

On Overcoming the Contradiction between Global Economic Development and Environmental Pollution

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Currently a new vector for the development of the world economy is being crystallized. An impetus for growth has been provided by accelerated competition, global economic crises, climate changes on the globe. Between the desire for economic growth and its consequences lie ecological contradictions. Ecology has struggled with the desire for economic development as well as with political, social and cultural issues. The consequences of the contradictions are highlighted by the establishment of environment-oriented international economic policies and instruments, by implementation of legislative support, by financial investments in ecological and innovation projects in the field. Every country should take into account orientation of development vector, applying predominantly economic incentives to sustainable economic development. The use of previous measures and policies have not convinced all states and have not led to positive consequences. The measures applied are not enough to change cardinal environmental protection activity. Solving contradictions, economic and environmental issues will solve the problem of resources, improve the living environment, will provide economic advantages in the competitive struggle. The purpose of the present investigation is to research the contradiction between world economy development and ways to overcome environmental pollution. The results of the research have shown some ways in which the contradictions between economic growth and the environment condition could be overcome.

Keywords: economic development, economic incentives, energy, energy conservation, energy sources, non-renewable sources and renewable sources.

JEL Codes : A13, B41, N12, Q51.

Introduction. The major long-term goals of any government are to stimulate economic development, increase the population's well-being, maintain social-economic stability. For these reasons, knowledge is needed regarding factors that stimulate economic growth and ultimately constraint possible adverse consequences of economic growth. The process

of human interaction with nature is known to be the content of any production. The economy represents the art of rational and efficient management of this process, otherwise, as experience shows, economic and environmental crises are inevitable. The pressure on the environment and ecosystems as a result of anthropogenic activity on land and sea is increasing. Changes occurring on the planet require, in particular, adjustment of government policy and actions. The development of the world economy can be sustained if today's generations can meet their own needs without compromising the ability of future generations to do so [Ben-Shaul D'vora 2019, 21]. Achieving these goals will contribute to greater convergence between EU Member States and within society and to balance differences across the world. The issue of contradictions between the desire to develop the economic sector is accompanied by an increasing volume of natural resources, the use of energy and the emergence of waste. If the products obtained from manufacturing are necessary, the waste is no longer of interest and is disposed of. Unfortunately, not all are degradable, polluting the environment, affecting the health of human beings. The Kyoto agreement, Rio de Janeiro and others, have not been successful so far.

The purpose of the investigation is to research the contradiction between the development of the world economy and the ways of overcoming the environment pollution.

The degree of investigation. Research by scientists like Piscunova T.A., indicates that economic globalization favors accelerating and deepening of ecological problems. Significant role in changing the development vector of the world economy, in regional economy towards greening is played by entrepreneurship. The development of the investigated theme was tackled in „sustainable development,, by R.Stavins, J.Stiglitz, D.Wheeler, N.Stern, Gro Harlem Brundtland. At the same time, so far, issues related to the influence of ecology on the development of international economic relations have been developed relatively little by Suetin A. In a series of periodicals, materials have been published on international environmental agreements and the use of individual environmental policy tools in developed countries by Nuoffer G., Usharova L. and financing by Spiridonov A. regarding environmental policy

Research methodology. The achieved objectives were solved by identifying and systematizing the trends in the development of the world economy, taking into account the environmental factor. The investigation technique is based on a critical economic analysis of the characteristics of the world economy in the context of globalizing environmental problems. The authors used historical, statistical and comparative methods in their research. The first revealed the gradual character of the deepening processes of the environmental problems and the development of theoretical concepts of world economy development, taking into account the environmental factor, as well as the practical activities on environmental issues of the states, companies and international community. Statistical processing of data selected from analytical materials of international organizations, institutes, specialized agencies and companies was used to identify characteristics of the environmental situation, to develop environmental market, to designate the role of environmental investments in implementation of a new vector of the global economy, characteristics of individual elements

of growth oriented to the environment. The publications and reports of international economic structures served as a support for the research. The comparative method has helped to illustrate particularities of the ecological situation and the policies implemented by different groups of countries and regions.

Results and analyses. Economic development is indispensable from energy, it is the engine of economic and social development. Economic activity and energy production are accompanied by waste that is often polluting. Most of the countries are aware of the seriousness of environmental pollution problem. This research provides a comprehensive assessment of economic consequences of air pollution with repercussions over the following decades, focusing on the impact on mortality, morbidity and changes in crop yields caused by high pollutant concentrations. Unless stricter policies are adopted, as the findings indicate, there will be a significant increase in global emissions and atmospheric pollutant concentrations, with serious effects on both human health and the environment. The impact on the market of outdoor air pollution is expected to lead to significant economic costs, which is illustrated at regional and sectoral level, and to substantial annual costs of worldwide assistance.

Evaluation of the World Countries through Ecological Efficiency Index, 2018 [Ben-Shaul D'vora 2019, 20]

Table 1.

Rating	Country	Index	Rating	Country	Index
1	Switzerland	87,42	11	Iceland	78,57
2	France	83,95	12	Spain	78, 39
3	Denmark	81,60	13	Germany	78,37
4	Malta	80,90	19	Israel	75,01
5	Sweden	80,51	20	Japan	74,12
6	UK	79,89	45	Romania	54,78
7	Luxembourg	79,12	49	Singapore	64,23
8	Austria	78,97	52	Russia	63,57
9	Ireland	78,77	60	South Korea	62,30
10	Finland	78,64	112	Rep. of Moldova	51,97

IMF Reports [IMF Annual Report 2018], World Bank, OECD, United Nations Conference on the Human Environment (UNEP), Action Program for Protection of the Ozone Layer, Global Action Program for Protection of the Marine Environment; International Action Network for Coral Reefs, United Nations Commission for Sustainable Development (CSD), United Nations Development Program (UNDP), United Nations Economic Commission for Europe (UNECE), European Commission Directorate-General for Environment, Council Environment of the European Union, European Environment Agency (EEA) etc. The reports of these structures provide plausible global projections of the magnitude of

economic consequences of pollution in the open air, water, soil, in the absence of political actions other than those already existing. The projections thus reflect the costs of inaction in terms of environmental pollution. The OECD's prospects for the environment up to 2050 provide data on the consequences of inaction, which did not take into account the reactions caused by the environmental paradigms and the lack of resources for the economy. These reports attempt to address this gap through a detailed economic modeling framework that links environmental pollution with economic growth and well-being.

The authors' investigations focused on the impact of air, water and soil pollution caused by high concentrations of suspended powders (PM_{2.5}), ozone from soil level for the period 2015-2060. The OECD report specifies the market costs for environmental pollution (focusing on labor productivity, health costs due to diseases and changes in crop yields), using a modeling approach that links economic activity to atmospheric pollutant emissions, chemical concentrations, biophysical impacts and their effects on the economy. The analysis also evaluates the non-market effects on health (mortality and morbidity), using the results of direct evaluation studies. Economic growth demand for energy will lead to a significant increase in global emissions of atmospheric pollutants. Increased emissions, along with other factors, such as climate change, will lead to increased concentrations of particulate matter (PM_{2.5}) and soil ozone. Increased concentrations of PM_{2.5} and ozone will lead to substantial effects on health and the environment. In particular, the premature deaths caused by outdoor air pollution in 2010 amounted to about 3 million people, while in 2060 it is estimated to reach 6-9 million.

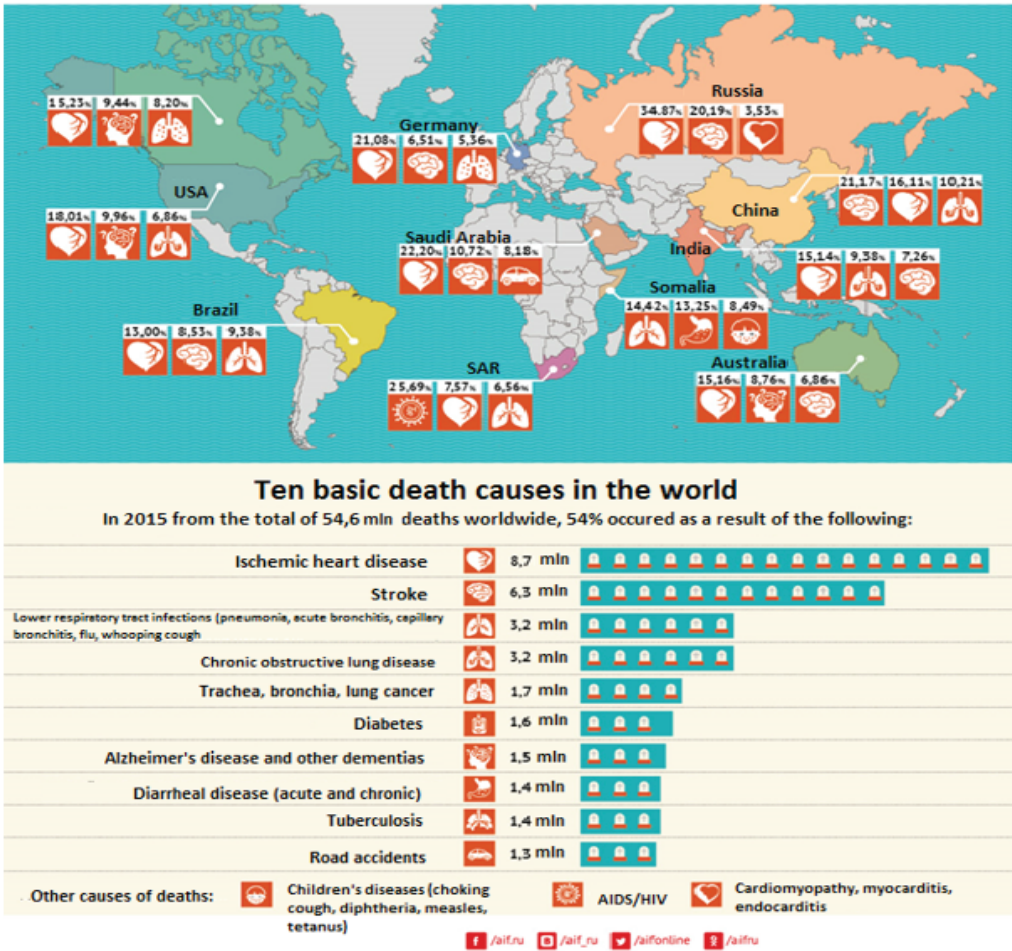
Estimated number of deaths caused by outdoor air pollution is realized per year per million people. The market impact of air pollution is expected to lead to global economic costs that gradually increase to 20% of global GDP. Costs related to additional health expenses and labor productivity losses dominate in the long term. The global community is alerted to environmental events. We can notice some moments of awareness about the environmental issues. The authors highlight some events or trends that have marked the ecology and the environment in the last period. Year 2019 is still running, yet the authors can highlight 10 most significant activities in the field of ecology:

1. *The ever-deepening mismatch between citizens' expectations and ecology.* Increased efforts in terms of ecological protection lead to population's efforts to reduce consumption (purchasing power), to reduce travel, to advance CO₂ tax and fuel or energy taxation, which are considered as necessary measures to protect nature.

2. *A warming of +1.5 degrees is being observed.* IPCC report – Intergovernmental Panel on Climate Change indicates the rise in temperature on the Globe. Therefore, it is necessary to quickly rethink our production models, our economic and social paradigm. The IMF lending mechanism is meant to provide zero interest rate loans for low income countries. The aim is to reduce poverty, to help those with low incomes, those limited in financial sources, related to the heating of the atmosphere by + 1,5°C [Gribincea A., Scortescu S. 2010, 155-157].

Causes of Death on the Globe

Fig. 1



www. aif. ru/ dontknows

3. *Awareness of the dangers that threaten biodiversity worldwide.* Global warming leads to the biodiversity crisis. The adverse effects are related to disappearance of bees, disappearance of insects, etc. The authors realized that protection of ecosystems, fight against deforestation and reduction of urban expansion represented, fundamentally ecological aspects, in conservation of biodiversity.

4. *Increasing the frequency of natural disasters, caused by global warming.* In recent years we are seeing more and more natural disasters related to global warming. Humanity has become aware of the connection between climate and disaster.

5. *Now we are talking openly about the collapse of human societies.* Could our societies collapse in the face of ecological threat or energy crisis? The inability of the society to reduce or stop its polluting activities can lead to irreversible changes in nature.

Although we are facing a catastrophe, some developed countries like Australia do not want to give up on coal extraction [Sources of pollution. <https://xn--80ajgpcpbhkds4a4g.xn--p1ai/articles/selskohozyajstvennoe-zagryaznenie-okruzhayushhej-sredy/>]. According to statistics, one third of US youth do not plan childbirth for climate change fear [Sources of pollution. <https://xn--80ajgpcpbhkds4a4g.xn--p1ai/articles/selskohozyajstvennoe-zagryaznenie-okruzhayushhej-sredy/>].

6. *We are starting to advance in agricultural and food practices.* Frequently, environmental problems have been reduced to problems related to energy or industry. Nevertheless, agriculture is one of the largest sources of pollution on account of greenhouse gas emissions and the destruction of ecosystems [The Danube transports annually. [Accessed 03.10.2019]. Available: <https://www.g4media.ro/raport-dunarea-transporta-annual-in-marea-neagra-pestel-500-tone-de-plastic-pe-an.html>]. The big debate is done on the prohibition of glyphosate, the problem of neonicotinoid pesticides, the issues concerning the use of land, the use of pesticides in organic farming, etc.

7. *Some cities begin to act against the ubiquity of cars.* Over the last years there is a real impulse of activities which are intended to reduce the number of cars in cities (except Chisinau). Cities around the world have announced or strengthened measures to reduce the use of personal vehicles in city centers. About $\frac{1}{3}$ of the products made on Earth are found in junk yards. In the EU, 88 billion tons of food waste is produced annually, which is 173 kg per person. In the Republic of Moldova there are 370 thousand tons of waste, 87,000 being recycled, 60000 destroyed, 224 thousand tons deposited in junk yards. A city dweller compared to a villager produces 1: 0.5 kg / day garbage [Wind Europe. (Accessed 03.10.2019). Available: <https://www.zfcorporate.ro/zf-ro/energie/eoliene-sustintedoar-de-vant-17069203>]. The Danube, for instance, transports over 1,500 tons of plastic annually into the Black Sea [The Danube transports annually. (Accessed 03.10.2019). Available: <https://www.g4media.ro/raport-dunarea-transporta-annual-in-marea-neagra-pestel-500-tone-de-plastic-pe-an.html>].

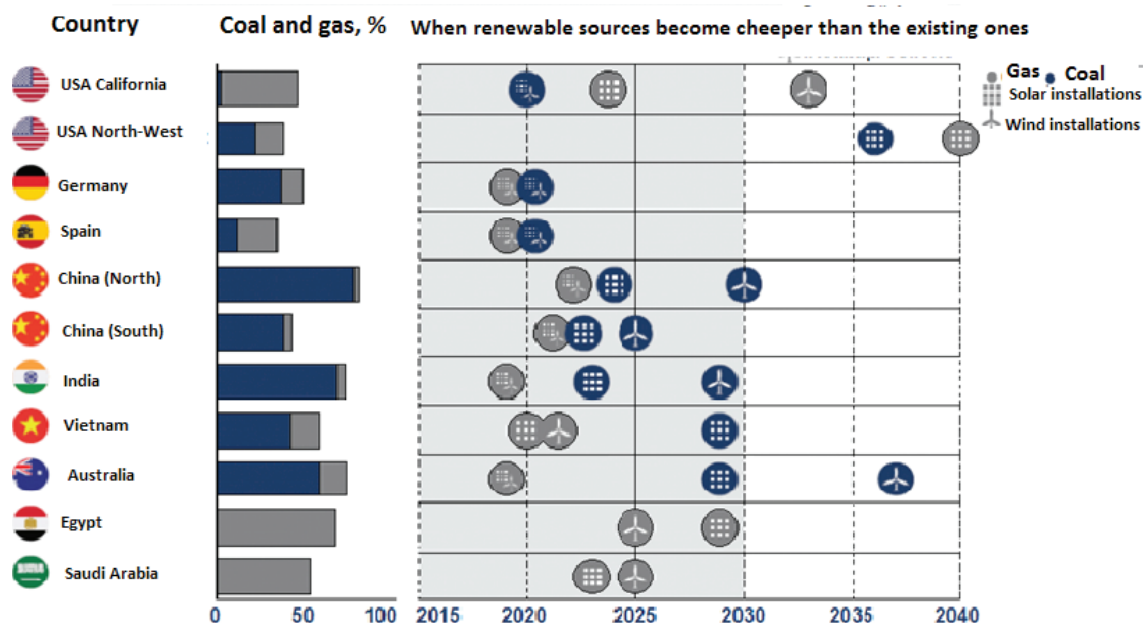
8. *The transformation of renewable energy advances slowly.* Many countries, cities, regions across the globe have developed their transition policies in the field of energy, from traditional sources to alternative ones. Application of decarbonised energy (renewable energy, nuclear energy), energy efficiency policies: these are good examples of policies to be implemented.

9. *A minority of citizens begin to take action.* The number of people who want to reduce consumption of traditional energy resources is minimal [Gribincea A., Scortescu S. 2010, 155-157]. However, they reduce the use of traditional fuel cars, save energy, reduce meat consumption.

10. *Influences assume ownership rights over environmental issues.* More and more social networks have shown their commitment to ecological causes. The launched movement is a good example of these spontaneous movements meant to change mindsets.

The Cost of Renewable Energy Compared to those Using Gas, Coal and other Sources

Fig. 2.



Rezume

Environmental problems have ceased to be purely ecological ones and thus are considered as directly affecting the economic security of the countries. Under the influence of globalization of the world economy, international competition and strategic management of CTN are intensified, being closely related to ecological aspects.

Studies have shown that an important trend over the last years has been accompanied by a significant increase of investments in environmental innovation, which is an important economic link of many states. The analysis shows that the key factors of environmental degradation in the post-socialist countries are the predominance of industries that waste intensive and environmentally polluting resources. The machines and equipment in the structure of industrial production have a high degree of impairment of fixed assets, a relatively low degree of efficiency in the use of resources and production as a whole due to low technological level of economy, insufficient development of ecological market, and environmental policy problems.

Due to the negative effect on the environment, economic growth must be based on sustainable technologies, renewable products and materials. The consequences of pollution lead to degradation of population's health, food shortage, famine. Flora and fauna, resources are irreversibly destroyed, the future generations become devoid of them.

Although at the highest level the UN and other international forums discuss environ-

mental issues (the Rome Club, the Kyoto Agreement, the Rio Agreement, Horizon 2020, etc.), not all countries follow the decisions taken, continuing the defective practice of pollution.

The authors believe that the problem could be solved through a complex of legislative (restrictive), economic (stimulative) and social (educational) measures at the level of countries. Solving environmental problems requires considerable investments, however, many countries have neither technological nor financial resources to move to a new development stage.

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გლობალურ ეკონომიკურ განვითარებასა და გარემოს დაბინძურებას შორის წინააღმდეგობის დაძლევის შესახებ

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ეკოლოგიური პრობლემები უკვე არ წარმოადგენს წმინდა ეკოლოგიურს. შესაბამისად მიჩნეულია, რომ ისინი ეხება ქვეყნების ეკონომიკური უსაფრთხოებას. მსოფლიო ეკონომიკის გლობალიზაციის ზეგავლენის საფუძველზე ძლიერდება საერთაშორისო კონკურენცია და ტნკ-ის სტრატეგიული მართვა, რაც მჭიდროდაა დაკავშირებული ეკოლოგიურ ასპექტებთან.

კვლევებმა აჩვენეს, რომ ბოლო წლების მნიშვნელოვანი ტენდენციაა ინვესტიციების მნიშვნელოვანი ზრდა ეკოლოგიურ ინოვაციებში, რაც წარმოადგენს მრავალი სახელმწიფოს მნიშვნელოვანი ეკონომიკური კავშირის შედეგს. ანალიზი გვიჩვენებს, რომ პოსტსოციალისტური ქვეყნების ბუნებრივი გარემოს დეგრადაციის მნიშვნელოვანი ფაქტორებია იმ დარგების სიმრავლე, რომლებიც მოიხმარს რესურსებს და აბინძურებს ბუნებრივ გარემოს. ეკონომიკის დაბალი ტექნოლოგიური დონის, ეკოლოგიური ბაზრის არასაკმარისი განვითარებისა და ეკოლოგიური პოლიტიკის პრობლემების გამო, მანქანები და მოწყობილობანი სამრეწველო წარმოების სტრუქტურაში ხასიათდება ძირითადი საშუალებების გაუფასურების მაღალი ხარისხით, რესურსებისა და მთლიანად წარმოების შეფარდებით დაბალი ეფექტიანობის დონით.

გარემო პირობებზე ნეგატიური ზეგავლენის გამო, ეკონომიკური ზრდა უნდა დაეფუძნოს მდგრად ტექნოლოგიებს, განახლებად პროდუქტებსა და მასალებს. დაბინძურების შედეგებს მივყავართ მოსახლეობის ჯანმრთელობის გაუარესებამდე, საკვები პროდუქტების დეფიციტამდე, შიმშილამდე. ფლორა და ფაუნა, რესურსები გაუნახლებლად ნადგურდება, მომავალი თაობები კარგავს მათ.

მიუხედავად იმისა, რომ გაეროს ყველაზე მაღალ დონესა და სხვა საერთაშორისო ფორუმებზე განიხილავენ ეკოლოგიურ პრობლემებს (რომის კლუბი, კიოტოს შეთანხმება, რიო დე ჟენეროს შეთანხმება, ჰორიზონტი-2020 და სხვ.), ყველა ქვეყანა როდი მისდევს მიღებულ გადაწყვეტილებებს, აგრძელებს რა დაბინძურების მანკიერ პრაქტიკას.

ავტორებს მიაჩნიათ, რომ ქვეყნების დონეზე პრობლემის გადაწყვეტა შესაძლებელია საკანონმდებლო (შეზღუდვების), ეკონომიკური (სტიმულირების) და სოციალური (საგანმანათლებლო) ზომების კომპლექსური მიღების საფუძველზე. ეკოლოგიური პრობლემების გადაწყვეტა მოითხოვს მნიშვნელოვან ინვესტიციებს. მიუხედავად ამისა, მრავალი ქვეყანა არ ფლობს არც ტექნოლოგიას და არც ფინანსურ რესურსებს განვითარების ახალ დონეზე გადასასვლელად.

საკვანძო სიტყვები: ეკონომიკური განვითარება, ეკონომიკური წახალისება, ენერგია, ენერგიის დაზოგვა, ენერგიის რესურსები, არაგანახლებადი და განახლებადი წყაროები.