Magdalena Wojtas
mwojtas@plgbc.org.pl
Akademia Humanistyczno-Ekonomiczna w Łodzi

Aspects of the European Union's climate policy in the context of the opportunities offered by the building sector – innovation in action[1]

> The European Commission wants Europe to become climate-neutral by 2050.
> 28 November 2018. The Commission has set out a long-term strategic vision for a prosperous, modern, competitive and, above all, climate-neutral economy by 2050, showing how Europe can lead the way in achieving this goal by investing in realistic technologies, empowering citizens and adapting policies in such areas like industrial policy, finance and research. In this transition process, social justice must also be guaranteed.
> The Commission's vision for a climate-neutral future, following the suggestions of the European Parliament and the European Council, covers almost all EU policies and is in line with the Paris Agreement objective of keeping the temperature increase well below 2°C and trying to bring it down to 1.5°C.
> The Commission adopted its strategic vision on 28 November 2018 in advance of the UN Climate Summit (COP24), which took place from 2 to 14 December in Katowice.
> Clean technologies are opening up new opportunities for industry and investors, even if capital markets are slower to adapt to the climate economy. Renewable technologies such as solar, hydro or wind energy are expected to enable the EU to reduce its greenhouse gas emissions by up to 90% by 2050[2].

Most of us often underestimate how important buildings are to us. They are where we spend most of our time, they are the consumers of the largest amount of energy. It is also buildings that are largely responsible for our unsustainable material management, air pollution and water consumption. At present, according to European Commission statistics,

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[2] COM(2018) 773.

buildings in the European Union consume as much as 40% of the energy produced and are responsible for around 35% of greenhouse gas emissions. Poland, as a member of the EU, is obliged under the EPBD 2010/31/EU Directive to ensure that from 1st January 2019 all new buildings occupied and owned by public authorities are nearly zero-energy buildings. In two years' time this obligation will extend to all new buildings in the country[3]. Improving the status of existing buildings and rules for creating new ones are a priority in the fight against climate change. Only 1% of buildings in the EU are currently renovated every year, so it is impossible to create the zero-emission buildings necessary to prevent a climate catastrophe unless countries intensify their efforts. Greater ambition in these actions would help to reduce health inequalities and contribute to reducing energy poverty for around 50 million Europeans[4].

EU climate policy at the service of humanity

The attitude of the governments of the European Union Member States towards the fight against global climate change is largely determined by internal political factors. This is due to the constant competition for positions and power in the political system. Thus, the support of a given government depends on meeting the expectations and requirements of its recipients. The analysis of these factors leads politicians to decide whether to implement low-carbon models or, on the other hand, to disregard climate factors (so-called business as usual). It is also possible to adopt attitudes which, in consequence, will lead to increased emissions. The lack of continuity in the strategy chosen by successive governments is an example that the same economic and social reality can be interpreted in an extreme way. The problem of climate change is therefore a political issue.

Discussion and, as a consequence, concrete steps in climate policy are tasks which outweigh many existing sectoral policies in terms of complexity. Above all, the main challenge is to identify the problem and to convince the public to take concrete action. Global climate change is overwhelming and existential, but also elusive and remote. It is not clear to many citizens why there is already an urgent need for radical action if the symptoms of the crisis are not visible. In particular, societies undergoing economic transformation, as well as those not radically affected by climate change, may raise questions for politicians about the legitimacy of implementing climate policy. The government is therefore obliged to use its institutional and informational potential for social dialogue and thus to put the problem on the political agenda, which is an expression of three elements: national sentiments, positions, organised political forces and administrative and legislative liquidity[5].

[3] *Zielone budownictwo a rola samorządu*, https://www.przestrzen-miejska.pl/artykul/zielone-budownictwo-a-rola-samorzadu [access: 12.05.2019].

[4] *Zdrowe budynki, zdrowsi ludzie*, https://www.env-health.org/wp-content/uploads/2018/05/Healthy-Buildings-_pl-V1-1.pdf [access: 12.05.2019].

[5] J. Hovi, D. F. Sprinz, A. Underdal, *Implementing Long-Term Climate Policy: Time Inconsistency, Domestic Politics, International Anarchy*, "Global Environmental Politics", Volume 9, Number 3, August 2009, p. 20.

Climate policy is a relatively new policy which is only just setting its place in the hierarchy of priorities and needs the support of many decision-makers both within and around the political system. If the government decides to start fighting CO_2 emissions, it should be prepared to rebuild other political strategies or even the whole economic model of the state. The fight against global warming and climate change modifies at least a dozen or so fields, among them: energy policy, transport and agriculture, to name but a few. It calls for the choice of new technologies, innovative thinking and the introduction of 'good practices' in both the public and private sectors. It also has a significant impact on the construction sector, which in reality determines the condition of the whole economy, thereby specific regulations may determine the condition of the whole sector.

The new model requires institutional and bureaucratic strength from the state. Governance should focus on increasing energy efficiency, introducing incentives for green investments and technologies, modernisation of energy-intensive industries. Jeffrey Sachs, who helped to reform the Polish economy in the early 1990s in the spirit of liberal free market reforms, expressed the view that the dimension of contemporary threats requires an active role of the state[6]. It is up to the State to correct market forces in order to reduce the conflict between public and private interests, particularly in terms of natural resources and interference with the environment. The problem is not, according to Sachs, their exhaustion. The problem is that the markets are unable to bring about their wise, sustainable use.

The model described above has a significant chance of being implemented in highly developed countries because climate protection issues have been included in the political agenda of the vast majority of groups[7].

Energy and climate – horizon 2030. Scenarios for the world and Europe

2030 is the next step towards building a competitive and low-carbon European economy by the middle of the 21st century. To reach the global target of a 40% reduction in greenhouse gas emissions, the sectors covered by the EU ETS will need to reduce their emissions by 43% compared to 2005. Emissions from non-ETS sectors will need to be cut by 30% below 2005 levels. These EU-wide targets must be translated into Member States' targets. In October 2014 the European Council set out the main principles to achieve the targets[8].

Activities should develop models, tools, decision support systems, methodologies, strategies, guidelines, standards and approaches for the design, construction, implementation and monitoring of nature-based solutions and reconstruction, prevention of further degradation, remediation and maintenance of urban and peri-urban ecosystems and ecological coherence and integrity of cities. Actions should include reviewing and building

[6] J. Sachs, *Nasze wspólne bogactwo. Ekonomia dla przeludnionej planety*, Warszawa 2009, p. 110.

[7] D. Cameron, *The Low Carbon Economy Security, Stability And Green Growth, The Conservative Party*, "Protecting Security Policy Green Paper" 2010, No. 8, p. 3.

[8] *Effort sharing: Member States' emission targets*, https://ec.europa.eu/clima/policies/effort_en [access: 21.04.2019].

on existing experience and good practice in Europe. Strategies and tools should be part of integrated and ecologically coherent land-use planning and urban development processes that would ensure fair and equitable distribution of the benefits of restored urban ecology and reduce its exposure to environmental pressures[9].

It is estimated that by 2050 up to 70% of the world's population will live in urban areas. Urbanisation affects human health and well-being through factors such as exposure to pollution, including noise, disasters, stress and disease, physical inactivity, degraded ecosystems and the erosion of natural capital, which may deteriorate as a result of climate change[10]. As recognised in the new Habitat III Urban Agenda, public space plays a key role in the interaction between cities and systemic innovation in cities. Public spaces, through sustainable design and management, should ensure that the way in which citizens interact within the urban fabric increases resilience to climate change, thereby reducing the environmental impact of cities[11].

Green growth and circular economy

The further development of a sustainable, resource-efficient and competitive economy will require a shift towards a more circular economic model, including products, processes, services and business models that aim to maintain the value and usability of materials and resources in the economy for as long as possible. Economic solutions should combine strong environmental rationale with convincing business logic. The actions aim at significant improvement of resource efficiency in the medium term (including energy and water), minimisation of waste production and an increase in the use of secondary resources, while avoiding negative health impacts, and at a reduction of pollution and greenhouse gas emissions. They aim to clarify the role of design in the sustainability of products, to increase the capacity of cities to adopt circular economy and to support the transition to systemic, integrated solutions that close resource use cycles in the water sector. They will contribute to the implementation of the circular action plan and key EU high-level priorities, including employment, growth and investment, climate and energy, and strengthening the industrial base. Ultimately, they are expected to support Europe's efforts to achieve the objectives of sustainable development (SDG).

A greener economy means new economic growth and new employment opportunities. Eco-design, eco-innovation, waste prevention and the re-use of raw materials can bring net savings of up to €600 billion for EU companies[12]. Additional measures increasing resource efficiency by 30% by 2030 could increase GDP by almost 1% while creating

[9] COM (2012)497.

[10] COM (2012)710. Proposal for a Decision of the European Parliament and of the Council on a General Union Environment Action Programme to 2020 „Living well, within the limits of our planet".

[11] The New Urban Agenda, http://habitat3.org/wp-content/uploads/NUA-English.pdf [access: 21.04.2019].

[12] *Guide to resource efficiency in manufacturing: Experiences from improving resource efficiency in manufacturing companies*, Europe INNOVA 2012.

millions of additional jobs. It is also beneficial for the environment and reduces Europe's greenhouse gas emissions[13].

There is a clear need for cities to become circular cities in order to change urban consumption patterns and value chains, and to stimulate innovation, business opportunities and job creation in both existing and newly created sectors[14].

Eco-innovation

The planet's population is growing by 140,000 people per day, leading to pressures on resources and to environmental challenges. To achieve sustainable green growth and remain competitive, we must make greater use of every tonne of material, every hectare of land and every joule of energy. Investing in eco-innovation is essential to give Europe global leadership in creating a resource-efficient society.

Eco-innovation can help create new business opportunities, jobs and growth in Europe. It is estimated that this eco-innovation sector currently has an annual turnover of €227 billion, or around 2.2% of EU gross domestic product, which is more than Europe's aerospace or pharmaceutical industry. The Commission has developed an Eco-innovation Action Plan (EcoAP), which supports a wide range of eco-innovative processes, products and services, and includes a pilot programme to help market penetration of cutting-edge green technologies – providing external expert verification of performance and technology benefits. The EU Environmental Technologies Verification (ETV) pilot scheme can be especially useful for small and medium-sized enterprises (SMEs)[15].

Implementing Sustainable Development Goals – new challenges

In September 2000, world leaders adopted the United Nations Millennium Declaration, which was the basis for achieving the Millennium Development Goals. A global consensus was reached on the importance of poverty reduction and social development. Nevertheless, the results do not meet international expectations and global targets to be achieved by 2015. Continuing with current strategies is not sufficient to achieve sustainable development after 2015.

In recent years global sustainability challenges have been driven by a wide range of 'megatrends', such as changing demographic profiles, changing economic and social dynamics, technological progress and lack of prevention of environmental degradation. There is a need for a better understanding of the links between these trends and the related changes in economic, social and environmental conditions.

[13] *Towards the Circular Economy: Economic and business rationale for an accelerated transition*, Ellen MacArthur Foundation, 2012.

[14] Circular Economy Action Plan COM(2015) 614 final.

[15] *Eco-innovation Action Plan*, https://ec.europa.eu/environment/ecoap/frontpage_en [access: 23.04.2019].

While the Millennium Development Goals focused on selected priorities of social and human development, today's world is full of new challenges, compounded by numerous financial, economic, food and energy crises. These challenges threaten the ability of individual countries to achieve sustainable development. The United Nations Conference on Sustainable Development reaffirmed the need for the political commitment of the international community to sustainable development, in line with the principles of Agenda 21, including the principle of shared but differentiated responsibilities[16].

The outcome document of the United Nations Conference on Sustainable Development provides guidance for achieving the transition to sustainable development as a means of enhancing the well-being of current and future generations in all countries. Sustainable development strategies must integrate and take particular account of the needs of the poorest and most vulnerable groups in society. Strategies must be ambitious, action-oriented and collaborative, taking into account different national circumstances. They will have to systematically change patterns of consumption or production and may, inter alia, involve significant price adjustments, encourage the conservation of natural resources, reduce inequalities and strengthen economic governance[17].

Since 2007, more than half of the world's population has lived in urban centres and it is estimated that by 2050 this percentage will exceed 70 per cent. Eighty per cent of the world's urban population will live in developing regions, especially in African and Asian cities. In many developing countries, rapid urban development requires additional resources, and the development of local government capacity has become a pressing issue. It should also be noted that urban areas are constantly evolving as a result of human mobility, population growth, socio-economic development, environmental changes and local and national policies[18].

Conclusion

Green building is a solution to mitigate negative climate change. Energy-efficient construction of new buildings and renovation of existing buildings can reduce energy consumption for space and water heating in buildings by 40–50%. However, if current inefficient building practices persist, buildings could account for 70% of CO_2 emissions by 2050.

According to NASA, 16 of the 17 warmest years in history have taken place since 2001[19]. As climate change is high on the global agenda, almost every nation has signed the 2015 Paris Agreement. The main objective of the agreement is to limit global temperature increases to below 2°C above pre-industrial levels. However, as the effects of global warming are already severely felt, there is a need to increase resilience to climate

[16] *Przyszłość jakiej chcemy,* final document of the United Nations Conference of 20–22 June 2012.

[17] Reflection Paper Towards a Sustainable Europe by 2030 COM(2019) 22.

[18] *Sustainable development in the European Union – Monitoring report on progress towards the SDGs in an EU context*, https://ec.europa.eu/eurostat/documents/3217494/9237449/KS-01-18-656-EN-N.pdf/2b2a096b-3bd6-4939-8ef3-11cfc14b9329 [access: 23.04.2019].

[19] *Long-Term Warming Trend Continued in 2017: NASA, NOAA*, https://www.nasa.gov/press-release/long-term-warming-trend-continued-in-2017-nasa-noaa [access: 12.05.2019].

change. In order to achieve both mitigation and adaptation goals, it may be helpful to look at the potential of buildings in a different way.

Buildings require huge amounts of energy, which contributes to greenhouse gas emissions. Green building projects aim to reduce the environmental impact of buildings throughout their life cycle (from planning, design, construction, use and disposal) by targeting water saving and energy efficiency initiatives, including smart meters and LED lighting.

As more funding is made available through the initiatives agreed under the Paris Agreement, we can expect further development of green infrastructure as climate change mitigation efforts intensify. In addition to mitigation measures, there is also a growing need to address the consequences of climate change. Given the risk of extreme weather conditions and the realities of long-term changes and variability in weather patterns caused by global warming, adaptation projects aim to strengthen the resilience of buildings, critical infrastructure (such as transport) and, above all, the health of communities.

Ultimately, the benefits of green infrastructure projects are twofold: they can mitigate the production of greenhouse gas emissions and provide additional resilience to global warming. In this way, they can bring together communities and economies to find common strategies to combat climate change.

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