

“Increasing resource efficiency in the industrial complex ensuring environmental human rights”


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INCREASING RESOURCE EFFICIENCY IN THE INDUSTRIAL COMPLEX ENSURING ENVIRONMENTAL HUMAN RIGHTS

Abstract

The close relationship between industrial development and environmental pollution is considered the main problem of negative climate changes and the deterioration of life quality leading to an increase in mortality. In this regard, the protection of environmental human rights is of great importance. The paper aims to assess the trends of industrial influence on the human environment and the level of protection of environmental human rights in different countries through reviewing and analysis of the set of relevant studies. The paper brings novelty exploring an array of objectives for protecting human environmental rights in the framework of the Sustainable Development Goals, implementation of a circular and resource-efficient economy, together with the Industry 4.0 technologies for industrialized countries, including Ukraine. Most studies consider contradictions between the economic and environmental goals of both businesses and the state the main obstacle for the ecologization of industrial production. The economic feasibility of introducing more resource-efficient business models has been proved. The impact of Ukrainian industrial companies on the environment and the state of human environmental rights protection is studied. The results of the study allow stating that the resource and energy inefficiency of industrial technology in the country, as well as the weakness of state institutions in the implementation of reforms for sustainable development, is a fundamental threat to human rights and a healthy life.

Keywords

industrial pollution, innovative technologies, human rights, business survey, environmental responsibility

JEL Classification

L52, Q57, Q58

INTRODUCTION

Relations between society and nature in the modern era are complex and contradictory. On one hand, members of society exercise their economic freedoms, starting entrepreneurial activities and resorting to the exploitation of natural resources for profit. On the other hand, the depletion of natural resources and the devastating impact of industrial production on the environment constitute those "side effects" that are commonly called market failures. They negatively affect the quality of life and health of individuals and require state intervention to effectively tackle this problem.

According to Prüss-Ustün et al. (2016), 24.3% of global deaths accounted for causes related to the state of the environment as of 2016. At the same time, due to the relocation of environmentally heavy industrial facilities to low-income countries, the latter suffer the most.

Low-efficient production technologies, irrational environmental management, and irreversible harmful impacts on water and land resourc-

es require a comprehensive approach aimed at achieving justice in environmental issues and equality from the human rights point of view.

The spread of ecocentric approaches to the socio-economic development of modern countries is yet to overcome anthropo- and economic-centric outdated approaches to managing national development, where the economic interests of states prevailed. A good example would be the failure of various initiatives to create an additional protocol to the European Convention on Human Rights regarding the right for a “healthy environment”, the lack of success of many Rio initiatives, as well as a fairly cautious attitude to such issues in numerous court cases (Adebowale et al., 2001; Lambert, 2020).

At the same time, the resolution of environmental, social, and legal issues at a global and local scale is possible only if a new type of ecological culture, ecologization of social and economic life and constitutionalization of environmental human rights, is ensured. Moreover, the introduction of resource efficiency in the industrial economic system is an relevant issue for the whole world to increase competitiveness, strengthen energy security, accelerate economic and social development, reduce environmental impact, and develop a modern high-tech and efficient country.

Hence, the purpose of this study is to assess the tendency of industrial influence on the human environment and the level of protection of environmental human rights in different countries, including Ukraine.

1. LITERATURE REVIEW

The study adopted a systematic review, using keywords and their combinations, to choose literature sources devoted to environmental human rights and the role of the sustainable and resource-efficient industrial sector. The analysis included several reports of international organizations as United Nations (UN) and its divisions (Economic Commission for Latin America and the Caribbean (ECLAC), United Nations Development Program (UNDP)), Business and Sustainable Development Commission (BSDC), World Economic Forum (WEF), International Union for Conservation of Nature (IUCN), International Environmental Law Research Centre (IELRS), World Health Organization (WHO), as well as documents of the European Commission, European Parliament, national laws of Ukraine and other countries. The following databases and repositories have also been used: EBSCO, JSTOR, UN, European Environmental Agency, professional and scientific journals.

Articles devoted to the protection of environmental rights through rational resource usage in the industrial sector turned out to be scarce in all databases and repositories reviewed – especially of the developing countries. This may be attributed

to the fact that this aspect of sustainable development has become relevant only in the last decades; another reason may be the insufficient development and spread of the Industry 4.0 technologies.

Content and methodological approaches used in the analyzed sources can be divided into five groups, which are described in Table 1. Some of the sources have discussed a wide range of issues so they could be mentioned in several groups simultaneously.

Exploration of the issue of industrial production’s impact on human health started at the beginning of the second half of the XX century. Carson (1962) has pointed to the link between the effects of chemical industrial pollution and the reduction of biodiversity and deterioration of human health. The Stockholm Conference on the Human Environment of 1972 set out to identify the relationship between human rights and environmental protection. In 1990, the UN General Assembly’s Resolution (UN, 1990) emphasized that men and women have the fundamental right to freedom, equality, and adequate conditions of life in an environment of a quality that permits a life of dignity and well-being and that they bear a solemn responsibility to protect and improve the environment for present and future generations.

Table 1. Grouping the literature sources by the focus of a study

Source: Authors' elaboration.

Group 1. Chronicles of the emergence of environmental human rights	Group 2. Conceptualization, content, and legal mechanism to enforce the environmental human rights	Group 3. Industrial impact on environment and human life and health and policy measures to reduce it	Group 4. Sustainable innovative industrial development and resource efficiency in mining and manufacturing
Cullet (1995); Carson (1962); UN (1990); Atapattu (2002); ECLAC (2007); UN (2012); European Parliament (2021)	Cullet (1995); Dias (2000); Kingham (2003); Kothari and Patel (2006); Shelton (2006); ECLAC (2007); Aery (2016); BSDC (2016); Pointon and Bell-James (2019); UNDP (2020); Zatti (2020); Askew (2021)	Kothari and Patel (2006); Economist Intelligence Unit (2008); Obolenska et al. (2015); Ahmedova (2016); UN (2018); Bick et al. (2018); Deineko et al. (2019); Ajaltouni (2021); Boyd (2021); European Environmental Agency (2021); Mirumachi et al. (2021); Greene and Sangokoya (2021)	Deineko and Tsyplitska (2018); Brukhovetska and Chorna (2019); Halynska and Bondar (2019); Varfolomeev (2020); EC (2020); Labeaga and Labandeira (2020); Oláh et al. (2020); Rossi et al. (2020)
Group 5. International and national legal documents (presented in the references)			

Ideas on environmental rights and participatory decision-making on environmental potential have been reflected by Cullet (1995). It was emphasized that access to environmental information, participation, and the possibility of court protection are of great importance for the implementation of environmental rights and their effective observance. Historically, environmental laws were developed mainly in the context of intergovernmental relations, and private parties have not usually been granted direct rights, but since the 1990s the latter issue has been changed. ECLAC (2007) also widely criticized the “economistic” approach to development and emphasized the need to count on the extra-economic issues emerging from the economic relations (e.g. social, political, and environmental). The organization declared the high value of the human rights protection in business development, as “the human dimension in the quest for sustainable development has become the key vector and main ingredient”. Greene and Sangokoya (2021) argue that the solution to the conflict of ecological, social, and economic interests lies in establishing a trilateral social dialogue between the state, business, and civil society.

A 2012 UN report (UN, 2012) prepared for the Rio+20 Conference highlighted that nearly 130 countries' constitutions, including a significant proportion of constitutions amended or drafted after 1970, include the countries' commitment to protecting the environment or the right to a safe, healthy, and environmentally balanced environment. The human rights approach was considered to help tackle environmental problems having a leading role in the countries' sustainable development policies.

In 1994, a Special Rapporteur on Human Rights and Environment in Annex 1 to the final report presented 27 principles of environmental human rights (they can be deemed as the composition of environmental human rights). They were divided into 4 sets: substantive (the freedom from pollution, safe and healthy food, a safe and healthy working environment, etc.), procedural (information, environmental and human rights education, effective administrative and judicial remedies and redress, etc.), duties (special duties against destruction of the environment in connection with armed conflict, etc.), and special considerations (to pay special attention to vulnerable persons and groups, etc.) (Dias, 2000). Atapattu (2002) has brought up the issues of environmental and human rights development. Both of them are not without limits, and the sustainable development concept facilitates their combination rather than confrontation. Such an aspect as the right to a clean environment for future generations was uncovered, which is not taken into account anywhere.

Shelton (2006) has outlined the range of environmental human rights which are related to environmental information, public participation in environmental decision-making, a remedy for environmental harm, life and right to health, an adequate standard of living and the fulfillment of basic needs, privacy, home, and family life, freedom of association, property, and to cultural, minority, and indigenous rights.

In some sense, as Cullet (1995) stated, the contents of a right to environment embrace fundamentally the whole of environmental law and represent the

fundamental tenets on which international environmental law has been built. Shelton (2006) notes that there have been numerous violations of these rights and freedoms all around the world, though they can nevertheless be protected internationally.

The key UN messages (UN, 2018) also emphasize that preventing the disproportionate effects of hazardous substances from industrial production should be a priority for the state and international policy of ensuring environmental human rights. The document proposes to improve the layout of industrial facilities and landfills, to ensure international transportation of harmful substances for disposal, as well as to recycle and sort potentially hazardous substances (chemicals, medical and plastic waste, electronics waste, etc.), which often disproportionately affect people in vulnerable situations.

UNDP Report (UNDP, 2020) emphasizes that humanity's "just" transition to the principles of sustainable development also depends on the perspective from which this "justice" is considered. Proponents of climate justice speak of human rights in the context of the distribution of benefits and costs associated with adaptation to climate change. Energy justice stipulates for the existence of human rights in the access to energy, while at the same time – environmental justice focuses on the power of people and their right to participate in environmental decisions. The lack of such justice both violates the equal rights of people and perpetuates their inequality.

Bick et al. (2018) have also pondered the global dilemma of environmental justice. Considering the phenomenon of 'fast fashion', it was noted that such textile production adversely affects the health of factory workers and nearby settlements. In addition, fast fashion manufacturers produce excessive amounts of textile waste, which is folded in landfills and even unregulated plots. This applies especially strongly to low- and middle-income countries (including Ukraine) with the lack of support and resources necessary to develop and ensure compliance with environmental and professional safeguards to protect human health. Ajaltouni (2021) also researches violations of environmental human rights by textile companies and supports the idea of introducing higher lia-

bility for corporations regarding their polluting activities. A significant role of environmentally conscientious consumers is also emphasized, who, using market mechanisms (through demand), can influence the operations of such companies. Mining companies are also causing great damage to the environment and human health. However, according to Kingham (2003), most have embraced the idea of "landscaping" industrial technology and protecting human environmental rights. A key role in the implementation of this idea belongs to the state, which should ensure the adoption of relevant norms and their implementation within the framework of national legislation, which is currently a stumbling block in many countries of the world. The negative impact of the food industry is discussed by Askew (2021) who emphasizes that the distribution of benefits (income) and responsibility (for human rights violations, environmental pollution) within the food added value chains is unfair and disproportionate. Particularly, farmers, who cover the biggest share of production costs and environmental responsibility, receive less than 10% of the chain's added value. Intermediaries, while having lesser responsibility, receive more than 30% of added value, accumulated in the production-distribution chain. Oláh et al. (2020) emphasize a negative link between the production process flow from the inputs (raw materials, energy) to the final product (including waste disposal) and their impact on the environment.

A circular economy is considered to be one of the leading ways of improving the resource efficiency of industrial production. The movement to introduce circular innovative business models has intensified in Europe and is gradually covering transformational economies, Asian and American countries. A significant role in the introduction of circular production models is played by the Industry 4.0 technologies and R&D in the field of materials. Rossi et al. (2020) demonstrate how digitally transformed smart assets can support circular transition and improve the objectivity of circular models' environmental, economic, and social impact.

The issue of environmental protection began to rise internationally relatively recently, as at the end of World War II, when most modern internation-

al organizations were created. The priority issues were ensuring ongoing peace, economic reconstruction of the affected countries, and preventing the development of totalitarianism, which, first of all, stipulated social and political human rights.

Thus, environmental rights are not directly stipulated neither by the Universal Declaration of Human Rights (UN, 2015), nor the International Covenant on Civil and Political Rights (UN, 1966), nor the European Convention on Human Rights (hereinafter referred to as the Convention) (Council of Europe, 1950), nor even by the European Social Charter (hereinafter referred to as the Charter) (Council of Europe, 1961). There is no basic international agreement under which environmental human rights would be directly determined or protected.

Only in 1972, at the first UN Conference on the Human Environment, it was announced that a link between the observance of human rights and environmental protection exists. Thus, the Declaration of the Conference contains the following lines: "Both aspects of man's environment, the natural and the man-made, are essential to his well-being and the enjoyment of basic human rights – the right to life itself". The same document declared that humans enjoy a fundamental right to adequate conditions of life, which also provides for an environment capable of providing it. This was further enshrined in 1992, at the UN Conference in Rio de Janeiro. It declared a link between the right to a quality environment and universal procedural rights. However, environmental protection and human rights protection continued to be divided, with the former being paid attention mainly in terms of the socio-economic effects.

Significant progress and final inclusion of environmental rights into the fundamental human rights occurred only on October 8, 2021, when the United Nations Human Rights Council, by its Resolution No. 48/13 (UN Human Rights Council, 2021), recognized a clean, healthy, and sustainable environment as a human right. In a landmark decision, 43 of the 47 Council participant states voted positively, and only 4 abstained: Russia, India, China, and Japan. The comprehensive implementation of this human right into the UN programmatic and normative activities is pending

approval by the General Assembly. However, until that happens, the case-law of the European Court of Human Rights (hereinafter referred to as the ECHR) (2021) and of the European Committee of Social Rights remains the main international source of protection of environmental rights. Recognizing such problems in its member states, in March 2021 the European Parliament proposed the introduction of human rights and environmental mandatory due-diligence mechanism that applies to all the large businesses, public-listed companies, and high-risk SMEs operating within the EU, accompanied by an enforcement mechanism (European Parliament, 2021).

In 2019, there were about 150 countries in the world that implemented environmental rights into national legislation (Pointon & Bell-James, 2019). However, some developed countries like Australia still did not apply human rights for a clean and healthy environment into the national legal framework. The reason is too diffused and void of the precise meaning of the rights and difficulty with their enforcement. Environmental rights recognition is considered a necessity because it provides more effective environmental legislation, human rights protection, and improvement of ecological justice.

Several studies show that the main reason for environmental deterioration is the irrational resource use in industrial production. The strengthening of Inclusive and Sustainable Industrial Development (ISID) is stipulated in the Lim Declaration adopted by the UNIDO member states in December 2013. The Lim Declaration underlines the role of industrialization as a driving force for development; it named the factors of economic growth, including stimulation of industrial innovation and modernization (Brukhovetska & Chorna, 2019). The development of the sustainable industrial sector, as a way of fostering resilience of national economies, requires a shift in approaches and technologies used. In this context, the Economist Intelligence Unit (2008) surveyed 1,200 company executives around the world, on the introduction of sustainable development policies. It was brought to light that in the context of sufficient business awareness in key sustainable development strategies, only about a quarter of the measures were applied by companies, and only 6% of respondents recog-

nized themselves as successful in sustainable development policy. In addition, companies have experienced significant difficulties in aligning social and environmental goals of business development with the financial ones.

Regarding the European Green Deal (European Environmental Agency, 2021), a cross-section of businesses in Europe that are detrimental to the environment and pollute the air was conducted. The Agency introduced the map of 211 facilities accounting for 50% of the aggregate damage costs from main air pollutants and greenhouse gases. Most of them are situated in industrialized countries like Germany, the UK, Poland, Italy, and Spain. If compared to the GDP, these countries, where the most polluting businesses are situated, comprise Estonia, Bulgaria, Czech Republic, Poland, and Slovakia. The level of total quantified external costs from industrial air pollution is accounted for around EUR 300-400 billion. The damage costs were calculated due to methodology for calculating marginal costs per tonne of pollutant. It was also marked that the number of environmentally responsible businesses has increased, and they predominantly seek the way to be a part of European Green Deal solutions rather than a part of the problem. Mirumachi et al. (2021) also propose the European Union conduct more detailed research and develop policies to increase access to natural resources, such as clean water. It was shown how the import of “virtual” water occurs – in agricultural and other products, which also increases the dependence of EU citizens on other countries. Similarly, Ahmedova (2016) demonstrated how in Bulgaria, despite the norms established in the legislation on the protection of human rights to life, health, and environment, the air condition significantly exceeds the maximum permissible norms of PM10 particles. Moreover, Aery (2016) demonstrates that there is no clean air rights protection in South and North America, so several schemes are proposed on how such rights can be protected in court. Kothari and Patel (2006) analyzed environmental and related laws and policies in India until 2005 and concluded that the legislation is aimed more at environmental protection rather than on human rights provision. However, the court system allows an effective defense of environmental human rights.

Another aspect is the amount of compensation, which is established in the national legislation in the form of environmental taxes, fees, fines, etc. Zatti (2020) analyzed such payments in Italy, by categories of environmental impact, and concluded that the structure of these budget revenues and their volume does not correspond to the environmental damage and are conditioned by goals not related to environmental protection. This does not allow to fully implement environmental protection measures that significantly affect human health. A review of the literature on taxation of industrial pollution by Labeaga and Labandeira (2020) also confirms that the effective rates of environmental taxes are much higher than those established in national tax systems, and the taxes themselves have a significant impact only on emissions and discharges, instead of the industrial production volumes. The latter is governed only by the consumers’ demand and their conscious attitude to the relevant goods and services.

Halynska and Bondar (2019) proved, based on the experience of both foreign and Ukrainian enterprises, that introduction of clean industrial technologies is a cost-effective measure. Companies can reduce operating costs and costs associated with the payment of various forms of compensation for pollution (fines, environmental taxes), increase employee safety, and reduce insurance payments due to the harmful effects that production technologies have on health and the environment, etc. Varfolomeev (2020) cites the size of the economic effect of the introduction of resource-efficient technologies and ecomodernization of 160 enterprises: energy savings per year – 40,500 MW, raw materials – 7,500 tons, and the reduction of emissions in the CO₂ equivalent constitutes 9,400 tons, or if put in the financial perspective – about 2 million euro.

Boyd (2021) demonstrated that the cost of food production is much higher than the price at which it is bought in supermarkets. There are hidden costs of food systems related to food waste and their harmful effects on the environment and human rights, as well as health issues caused by unhealthy eating. The total amount of these costs is between USD 12 trillion and USD 20 trillion. In the future, these costs will be twice the total cost of food products in the world.

Deineko et al. (2019) highlighted that the “green” industrial modernization in Ukraine should take place within the implementation framework of the Association Agreement between Ukraine and the EU and accession to the European Energy Community. The enterprises of heavy industry were recognized as the largest atmospheric pollutants in Ukraine: mining and quarrying (20.1% of total industrial emissions), metallurgy (30.3%), and electric power production (43.1%). Obolenska et al. (2015), using statistical modeling, also argue that Ukraine belongs to the states with inefficient resource expenditures and needs a gradual implementation of the EU environmental norms.

Thus, the climate change and increasing industrial carbon footprint have made the issues of developing and implementing comprehensive mechanisms counteracting extremely relevant, which include regulation and stimulation of resource efficiency in industrial production, environmental responsibility of producers, and institutionalization of environmental human rights. Despite several contradictions and insufficient success of various initiatives, national governments, and inter-governmental organizations continue their search for more effective ways to address the tasks put forward by the sustainable development agenda.

2. GENERALIZATION OF THE MAIN STATEMENTS

Studying the history of environmental human rights allows distinguishing the following trends:

- (1) the key institution leading this policy is the UN. Nevertheless, while recognizing the connection between environmental protection and human rights, it failed to define them timely and definitively (Cullet, 1995), up until October 8, 2021, when UN Human Rights Council recognized environmental rights. Although support for this provision was not unanimous, it should serve as a guideline for the countries to promote national legislation and clarify human rights in this direction;
- (2) over the years, environmental protection is increasingly closely associated with economic and, in particular, industrial development.

They are united by the concept of sustainable development, which includes economic, social, environmental, and cultural elements (Mirumachi et al., 2021).

Discussions about the composition and steps necessary to protect environmental human rights in international and national systems of legislation, as well as the development of concepts on the enforcement of environmental human rights, are slow and lengthy. The evolution of international norms on environmental human rights includes mainly the manifestation of ideas of sustainable development by international organizations and the conclusion of international agreements on efforts and compliance with the principles of environmental preservation by implementing relevant norms in national legislation. However, Cullet (1995), Economist Intelligence Unit (2008), ECLAC (2007), and Lambert (2020) indicate that the strict division of international law into such branches does not contribute to the synergy of environmental law and human rights legislation. Another barrier is the significant economic consequences for countries that can result from the recognition of environmental human rights in full. Thus, it can be argued that ensuring the interaction of these two areas of law should be carried out both at the international and state levels, in particular through the creation of relevant institutions.

It can be observed that most attention is focused on the issues of assessing the impact of industrial development on the environment and human health, as well as the development of appropriate environmental and industrial policies to reduce such an impact. This may indicate a continuous search for the necessary arguments to take decisive steps towards the ecologization of industrial production and the development of legislation on environmental rights.

Thus, the problem of introducing and protecting environmental human rights is multidimensional, and increasing the resource efficiency of industrial production is only one of the dimensions. In the global context, solving these problems requires covering a wider range of tasks – from overcoming corruption (when decisions are made in favor of polluting companies, not the affected party) to

creating an institutional environment stimulating the development of sustainable Industry 4.0 technologies, as well as the introduction of circular business models into production, investment screening, and professional training.

In this regard, it may be useful to consider the case of Ukraine, which has also declared the Sustainable Development Goals and should tackle a wide range of tasks for their achievement. Ukraine is moving towards improving the environment through economic and ecological levers of industrial production regulation rather slowly. The situation with environmental pollution is deteriorating every year. In general, the low energy efficiency of the economy causes an increase in the carbon burden on the environment (Table 2), which negatively affects the quality of human life.

Table 2. Level of energy efficiency in Ukraine and other countries

Source: The World Bank (n.d.).

Country	Energy use per 1,000 dollars of GDP (in constant prices of 2017, PPP), kg of oil equivalent
Singapore	58.3
Japan	86.4
Germany	74.5
Czechia	106.7
France	84.8
Netherlands	79.5
USA	116.3
Denmark	53.1
China	187.7
EU-28	77.27
Poland	89.3
Estonia	133.7
Belarus	153.6
Ukraine	198.1
Russian Federation	186.2

In the sample of countries, Ukraine is characterized by the largest consumption of energy resources per 1,000 US dollars of GDP (198.1 kg per 1,000 US dollars of GDP). To achieve the level of energy consumption of technologically developed countries – Denmark, Singapore, Germany, Japan – it needs to reduce the GDP's energy consumption by 3–4 times. With the current rate of reduction of relative energy consumption in the industrial sector constituting 2.2% per year, it will take Ukraine decades to “catch up” with the energy efficiency level of these countries. The achievement of the

Sustainable Development Goals by 2030 also remains unlikely, which means that negative environmental impacts will persist in the long term.

The environmental impact of the mining and processing industries can be estimated by the volume of waste generated, the volume of energy consumption, and CO₂ emissions. According to the State Statistical Service of Ukraine (n.d.), since 2007 the volume of waste generated from the processing industry has decreased both in absolute and relative terms and amounted to 31.5 million tons in 2018. At the same time, the mining industry remains the main producer of waste, the indicators of which have increased from 274.4 million tons per year to 301.4 million tons per year. The ratio between the volume of waste generated by the processing industry and the added value created in the sector has also decreased.

Energy consumption in the industrial sector has almost halved in 10 years, and in 2018 amounted to 16,501 tons of oil equivalent. Comparison of this indicator to the added value of the industrial sector (Figure 1) also demonstrates a downward trend, which characterizes the Ukrainian industry as more energy-saving if compared to 2007.

At the same time, atmospheric pollution in Ukraine from the processing industry and construction is increasing, as evidenced by an increase in the share of CO₂ emissions from 27.2 to 37.9% through 2007–2018. In the EU, the share of these sectors in carbon dioxide emissions tends to decrease and in 2014 was already 12.8%. Industrial air pollution is the result of contradictions arising between the economic benefits of production, rent-oriented behavior, and sustainable development goals, the weakness of the punitive mechanism for exceeding emissions limits, and low levels of environmental taxation. The share of environmental tax in 2018 amounted to no more than 0.5% of all tax revenues to the budget, while in the EU on average the level of environmental taxation is 6.14% of tax revenues and deductions to social funds.

A low level of innovative activity – the locomotive of energy and resource efficiency of the industrial sector – is typical for the Ukrainian industry. For the period 2000–2019, the number of industri-

Source: Authors' elaboration based on State Statistical Service of Ukraine (n.d.).

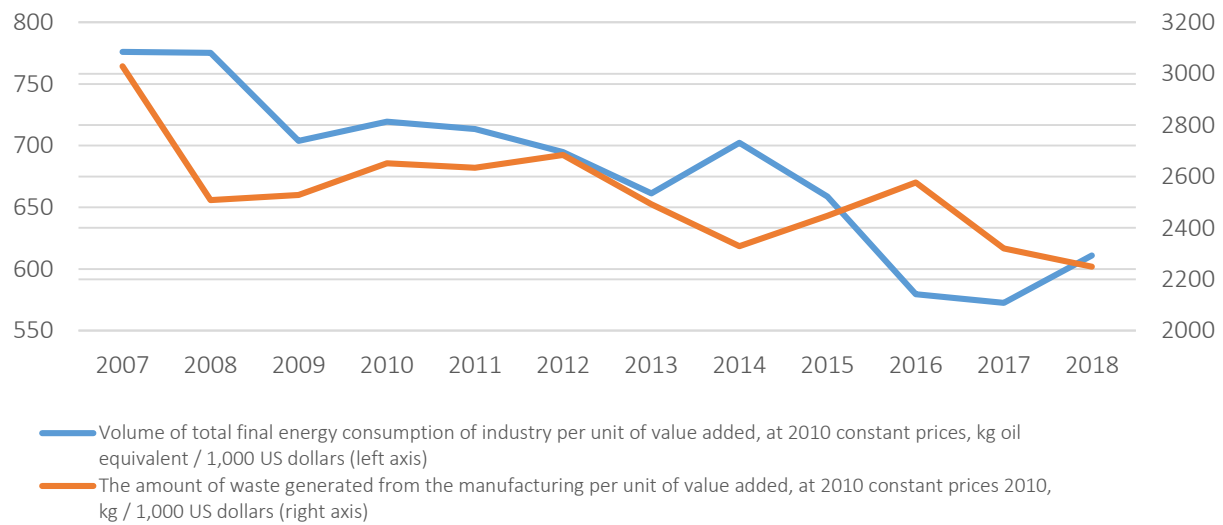


Figure 1. Dynamics of final energy consumption and waste generation per unit of industrial value-added in Ukraine, 2007–2018

al enterprises that introduced innovations ranged from 8.2 to 16.6%. A significant increase in this share occurred in 2015–2018, but in 2019 it decreased again, to 13.8%. Since 2010, a certain increase in the implementation of new technological processes among enterprises, especially of the new or significantly improved low-waste, resource-saving technological processes (Figure 2).

The dynamics of the implementation of resource-saving and low-waste technological processes have minor volatility, but since 2017, a steady increase has been observed.

However, not only technological changes in industrial production can be considered the reason

for the increasing energy efficiency and reducing waste. The general trend of deindustrialization may play an important part. As of now, industrial production has finally found itself in the sights of the state economic policies. Along with the European Union, Ukraine has finally recognized the need for industrial development as the basis of the national economy and the center of its qualitative growth. Improvement of investment policies, the introduction of incentives for the development of industrial parks and clusters, gradual liberalization of the land market – all can become the starting mechanism for industrial growth, which will not only increase the competitiveness of the national economy but also bring new environmental challenges and threats to the people.

Source: Authors' elaboration based on State Statistical Service of Ukraine (n.d.).

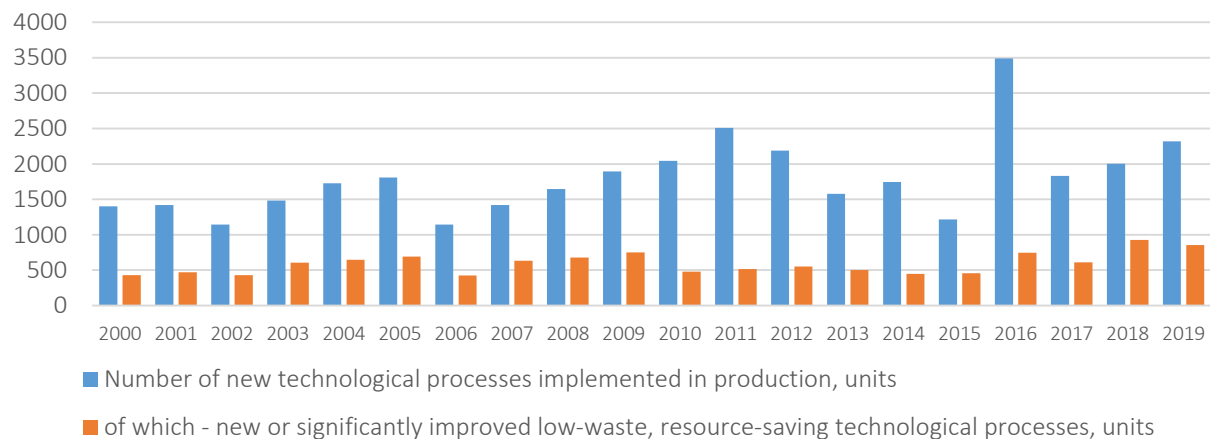
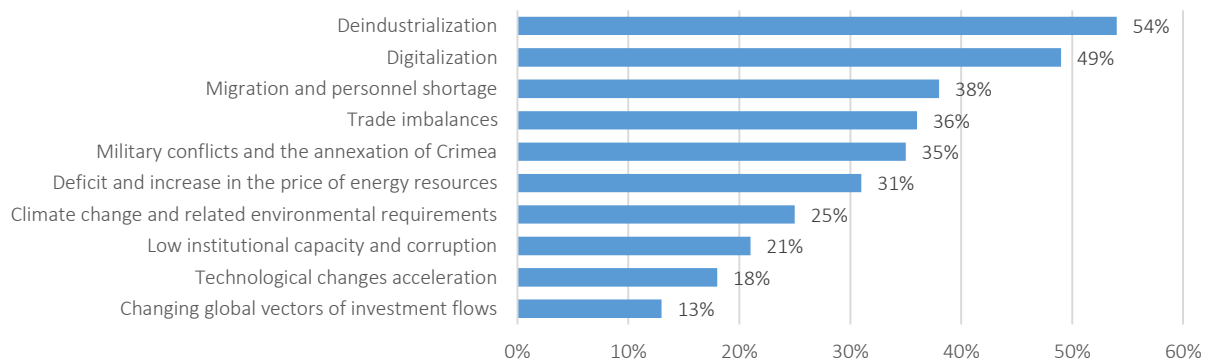


Figure 2. Number of new technological processes implemented in production, 2000–2019

Source: Authors' elaboration.



Note: * the total sum of answers does not equal 100% because each respondent could have chosen more than one option.

Figure 3. Environmental threats among general challenges for Ukrainian industrial complex (according to the poll results*)

The survey of businesses and department heads of regional authorities was conducted by the Industrial Policies Department of the State Institution “Institute of Economics and Forecasting of the National Academy of Sciences of Ukraine” in 2021. It made it possible to identify key threats to the future for the economic development of the country and find out the priority level of environmental issues in the range of these threats. The survey results are presented in Figure 3.

In addition to deindustrialization and digitalization, which has become a comprehensive trend in the industry of developed countries, the representatives of the business community placed the energy problem, climate change, and strengthening environmental requirements for production and products on the 6th and 7th place by importance. Heavy energy dependence on the aggressor country, which cannot be resolved through the development of alternative energy sources alone, requires a review of approaches to the production technologies and a search for ways to rationalize their use. The need to track and reduce the carbon footprint makes it necessary to focus its efforts on reducing the consumption of those types of energy. Climate change and growing environmental requirements of trading partners call for adaptation of domestic producers to the European Green Deal. It requires certain measures from both regulatory authorities and manufacturers themselves for attracting significant investments in the technologies improvement. Cross-sectoral influences of Industry 4.0 technologies form new outlines of the economy, erasing

the boundaries between the industrial sector and other socio-economic spheres.

At the same time, positive trends in industrial resource saving should be accompanied by the awareness of their responsibility for the negative health and environmental effects. The business attitude to environmental and social responsibility today is one of the key driving forces for the protection of environmental human rights. In many countries, ESG reporting has already been launched, which is gradually becoming more complicated and stipulates for a vision for 2-3 years ahead. More and more Ukrainian companies are joining this reporting to increase transparency, institutionalize new corporate values and increase the trust of their partners, especially from European countries.

3. DISCUSSION

Cullet (1995) expressed rather skeptical views on the concept of sustainable development and its impact on the combination of human rights and environmental norms of doing business. On the contrary, Kingham (2003), describing the problems of the negative impact of mining companies in Australia on human life and health, believes that supporters of the idea of protecting environmental rights, including mining businesses, have adopted the idea of strengthening the protection of these rights.

At the same time, the Economist Intelligence Unit (2008) still noted the weakness of international

companies' interest in implementing green production standards. Thus, the dichotomy of economic and social-environmental responsibility constantly acted as a deterrent to the consolidation of rights to a clean and healthy environment at the international and even more – at the national level.

The European Union is perhaps the most successful in the implementation of the policy on achieving resource efficiency in industrial development, as well as fully ensuring the implementation of human rights and freedoms. Its activities demonstrate a solid gradual approach to the advancement of resource saving technologies (including digital technologies of Industry 4.0).

The new European industrial strategy (European Commission, 2020) has declared a course on climate neutrality, which is set as a key priority in the European Green Deal (EC, 2019). The latter stipulates that Europe is to become a climate-neutral continent by 2050 and that the transformation of all global value chains will take 25 years. By introducing a number of initiatives to increase the resource efficiency of the European economy, up to 700 thousand jobs can be created, in the framework of circular economies, and more than 1 million from the digital and low-carbon economy.

Thus, the Communication “Towards a circular economy: A zero waste program for Europe” (EUR-Lex, 2014) determined that measures aimed at increasing resource efficiency will help save enterprises 600 billion Euro, or 8% of annual turnover while reducing greenhouse gas emissions by 2–4%. A mechanism for financing “natural” capital has been developed by the European Investment Bank, which became a key institute for the development of circular economics (Deineko & Tsyplitska, 2018), a modification of the accounting of companies, developed “resource stress tests” and studied the potential of the bond market to finance circular economy projects. The Circular Economy Action Plan of 2020 (following behind the Circular Economy Package of 2016) envisaged some legislative initiatives (Directives) on the implementation of the waste management mechanism, issues of landfills, packaging waste, waste vehicles, batteries and waste from them, waste from electrical and electronic equipment. In Ukraine, similar

draft laws have also been initiated, but have not yet been adopted by the Verkhovna Rada of Ukraine.

An important feature of these and later documents of the European Commission is their consistency in time and with each other. Every new Directive or Communiqué complements the existing strategy, and the strategy takes into account the achievements and norms established in the previous documents.

As noted above, environmental rights are not directly provided for in any of the relevant documents. However, the practice of these institutions in some cases has brought about a link between the directly proclaimed human rights and environmental rights. Thus, the European Court of Human Rights (2021) deduced from the Convention that a state provides an obligation to protect human lives, health and quality of life depending also on the environmental regardless of ownership and even limiting the exercise of property rights, as well as a right to information and participation in decision-making process regarding environmental issues. The mentioned rights were supported by the results of numerous human rights lawsuits in the practice of European Court of Human Rights.

Additionally, the European Committee of Social Rights has also expanded the interpretation of the Charter in favor of protecting environmental human rights. The basis for the protection of environmental human rights in this document is Article 11 – “The right to health care”. Thus, the Committee determined that this article also includes the right to a healthy environment. Measures taken by states to implement Article 11 should include the elimination of environmental factors that harm health, such as air pollution – regardless of whether its source is the state, communal, or privately owned. Thus, to combat air pollution, the Committee requires states to implement appropriate strategies, which should include the following measures:

- develop and regularly update the regulatory framework on environmental issues;
- take concrete steps to reduce pollution, including improving industrial equipment and

introducing emission limits, combined with regular monitoring of air purity;

- ensure effective supervision over the implementation of the regulatory and legal framework on environmental issues;
- regularly inform and raise public awareness, including that of pupils and students, about local and global environmental issues.

In addition, states commit to preventing dangers and protecting the population from any consequences of accidents at nuclear power plants – regardless of whether they have occurred on their own soil or spread to the country from abroad. After the Conclusions of the Committee No. XVII-2, the use, production, and sale of asbestos and asbestos-containing products was also prohibited.

As for the Ukrainian legal perspective on environmental rights, they may be divided into two main groups (not counting the international aspect explained above): those enshrined in the Constitution of Ukraine and the laws of Ukraine. Sometimes a group of rights stipulated by laws is also distinguished – however, they usually have only a clarifying nature and therefore will not be considered here.

Those, provided for by the Constitution of Ukraine (The Verkhovna Rada of Ukraine, 2004), include the following rights:

- to an environment safe for life and health, to compensation of damages caused by violation of this right, to free access to information on the state of the environment, quality of food and household items, free dissemination of this information (Article 50);
- to life – directly related to the right to a safe environment (Article 27).

The group stipulated in the laws of Ukraine includes different rights. According to the Law of Ukraine “On Environmental Protection” (The Verkhovna Rada of Ukraine, 1991), there are rights to participation in the discussion and submissions for the legislation regarding the construction and

reconstruction of the objects affecting the environment, in the development and implementation of measures to protect environment and of efficient resource use, as well as rights to obtain environmental education, file lawsuits against state bodies, enterprises and other organization, court appeal of actions or inactions of state authorities, local self-government bodies and other.

According to the Law of Ukraine “Fundamentals of the Legislation of Ukraine on Health Care” (The Verkhovna Rada of Ukraine, 1992), a state guaranteed the rights generally related to health welfare of territories and localities, safe work conditions, information about the state of personal and population health.

In the Ukrainian context, there are several forms that these rights can be protected: judicial including protection of violated rights in courts of all jurisdictions and instances; administrative, regulated by Article 40 of the Constitution of Ukraine, laws of Ukraine “On Appeals of Citizens” (The Verkhovna Rada of Ukraine, 1996) and “On Access to Public Information” (The Verkhovna Rada of Ukraine, 2011) and including requests for information, appeals to public authorities, local self-government and legal entities; civil like referendums, and public hearings, general meeting of citizens, participation in working groups at public bodies; self-defense including a range of actions taken by a person to independently restore the violated right, or to prevent its violation.

The protection of human environmental rights is also implemented through the development of legislation on environmental responsibility and restrictions for industrial enterprises. In 2020, a draft law “On prevention, reduction, and control of pollution resulting from industrial activities” was prepared, the purpose of which was to implement the Directive 2010/75/EU of the European Parliament and the Council (EUR-Lex, 2010) on industrial emissions. However, due to the technical flaws of its provisions, it has been withdrawn from consideration. Other laws necessary to ensure the improvement of the environmental situation in Ukraine, especially in the field of waste management, are under consideration. It is of note that the mechanisms stipulated forward by these laws are usually of dubious viability due to the in-

herent distortions in the legal system of Ukraine and a high level of compliance risks.

It may be speculated that, in following the Sustainable Development Goals and Association Agreement with the European Union, Ukraine will reach that level of environmental regulations, but the changes must start today and fast. In addition to adapting national environmental legislation to the European one, it is advisable to introduce the so-called environmental due diligence into the mechanism of environmental monitoring of the industrial sector. This will help speed up the transition to the requirements of the EU and European Green Deal technical regulations. On the other hand, it will expand the environmental rights of the population and further protect it against industrial pollution, as well as accelerate three-sectoral cooperation (state – business – civil society).

It should be noted that most countries also have problems with the recognition of environmental human rights, and, so far, national and international courts constitute the leading mechanism for their protection. At the same time, many other aspects should be taken into account – the right to decent landscaping, biodiversity, green areas in cities, etc.

Future research of this area may be directed to track the effects of the adoption of The United Nations Human Rights Council Resolution No. 48/13, which recognized the clean, healthy and sustainable environment as a human right; to the development of legislation on the protection of environmental human rights, as well as environmental and economic legislation governing the “green” transformation of the industrial sector and stimulation of new resource efficiency approaches and technologies.

CONCLUSION

The paper describes the modern studies on environmental human rights and their protection through the improvement of industrial production resource efficiency. It also reveals the basic tendency in environmental management, which is simultaneous environmental law and human rights legislation advances, as well as the implementation of various industrial policy instruments to stimulate resource efficiency in mining and manufacturing in European countries and worldwide. Some of the publications also emphasized the increasing interest of industrial companies in resource efficiency improvements like the introduction of circular business models, energy-efficient technologies, and digital technologies to optimize volumes of production inputs.

As a general finding, it can be said that traditional technologies and irrational environmental use harm nature and human health several times greater than the cost of production and distribution within the value chain. However, despite recognition of the importance of environmental human rights protection and multiple international documents and agreements, both national and international legislative frameworks remain vague on this issue.

Due to the difficult transition from the linear economic model to the circular one, the limited potential of alternative energy sources in the foreseeable future and, as shown by the recent situation, with rising gas prices in Europe, high dependence on the supply of hydrocarbon energy carriers, the economic interests of the state will prevail over environmental ones for a long time. Most states will continue to be very cautious in committing to the policies of protecting environmental human rights.

Nevertheless, some positive trends may be highlighted, especially in the light of the recent UN Human Rights Council Resolution. Both national and international judiciary tend to compensate for the legislative gaps, but a proper representation of these rights in the framework documents remains a must to ensure their sustainable protection.

To ensure human rights to a better environment in Ukraine and other transformational economies as well as developing ones, it is necessary to embed the so-called environmental due diligence into the mechanism of environmental monitoring of the industrial sector, as a check for compliance with the legislation on the use of subsoil, land, air and water facilities for enterprises that already exist and have assumed certain environmental obligations within the framework of their production activities.

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