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Global environmental threats and disasters

Globalne zagrożenia środowiskowe i katastrofy

ABSTRACT

Nowadays, increased greenhouse gas emissions are contributing to climate change. The sudden global catastrophes raise concerns related to climate and limits to growth. The authors of "The limits to growth" warned about these changes occurring within 100 years. Global actions, such as the Paris Agreement, try to stop temperature increases not higher than 2 degrees. Eco-innovation can help to mitigate global climate changes. Unmitigated carbon emissions will lead to global warming of at least several degrees Celsius by 2100, resulting in high impacts of local, regional, and global risks to human society and natural ecosystems. The world's most crucial climate gathering hosted by a leading oil producer has sparked outrage among environmentalists.

Keywords: eco-innovation, environmental risks, climate change.

STRESZCZENIE

Współcześnie zwiększona emisja gazów cieplarnianych przyczynia się do zmian klimatycznych. Nagłe globalne katastrofy budzą niepokój związany z klimatem i ograniczeniami wzrostu. Autorzy książki „Granice wzrostu" ostrzegali przed niekorzystnymi zmianami w ciągu 100 lat. Globalne działania, takie jak Porozumienie Paryskie, mają na celu powstrzymanie wzrostu temperatury nie wyższego niż 2 stopnie. Eko-innowacje mogą pomóc w łagodzeniu globalnych zmian klimatu. Nieograniczona emisja dwutlenku węgla doprowadzi do globalnego ocieplenia o co najmniej kilka stopni Celsjusza do 2100 r., co będzie miało duży wpływ na społeczeństwo ludzkie i ekosystemy naturalne o dużym wpływie na lokalne, regionalne i globalne zagrożenia. Gospodarzem najważniejszego na świecie spotkania klimatycznego był czołowy producent ropy naftowej, co wywołało oburzenie wśród ekologów.

Słowa kluczowe: ekoinnowacje, zagrożenia dla środowiska, zmiany klimatyczne.

INTRODUCTION

The modern world faces serious environmental problems: climate change, exhaustion of natural resources, water pollution, and biodiversity loss. A clean and healthy environment is an essential precondition for maintaining well-being and a high standard of living. New economic and social models and technologies are necessary to make evident and significant environmental gains to contribute to the potential of financial gains through cost reduction, innovation, and international trade. Developing and popularizing new solutions play a significant role. The solutions may be called eco-innovations. Governments have a lot of different ways to tackle the issue; however, most of the time, it takes the form of a stick-and-carrot approach. Green taxes are introduced on environmental activities, but on the other hand, tax rebates are offered to those who keep up with the new standards of energy performance and emissions. Loans or grants are given to organizations investing in sustainable agriculture, renewable energy sources, or electric vehicles. The other way to fight climate change is direct public investment in improving environmental quality – afforestation, wetlands restoration, wildfire prevention, and many more. (Atalla et al., 2022)

The present research focuses on the nature and content of eco-innovation and analyses indicators of and factors influencing the capacity of eco-innovation in the European Union. The research employed quantitative and qualitative methods to identify development trends and sustainable solutions regarding eco-innovation capacity, thereby contributing to better use of valuable resources and reducing the economy's negative effect on the environment.

Eco-innovation has been recorded as a practical approach to addressing environmental problems (Lingyan et al., 2021). Yurdakul & Kazan (2020) examined the effect of eco-innovation on CE and firm financial performance in a sample of 219 Turkish manufacturing firms. The results from the SEM

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revealed that eco-innovation is significantly positively related to resource-saving, recycling, and pollution prevention. Razzaq et al. (2021) argued that eco-innovation has significant environmental implications. Sun et al. (2017) investigated the role of eco-innovation and globalization in CE in the USA. The study used the QARDL approach to estimate the long-run and the short-run association between selected variables. The study's findings revealed that eco-innovation is a mitigating factor of CE. The study also supports the existence of EKC in the USA. Ding et al. (2021) determined the impact of eco-innovation, international trade, and energy on CE for G7 countries from 1990 to 2018. The findings from the panel causality test suggested that eco-innovation, trade, and energy are the primary factors of consumption-based CE in the G7 countries.

The triggers of natural disasters include various natural forces caused by geophysical, meteorological, hydrological, climatological, and biological abnormalities, but also by human activities such as urbanization, industrialization, population growth, over-fishing, and over-farming.

1. RESPONSE TO GLOBAL ENVIRONMENTAL DANERS

In (Meadows et al., 2017), we have both pessimistic and optimistic scenarios. The authors demonstrated the warning and promise:

- The WARNING: "If the present trends in world population, industrialization, pollution, food production, and resource depletion continue unchanged, the limits to growth on this planet will be reached sometime within the next 100 years. The most probable result will be a sudden and uncontrollable decline in population and industrial capacity".
- The PROMISE (the one that is typically not talked about): "It is possible to alter these growth trends to establish a condition of ecological and economic stability that is sustainable far into the future. The state of global equilibrium could be designed so that the basic material needs of each person on earth are satisfied and everyone has an equal opportunity to realize his or her human potential".

The European Union (EU) has developed ambitious policies to combat problems of limits on renewable energy and other climate change responses. The enlargement of the EU in the 2000s meant that many Central and Eastern European countries had to accommodate these policies. (Elliott & Cook, 2018)

We look at the renewable energy policy aspects of the enlargement process and how the new member states, aided by the EU, developed their renewable resources. Although there were problems, some of the new EU countries did very well indeed, often as well or better than others in the existing EU. The paper analyzed the situation in countries bordering the EU, where, in many cases, progress has yet to be so visible to date despite the enormous potential.

Because of urban development and infrastructure construction, imperviousness means covering the soil surface with impermeable materials. Imperviousness negatively affects biodiversity, carbon storage and sequestration, soil hydrological properties, ecosystem services, and nature conservation. 2018 sealing affected 97,744 km2 (2.23%) of EU plus United Kingdom territories. Almost half the area of cities is sealed, and about 4% of the EU's coastal regions and floodplains are impermeable, jeopardizing adaptation to heatwaves and floods and decreasing carbon sequestration. (Imperviousness and imperviousness change in Europe, 2022)

While natural disasters account for a small fraction of all deaths globally, they can have a significant impact, especially on vulnerable populations in low-to-middle-income countries with insufficient infrastructure to protect and respond effectively. Understanding natural disasters' frequency, intensity, and impact is crucial to prepare better and protect people's lives and livelihoods. (Ritchie & Rosado, 2022)

The number of deaths from natural disasters can be highly variable from year to year; some years pass with very few deaths before a significant disaster event claims many lives. If we look at the average over the past decade, approximately 45,000 people globally died from natural disasters each year. This data represents around 0.1% of global deaths. The visualizations shown here show the annual variability in the number and share of deaths from natural disasters in recent decades. (Mostari, n. d.)

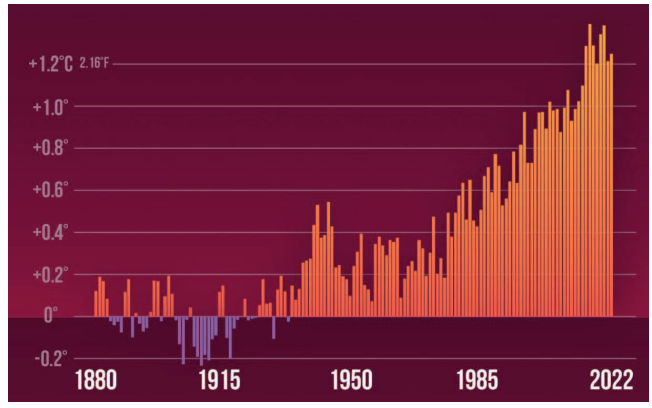

Figure 1. Global warming- increasing temperatures from 1880-2002
Source: What is climate change? (n.d.)

What we see is that in many years, the number of deaths can be deficient – often less than 10,000 and accounting for as low as 0.01% of total deaths. However, we also see the devastating impact of shock events: the 1983-85 famine and drought in Ethiopia, the 2004 Indian Ocean earthquake and tsunami, Cyclone Nargis, which struck Myanmar in 2008, and the 2010 Port-au-Prince earthquake in Haiti. These events pushed global disasters to over 200,000 – more than 0.4% of deaths in these years. (Ritchie & Rosado, 2022)

Model projections (Fig. 3) indicate that twenty-first-century global average warming will substantially exceed the Last Glacial Maximum period and even the warmest Holocene conditions, producing a climate state not previously experienced.

In UAE, there will be a conference COP 28 in 2023. Dis-

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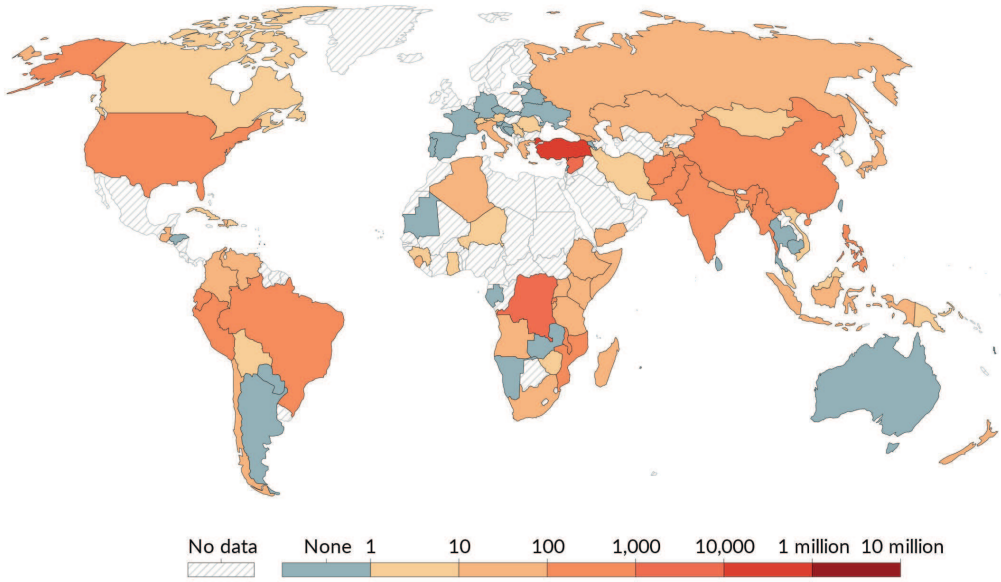

Figure 2. The causality of disasters from different regions
Source: Ritchie & Rosado (2022)

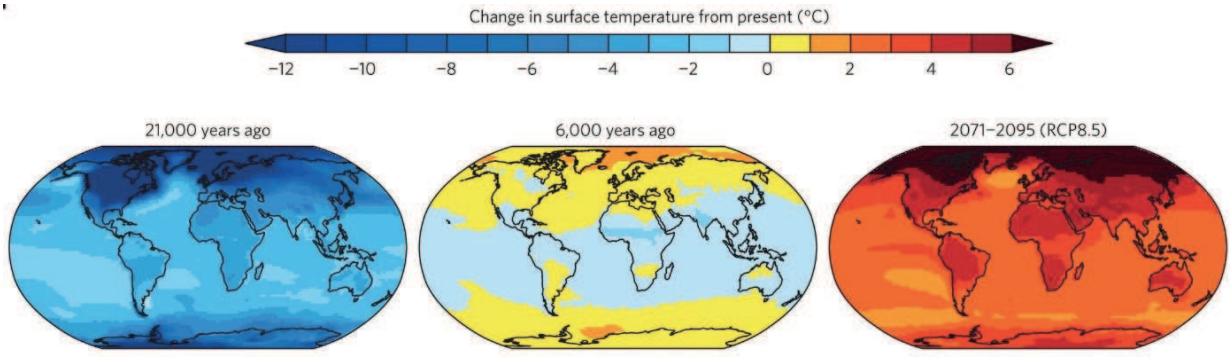

Figure 3. The visualization of changes on surface temperature from present
Source: What is climate change? (n.d.)

cussions at COP 28 focus on progress in several workstreams: hammering out the details of the loss and damage finance facility to help vulnerable communities deal with immediate climate impacts, driving towards a global goal on finance that would help fund developing countries' efforts in addressing climate change; accelerating both an energy and a just transition; closing the massive emissions gap, ju name a few. Furthermore, the first global stocktake will conclude at COP 28. The global stocktake is a process for countries and stakeholders to see where they are collectively making progress towards meeting the goals of the Paris Climate Change Agreement – and where they are not. The global stocktake has shown us we are not on track to limit global warming to 1.5 degrees Celsius. The window for meaningful change is closing, and the time to act is now. The conference comprises the annual meetings of the three decision-making bodies of the Convention, the Paris Agreement, and the Kyoto Protocol. In these bodies, delegates of all member states discuss and decide on various climate-related agenda items.

Meetings at the 2023 UN Climate Change Conference in Dubai include the 28th session of the Conference of the Parties (COP 28) – the supreme decision-making body of the Convention – as well as the fifth session of the decision-making body of the Paris Agreement (CMA 5) and the 18th session of the decision-making body of the Kyoto Protocol (CMP 18), discussing workstreams under the Paris Agreement and the Kyoto Protocol, respectively.

Governments will decide on the global stocktake at COP 28, which can be leveraged to accelerate ambition in their next round of climate action plans due by 2025.

CONCLUSIONS

The European Union has committed to achieving climate neutrality by 2050 by establishing the European Green Deal and considering the conclusions arising from the Paris Agreement not to increase the temperature to more than 1,5 C. However, decarbonization of the transport sector is necessary to achieve climate neutrality. According to the "Green Deal" assumptions, emissions from this sector should be reduced by approximately 90% by 2050. The average number of deaths from

all-natural disasters may not usually be high. If we look at the average over the past decade, approximately 45,000 people globally died from natural disasters each year. This data represents around 0.1% of global deaths. What we see is that in many years, the number of deaths can be deficient – often less than 10,000 and accounting for as low as 0.01% of total deaths. Nevertheless, we also see the devastating impact of shock events: the 1983-85 famine and drought in Ethiopia, the 2004 Indian Ocean earthquake and tsunami, Cyclone Nargis, which struck Myanmar in 2008, and the 2010 Port-au-Prince earthquake in Haiti. These events pushed global disasters to over 200,000 – more than 0.4% of deaths in these years.

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