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# THE IMPACT OF ECOLOGY ON INTERNATIONAL ECONOMIC RELATIONS

## ВПЛИВ ЕКОЛОГІЇ НА МІЖНАРОДНІ ЕКОНОМІЧНІ ВІДНОСИНИ

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Today the acute problems are pollution oceans, global warming, lack of resources, the increasing number of war and terrorist groups. All of this have adversely effects on the world environment and causes many problems in relations between countries. The issues of the impact of ecology on the world economy were revealed in their works economists such as K. Sitnik, M. Budiko, M. Reimer and many others. The main porpoise is to analyze the impact of ecology on the formation of economies in Europe and Ukraine, effects and suggest ways to solve problems. One of the main principles of domestic and foreign policy of any country is the preservation of the environment and its components. The main objectives of the article are to identify and analyze the main environmental problems of the world; to analyze the consequences of economic dangers and their impact on international economic relations; to analyze the consequences of energy consumption and propose alternative solutions for Ukraine; to investigate the problems and prospects of waste recycling in the world by proposing ways to solve the problem for Ukraine based on the experience of foreign countries; to identify the negative impact of solid waste recycling and suggest ways to solve the problem. Thus, there is a need to identify and study the main problems that stand in the way of building international economic relations in Ukraine and the world as a whole and to identify the main ways to solve these problems. The article analyzes the level of ecology worldwide. The basic environmental problems that have a negative impact in terms of all sectors of society. The main factors that cause negative impact on the environment are considered. Methods of pollution control at the level of the European Union and Ukraine are researched and offered. Ukraine's prospects for improving the environmental situation, which will help reach a new level in the world rankings, have also been identified.

**Keywords:** environment, environmental problems, international economic relations, environmental security, renewable energy, electricity, garbage recycling, solid waste, environmental disaster.

На сьогодні гостро постають проблеми пов'язані із забрудненням світового океану, глобального потепління, нестачею ресурсів, зростання кількості війн та терористичних угруповань. Усе це згубно впливає на світову екологію та викликає чи мало проблем у відносинах між країнами. Питання впливу екології на світову економіку розкривали у своїх роботах такі економісти, як: К. Ситник, М. Будіко, М. Реймер та багато інших. Основним завданням є аналіз впливу екології на формування економіки в Європі та Україні, наслідків та запропонування шляхів вирішення проблем. Одним з головних принципів внутрішньої та зовнішньої політики будь-якої країни є збереження довкілля та його складових. Основними цілями статті є виявлення та аналіз основних екологічних проблем світу; проаналізувати наслідки економічної небезпеки та їх вплив на міжнародні економічні відносини; проаналізувати наслідки споживання енергії та запропонувати альтернативні рішення для України; дослідити проблеми та перспективи переробки відходів у світі, пропонуючи шляхи вирішення проблеми для України на основі досвіду зарубіжних країн; виявити негативний вплив переробки твердих побутових відходів та запропонувати шляхи вирішення проблеми. Таким чином, існує потреба у визначенні

та вивченні основних проблем, що перешкоджають побудові міжнародних економічних відносин в Україні та світі в цілому, та визначенні основних шляхів їх вирішення. У статті проаналізовано рівень екології у всьому світі. Основними цілями статті є виявити та проаналізувати основні екологічні проблеми світу; проаналізувати наслідки економічної небезпеки та їх вплив на міжнародні економічні відносини; проаналізувати наслідки споживання енергії та запропонувати альтернативні рішення для України; дослідити проблеми та перспективи переробки відходів у світі, пропонуючи шляхи вирішення проблеми для України на основі досвіду зарубіжних країн; виявити негативний вплив переробки твердих побутових відходів та запропонувати шляхи вирішення проблеми. Таким чином, існує потреба у визначенні та вивченні основних проблем, що перешкоджають побудові міжнародних економічних відносин в Україні та світі в цілому, та визначенні основних шляхів їх вирішення. У статті проаналізовано рівень екології у всьому світі. Однією із основних засад внутрішньої та зовнішньої політики будь-якої країни є збереження навколишнього середовища та його складових. Таким чином виникає необхідність виявлення та дослідження основних проблем, які стоять на перешкоді побудови міжнародних економічних відносин в Україні та світі в цілому та виявлення основних шляхів вирішення даних проблем. У статті здійснено аналіз рівня екології на світовому рівні. Виявлено основні екологічні проблеми, які несуть негативний вплив у розрізі всіх сфер діяльності суспільства. Розглянуто основні фактори, які спричиняють негативний вплив на навколишнє середовище. Досліджено та запропоновано методи боротьби із забрудненням на рівні Європейського Союзу та України. Також визначені перспективи України щодо покращення екологічної ситуації, що допоможе вийти на новий рівень у світовому рейтингу.

**Ключові слова:** навколишнє середовище, екологічні проблеми, міжнародні економічні відносини, екологічна безпека, відновлювальна енергетика, електроенергетична галузь, переробка сміття, тверді побутові відходи, екологічна катастрофа.

На сегодня остро стоят проблемы связанные с загрязнением мирового океана, глобального потепления, нехваткой ресурсов, рост числа войн и террористических группировок. Все это пагубно влияет на мировую экологию и вызывает много проблем в отношениях между странами. Одним из основных принципов внутренней и внешней политики любой страны является сохранение окружающей среды и его составляющих. Таким образом возникает необходимость выявления и исследования основных проблем, которые препятствуют построению международных экономических отношений в Украине и мире в целом и выявление основных путей решения данных проблем. В статье проведен анализ уровня экологии на мировом уровне. Выявлены основные экологические проблемы, которые несут негативное влияние в разрезе всех сфер деятельности общества. Рассмотрены основные факторы, которые вызывают негативы влияния на окружающую среду. Исследованы и предложены методы борьбы с загрязнением на уровне Европейского Союза и Украины. Также определены перспективы Украины по улучшению экологической ситуации, что поможет выйти на новый уровень в мировом рейтинге.

**Ключевые слова:** окружающая среда, экологические проблемы, международные экономические отношения, экологическая безопасность, возобновляемая энергетика, электроэнергетическая отрасль, переработка мусора, твердые бытовые отходы, экологическая катастрофа.

**Statement of the problem.** The problem of population growth, increasing disparities in socio-economic development, resource provision, in exacerbating the contradiction between nature and person, environmental problems. All of them are increasingly exacerbating complications in international economic relations.

All this is due to a large number of factors, including:

- increasing resource dependence of countries;
- ecology of countries;
- absence of agreed international environmental criteria and standards, rules that guided all the nations of the world;
- absence of approaches to address existing environmental problems and opportunities for the implementation of national environmental programs. which would positively affect the current situation in the world.

Thus acquires the need for cooperation in the field of environmental protection at the international level.

**Analysis of recent researches and publications.** The issues of the impact of ecology on the world economy were revealed in their works economists such as K. Sitnik, M. Budiko, M. Reimer and many others.

**Formulation purposes of article.** To analyze the impact of ecology on the formation of economies in Europe and Ukraine, effects and suggest ways to solve problems.

**Formulation of the goals of the article.** The main objectives of the article are:

1. Identify and analyze the main environmental problems of the world.
2. Analyze the consequences of economic dangers and their impact on international economic relations.
3. Analyze the consequences of energy consumption and propose alternative solutions for Ukraine.
4. Investigate the problems and prospects of waste recycling in the world by proposing ways to solve the problem for Ukraine based on the experience of foreign countries.

5. Identify the negative impact of solid waste recycling and suggest ways to solve the problem.

The main material. International environmental security is a systemic multi-level process of integration, liberalization, regionalization and democratization of international relations. its composition is formed of complex of ecological conditions, human existence, affect the functioning of environmental institutions, environmental organizations. This is causing the creation of special regimes of relations between countries in order to prevent environmental dangers комплекс. These components are the main formulation of the stability of the world economic system.

Ecology problems didn't arise today or yesterday. More than 4 0000 years ago people began to take care of nature conservation and to issue orders about protection of forests, steppe grass cover, water sources, etc. But today's problems are more biggest than they were many years ago.

Globalization processes, increasing disparities in economic development and resource provision between economically developed and underdeveloped countries, popularization and migration of population increase the threat to humanity in the long run. This is due to the emergence of impulses of destructive conflicts on a

global scale in the form of ecology problems, which are shown in the table 1.

The modern system of international environmental security is characterized by flexibility, dynamism and transformation, which provides:

- involvement of the countries of the world in nature protection and ecological activity;
- intensification of the process of concluding international agreements on nature protection and environmental orientation;
- formation of a new vector of functioning, influence and expansion of activities of effective actors of international relations (TNCs, TNBs, non-governmental public organizations);
- creation of national and international structures that coordinate environmental activities, environmental policy both in the regions and around the world;
- environmentalizing of traditional forms of international relations and their institutions of legislative, executive and judicial branches of government.

The acute problem for today is power consumption. The emergence of the problem associated with all kinds of human activities: homes heating, cooking, vehicle traffic, industry, agriculture, etc. Despite the fact that the world comes

Table 1

### Ecology dangers and their effects

Ecology dangers	Effects
Depletion of the ozone layer of the atmosphere and manifestations of global climate change	<ul style="list-style-type: none"> <li>– increasing the greenhouse effect;</li> <li>– increase emissions of toxic substances; increase in air temperature on 1,1-6,4°C</li> <li>– melting of Arctic glaciers,</li> <li>– raising the level of the world's oceans by 1 m, which can lead to catastrophic threats to human life and health, escalation of violent conflicts in 46 countries with a population of 2.7 bn. people</li> </ul>
World pollution to the ocean	<ul style="list-style-type: none"> <li>– due to the extensive activity of TNCs, disposal of toxic and radioactive substances, saturation of water with carbon dioxide from the atmosphere, the receipt of anthropogenic petroleum products, heavy metals and complex organic compounds (Greenpeace estimates that about 6.5 million tonnes of waste is dumped into the world's oceans each year, 80% of which is plastic, threatening 267 species of marine life.) [1]</li> </ul>
Limited access to world resources and disproportionate use of world countries	<ul style="list-style-type: none"> <li>– from 6.1 bn. people (2000 year) to 10 bn people (2050 year) and the transformation of the determinants of migration flows (environmental migrants, environmental refugees)</li> </ul>
Creation and functioning of a global terrorist network	<ul style="list-style-type: none"> <li>– Over the last decade, economically developed countries have consumed about 70% of the world's energy and metals, 60% of food; for this ratio of energy consumption only in agriculture was in different countries from 1/65 (Congo Basin) to 1 / 2.0-1 / 2.5 (USA)</li> <li>– proliferation of nuclear, chemical, biological, geophysical, space, psychotropic, environmental weapons and technologies of mass destruction</li> <li>– marginal poverty and destitution in "third world" countries, where the population could reach 7.8 bn by 2025 year</li> </ul>

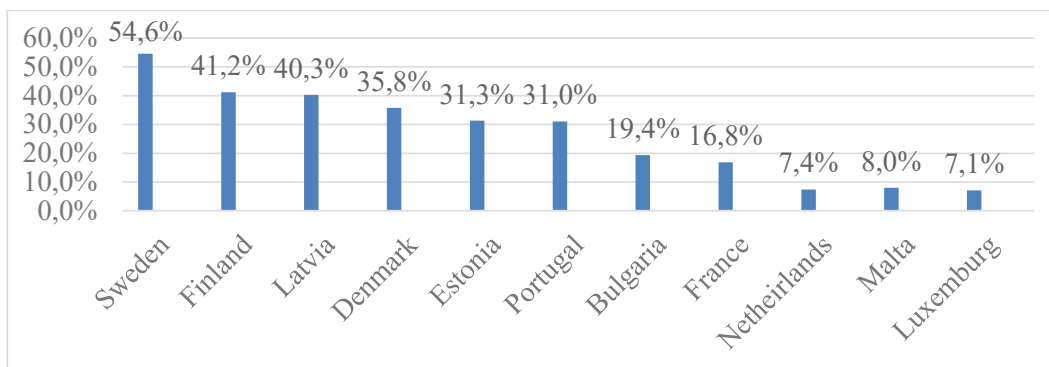


Figure 1. The share of renewable energy in the EU

from thermal power, Ukraine increased purchase of coal for SRE. Burning fossil solid and liquid fuels is accompanied by sulfur, carbon dioxide and carbon monoxide, nitrogen oxides and dust, soot and other pollutants. Opencast coal mining like peat mining leads to changes in natural landscapes and sometimes to their destruction [2].

Since 2017 The European Union decided to make the transition to renewable energy. By 2020 11 European countries have reached or are close to achieving the goal. The leaders in this area were: Bulgaria, Croatia, Czech Republic, Denmark, Estonia, Finland, Italy, England, Lithuania, Romania and Switzerland. And the closest to this goal: Austria, Greece and Latvia.

In 1st place for the production of renewable energy out is Sweden 54.6% in the 2nd mu- Finland with 41.2% in the 3rd Latvia – 40.3% (Figure 1).

This share was lowest in the Netherlands (7.4%), Malta (8.0%) and Luxembourg (9.1%). Differences arise due to fluctuations in the supply of natural resources mostly in the possibility of building hydroelectric power plants and the availability of biomass. All Member States have increased their share of renewable energy and some of which have at least doubled their share.

Today in Ukraine the situation is critical, most of the electricity industry is occupied by TPPs, HPPs, PSPs (42.2%). And energy consumption from nuclear power plants is 46.8% (Figure 2) [3].

To improve the situation in Ukraine and in the world in general, it is appropriate to use alternative energy sources. These are natural phenomena that are converted by thermal installations into thermal or electrical energy. These include:

1. Solar electromagnetic radiation;
2. Kinetic energy of wind air masses;
3. Kinetic energy of the river water flow;
4. Energy of sea tides; thermal energy of hot springs.

Alternative energy also includes heat generation in the process of burning renewable fuels as such as biogas, bioethanol, fuel pellets, etc.

Another big today's problem is waste recycling. There are 3 main methods of disposal for today:

- incineration,
- burial by the engineer of those objects – landfills,
- processing and reuse in production.

Based on the hierarchy of waste management priorities in Ukraine and Europe we can see that in Ukraine more than 90 percent of waste is dis-

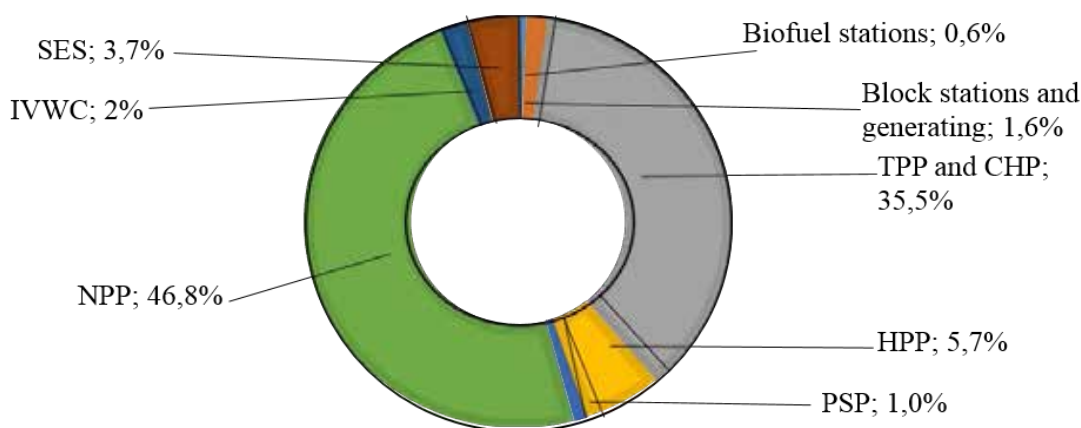


Figure 2. The composition of the electricity sector in Ukraine, %

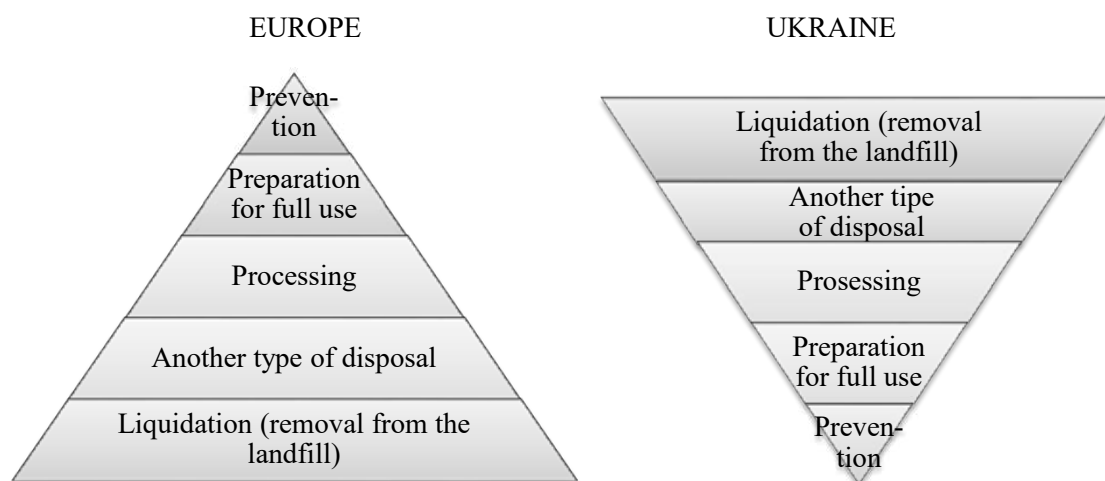


Figure 3. Hierarchy of waste management priorities in the EU and Ukraine

posed of in landfills. In civilized countries, the priority is to reduce waste generation (Prohibition of polymer packaging, Advocacy to reduce the use of disposable items) [4].

In some European countries recycling 60% of waste because most waste is recyclable. Recycling reduces the amount of waste and saves natural resources. The key to waste recycling is sorting. Only 6% of waste is recycling in Ukraine (Figure 3).

While Ukraine does not know what to do with billions of tons of garbage, Europe makes extensive use of waste in a variety of industries. In Ukraine, there are 6.5 thousand legal and about 35 thousand illegal landfills with a total area of 7% of the territory. And every year the situation only gets worse. According to environmentalists Ukraine has accumulated 54 million cubic meters of waste. Every year landfills are replenished by about 15-17 million tons. The processing is only one tenth of the collected debris. For today there are 4 waste incineration plants in the country: Kyiv, Dnipropetrovsk, Kharkiv and occupied Sevastopol. But works only plant "Energy" in Kyiv city. Ukraine ranks the first place in the world in the amount of garbage per capita. Therefore the introduction of environmental inspections is one of the ways to improve the situation in the country.

The State Ecological Inspectorate deals with the issue of conducting environmental inspections and monitors compliance with the rules and regulations of the relevant legislative document which are regulated at the state level [6].

In Ukraine, the problem with garbage exists through legislation. This is because the laws simply don't oblige to recycle it. There is only one method of disposal – disposal. Sorting of household waste in Ukraine is still the prerogative of

ordinary citizens and activists. Experimental garbage containers are already being installed near high-rise buildings.

One of the leaders in waste recycling is Sweden. 99% of all the country's waste is recycled here. With the help of secondary raw materials, houses are heated and supplied with electricity. And they would have more garbage – their own energy needs would be better met. This problem in Sweden has been solved by importing garbage from other countries. The situation is similar in Germany, Switzerland and Austria. In countries, landfills as such are generally closed as 97% of waste is also recycled. By the way the entire cement industry in these countries works on burning garbage and tires. In Germany even a so-called "garbage" police, which fines violators.

Another significant problem in Ukraine and the world is the issue of solid waste recycling. The current waste management hierarchy shows that the highest priority is to prevent or minimize waste generation. The priority is followed by reuse and recycling of waste. In the process of recycling, waste is processed into products, materials or substances (including the processing of organic material). Next are the methods of solid waste treatment, which are accompanied by energy production. The last in the hierarchy is removal through incineration without energy production and burial in landfills. Thus burial is necessary, but the last link in this chain. From Table 2 you can see the quantitative indicators of different types of solid waste processing in the world separately for America, Europe and the Pacific [5].

From this table you can see that the largest amount of waste is generated by Americans and most of the waste is taken to landfills (60%). Recycling and composting of waste is most com-

Table 2

## Quantity and methods of solid waste

	America	Europe	Pacific countries T	Total
Quantitative waste, million tons	291,5	263,9	85,3	640,7
Recycling	607	469	421	514
Composting	24%	25%	31%	25%
Incineration	9,1%	23%	52%	20%
Burial	60%	38%	17%	45%

mon in Europe (38%). Waste heat treatment is used in Asia and the Pacific (48%) and in Europe. In addition more than 90% of incinerated waste is used for energy.

As for Ukraine, due to the introduction of separate collection of household approaches in settlements, about 6,2% of household waste was recycled and disposed of, including: 2% incinerated, and 4.2% of household waste got to the procurement points of secondary raw materials waste processing plant. The remaining 93% were spent on landfills and dumps. This situation shows the inefficiency of Ukraine in the processing of solid waste and the need to implement a number of measures to improve the situation.

**Conclusions.** To get out of the ecological catastrophe Ukraine needs investors. Thus it is the extended responsibility of the producer that will be the best international experience in civilized waste management. It is necessary to close the existing landfills that pollute the atmosphere, groundwater, soil and at the same time build waste processing plants, waste sorting lines, build landfills that meet environmental standards and accept waste that cannot be recycled.

Appropriate and simplest measures to improve the environmental situation in Ukraine and the world are the creation and implementation of a project for the collection and disposal of solid waste and other types of waste.

More than 11,000 scheduled environmental inspections were carried out in 2020. But most of them were carried out with a number of irregularities such as:

- the State Coinspection goes beyond the scope of the inspection;
- the state eco-inspection does not notify the enterprise about the inspection in time;

- unscheduled inspections of the State Coinspection are carried out without warning;
- inspection and imposition of a fine is carried out in the absence of the head of the enterprise;
- inspectors record violations with the help of video recording;
- the State Coinspection initiates criminal cases to get to enterprises, etc.

Given the number of shortcomings need to review state inspection rights and obligations of legal authority and experience to take over Europe. There the main priorities are public awareness and community service and cooperation with enterprises on equal and partnership terms.

At the legislative level it is necessary to limit the circulation of disposable plastic goods. In particular, bags and plastic bottles which will reduce their number and stimulate an increase in the number of more environmentally friendly goods. And in 1-2 years, if there is an investor in Ukraine, it is possible to build waste processing plants and waste sorting lines.

In view of the waste management strategy by 2030, there is the prospect of transition from waste in landfills and reduction of the rate to 50%. It is also advisable to put into operation additional waste sorting lines and waste processing plants that will bring Ukraine closer to European standards of air purity.

The war is also destructive and has a negative impact on the ecology of the country and the world, as well as on international economic relations. Thus, resolving the issue of war in eastern Ukraine is an important issue today. Looking for all it was possible to open a business related to waste recycling in Ukraine. This in turn would enrich the state budget of the country and improve the ecological condition.

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