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RELATIONS BETWEEN UN SUSTAINABLE DEVELOPMENT GOALS AND SOCIETAL SECURITY. PART 2

ABSTRACT

Sustainable development goals constitute the main measures of risk-oriented sustainable development. The article presents the results of a literature study on the relationship between these objectives and societal security, which indeed refers to the most important utilitarian values. In the second part, attention is drawn to seven goals: ‘accessible and clean energy’, ‘economic growth and decent work’, ‘innovation, industry, infrastructure’, ‘less inequality’, ‘sustainable cities and communities’, ‘responsible consumption and production’, and ‘climate action’. As a result of the review of the Web of Science® Data Collection database, 46 articles were selected to serve as a basis for a literature survey. In the second part of the presentation of obtained research results, we proved that issues related to general survival and social development indirectly shape societal security in sustainable development, especially in the contexts of threats to human life and health, their social nature,

promptness in responding to threats, and characteristics of threats. All identified relationships can be used to improve the link between societal security and sustainable development, increasing the potential to protect core utilitarian values in light of contemporary global development strategies.

KEYWORDS

societal security, local and global security, sustainability, sustainable development goals (SDGs)

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RELACJE POMIĘDZY CELAMI ZRÓWNOWAŻONEGO ROZWOJU ONZ A BEZPIECZEŃSTWEM POWSZECHNYM. CZĘŚĆ 2

ABSTRAKT

Cele zrównoważonego rozwoju stanowią główne środki ukierunkowanego na ryzyko zrównoważonego rozwoju. W artykule zaprezentowano wyniki badań literaturowych dotyczących relacji pomiędzy tymi celami a bezpieczeństwem powszechnym, które istotnie odnosi się do najważniejszych wartości użytecznych. W drugiej części uwaga została zwrócona na siedem celów: 'dostępna i czysta energia', 'wzrost gospodarczy i godna praca', 'innowacyjność, przemysł, infrastruktura', 'mniej nierówności', 'zrównoważone miasta i społeczności', 'odpowiedzialna konsumpcja i produkcja', a także 'działania w dziedzinie klimatu'. W rezultacie przeglądu bazy Web of Science® Data Collection wybrano 46 artykułów, które posłużyły jako podstawa do badań literaturowych. W drugiej części prezentacji wyników badań uodwodniliśmy, że kwestie związane z ogólnym przeżyciem i rozwojem społecznym kształtują pośrednio bezpieczeństwo powszechne w zrównoważonym rozwoju, zwłaszcza w kontekstach zagrożenia ludzkiego życia i zdrowia, ich społecznego charakteru, niezwłoczności w reagowaniu na zagrożenia oraz charakterystyki zagrożeń. Wszystkie zidentyfikowane relacje mogą zostać wykorzystane do poprawy

związku pomiędzy bezpieczeństwem powszechnym i zrównoważonym rozwojem, zwiększając potencjał do ochrony najważniejszych wartości użytecznych w świetle współczesnych, światowych strategii rozwoju.

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bezpieczeństwo powszechne, bezpieczeństwo lokalne i globalne, zrównoważony rozwój; cele zrównoważonego rozwoju (SDGs)

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1. INTRODUCTION

Sustainable development goals (SDGs) shape the current understanding of the world development in the light of sustainability [1]. A set of selected goals regards issues that express general existence and societal development issues of individuals. The most noticeable ones in this context seem to be those related to energy use, work, labour and industry, infrastructure, equal access to assets and common goods, production and consumption, functioning of the cities as well as their evolution due to climate changes. All of them concern determinants of daily life in a dimension which is the closest to a citizen, an inhabitant, a resident etc. Such kinds of perspectives are cognitively important when danger to human life and health and environmental assessment is taken into consideration [2–3].

The paper presents the second part of results obtained on the basis of literature review that covered papers selected from the Web of Science® (WoS®) Core Collection database (the first part was reported in previous volume of the journal) [4]. This supplements the previous findings and broaden an analysis of relations between SDGs and societal security issues by presentation of the next 7 goals (from SDG7 to SDG13) in the light of societal security characteristics. Also this time, the cognitive focus was places on both direct and indirect relations as they could play a reference role in further research and design of practical operations for sustainable development respecting protection of the most important utilitarian values.

2. MATERIALS AND METHODS

Given the methodological coherency with results presented in the previous part of the report, we assumed that [4]:

- a) “the analysis of materials would be based on publications from verified, reliable, international database (WoS® Core Collection database), and
- b) the materials would be selected using a general searching keyword ‘sustainable development goals AND societal security’.”

The implementation of the above-mentioned assumptions allowed us to select 46 publications of different authors who represented multiple institutions and approaches to sustainable development. In the next step we verified whether relations between SDGs and societal security were noticed in the papers. All the materials were read entirely to identify at least one relation. We took into account abstracts, keywords, research assumptions, research results, discussions or conclusions (paying special attention on future research directions) and examined them to find information about following premises (societal security characteristics) [5]:

- a) danger to human life and health,
- b) societal character,
- c) urgency of the response,
- d) characteristic hazard (natural disaster or technical failure).

We found premises for the existence of relations between SDGs and societal security in every paper, so the final number of papers for in-depth analysis was still 46. During the third step, we read the papers to check which SDGs had been considered by the authors. Figure 1 presents a quantitative result of this analysis.

A differentiation in the frequency distribution has been observed. It seems to be predictable, because particular goals reflect different dimensions of sustainable development. In this paper we focused on seven SDGs: ‘affordable and clean energy’ (SDG7), ‘decent work and economic growth’ (SDG8), ‘industry, innovation and infrastructure’ (SDG9), ‘reduced inequalities’ (SDG10), ‘sustainable cities and communities’ (SDG11), ‘responsible consumption and production’ (SDG12) and ‘climate action’ (SDG13). Even if they commonly regard issues related to general existence and societal development of an individual, differences in the distributions allow showing in which cases the odds for identification of direct relations between SDGs and societal security would be the highest (however, it is not an objective rule).

SDG13, SDG7 and SDG12 were the top goals in terms of the authors' interest. SDG8, SDG11 and SDG9 were described in a very limited scope 3,2 times and once, respectively. It is worth emphasising that SDG10 was omitted by authors of selected papers in the stated context. This allows the preliminary assumption that climate action, responsible consumption and production and affordable and clean energy are characterised by the highest potential to concern the most important utilitarian values when sustainable development and societal security are commonly analysed. In case of SDG8, SDG9, SDG 11 and, especially, SDG10, there are perspective, cognitive areas for research to make relations distribution complete and balanced.

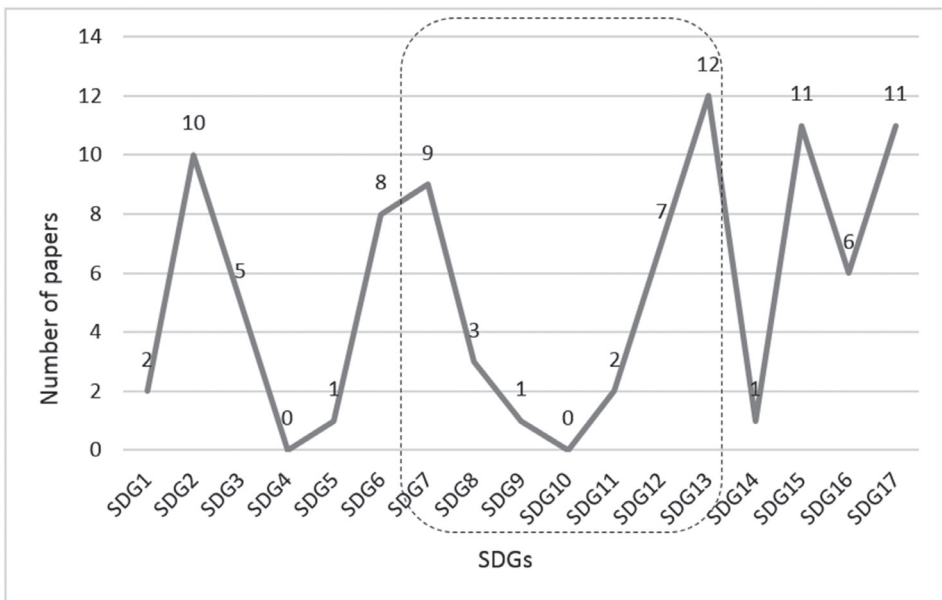


Fig. 1. The frequency of SDGs discussed in the analysed articles
Source: own study

3. RESULTS AND DISCUSSION

3.1. Security and 'affordable and clean energy' (SDG7)

The implementation of SDG7 is one of the most visible effects. Statistically, 90% of the population has access to electricity. In absolute terms, 840 million people live without electricity, 87% of whom are rural residents. These are

mainly inhabitants of Sub-Saharan Africa (56% or 573 million people). The electrification range of urban areas is 97%, and of rural areas only 78%. Access to clean fuels remains a problem. 3 billion people do not have access to clean fuels and technologies for heating and cooking, which is a serious threat to health and the environment. 4 million people die prematurely each year due to air pollution [6]. In a globalized world, low-carbon transport will not only contribute to the implementation of SDGs [7] but also to the reduction of mortality attributable to air pollution.

Worldwide, the share of renewable energy in total energy consumption keeps growing. In 2016 it was 17.5%. Electricity represents only 20% of final energy consumption. The remaining 80% are used in heating and transport. In this case, however, the share of renewable energy is much lower, at 9% and 3.3%, respectively [6].

Apart from access to energy, it is essential to ensure energy security in everyday life. The role played by renewable energy sources, low carbon fuels and recycled carbon fuels (RCCF) is also important. These contribute not only to increasing domestic production of transport fuels but also to their diversification [8]. At the same time, they stimulate the decarbonisation of the economy [8] and reduce air pollution. An important factor for low-carbon fuels is the technological diversification of their acquisition meant to stimulate innovation for the development of sustainable renewable fuel pathways [9], the development and use of raw materials for the production of new generation biofuels (e.g. waste biomass) and production technologies (e.g. pyrolysis) [10].

Renewable energy technologies (RETs) are uniquely positioned to meet the requirements of energy and related services to ensure human social and economic well-being. They can increase energy access rates [11], especially in areas without electricity. This is the proposed direction especially for villages in developing countries, where micronetworks can not only supply electricity from renewable sources (wind, solar, geothermal, hydroelectric) but also store and supply it according to demand, e.g. street lighting (improving safety), water pumps (supplying water for drinking and agricultural production), sewage treatment installations, household appliances (storing food), etc. [12]. In terms of clean fuels and reduction of greenhouse gas emissions, the opportunities arising from a bioeconomy using renewable biological resources for energy production and domestic consumption should be further devel-

oped [13]. “With increased energy savings, efficiency and technologies such as solar power and wind turbines, biofuels should be included in a diversified portfolio of renewable energy sources to reduce dependence on the planet’s scarce fossil fuel resources and ensure a sustainable future” [10].

Affordable and clean energy has a direct relationship with security, in many areas. Access to electricity is important for the size of the Human Development Index (HDI) as a measure of a country’s average quality of life. Electricity consumption below 400 kWh (poor countries and a significant proportion of developing countries) per capita is reflected in education levels. The average level of education ends at primary school level. Life expectancy is also decreasing. On average, it comes up to about 70 years old, with 70 to 85 years expected at birth [14]. It influences the sphere of poverty and ensuring a healthy life and well-being for all ages. “Of the countries whose gross national income per capita is less than 5 \$/day (more than twice the poverty level of 1.90 \$/day), 90% of the population has an electricity consumption level of less than 400 kWh/year” [14].

3.2. Security and ‘decent work and economic growth (SGD8)

Economic growth is a factor that significantly influences social processes, enables job creation and raises living standards. Despite annual GDP growth (4.8%) and increasing labour productivity, in the least developed countries the PCD per capita does not reach the SDG target (7%). In 2018, the global unemployment rate was 5%, but in many regions of the world it was much higher (9.9% North Africa and Western Asia, 8% Latin America and the Caribbean). In the same regions of the world there are large gender disparities in unemployment rates. In North Africa and Western Asia unemployment among women was 8 percentage points higher than among men, and in Latin America and the Caribbean 3 percentage points higher. Even if women do take up jobs, they are less paid than men in all categories of occupations. Together with deep-rooted social and cultural norms, differences in employment with social protection, limited access to education, and lower wages are glaring examples of gender inequality. A negative phenomenon is the persistence of NEET (20% of young people do not study, work or improve their qualifications). In 2018, the average number of young women in this group was more than double than that of young men. Gender differences

are all too visible here – in Central and South Asia it was 46% young women and 10% young men. It should be added that youth unemployment (12%) is three-fold higher than that of adults. Violation of the law when hiring employees should also be assessed negatively. The report shows that of the data from 54 developing countries as much as 75% of them more than half of workers in non-agricultural sectors are employed informally. In almost 70% of countries informal employment is higher for women than for men [6].

In the analysed articles problems of unemployment and socio-economic development have proven to be very limited. However, we can say that the lack of work and current household income is a factor that is directly related to societal security and personal threats. It causes re-stratification of society, often becoming the cause of social exclusion. It makes it impossible to obtain even a minimum amount of food or any goods. It makes it necessary for international, governmental and non-governmental institutions to undertake aid activities (e.g. humanitarian aid). The cause of unemployment may in a way stimulate the aid activities undertaken. It may require changes in the system of state organization and the creation of institutions enabling professional activation or providing material and financial support. In underdeveloped countries, the lack of professional activity is often combined with limited access to electricity, which could contribute to social and economic development and increase the productivity of household members, or access to water, enabling agricultural activity and the development of rural households [12]. It is also directly related to access to education. This implies that SDG8 is inextricably linked to many other goals (including SDG1, SDG2, SDG7) and the achievement of their objectives will automatically contribute to eliminating problems and achieving the SDG8.

3.3. Security and ‘industry, innovation and infrastructure’ (SDG9)

It is confirmed that the main obstacle to achieving the goal of ‘industry, innovation, infrastructure’ is insufficient industrialisation in developing countries. The difference among North America and Europe and the least developed countries is proven by the per capita value added in production (MVA), which in developed countries is 43,3-fold greater than in poor countries (4938USD/114USD), and is more than 85-fold less than in developed countries in East and South-East Asia. This also becomes transposed on

differences in the share of enterprises in the medium – and high-tech income generation sector. In the world, they generate 46% of added value, and e.g. more than 3 times less in sub-Saharan Africa. There are many reasons for this. Underdeveloped countries often remain resource countries for rich countries. They do extract and export, but do not process them. The small and medium-sized enterprise (SME) sector has no internal financial support and therefore has very limited development opportunities. Although small and medium sized companies are the basis for industrial development in developing countries – they not only generate opportunities for self-employment, but also create a significant number of new jobs, which are the basic place of employment for local communities, still the lack of adequate financing and access to loans or credit lines remain key barriers to their development [6].

The disparities in the productivity of industry among countries are very visible in modern technology sectors. While in 2016 in North America, Europe, East and South-East Asia over 47% of the total MVA was generated by high-tech sectors, in Oceania (excluding Australia and New Zealand) and Sub-Saharan Africa this ratio was 1.9% and 14.9%, respectively. These differences also translate into research & development funding (R&D). Globally (according to the purchasing power parity of 2016), the expenditure on R&D amounted to 2 trillion USD. The countries of Europe and North America spend 2.21% of GDP on R&D, while the countries of Sub-Saharan Africa and Western Asia spend 0.42% and 0.83%, respectively [6].

Significant differences are also visible in access to mobile networks and the Internet. Although almost all people in the world (98%) live within reach of mobile networks and the Internet (90%), not everyone can afford to use them. The cost of access to mobile networks and broadband Internet exceeds the capabilities of numerous inhabitants of underdeveloped countries. Overall, only over 50% of the world's population use the Internet. While in the most developed countries this rate is well above 90%, in the least developed countries it is 5-fold lower [6].

Although also in the scope of SDG9, the analysed articles do not explicitly refer to indicators of industrialisation, they contain many premises and arguments concerning broadly understood economic and social development, as well as opportunities for development and creation of new jobs and livelihoods. Among other things, the following needs are emphasised:

- assuring the economies of different countries and production sectors viable economic and financial solutions to improve the socio-economic conditions of the population, or to use renewable materials and biomass [13] and waste as raw materials for energy generation and fuel production in the decarbonisation of transport [8];
 - reducing greenhouse gas emissions and ensuring a healthy environment, the effects of which lead to catastrophic environmental changes and excessive disease and death [11], and the reduction and elimination of which would allow for increased pro-development investments that serve and improve human well-being;
 - assessment of natural resources and the techniques used to exploit them in the process of an integrated analysis of social and ecosystem metabolism and reliable identification of their advantages and disadvantages, especially as they can bring many benefits, but also generate certain risks for the ecosystem and for various social actors [15];
 - a case-by-case approach to problem-solving and disaster resilience for small and medium-sized enterprises (e.g. tourism) that operate in small island developing states and their economic and natural resources, especially in the context of fresh water scarcity and environmental pollution [16];
 - synergies and cooperation with the aim of building resilience in society identifying and protecting critical infrastructure, the damage or destruction of which could cause enormous economic and social damage [17];
 - using the low-carbon transport development strategy as one of the directions to improve access to mobility, reduce air pollution, improve public health and safety and reduce air pollution and noise as factors contributing to economic development and bringing significant and measurable environmental and social benefits [7];
 - reducing the planet's dependence on fossil fuel resources, increasing the efficiency of the use of solar energy, wind turbines, eliminating the risks in terms of carbon dioxide emissions that result not only from outdated industrial technologies but also from the use of biofuels and competition for water resources necessary for their production [10], as well as the need for technical diversification and development of newer generations of renewable fuels, not only based on the use of ethanol and biodiesel [9].
- Each of the presented needs is inherently connected with economic and social security. Their implementation contributes to the creation of new jobs.

Access to energy is a driver of social development, improves the living and health conditions of broad social strata, allows to increase prosperity and contributes to the reduction of development differences among the world's regions.

3.4. Security and 'reduced inequalities' (SDG10)

The persistence of income inequalities within and among countries makes it necessary to undertake extensive measures to facilitate the development of countries with lower per capita income, market facilitation, including access to zero tax tariffs. This also includes technical and technological assistance to bridge the development gap and create new jobs. Very limited income statistics in the world's poorest 69 countries indicate that 50 of them have income growth in 40% of the poorest part of the population and are faster than the national average. This does not reduce inequality, as concurrently more and more income goes to the 1% of people on the upper end of the income ladder. An important indicator of poverty and inequality is the percentage of people living below 50% of the median income level. A review of data from 110 low- and high-income countries shows that in these countries, 14% of people had income below this threshold. In the most income-diversified countries, as many as 26% of the population had incomes below 50% of the median income threshold, and in countries with sustainable incomes, 3% of the population was below the threshold. These figures show that income inequalities are not related to either poverty or wealth [6].

An important element of stable economic development is the condition of banking systems. Data from 138 countries indicate that in half of the countries, non-performing loans represented less than 5 % of all loans. In 25% of the countries the percentage of loans at risk was 10% and in 4 countries it exceeded 30%. A high percentage of non-performing loans may have a significant impact on economic growth and deepen inequality [6].

It does not contribute either to compensate for inequalities observed globally for the fall in the share of GDP devoted to compensation of employees, especially if it does not result from productivity or the fall in GDP. Higher GDP should be passed on to higher workers' incomes. Overall, in 2017, the global share was 51.4%. In Europe and North America, it was the highest, at 57.6%. The rest of the world was lower than in Europe and North America, including Sub-Saharan Africa by 5.1 percentage points (p.p.), Latin America

and the Caribbean by 7.1 p.p., Central and South Asia by 11.8 p.p., and North Africa and West Asia by 21.3 p.p. [6].

The mechanism meant to facilitate the reduction of development disparities and inequalities includes duty-free or preferential trade conditions for low-income countries. The scope of duty-free exports from LDCs in 2017 was 65.6% of all exported products [6].

An important element in the policy of reducing inequality among countries is migration policy. Although most countries have policies that facilitate legal and safe migration, this process is highly controversial, especially in the case of large numbers of refugees from countries affected by internal conflicts and mainly economic migrants. Of the 105 countries covered by the Report, more than 40% do not have comprehensive solutions for migrants' rights and socio-economic well-being (The Sustainable, 2019). Closing countries to refugees and migrants is particularly dangerous when accompanied by policies of hostility to outsiders and showing them in a negative light as a threat to local communities by the governments of some countries, especially when these actions result from the active self-isolation of security of those in power [18].

None of the articles directly relate to the provisions and implementation of SDG10. However, it seems that reducing inequalities is one of the most difficult economic and political challenges. It is difficult to be optimistic about how the mass-scale reception of refugees and migrants in Europe and the US can be addressed when anti-immigrant, nationalist and xenophobic sentiments arise and are not suppressed in any way by national governments. There is also no simple answer to questions about economic and financial areas. Who should bear the costs of change? Are poor, conflict-ridden and failed states capable of achieving any sustainable development goals? Or maybe the overwhelming costs of implementing SDGs should be borne by rich countries that have led and run unsustainable economies and make profits using raw materials, countries that have no developed industry and are at a low level of technological development? Each of the unresolved political, economic, social problems anywhere in the world will generate more or less local threats and pose a threat to parts of the community, limiting the possibility of achieving SDGs as effectively as possible.

3.5. Security and ‘sustainable cities and communities’ (SDG11)

The progressive urbanisation will make approximately 60% of the world's population live in cities in 10 years' time. This is due not only to economic growth (metropolitan areas and cities account for about 60% of global GDP) but also to increasing pollution and carbon dioxide emissions (about 70% of global emissions are from cities and metropolitan areas). Cities and metropolitan areas consume over 60% of resources. Slum areas are growing – more than 1 billion people live in slums or informal settlements (80% of which are in regions of East Asia and South-Eastern Sub-Saharan Africa and Central and South Asia). The authors of the Report estimate that by 2030 about 3 billion people will need inexpensive flats and houses. In addition to housing problems, which highlight inequalities, negatively affect the ability of the local community to function, health and safety, waste management is an ongoing infrastructure problem. Already 2 billion people have no access to waste collection services and 3 billion people worldwide have no access to waste separation and disposal facilities. And the only form of waste management, especially in low and middle-income countries, is landfilling in open dumps. Open landfills are a threat to the environment, because they contaminate soil and water and cause further air pollution and increase greenhouse gas emissions. Already today, a total of 90% of the urban population and, in low and middle-income countries, 98% of the population of cities with more than 100,000 inhabitants breathe air that fails to meet the WHO guidelines for annual average concentrations of particulate matter (PM_{2.5}). “Ambient air pollution from traffic, industry, power generation, waste burning and residential fuel combustion, combined with household air pollution, poses a serious threat both to human health and to efforts to reduce climate change” [6].

The implementation of SDG11 is also constrained by inadequate, poorly designed or privately owned open space investments. These spaces lose their inclusiveness and become inaccessible to parts of the community. The proliferation of increasingly closed housing estates increases the exclusivity of urban areas and causes a kind of ‘ghettoisation’ of the space, thus contributing to the partial social exclusion of some of the inhabitants, who often cannot buy housing there for financial reasons.

The analysed articles do not cover the entire spectrum of problems to which SDG11 refers. They focus on issues relating to transport and its decar-

bonisation, the various aspects of synergies and the advantages of low-carbon energy carriers and economic growth which, through increased consumption, leads to the generation of waste or by-products along with pollution and eutrophication of water resources [19], followed by the formation of oxygen deserts in which life dies. Furthermore, they draw attention to the possible risks for biofuel production and the negative environmental and social costs. This is mainly a threat to forests, biodiversity, competition for the soil and water needed to grow biofuel crops [10].

Low-carbon urban mobility can bring benefits that go well beyond mitigation. It impacts directly and indirectly on human health and well-being [20]. The authors emphasise that actions in the field of decarbonisation and low-carbon transport must be based on an integrated policy approach that involves all levels of governance, technological development (shift to more efficient modes of transport, implementation of improved vehicle and engine performance technologies), investments in infrastructure and multifunctional urban design. This integrated approach “contributes to more sustainable and citizen-friendly cities” [20]. The integrated transport policy also aims at road safety (approximately 1.27 million people are still killed and up to 50 million injured each year in road accidents) [7]. The shift to low-carbon modes of transport and improving the efficiency of vehicles are linked to other objectives, both in the public sphere, such as reducing traffic congestion and congestion, saving costs of road infrastructure and services, improving environmental protection and air quality (reducing pollutant emissions), as well as in the sphere relating to individual citizens by improving the safety of other road users, affordability (for lower income households), improving public health and well-being [7]. Mitigation strategies also address issues directly related to travel and mobility by building safe and friendly public spaces that encourage walking, cycling, bicycle sharing and public transport [7].

Even if no references on urbanisation or public utilities and housing services have been found in the selected search term for the articles to be analysed, each of these factors has to do with eliminating threats to individual citizens as well as public safety. It influences and creates basic living conditions as well as increases the comfort of already existing ones. These factors have a significant impact on the provision of societal security.

3.6. Security and ‘responsible consumption and production’ (SDG12)

Throughout centuries, progress and socio-economic development have brought not only benefits but also risks and environmental degradation. The amount of natural resources used is harmful to biological balance and at the same time keeps increasing the amount of generated waste. Uneven production and consumption of goods, especially food, causes it to be wasted in developed countries and hunger and malnutrition in poor countries. Underdeveloped countries use 80% more natural resources to produce the same amount of economic product than developed countries. A “material footprint” keeps growing in the process of final consumption demand, and at a higher rate than population and economic production. The underdeveloped and developing countries are still the main suppliers of raw materials to rich countries. “The material footprint of high-income countries is greater than their domestic material consumption, indicating that consumption in these countries depends on materials imported from other countries through international supply chains” [6]. At the same time, domestic material consumption (DMC) is increasing, especially in the countries of East Asia and South East Asia. On the one hand, this is a sign of development, but on the other hand it is the result of outsourcing of material and energy-intensive production from high-income countries to poor and less resource-efficient countries.

In the process of sustainable consumption, it is necessary to manage natural resources responsibly and to take into account, in the process of national development policies, their impact on air, soil and water pollution and the health effects on local communities.

The articles analysed indicate that responsible consumption and production is not only about proper management of raw materials. They extend the issues of SDG12 objective with tools (GEOGLAM, IAEG-SDG, including satellite (ERPO)) for Earth observation and monitoring of agricultural production, necessary not only for food security but also for sustainable land use, evaluation of water consumption and production efficiency, or the impact of climate change on cultivation systems [21]. Functionally linked land observation tools and acquired metadata and early warning information (Crop Monitor for Early Warning) provide an opportunity to identify regions where biophysical risk factors are present, allowing national and

international humanitarian groups to focus on those areas most likely to be affected by food insecurity [21].

They also draw attention to the problems with the access to fresh water that results not merely from their limited resources, the use of agriculture that is not fully economically efficient, but also from the development of tourism. This causes the growing demand for fresh water in water-poor areas, which treat tourism as a key economic sector, and causes depletion of underground water resources. This problem is particularly important in many island countries, where over-exploitation of groundwater not only reduces the productivity of traditional crops, but also causes salty seawater to enter fresh water deposits [15]. This forces investment in seawater desalination processes, the use of which has an impact on food production costs and the sometimes difficult economic situation of indigenous population. Any additional costs incurred in the process of obtaining food in poor countries may result in food shortages, not only in quantity but also in quality [22], and this leads to malnutrition and often even hunger.

The problems of balancing consumption and production are visible among the challenges of feeding a growing population. To ensure adequate food supply, with an expected population of 9.6 billion people in 2050, agricultural productivity should increase by 60%. This must be achieved through the socio-environmental sustainability of natural resources. Meanwhile, for example, “vegetable production worldwide is increasingly hampered by unfavourable soil and environmental conditions, which include abiotic (drought, salinisation, flooding, extreme temperatures, low nutritional values, organic contamination and heavy metals) and biotic and airborne plant pests and diseases” [23]. On the other hand, the problems of sustainable crop production are compounded by changes in food habits. “A growing and increasingly affluent population, which prefers a meat-based diet, may threaten the limited, fragile and shrinking soil and water resources that already exist in densely populated regions (...) under heavy strain” [19].

All these considerations are linked, in a way, by concern for the protection of ecosystems. In order to pursue sustainable policies to safeguard needs, it is necessary to get governments to act, and to act globally, to adopt sustainable behaviour that ensures minimal damage to ecosystems on the one hand, and reduces excessive resource use on the other [24]. This can be done by

supporting the development of green agriculture and the eco-economy in all its areas and domains, and by a general public understanding that there is no future for the Earth and humanity without stopping the poisoning of the environment and galloping climate change.

3.7. SECURITY AND 'CLIMATE ACTION' (SDG13)

Increasing levels of greenhouse gases and ongoing climate change require immediate action to reduce carbon dioxide emissions by 45% by 2030 and then to achieve zero emissions in 2050 (in 2017 atmospheric carbon dioxide concentrations were 405.5 parts per million (ppm), 146% of pre-industrial levels). A 45% reduction in CO₂ emissions will reduce global warming to 1.5 degrees Celsius and avoid a catastrophic and irreversible climate change on the planet. Taking into account that between 1998 and 2017 climate and geophysical disasters claimed about 1.3 million lives and the economic losses resulting from climate disasters amounted to \$ 2.31 trillion, individual countries adopt national and local disaster risk reduction strategies according to the Sendai Framework for Disaster Risk Reduction. At the same time, in accordance with the Paris agreements, they develop domestic nationally determined contributions (NDCs) for combating global warming and increase funding for these activities. This is all the more important as, despite growing financial flows related to the fight against climate change, investments in fossil fuels (USD 791 billion) are still higher than investments in climate action (USD 681 billion). Developing countries are launching processes to formulate and implement National Adaptation Plans (NAPs) to reduce their vulnerability to climate change and integrate these processes into national development plans. The development of NAPs is financed by the Green Climate Fund Readiness and Preparatory Support Programme and the Least Developed Countries Fund [6].

We can therefore see that the transition to a low-carbon economy is irreversible and must not slow down, as it is the pace of change and the implementation of commitments that will guarantee the fulfilment of the Paris agreement. Achieving this goal will require action by individual countries, thousands of cities and other actors with diversity, commitment, courage, ambition, compliance and an unwavering commitment to develop and implement national climate action plans [25].

Climate action, regardless of the economic sector or human functioning, is about reducing or eliminating threats and ensuring safety in each of the analysed areas. They are often combined with:

- the decarbonization of transport [20], the development and use of renewable energy sources and recycled carbon fuels (RRCF) and the biofuel-based economy increasing energy security by increasing domestic fuel production, as well as the diversification of supply [8], the need to carry out intensive research and development work on advanced technologies for the efficient production, conversion and valorisation of biomass [13], the use of waste biomass for the production of new generation biofuels and new production technologies (e.g. pyrolysis) [10];
- the reduction of traffic and noise and greenhouse gas emissions from transport, better access to mobility [7], regional and global emissions of industrial greenhouse gases, air pollution control, which, combined with food security, will require sustainable land management [26];
- renewable energy sources, including the construction of dams on rivers to generate energy in hydroelectric power plants – but with a view to ensuring that they do not cause a significant take-off in the environment of the downstream flood plains, as happened in the Mekong flood plains in Cambodia and Vietnam, after the construction of dams in the upper reaches by China. Flood plains are a major source of animal protein for millions of people, and further uncompromising changes in these areas towards increased energy production can contribute to the biodegradation of the ecosystem, the destruction of fisheries and livelihoods and food for the rural population [27];
- a sustainable approach to ecosystem management and the need to integrate knowledge into public awareness, political thinking and economic processes. Given that ecosystem degradation undermines food production and the availability of clean water, it increases the vulnerability of populations to natural disasters and the effects of climate change, thus threatening human health, livelihoods and even social stability [24].

Reducing demand for fossil fuels for renewable energy sources is important in the process of providing clean energy, which in many regions of the world can increase the possibility of access to energy, and this in turn promotes sustainable socio-economic development [11]. In order for climate protection activities to be as effective as possible, they must be based on

monitoring of the Earth and obtaining reliable geospatial data [21] and the use of satellite techniques not only for the development of local and sectoral policies of individual countries, but also common policy objectives in many areas – e.g. protection of the Arctic against global warming [28]. It should also be borne in mind that the development of biofuels should be guided by the ‘food-first’ principle in which bioenergy does not compete with food production [29]. At the same time, there must be no competition for resources – deforestation and access to water – for the creation of plant breeding sites for biocomponent and biofuel production. Uncompromising mitigation of climate change, in addition to undisputed positive effects on all spheres of human functioning, with no synergy between energy security and air purity and food and water demand, can potentially have adverse side effects on food security.

A factor serving current and future generations are the curricula and education on environmental challenges and green information and communication technologies, which are implemented in some countries’ undergraduate and graduate studies [30]. In addition, among the causes of the immediate need for action to halt climate change are the increasing number of catastrophes and natural disasters particularly severe for small and developing island states, which are struggling with limited fresh water resources as a result of reduced and uneven rainfall, destruction of infrastructure and loss of beaches as a result of violent storms and hurricanes, or threats to life and health and water security as a result of possible tsunamis [16].

It should also be emphasized that there are voices in the discourse that the current climate change may not only exacerbate conflicts, but also, by overlapping with geopolitical problems, increase the risk of new conflicts [31].

4. CONCLUSIONS

The implementation of SDG7 (Affordable and clean energy) is directly related to ensuring security in a great many areas. It is impossible to build sustainable societies, provide adequate education and medical care, create conditions for development and effective implementation of other SDGs without ensuring access to energy, especially clean energy. Changes in ecosystems and global warming have gone so far that there is no other way but assure the full implementation of SDG7.

The problems of unemployment and socio-economic development are very limited in the analysed articles. However, we can say that the lack of work and current household income is a factor that is directly related to social security and personal threats. It causes re-stratification of society, often becoming the cause of social exclusion. It makes it impossible to obtain even a minimum amount of food or any goods. It forces international, governmental and non-governmental institutions to undertake aid activities. The ground of unemployment may in a way stimulate the aid activities undertaken.

It should be borne in mind that the implementation of SDG8 (promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all) may require changes in the system of state organisation and creation of institutions enabling professional activation or material and financial assistance. It is also directly related to access to education. Consequently, it may be seen that SDG8 is inextricably linked to many other goals (including SDG1, SDG2, SDG7) and the achievement of their objectives will automatically contribute to eliminating problems and achieving the SDG8.

The implementation of SDG9 is one of the essential conditions for success in combating poverty, hunger, unemployment, improving living conditions, increasing people's incomes, equalizing development levels and access to goods. Each of the needs presented in the analysis process: providing viable economic and financial solutions to the economies of developing countries, reducing greenhouse gas emissions and ensuring a healthy environment, and using renewable materials and biomass, thereby reducing the planet's dependence on fossil fuel resources, sourcing natural resources as little as possible to reduce its harmful effect on the earth and the atmosphere, building the resilience to the effects of natural disasters of small and medium-sized enterprises – which are sometimes the source of livelihood of entire families, the use of low-carbon transport development strategies, reducing noise levels and improving air cleanliness, have a very significant impact on the factors on which the socio-economic security of each entity depends.

The area of industry – innovation – infrastructure offers hope for a better tomorrow. However, we must also bear in mind the inherent risks. All kinds of aid measures should serve not only to develop and secure social needs, but also to help make the necessary technological leap in developing countries'

economic sectors. This is not just supposed to be about building industry and developing infrastructure, but it is supposed to be sustainable development, without harming the environment or future generations. Otherwise, the benefits of pro-environmental changes in one region of the world will be destroyed by worsening conditions in other regions, and will in no way contribute either to improving the livelihoods of local communities, or to levelling out social inequalities, or to long-term economic development.

Although none of the articles selected in the Web of Science® (WoS®) Core Collection database directly addresses the provisions and implementation of SDG10, it is clear that reducing inequality is one of the most difficult social and economic-political challenges facing the implementers of this goal. However, it seems that reducing inequalities is one of the most difficult economic and political challenges. It is difficult to be optimistic about how the reception of refugees and migrants on a massive scale in Europe and the US can be addressed when anti-immigrant, nationalist and xenophobic sentiments emerge without being suppressed in any way by national governments.

There is also no simple answer to questions about economic and financial areas. Who should bear the costs of change? Are poor, conflict-ridden and failed states capable of achieving any sustainable development goals? Or maybe the overwhelming costs of implementing SDGs should be borne by rich countries that have led and run unsustainable economies and make profits using raw materials, countries that have no developed industry and are at a low level of technological development? Each of the unresolved political, economic, social problems anywhere in the world will generate more or less local threats and pose a threat to parts of the community, limiting the possibility of achieving SDGs as effectively as possible.

The implementation of SDG11 (Make cities and human settlements inclusive, safe, resilient and sustainable) addresses all the challenges of today. Demographic forecasts that have been appearing for many years predict that in total, even with the decreasing number of inhabitants of Europe, in the next 25 years the world population will grow and is expected to exceed 9 billion. This will undoubtedly have impact on the development of all agglomerations, which will become home to around 60% of the world's population. Of course, the distribution of population living in cities and villages will be different and will depend on the regions of the world (e.g. despite the rapid urbanisation of Asia and Africa – these continents still have about 90% of

the world's population living in villages). This does not change the fact that urbanisation will bring increasing challenges for individual countries, not only related to the construction of new housing, efficient and low-carbon public transport, but also to increasing pollution, carbon dioxide emissions, inefficient waste collection and management infrastructure, of which cities are one of the biggest 'producers'.

Air pollution, including particulate matter (PM 2.5), is still very high in cities, contributing to excess mortality and reduced life expectancy¹.

Furthermore, one should also bear in mind the often overlapping pollution of the lower layers of the atmosphere resulting from excessive CO₂ emissions and the still widespread use of fossil fuels in transport, the introduction of 'large amounts of air pollution from low emitters – chimneys', which in zones with dense development and unfavourable atmospheric conditions (high humidity, fog, lack of urban ventilation) contributes to the formation of smog. Poor air quality also spills over into ecosystems, causing impaired vegetation growth and biodiversity degradation.

SDG11 (Sustainable cities and communities) shows that the world has no turning back from building sustainable green cities. The development of societies must go hand in hand with the reduction of emissions and demand for heat, it is necessary to replace coal with gas, and fossil fuels with biofuels and hydrogen cells. Energy production must be based on renewable energy sources and greater use of biomass. It is not enough to act here only in highly developed regions of the world, a global change is required and modern cities and societies must rise to this challenge. Otherwise, improving air quality in developed countries² will be accompanied by continuing deteriorating conditions in developing countries, and the costs of these adversities will not be balanced

1 According to the World Health Organisation, breathing polluted air contributes to the deaths of several million people each year and, on average, shortens the life expectancy of, for example, inhabitants of European cities by 9 months.

2 On 21 April 2021, European Union member states decided to reduce CO₂ emissions into the atmosphere by 55% by the end of 2030, and on 22 April 2021 at the Climate Summit President Joe Biden announced that the United States would reduce greenhouse gas emissions by 52% over the same period. According to a declaration by President Andrzej Duda, coal is to be excluded from electricity production in Poland by 2049.

Responsible consumption and production, to which SDG12 is devoted, shows that further processes of progress and social development must take into account the progressive degradation of the natural environment, abandonment of resource extraction and what brings shame to the contemporary world – hunger and poverty in poor countries. In implementing sustainable consumption, it is essential to manage natural resources responsibly and to take into account in the development policies of individual countries their impact on air, soil and water pollution and the effects of these activities on the health of local communities. Underfinanced and based on outdated technologies, the economies of underdeveloped countries cause excessive consumption of natural resources in production processes. At the same time, these countries are, for the most part, only suppliers of raw materials and not final producers of a given product.

In the process of taking care of the planet, sustainable production and consumption uses state-of-the-art technologies, including the possibilities of satellite-based Earth observation and monitoring of agricultural production, assessment of water consumption or the impact of climate change on crop yields.

Integral to the implementation of SDG12 is the problem of access to fresh water and the depletion of its natural sources and the need to build desalination plants in water-scarce countries. These investments automatically translate into food production costs. This, in turn, can make expensive food unaffordable for the poor strata of local communities. Given demographic projections and a growing world population, we need to take into account the increase in food productivity, with limited access to arable land and water.

In SDG12, all these considerations are linked, as it were, by the concern to protect ecosystems. In order to have a sustainable policy for securing needs, it is necessary to get governments to act, and to act globally, to adopt sustainable behaviours that on the one hand ensure minimal damage to ecosystems and on the other limit the excessive use of resources. This can be done above all by promoting the development of organic farming, the development of the eco-economy in all its areas and fields, and a widespread public understanding that there is no future for the Earth and humanity without halting environmental pollution and galloping climate change.

The implementation of all SDG13 undertakings (Take urgent action to combat climate change and its impacts) is now becoming not just a wish or

a proposal, but an absolute and urgent global necessity, if we want to stop catastrophic and irreversible climate change, which is expected to lead to an increasing number of weather anomalies and natural disasters.

In no way can individual states and international organisations allow the fight against global warming to slow down. As a very positive step in this direction, we should point to the action already mentioned by the European Union, which has increased its undertakings to reduce greenhouse gas emissions by 55% by 2030. If global action is to be successful, we shall witness the maximum decarbonisation of transport and the development of the use of renewable energy sources in all areas of the functioning of societies and the economies of individual countries.

Climate action must not result in a kind of competition for water resources or arable land, or in the production of clean energy, for example in hydroelectric power stations, to the detriment of the ecosystem, flora and fauna, or food production systems for the rural population.

Uncompromising mitigation of climate change, apart from its indisputable positive effects on all spheres of human activity in the absence of synergies between energy security and clean air, and the demand for food and water, could potentially have adverse side effects on food security, which must also be prevented without fail.

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