

## THE PROCESS OF IMPLEMENTING SUSTAINABLE DEVELOPMENT IN POLAND

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**Purpose:** The purpose of this paper is to show the implementation progress of Agenda 2030 in Poland as the basic document related to making the sustainable development concept a reality.

**Design/methodology/approach:** This article describes and characterizes selected indicators monitoring the national priorities of the 2030 Agenda, divided into three aspects: economic, social and environmental. The analysis was carried out based on two reports: Report 2020, Report 2022, Poland on the path to sustainable development.

**Findings:** The article shows that the implementation of the provisions of the 2030 Agenda in Poland is at a good level, but indicators monitoring social and economic issues show that changes in these areas are more favorable than in the environmental area.

**Research implication:** Considerations regarding the implementation of the assumptions of the 2030 Agenda may be continued in the future in relation to the subsequent years of operation of this document in relation to both Poland and other countries for comparative purposes.

**Originality/value:** The study covers all three aspects of sustainable development: economic, social and environmental, and presents an analysis of the latest data related to the implementation of the assumptions of the 2030 Agenda in Poland.

**Keywords:** sustainable development, Agenda 2030, SDGs.

**Category of the paper:** technical paper.

### 1. Introduction

Created in the 1980s, sustainable development is one of today's key concepts of economic development. It is strictly related to reports of the Club of Rome, especially the "Limits to growth" which proposes zero economic growth if this is the only way to stop the degradation of the natural environment. That concept focuses on social goals and believes that attaining them provides a foundation for economic development of societies (Buszko, 2012).

Unlike neoclassical economics which disregarded the links between the economy and the natural and social environment, the sustainable development concept takes account of finite stocks of resources, of the poor condition of the natural environment and of how important is social development to economic development.

In 2010, there were ca. 6.9 billion people living on the earth; in 2050, the world's population will grow to approximately 9.1 billion. The growing population means greater demand for food, services and industrial products but also for water, clean air and other natural goods that allow the human kind to survive. Also, it translates into faster economic growth caused by an increase in GDP. In turn, a higher GDP means greater production volumes which require water, energy, natural raw materials and generate undesired byproducts. Hence, growth in production and consumption contributes more than ever to environmental degradation. Rogall (2010) warns that harmful emissions and the extraction of resources will double every 28 years. Moreover, the bad condition of the environment has an effect on social problems. In an effort to address these issues, the economic growth paradigm was replaced by the sustainable development concept.

The creation of the sustainable development concept is related to adopting a perspective on the global problem related to the condition of the natural environment which goes beyond national borders and is life-threatening for future generations. It is generally believed that the dissemination of the sustainable development concept—adopted as the overarching goal of the economic, social development and environmental policies—started with the 1987 Brundtland Report. It contributed to shifting away from the promise of development and to initiating the discussion on global management (Ziai, 2016). Sustainable development is the greatest opportunity for improving the relationships between humans and the environment and overcoming ideological barriers. Also, it is necessary to promote a policy that makes the citizens an integral part of change (D'Adamo, Gastaldi, Morone, 2022). The first concepts of sustainable development started to emerge after the 1972 UN conference held in Stockholm which declared the overarching role of environmental requirements which cannot be perturbed by human or economic development (Kośmicki, 2010). The final principle of durable and sustainable growth was formulated at the Earth Summit held in Rio de Janeiro in 1992. It established an inextricable link between preserving natural resources for future generations and the need for improving the standards of living, which also includes economic development. At the 1983 UN conference, the Brundtland Report defined sustainable development in a way that integrates economics and ecology into one system (Hadryjańska, 2005). It is generally believed that the dissemination of the sustainable development concept—adopted as the overarching goal of the economic, social development and environmental policies—started with that very report. It involves measures taken to mitigate the adverse effects of atmospheric warming, which is of particular importance to developing countries facing a number of challenges related to socioeconomic changes. In the conditions brought by the changing climate, the transfer of low-carbon technologies is

the best way for developing countries to align with (or even find new paths towards) sustainable development (Karakosta, Askounis, 2010).

The definition of durable and sustainable development provides for three fundamental goals (Borys, 1999; Śleszyński, 2000; Burzyńska, Fila, 2007; Kośmicki, 2010; Grabowska, 2001; Nazarko, Dobrzyński, 2006; Zubalewicz, Zabrocka, 2004; Dobrzańska, Dobrzański, Kielczewski, 2008; Rogall, 2010; Golusin, Munitlak-Ivanović, 2009):

1. The environmental goal: maintaining the natural resource capital and the productivity of utility systems in the long term; maintaining the stability, resilience and integrity of ecological processes; protecting the earth's atmosphere; maintaining the diversity of species and landscapes; making a sustainable use of renewable and non-renewable resources; ensuring healthy living conditions; restricting environmental degradation; eliminating environmental threats; and making a more productive use of resources in production and consumption processes.
2. The economic goal: maintaining the national economy and the whole economic system in a stable condition; full employment at an acceptable level of labor quality; making businesses more competitive through an economic management of resources; the need to pursue economic growth with the use of environmentally-friendly techniques and technologies in a way to ensure real improvements in prosperity while maintaining the limits of natural space; internalization of all major external costs; supporting equality; improving the availability of useful goods and services; price stability; balanced state budget.
3. The social goal: eradicating poverty; social security; overcoming demographic problems; fair life chances and social integration; internal and external security; resolving conflicts without violence; health protection; improving the quality of life by ensuring good living conditions and modifying the social values; maintaining cultural diversity; ensuring access to socially desired goods; social participation; reducing the debt of the poorest countries of the world; ensuring human rights and self-fulfillment to everyone; providing everyone with the ability to access social benefits and to contribute to social wellbeing against a fair remuneration; meeting human needs to the fullest possible extent; ensuring social and political stability; and improving the standards of living.

OECD established a system of short-term indicators of sustainable development which enable a holistic description of the environmental protection policy and lay down a standard for international benchmarking. The system's foundation is the causality principle which states that human activity is the factor that puts the greatest pressure on the environment by triggering adverse changes in natural resources. The society responds to these changes through an environmental protection policy, i.e. by establishing a feedback loop to reduce the pressure on the environment. The system uses Pressure, State and Response (PSR) indicators which can provide a starting point for sustainable development programming and for defining the

minimum criteria for environmental management at any scale: at a global, continental, national, regional and local level (Śleszyński, 2000; Jeżowski, 2007; Kobyłko, 2007; Baum, 2011; Madej, 2002).

Sustainable development indicators should deliver reliable, legible and accurate information on the progress in implementing that concept in the territory concerned. They should comprehensively address the problem which involves economic, environmental protection and social development issues (Hełdak, Raszka, 2013).

On September 25, 2015, the UN General Assembly adopted the Resolution “Transforming our world: the 2030 Agenda for Sustainable Development” (Agenda 2030), an action program with unprecedented scope and importance which defines the sustainable development model at the global level. Its framework extends far beyond the previously implemented Millennium Development Goals (MDGs) set in 2000. While the latter focused mostly on national average figures, SDGs address the most marginalized and vulnerable groups and rely on disaggregated data (de Jong, Vijge, 2021). According to Agenda 2030, key modernization efforts should be undertaken to eradicate poverty in all its forms while pursuing a number of economic, social and environmental goals. Sustainable Development Goals (SDGs) differ from MDGs in their objectives, concepts and policies. Sustainable Development Goals provided for in the Agenda 2030 address several key deficiencies of the Millennium Development Goals and span over a broader, more transformation-oriented program which better reflects the complex challenges of the 21st century and the need for structural reforms to the global economy (Fukuda-Parr, 2016).

Agenda 2030 is consistent with the commitment to establish a social model based on respect for human rights (Arts, 2017).

It includes the definition of 17 goals composed of 169 targets (Unic Warsaw) which are a follow-up to the Millennium Development Goals set out in the UN Millennium Declaration. The strict interrelation between the 17 targets suggests that the pursuit of any of them inevitably affects other ones. Therefore, any non-integrated development efforts which separately address each of the targets and neglect the interactions between them could lead to a failure in implementing the requirements of the Agenda 2030 (Biglaria, Beiglaryb, Arthanaric, 2022).

The goals and related targets, as defined in the Agenda 2030, stimulate activities in the domains of utmost importance: people, planet, prosperity, world peace and partnership (Unic Warsaw):

- People: to end poverty and hunger, in all their forms and dimensions, and to ensure that all human beings can fulfill their potential in dignity and equality and in a healthy environment.
- Planet: to protect the planet from degradation, including through sustainable consumption and production, sustainably managing its natural resources and taking urgent action on climate change, so that it can support the needs of the present and future generations.

- Prosperity: to ensure that all human beings can enjoy prosperous and fulfilling lives and that economic, social and technological progress occurs in harmony with nature.
- Peace: to foster peaceful, just and inclusive societies which are free from fear and violence.
- Partnership: to mobilize the means required to implement this Agenda through a revitalized Global Partnership for Sustainable Development, based on a spirit of strengthened global solidarity, focused in particular on the needs of the poorest and most vulnerable and with the participation of all countries, all stakeholders and all people.

Having in mind that the Agenda 2030 is a universal plan of global development, it must every time be aligned with national realities, and therefore the states play a key role in implementing it. The complexity of and interrelations between SDGs require broad involvement and responsible collaboration. In this context, it is important that global goals be translated into national, regional and local targets, and to make people realize their importance to everyone. Article 21 of the Agenda makes every state responsible for implementing it at national, regional and global level, taking into account different national realities, capacities and levels of development and respecting national policies and priorities.

The purpose of this paper is to present the sustainable development concept in the context of implementing the goals set out in Agenda 2030 (the Resolution “Transforming our world: the 2030 Agenda for Sustainable Development”) in Poland. It was adopted on September 25, 2015 by the United Nations General Assembly, and was signed by 193 states. The Agenda 2030 lays down 17 sustainable development goals (SDGs) and 169 associated targets. It is a follow-up to the Agenda 21 which outlined the 21 Millennium Development Goals formulated at the UN conference held in 1992 in Rio de Janeiro and subsequently included in the UN Millennium Declaration of 2000. Agenda 2030 is planned to be implemented over another 15-year period (ending in 2030); it spans over all countries and their internal socioeconomic policies, and is supposed to address the implementation of the global Paris Agreement on counteracting climate change.

This paper will outline and describe the selected indicators used in monitoring the national priorities of Agenda 2030, split into three aspects: economy, society and environment.

The authors will attempt to answer the question whether Poland has made any progress in implementing the SDGs over the last decade and, if so, what is the area that witnessed the greatest advancements.

## 2. Results

This study was prepared using two reports: Report 2020 and 2022, Poland on the path to sustainable development. The latest figures for some indicators come from 2019, which is

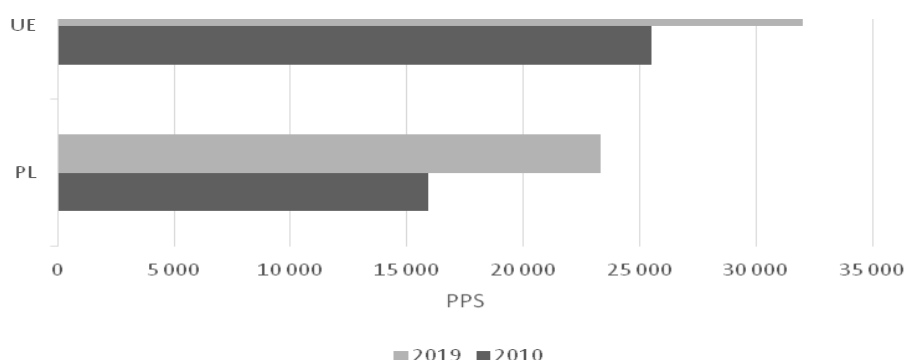
probably due to the frequency of measurements and monitoring. This study analyzed the data on selected goals of the Agenda 2030 in order to present the degree to which sustainable development principles are implemented in Poland. A reference was made to data from 10 years ago so as to show the changes taking place over the recent years and to draw conclusions on the objective of this paper. The data was arranged in a way to reflect the three main aspects of the sustainable development concept: the economic, social and environmental areas. Priorities are assigned to each of the 17 goals, and their implementation progress is measured with specific indicators. Due to its limited nature, the description below will only take account of selected goals and some of their priorities.

## 2.1. Economic aspect

Economic matters are covered by goal 8 which is about promoting stable, sustainable and inclusive economic growth, full and productive employment, and decent work for everyone.

Since 2005, the global economy has grown by 45% in real terms, at a relatively stable pace from one year to another, except for the years 2008-2009. At that time, the economic crisis hit most regions around the world; as a consequence, in 2009, the global GDP declined at an annual rate of 1.3%. In Europe, the GDP per capita is more than 2.5 times the global average.

Poland is among the countries which gradually bridge the gap between them and the wealthiest EU economies. Since 2010, the Polish gross domestic product has increased by 38% in real terms vs. barely 15% in the whole EU. The Polish GDP per capita (in PPS) continues to be much below the regional average level and is at 72% of the EU average (Figure 1). However, the gap is much smaller than in 2010 where the GDP per capita was 62% of the average Union level. Another favorable trend in Poland is the increase in labor productivity which has grown by 29% in real terms since 2010 (vs. an average rate of 7% in the EU) and represents 80% of the average regional level in nominal terms (vs. 70% at the beginning of the decade).



\*PPS, the common conventional currency used in the EU for the purposes of international benchmarking, allows to eliminate the differences in prices between the countries.

**Figure 1.** GDP per capita in Poland in 2010 and 2019 (PPS\*).

Source: (GUS: <https://raportsdg.stat.gov.pl/2020/cel8.html>).

The first indicator of the priority related to the search for new competitive advantages is the share of high-tech exports in total exports. In 2010-2020, it followed an upward trend, with 6% at the beginning and 9% at the end.

Another indicator of this priority is the one showing the expenses on innovative activities in enterprises in relation to GDP. That ratio was calculated as total expenditure on innovative activities incurred by industrial and service enterprises with no less than 10 employees in relation to GDP. In the period concerned, it did not follow a stable trend, with intermittent growth and decline. In 2010, it was at 2.39% and amounted to 1.72% in 2018.

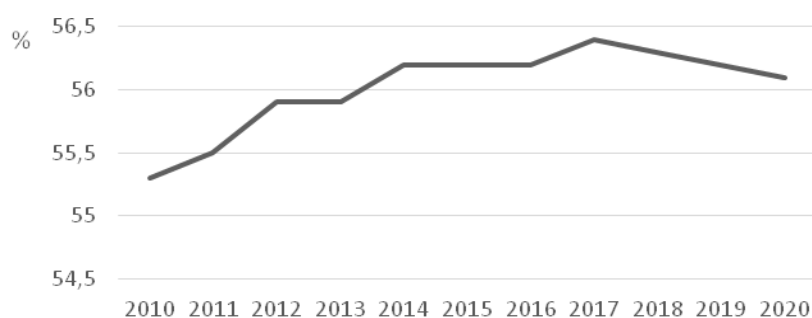
The third indicator of that priority is the Global Competitiveness Index (GCI) presented as a ranking. In 2010-2019, Poland's average rank was around 40; initially, Poland was ranked 39<sup>th</sup>, then moved to 43<sup>rd</sup> in 2014 and 37<sup>th</sup> at the end of that period ([https://sdg.gov.pl/statistics\\_nat/8-1-c/](https://sdg.gov.pl/statistics_nat/8-1-c/)).

The indicator of the priority related to enterprise development is the ease of doing business (presented as a Doing Business ranking). The higher the country's ranking, the simpler the regulations for running an enterprise and the stronger the legal protection of ownership. In 2012, Poland was ranked 55<sup>th</sup> and went down over the next 4 years (being ranked 24<sup>th</sup> in 2014); in 2020, it was ranked 40<sup>th</sup> ([https://sdg.gov.pl/statistics\\_nat/8-2-a/](https://sdg.gov.pl/statistics_nat/8-2-a/)).

An important priority of goal 8 is the increase in the employment ratio which, in accordance with the LFS (Labor Force Survey) method, was ca. 50% for people aged over 15 in the study period.

The promotion of stable forms of employment is of crucial importance for the attainment of goal 8. The indicator of that priority is the number of people employed under an employment contract in relation to the total number of people working in the national economy. Between 2010 and 2020, it was ca. 73-74% in Poland.

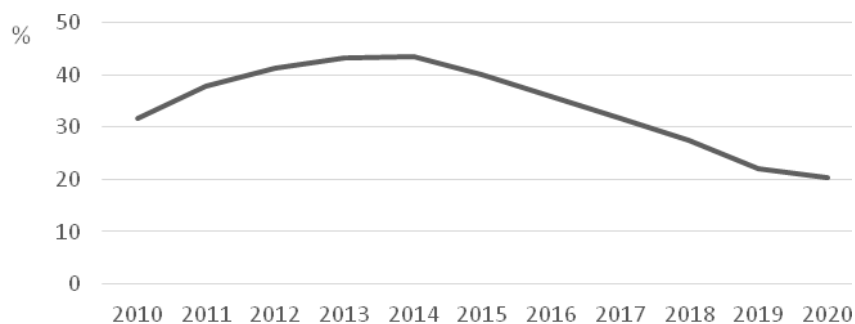
The economic activation of young people, women, persons aged 50+, long-term unemployed and disabled is an extremely important priority for goal 8; its basic indicator (the economic activity index) varied between 55.3% and 56.1% (Figure 2).



**Figure 2.** Economic activity index in Poland between 2010 and 2019.

Source: (GUS: [https://sdg.gov.pl/statistics\\_nat/8-7-a/](https://sdg.gov.pl/statistics_nat/8-7-a/)).

Just as most Union countries, Poland saw a decline in the share of economically inactive people: currently, 25% of persons aged 20-64 neither have nor seek an occupation (the EU average rate being 21%) vs. almost 29% in 2010. There was a slight change in the main reasons for being inactive. In most cases, these are caregiving and family duties (31% of cases in Poland vs. 22% in the EU), followed by retirement (28% and 18%, respectively) (Figure 3). However, at the beginning of the decade, the above reasons were cited in the reverse order.



**Figure 3.** Share of long-term unemployed in total unemployed (aged 20-64) in Poland between 2010 and 2020.

Source: (GUS: [https://sdg.gov.pl/statistics\\_nat/8-7-b/](https://sdg.gov.pl/statistics_nat/8-7-b/)).

The next goal related to economic matters is goal 9 which means building a stable infrastructure, promoting sustainable industrialization and supporting innovativeness.

The first Polish priority under goal 9 is to improve the legal and institutional environment that encourages the undertaking of risky innovative activities, measured with the Global Innovation Index. The GII includes 80 indicators which take account of aspects such as patent applications, education, business environment, infrastructure and maturity of the economy in the context of innovativeness. Poland reached its best GII ranking (38th) in 2020 and 2022, and the worst (49th) in 2013.

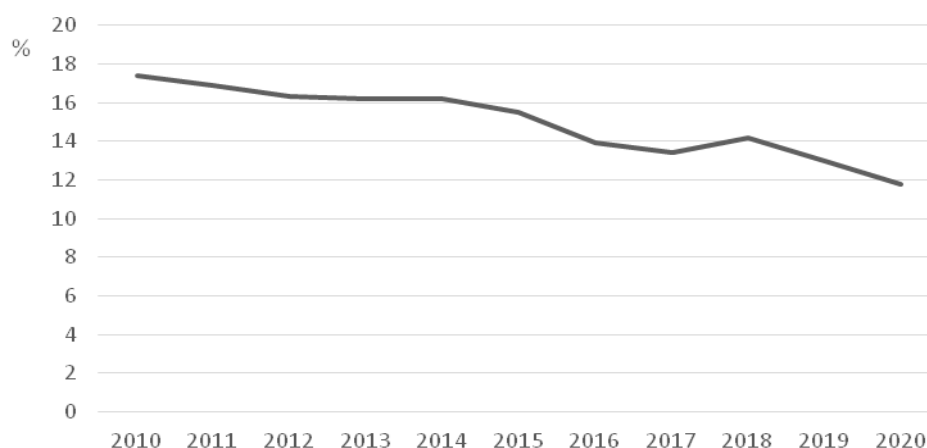
As regards the priority related to the development of knowledge-intensive industries and services, the first indicator is expressed as the relationship between gross domestic R&D expenditure and GDP. Since the beginning of the decade, Poland has witnessed gradual growth in research and development expenses, with ca. EUR 6 billion being spent in 2021 (more than twice the amount recorded in 2010). Funds allocated to current expenditure grew faster than investment resources. Although the intensity of R&D activities increased from 0.72% of GDP in 2010 to 1.44% of GDP, it remains below the EU average level (which grew from 1.92% to 2.12% of GDP over that period). Also, a large gap persists between Poland and European leaders of innovativeness (including Sweden, Austria, Germany and Denmark) where the intensity of research and development activities is nearly three times greater (GUS: <https://raportsdg.stat.gov.pl/2022/cel9.html>).



Compared to 2010, there are changes in the structure of financing and running R&D activities. Currently, more than half of R&D funds (53%) come from the enterprise sector and a smaller part (35%) is provided by the government, whereas the proportion recorded in 2010 was reversed (with 24% and 61%, respectively). Also, the enterprise sector increased its contribution to the implementation of research and development activities. Today, just like in the EU, it accounts for ca. two thirds of funds spent on that area (in addition to its own funds, it also uses a part of funds originating from the government sector and some foreign resources). The higher education sector continues to demonstrate a relatively high share (of over 30%) in the structure of R&D expenses grouped by implementing sectors. Conversely, there was a drop in the government's contribution to the implementation of R&D projects. The next indicator covered by that priority is the R&D expenditure of the enterprise sector in relation to the GDP. Between 2010 and 2020, it grew consistently from 0.19 to 0.88, testifying to an increased interest from enterprises in research and innovative activities. Unfortunately, it is not reflected in the share of net income from the sale of new or improved products in total net sales income of industrial enterprises. Over the study period, that ratio declined from 11.3% to 9.3%. The above means that interest in research and enterprise development does not directly translate into increased income from selling innovative products.

## 2.2. Social aspect

Of the 17 goals under the Agenda 2030, the largest group relates to social issues, including goal 1 which addresses the need to eliminate poverty in all its forms all around the world. The key indicator of that goal is the real poverty rate, expressed as the percentage of people living in households below the relative poverty line, defined as 50% of the average spending of all households.



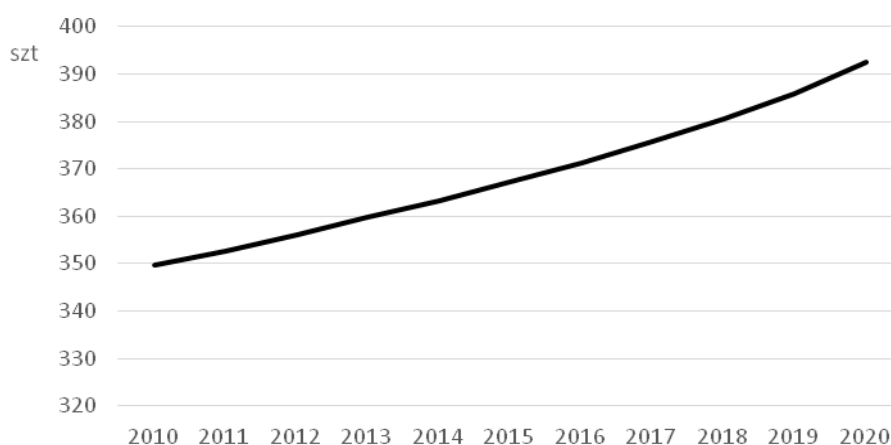
**Figure 4.** Real poverty rate in Poland between 2010 and 2020 (%).

Source: (GUS: [https://sdg.gov.pl/statistics\\_nat/1-1-a/](https://sdg.gov.pl/statistics_nat/1-1-a/)).

In Poland, just like throughout Europe, extreme poverty is relatively rare but many households do not earn enough to enjoy a peaceful life. However, this is less frequently the case than at the beginning of the decade; conversely, the problem becomes more widespread in the EU. The percentage of the Polish population at risk of poverty (taking account of social transfers as part of their income) decreased to 15% from nearly 18%, the level recorded in 2010 (Figure 4). Currently, it is below the EU average (which increased to 17%) although it was the opposite only a couple of years ago. The at-risk-of-poverty rate for rural residents (21% vs. 24% in 2010) is twice that for big city dwellers (10% vs. 11%).

The next indicator for goal 1 is the households' real disposable income per capita, with 2008 as the base year. In Poland, it grew by more than 40% over the last decade. The financial situation of Polish households is clearly better than in 2010. At that time, nearly 15% of households suffered from severe material deprivation, i.e. struggled to finance at least 4 out of 9 needs considered as basic in the European realities. Today, these problems are faced by barely 4% of Polish households which, unlike at the beginning of the decade, is less than the average rate recorded in the EU (6%). Just like a couple of years ago, the financial situation is the usual reason why households cannot afford a one-week holiday away from home once a year or meet unexpected expenditure. These difficulties are indicated by 30% of households, which is much less than in 2010 when it was the case for more than half of them.

An important indicator of the population's quality of living is the one which presents the housing resources of a territorial unit (Figure 5). Low values mean a shortage of dwellings which can result in social problems, e.g. making it difficult for young people to become self-empowered. In turn, high levels mean excessive housing resources which may lead to economic difficulties, e.g. in maintaining the unused part of it. The value of this ratio is also impacted by cultural and demographic factors, such as the average number of children per family, average age and a culture of multigenerational cohabitation.



**Figure 5.** Number of dwellings per 1000 population in Poland between 2010 and 2020.

Source: (GUS: [https://sdg.gov.pl/statistics\\_nat/1-4-a/](https://sdg.gov.pl/statistics_nat/1-4-a/)).

Another goal with a social dimension is goal 2 which means eliminating famine, attaining food security and better nutrition, and promoting sustainable farming.

Two target indicators were defined as part of the priority related to increasing the share of agricultural produce (including high-quality food) in Polish exports: the value of agri-food exports per capita and the share of agri-food products in total Polish exports. Both of them follow an upward trend, and the former more than doubled between 2010 and 2021, going from over PLN 1400 to PLN 4500.

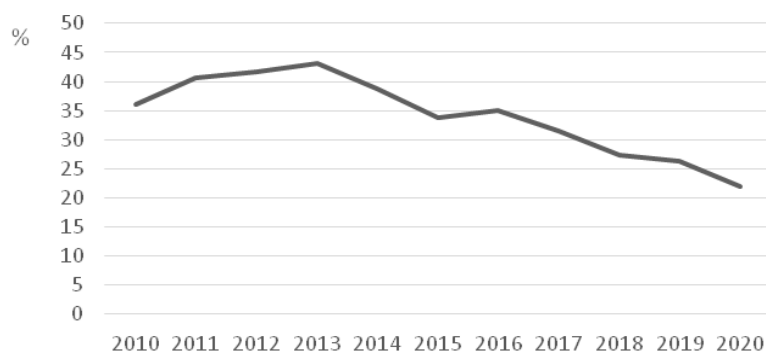
Goal 3, also related to social aspects, is about ensuring a healthy life to everyone at any age and promoting wellbeing.

One of its priorities is to narrow the gap in access to healthcare, and is measured as the number of doctors per 10,000 population and the number of nurses and midwives per 10,000 population. These indicators increased between 2009 and 2020, with the number of nurses being twice that of doctors (62.6).

According to subjective views of the Polish population, the health condition of the society has improved since the beginning of the decade. Most people (60%) consider their health status to be good or very good; this is slightly more than in 2010 (58%). At the same time, there is a decline in the percentage of persons reporting to be in a bad or very bad health condition (to 13% from 15% in 2010). The Poles rate their health status below the total EU level. In the EU, 69% of people view their health condition as good or very good and 8% as bad or very bad, on average. Both in Poland and in the whole EU, most good and very good ratings are given by men. Conversely, women more frequently than men declare to have a medium (neither good nor bad) health status and to be in a bad or very bad health condition.

Another goal relating to social issues is goal 4 which calls for providing everyone with high-quality education and promoting lifelong learning.

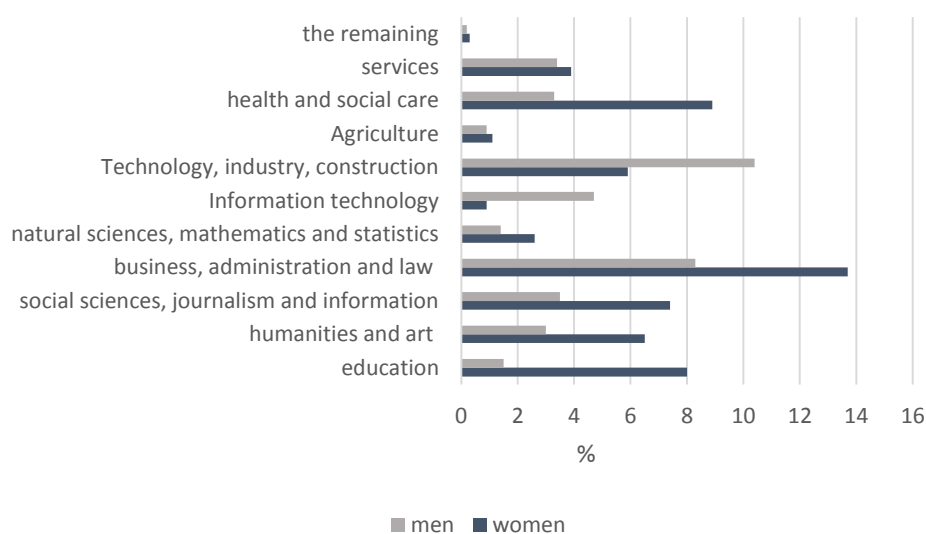
One of the priorities under goal 4 is to improve the quality and attractiveness of vocational education and to better align the vocational training and education with labor market needs. It is measured with the unemployment rate among graduates of vocational schools (as per the LFS). Between 2010 and 2020, it went down from 36% to 22%, but it needs to be noted that total unemployment in Poland followed a downward trend over that period (Figure 6).



**Figure 6.** Unemployment rate for graduates of vocational schools (in accordance with the LFS).

Source: (GUS: [https://sdg.gov.pl/statistics\\_nat/4-1-a/](https://sdg.gov.pl/statistics_nat/4-1-a/)).

Goal 4, i.e. improving the quality of education, also involves the quality of tertiary education. Due to demographic and socioeconomic changes, the number of students at Polish universities gradually declines, but still many young residents decide to enroll in a tertiary program: in academic year 2018/2019, the gross enrolment rate (which only takes account of first- and second-cycle studies and long-cycle master's degree programs, excluding foreigners, in relation to population aged 19-24) for this level of education was 46% (vs. 54% in academic year 2010/2011). More and more Poles have a tertiary education: almost 47% of people aged 30-34 hold a university diploma (vs. 40% in the entire EU), compared to 30% at the beginning of the decade (Figure 7).



**Figure 7.** Polish students grouped by fields of education in 2018 (%).

Source: (GUS: <https://raportsdg.stat.gov.pl/2020/ce14.html>).

Goal 5 is related to attaining gender equality and empowering women and girls. In Poland, just like in other EU countries, gender inequality is noticeable in a number of ways, including in the labor market, despite women being more educated. Indeed, they quit education at an early stage less frequently than men; 3.6% of women aged 18-24 ended their schooling at the junior secondary level (vs. 6.7% of men). Also, women are more inclined to continue into university. More than a half of women aged 30-34 have a tertiary education (vs. barely 40% for men). However, women opt for different fields of study. They enroll in pedagogy, humanities and social courses three times more frequently than men (22% of female vs. 8% of male students), and twice less frequently in natural and technical sciences programs (9% of female vs. 17% of male students).

The fact of women being more educated does not translate into equal employment opportunities. The situation of women in the labor market has evolved in line with the general improvement in economic conditions, and is now better than at the beginning of the decade. However, in the working-age population, the employment rate is smaller for women than for men (70% vs. 79%) and the unemployment rate is higher for women than for men (4% vs. 3%).

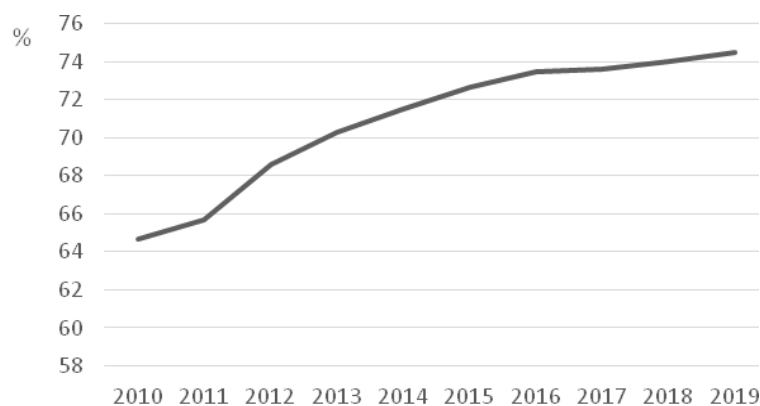
The percentage of Polish women which are economically inactive due to caregiving duties is among the highest in the EU and follows an upward trend.

Another indicator of goal 5 relating to the priority of implementing gender equality is the difference in earnings between women and men, expressed as the pay gap (Fig. 13). It is calculated as the difference in the gross average hourly rate between men and women, presented as the percentage of the gross average hourly rate of men. The data relates to enterprises with 10 or more employees in accordance with the 2007 Polish Classification of Economic Activity (sections from B to S). In 2010-2019, that indicator varied in the range of 4.9% to 4.8% with significant growth in 2018 (8,8%), which reflects a widening pay gap to the detriment of women.

### 2.3. Environmental aspect

The environmental aspect is addressed under goal 6 which relates to ensuring access to water and good sanitary conditions to everyone through sustainable management of water resources.

One of the priorities of that goal is to establish legal and financial mechanisms that promote a reasonable use of water resources, to implement water-saving technologies and to build and upgrade sewage treatment plants. Its indicators include the percentage of the population served by treatment plants which follows an upward trend (Figure 8).



**Figure 8.** Percentage of the Polish population served by treatment plants in 2010-2019.

Source: (GUS: [https://sdg.gov.pl/statistics\\_nat/6-2-a/](https://sdg.gov.pl/statistics_nat/6-2-a/)).

Another goal related to environmental matters is goal 13 which involves counteracting climate change and its consequences. The key indicator of the first priority under goal 13 is the change in carbon emissions (and, generally, in greenhouse gas emissions) against 2010. In 2020, CO<sub>2</sub> and GHG emissions dropped by ca. 5 and 6 percentage points, respectively. The annual amount of greenhouse gas emissions from the national economy per capita is 11 tons, slightly more than the average EU level of 9 tons which is below that recorded at the beginning of the decade (10 tons). In the context of most member states reducing their

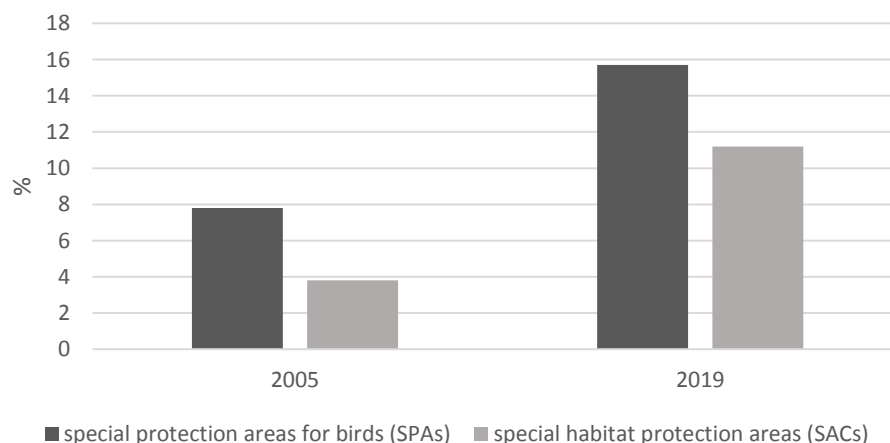
emissions, Poland became the 7th largest emitter of greenhouse gases per capita in the EU, moving from the 11th rank it held in 2010 (GUS: [raportsdg.stat.gov.pl/2022/cel13.html](https://raportsdg.stat.gov.pl/2022/cel13.html)).

The reduction in the volume of greenhouse gases released to the atmosphere is driven by a number of measures, including the shift to low-emission energies, especially renewables.

The introduction of innovative technologies for tapping into available sources of energy is the second priority under goal 13. Its indicators include the share of renewable energies in gross final consumption of energy which usually followed an upward trend with 9.3% in 2010 and 16.1% in 2020 (in the EU, it increased from 13% to 18%). As a consequence, with the gradual reduction in the use of fossil fuels, the consumption of one joule of energy results in generating 5% less greenhouse gases than in 2010. In the EU, it declined on average by 8%, and the leaders include Finland, Denmark and Sweden (a drop by 26-23%) which use renewables on a relatively large scale.

Goal 15 is about protecting, restoring and promoting the sustainable use of terrestrial ecosystems; managing forests in a sustainable way; combating desertification; preventing and reversing the soil degradation process; and halting the loss of biodiversity.

In Poland, 10 million ha (i.e. 33% of the national territory) are legally protected areas. A large part of them are covered by the European Ecological Network Natura 2000 (Figure 9) established by the EU as a follow-up to the UN Global Convention on Biological Diversity (referred to as the Rio Convention). The purpose of Natura 2000 is to maintain valuable natural habitats and protect rare or endangered plant and animal species on the EU territory.



**Figure 9.** Share of terrestrial Natura 2000 areas in Poland's land area in 2005 and 2019 (%).

Source: (GUS: <https://raportsdg.stat.gov.pl/2020/cel15.html>).

Another indicator of that goal is the share of forestry land in land area. Over the years, an increasingly smaller part of the national territory is subject to afforestation (23,000 ha in 2000 vs. 1000 ha in 2018). This is the consequence of several factors, including the changes to the criteria of eligibility of private agricultural land for afforestation under the 2007-2013 Rural Development Program. Between 2000 and 2018, the share of forestry area in the EU increased from 36.5% to 38.2%. In Poland, that ratio also followed an upward trend over that period, but reached a lower level of ca. 30%.

### 3. Summary

In view of the set of indicators used in monitoring the pursuit of Sustainable Development Goals, Poland has made considerable progress in reducing poverty over the recent years. There is a clear improvement in the financial situation of households, measured as gross real disposable income per capita. The situation in the labor market also continues to improve. In 2020, despite the pandemic, the average unemployment rate recorded in Poland was 5.9% (compared to 10.4% in 2015). As confirmed by the outcomes of PISA tests, high-quality education can also be observed to follow a positive trend. The percentage of children aged 3-5 enrolled in preschool is on the rise, too. Furthermore, there is growth in Polish agri-food exports per capita, and the general share of agri-food products in Polish exports remains at a similar level of ca. 13% which is highly important from the perspective of ensuring food security.

The pace of economic growth in Poland over the recent years compares favorably with what is witnessed in the European Union as a whole. There is consistent growth in gross domestic expenditure on research and development (R&D), with a year-over-year rate of 18.1% in 2021. Note however that in 2019 the R&D intensity rate reached a relatively low level of 1.44%. The share of renewable energies in gross final consumption of energy grew to more than 12% in 2019; there is increased exploitation of geothermal energy. However, just like most European countries, Poland continues to face challenges related to counteracting climate change. The implementation of SDGs requires adopting an interdisciplinary approach, being open to changes in today's world, raising awareness through education from an early age, promoting attitudes that take environmental and climate challenges into account, encouraging participation in development processes and promoting active citizenship.

Although Poland keeps improving its performance with respect to environmental aspects of sustainable development, the above analysis proves these changes are not dynamic enough. It also needs to be emphasized that the quality of atmospheric air—an issue of vital importance to all citizens—has not improved despite an increased use of renewables. Furthermore, even though the indicators related to terrestrial life follow a positive trend, the changes are too slow.

There seems to be satisfactory progress in implementing Agenda 2030 arrangements in Poland. However, the indicators used in monitoring the social and economic aspects show that changes in these two areas are more beneficial than those taking place in the environmental dimension.

The outcomes of the above analyses also highlighted some methodological gaps in the national sustainable development concept, because the set of national indicators does not address waste management and does not include detailed indexes for water pollution and protection of water resources (Hadryjańska, Wysokińska-Senkus, Stańczyk 2021).

The pursuit of the initial assumptions behind the Agenda 2030 and its 17 Sustainable Development Goals faces new challenges related to the outbreak of the COVID-19 pandemic in early 2020 (with its adverse consequences to many economies and societies) and to the war in Ukraine in 2022. The crises show that a flexible approach needs to be adopted to implementing the sustainable development goals whose basic assumptions must, however, remain a stable foundation.

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