garbage is one of the most common. This procedure is easy to carry out and does not require extra costs. To carry out heat treatment of solid household waste, you will only need an oven from which you need to extract gorenje products.

To carry out technical disposal, specialists use a furnace with or without filters, as well as complex devices that allow producing more useful elements.

There are only 3 methods by which garbage undergoes heat treatment. The waste is disposed of by plasma mining, incineration and pyrolysis.

Using plasma treatment

Plasma torches heat waste using air, water vapor and an electric arc.

Filters collect gas waste during combustion, and the solid residue is slags. Gorenje The latter serve as additives to building materials.

With the help of this method, they get rid of garbage for 10 years, so it has not yet become widespread. In addition, it requires a lot of money, which is why its popularity will not grow in the near future.

By burning

When waste burns, compounds are formed that affect atmospheric parameters. This method is most harmful to the outside world. However, in contrast to the damage to the atmosphere, it becomes the fact that 9/10 of the waste disappears before they are buried in landfills.

Therefore, special rules have been developed that must be observed when burning garbage:

1. It is necessary to install good filtering systems that will not allow harmful substances to harm the atmosphere.
2. The energy produced by such a process must be collected or used immediately.

By pyrolysis

Pyrolysis can be carried out at high or low temperatures. For this process, special pyrolysis furnaces are used, where oxygen does not enter. The furnace is called pyrolysis, since the process of decomposition of organic substances, which occurs in the combustion of the latter without the participation of oxygen, is called pyrolysis. To carry out such a procedure, high-temperature (from 900 degrees Celsius) and low-temperature (from 450 to 900 degrees Celsius) processes are used.

There are only two types of pyrolysis, since when using a certain temperature, various aggregate compounds are obtained. The lower the temperature index, the less gas, ash and thick resin will be, but solid and liquid residues will form.

What mechanisms are needed to recycle waste

Before the final final processing, the materials are assembled and mounted. The equipment and its subspecies will directly depend on what raw materials and in what condition will be processed at the enterprise. For example, if an enterprise processes only homogeneous materials, the garbage is first cleaned and melted without undergoing pre-sorting.

Garbage is recycled using:

1. cleaning chambers;
2. presses;
3. filters;
4. sorting conveyor lines;
5. crushers and shredders;
6. Furnaces.

What kind of secondary products can be obtained

When waste is recycled, only the types of products used for the second and subsequent times can be obtained. Materials such as metal, polymers and glass are used in the same field where it was used before.

Melted glass (for example, $(C_5o_2n_8)$ n) is used in the creation of bottles, plates and similar glass vessels. When transporting lead (Pb) products, the secondary material is used together with new lead.

When wood products are processed, their quality becomes worse after each such procedure. Therefore, high-quality paper is made from wood first, and then wrapping or ordinary toilet products.

In addition, energy is obtained from the processed material. Gaseous or solid substances are in demand in heating systems both for an ordinary room and for the surrounding area.

How long does the disposal of solid waste take

Various factors affect the time period of garbage disposal. The process of export is influenced by the environment, the time of year, the climate of the area and the time during which the product decomposes independently.

In the summer, people consume more products compared to the winter time of the year, therefore, waste removal should be carried out every day, because organic matter quickly begins to decompose. In winter, the biological reaction is slower, and therefore in some cities garbage is collected every three days.

How garbage is processed on the territory of the Russian Federation

Unfortunately, most of the waste is sent to landfill without sorting it in advance. Especially dangerous

elements (batteries, toxic substances and construction slag) are selected at the landfill. The mass is pressed and stored on the landfill site for about seven years (or until the landfill is completely filled). The second most popular option for getting rid of garbage is heat treatment.

Enterprises that process products

Basically, on the territory of the Russian Federation, the garbage that is obtained during the operation of the plant is disposed of by the plant itself. Basically, such factories try to use the product until nothing can be produced from it at all. There are practically no enterprises in Russia that would agree to process materials brought by other factories or private individuals. There is about 250 factories on the territory of the Russian Federation that process waste, 10 that burn it, and 50 that sort it [2].

The influence of the time of year on the amount of waste

The MSW density index depends on the conditions of waste turnover and composition. The time of year, as well as the season, affects the accumulated waste. The number and density of the population in the selected region also has a great influence.

Table 1. The table shows data on changes in consumed products depending on the time of year.

Period	The factor influencing the final result	Characteristic features
Spring season	Last year's harvest is coming to an end	Compared with the autumn period, the amount of MSW is reduced by 25 percent
Summer time of the year	The daily activity of residents is increasing	In comparison with the winter period, the amount of solid waste increases by 15 percent
Autumn season	There is a harvest, residents consume more goods	Waste increases by 1.5 times
Winter season	The activity of residents is significantly reduced	Reduce street waste by 5-7 percent

In order to conduct proper planning for waste disposal, one must pay attention to the density of the organic resource, on which the total density of municipal solid waste depends. This indicator also depends on the climatic indicators of the area. The northern regions will differ in these indicators from the southern edge of Russia.

Table 2. Material standard density values

Material	Density indicators
Fabrics, clothing	170 to 220
organic matter	310 to 500
paper products	680 to 1150
Glass materials	1360 to 2500
rubber material	180 to 240
Wooden crafts	About 600
Plastic products	About 950
acrylic elements	1100 to 1180

Thanks to the reference information, it is possible to understand more precisely how to handle incoming raw materials, based on its composition and density. The Federal Classification catalog of waste allows, knowing the indicators of composition and aggregate characteristics, to calculate what density the material has.

How to calculate how much raw materials will be obtained (formula and example)

In order for the process of turnover of raw materials (its collection and export to the landfill) to go exactly according to plan, you need to familiarize yourself with only one indicator of the elements.

If the weight is known (for example, vehicles, which are always weighed when entering the landfill), you can get acquainted with the colorful values and calculate exactly how much raw materials.

For example, 15 tons of waste (heterogeneous) is delivered to the landfill every week. The average density will be 240 kilograms per cubic meter, and this number will figure in the final equation. To calculate how much waste has been received, you need to find the quotient of mass and density. That is:

15,000: 240 = 62.5 cubic meters. The end result is the volume of raw materials received.

On average, twenty cubic meters of garbage can be placed in one garbage truck body. Therefore, the calculation of waste removal takes place according to the following formula:

62.5: 20 = 3.125 trips with a full body per week should be made (the result is rounded to 3, periodically you need to make 4 trips in 7 days).

How to calculate the mass of MSW (formula and example)

The amount of garbage unloading within 7 days depends on the mass of the received raw materials. This happens because a garbage truck can only take away a certain amount of resources.

For example, 100 cubic meters of paper products are brought to the landfill.

The reference table shows that the density of such material reaches 1150 kilograms per cubic meter. Based on these data, the mass is calculated:

100 × 1150 = 115,000 kilograms or 115 tons of paper waste.

Now he can calculate how many times in 7 days it is necessary to take out materials. To do this, the resulting result must be divided by the maximum weight of materials that one garbage truck can withstand (let this number be equal to 9 tons). That is:

115: 9 = 12,778 = 13 exports within 7 days.

Pay attention! The maximum values are used in the equations, so you should have the opportunity to carry out additional unloading of the material in stock, since the amount of raw materials may increase.

How to solve the problem of environmental pollution

Pollution of vast tracts of land is an international problem, that is, it has become global. This problem is currently being solved by every state on the planet, while each country has its own method of combating pollution. Someone solves this issue effectively, and someone does not. There are some application points that allow you to resolve this issue.

Consume products wisely

In order to get rid of unnecessary pollution, each person must contribute. The main indicator of reasonable consumption is the purchase of a minimum amount of necessary goods. For example, you can buy only those products that are sold in paper packaging or without it at all (this is especially true for vegetables and fruits). Some European countries have such a culture that people acquire a thing only when it is really necessary. In addition, you can not throw away things that are no longer needed. It is better to give them to those who really need them or to hand them over to second-hand stores.

Many companies produce such clothes, which are made of recycled materials. It is better to buy things from such companies. In addition, items that can be used to make other products must be handed over to the recycling center. When the action of batteries, batteries and other electronics ends, they should be given to a special assembly point.

As mentioned above, most of the garbage consists of plastic, which is containers, packaging and disposable tableware. If you give up such things, it will be easier to solve the problem of ecology. It is advisable to purchase a quality product that will serve for a long time.

Residents of Russia are more often trying to match fashion. They buy new clothes, technical equipment and, after a short use, throw it in the trash. Because of this, the environment suffers. It is important to consciously purchase goods — so everyone can contribute to saving the earth [6].

Waste incinerators

Incineration of garbage is the second most rational option for the use of waste. Waste disposal can occur

without the formation of huge landfills. At first glance, this will help to get rid of raw materials effectively, but due to incineration, a new environmental threat arises.

This is due to the fact that toxic substances (CO, NOx, CH) arise during such disposal. Because of them, the healthy atmosphere of the earth is destroyed. Some countries use toxic gas for a second time, having previously treated it. Thanks to this procedure, gases do not affect the atmospheric structure and do not pose a threat to the environment. This makes waste incineration safer, but more expensive. Not every country can carry out such processing.

In Russia, waste incineration plants do not launch gas for safe processing. In addition, only two percent of the total amount of garbage can be burned.

Sort and recycle

To recycle waste means to use the material again, which is the optimal solution to the issue of preserving the ecological balance. Any raw materials from which a new product can be obtained must be recycled, the rest must be disposed of. A similar option is used by developed countries.

At the initial stage, the raw materials are sorted. The residents of the country are primarily responsible for sorting. There are different types of sorting. In some countries, waste is divided into recyclable and non-recyclable. There is a separate package for each of these types. The processed garbage is taken to sorting points. For example, in the United States of America, raw materials that can be processed are put in a blue bag. Then all packages, without exception, are sent to sorting points, where blue packages are processed separately.

In European countries, many sort waste even before they throw it away. Near the houses (each has its own) there are garbage containers, in which there are different departments. At the same time, raw materials are sorted according to different principles. Sometimes organic, plastic, glass and paper products are placed separately. Sometimes there is a container for metal, and sometimes there is no container for glass products. They are sorted in different ways, but they are still sorted and sent to various processing enterprises.

Important! Many countries give monetary rewards to those who return containers and packages. If people buy goods in plastic or paper packaging, they pay an additional amount for the latter. When the vessel is no longer needed, it is taken to special points, where the overpayment given by the visitor when buying the goods is returned for it. The increased cost of the product is a kind of pledge that guarantees that the consumer will return the package.

Unfortunately, not every country practices the process of processing MSW. This procedure is quite expensive, which does not always pay off. However, such enterprises greatly help to improve the environmental situation in the world [5].

Research results

The study has led to the fact that the degree of pollution of the atmosphere, reservoirs and contamination of the earth with toxic substances has become more understandable. To change the situation, to improve the ecological state of the planet, it is necessary to consciously treat the consumption of products. It is possible to help the planet if each person starts by changing himself first. Research on the topic "Solid waste recycling" showed that more than 50% of garbage is plastic, in Russia more than 40 thousand square kilometers are given over to waste storage, every person in Russia throws out 1.1 kilograms of garbage every day, the infrastructure for separating MSW is not established. The situation is critical and will lead to the destruction of ecology and humanity if we do not start solving this issue right now.

Conclusions

Thus, environmentally harmful waste appeared together with humans. Back in the Middle Ages, the problem of garbage storage was solved in various ways. Solid household waste pollutes the environment, kills animal populations and makes the land uninhabitable (not to mention the cultivation of useful plants on it).

Solid municipal waste can be different in the composition of materials, and almost always they are not

thrown out in a homogeneous mass. The impact of garbage on nature is colossal in the most negative sense. Plastic decomposes for hundreds of years, which harms the Earth.

Garbage can be buried (the most common, cheap and not eco-friendly option), briquetted, processed mechanically, thermally and mechanically, or composted. The last three options require financial costs, and such enterprises do not always pay off. However, it is they who contribute to the further development of humanity that cannot harm nature.

The most optimal and eco—friendly way to get rid of garbage is to use the latter again. Processing and application of the material is the most effective way, which does not disturb the ecological balance of the planet much.

A large proportion of plastic products, which are usually consumed only once, are not accepted for recycling. Only HDPE, LDPE PET can get into processing plants.

Many products that even have a possible recycling icon on them are not recyclable, which simply confuses consumers.

It is not always on the Internet and other sources that there is verified information about the points that accept raw materials for recycling.

In fact, various materials are subject to secondary use, but in the area where he lives, there are not always infrastructures that accept used raw materials.

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