

# The wicked environmental problems

## Zawiłe problemy środowiskowe

### ABSTRACT

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.

**Keywords:** eco-innovation, wicked environmental problem, sustainable development.

### STRESZCZENIE

Niniejsze badanie koncentruje się na naturze i treści ekoinnowacji oraz analizuje wskaźniki i czynniki wpływające na potencjał ekoinnowacji w Unii Europejskiej. W badaniach wykorzystano metody ilościowe i jakościowe do identyfikacji trendów rozwojowych i zrównoważonych rozwiązań w zakresie potencjału ekoinnowacyjnego, przyczyniając się tym samym do lepszego wykorzystania cennych zasobów i ograniczenia negatywnego wpływu gospodarki na środowisko.

**Słowa kluczowe:** ekoinnowacje, zawiły problem środowiskowy, zrównoważony rozwój.

### INTRODUCTION

The contemporary world faces serious wicked 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 obvious and significant environmental gains to contribute to the potential of economic profits through cost reduction, innovation and international trade. Developing and popularizing new solutions play a significant role. Such solutions may be called, in one-word, eco-innovations. Governments have a lot of different ways to approach the issue. However, most of the time, it takes the form of a stick and carrot approach. Green taxes on environmental activities are being introduced, but on the other hand tax deductions are being offered to those who keep up with the new standards of energy performance and emissions. Loans or grants are being given to organizations investing in sustainable agriculture, renewable energy sources, or electric vehicles. The other way to fight climate change is a direct public investment in improving the environment quality – afforestation, wetlands restoration, wildfire prevention and many more (Atalla et al., 2022).

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Eco-innovation has been recorded as an effective approach to addressing environmental problems (Lingyan et al., 2022). 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 revealed that eco-innovation is significantly positively related to resource-saving, recycling, and pollution prevention. Razaq et al. (2021) argued that eco-innovation has important implications for the environment. 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 findings of the study revealed that eco-innovation acts as 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.

**1. EFFORT TO OVERTAKE**

Limits to grow

- 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 both 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 each person has an equal opportunity to realize his or her individual 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 a range of Central and Eastern European countries had to accommodate to these policies.

Table 1. Renewable 2020 Potentials outside the EU MWe

| Country              | Wind   | Geo | Biomass | Hydro   | Total   |
|----------------------|--------|-----|---------|---------|---------|
| Albania              | 50     | 0   | 625     | 1,070   | 1,745   |
| Armenia              | 400    | 0   | 89      | 571     | 1,060   |
| Azerbaijan           | 1,500  | 0   | 218     | 1,142   | 2,860   |
| Belarus              | 200    | 0   | 996     | 214     | 1,410   |
| Bosnia / Herzegovina | 50     | 1   | 79      | 1,712   | 1,843   |
| Croatia              | 1,000  | 48  | 575     | 642     | 2,265   |
| Georgia              | 2,300  | 15  | 149     | 4,852   | 7,315   |
| Kazakhstan           | 8,000  | 12  | 1,149   | 4,424   | 13,585  |
| Kyrgyzstan           | 1,500  | 0   | 166     | 7,063   | 8,729   |
| Macedonia            | 50     | 0   | 89      | 428     | 567     |
| Moldova              | 500    | 0   | 154     | 71      | 725     |
| Russia               | 60,000 | 400 | 14,687  | 119,150 | 194,236 |
| Tajikistan           | 1,000  | 0   | 109     | 18,836  | 19,945  |
| Turkmenistan         | 10,000 | 0   | 139     | 357     | 10,495  |
| Ukraine              | 5,000  | 3   | 1,660   | 1,712   | 8,375   |
| Uzbekistan           | 1,000  | 0   | 555     | 1,926   | 3,481   |
| Yugoslavia           | 100    | 0   | 108     | 923     | 1,131   |

Source: Black and Veatch (2008)

We look at the renewable energy policy aspects of the enlargement process and how the new member states developed their renewable resources, with the aid from the EU. Although there were problems, some of the new EU countries did very well – indeed, often as well or better than some countries in the existing EU. The paper analyses situation in countries bordering the EU, where, in many cases, despite the large potential, progress has not so far been remarkably noticeable to date.

Imperviousness means the covering of the soil surface with impermeable materials because of urban development and infrastructure construction. Imperviousness affects negatively biodiversity, carbon storage and sequestration, soil hydrological properties, ecosystem services and nature conservation. In 2018, sealing affected 97,744 km<sup>2</sup> (2.23%) of EU plus United Kingdom territories. Nearly half of the area of cities is sealed and about 4% of the EU's coastal regions and floodplains are impermeable, jeopardising adaptation to heatwaves and floods and decreasing carbon sequestration.

**CONCLUSIONS**

There is a perspective of environmental renewable energy like in Tajikistan. Tajikistan has big potential of hydro energy. Tajikistan is almost exclusively reliant on hydro for electricity generation. It is home to some of the world's largest hydropower plants and is ranked eighth in the world for hydropower potential with an estimated 527 terawatt-hours (TWh). Currently only 4% of the country's hydro potential is exploited.

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