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ISSUES AND TRENDS OF PROGRESS TOWARDS SUSTAINABLE DEVELOPMENT GOALS IN ROMANIA

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Abstract

The paper resumes research on the current dimensions and implications of a sustainable development. Taking in consideration some of the latest theoretical insights and strategic approaches of the European Union for progress towards the Sustainable Development Goals (SDG), a few trends and issues are analysed, also in the particular case of Romania. The close inter-correlation between most of the SDGs is highlighted, since they cannot be all reviewed here. For a more practical purpose, there will be analyses on the required and actual evolution in reducing the Romanian gap of some SDG progress indicators. Monitoring SDG 12 in an EU context focuses on progress made in decoupling environmental impacts from economic growth, in decreasing energy consumption and in tackling waste generation and management. The conclusions refer to conceptual or applied sustainable development insights and policy recommendation for promoting a more sustainable production and consumption pattern in a circular economy.

Key words**:** *sustainable development, goals, environment, resource productivity, circular economy*

INTRODUCTION

The science and the politics of sustainable development have been at the centre of national, regional and global concerns for about three decades. This proves the fact that governments and all significant organizations have progressively realized that there must be assured a dynamic harmony and synergy between the natural environment and the economic, social, and technological development.

Therefore, the idea of the Sustainable Development Goals (SDGs) has quickly gained ground because of the growing urgency of sustainable development for the entire world. Although specific definitions vary, sustainable development embraces the so-called triple bottom line approach to human wellbeing. Almost all the world's societies acknowledge that they aim for a combination of economic development, environmental sustainability, and social inclusion, but the specific objectives differ globally, between and within societies [17].

The sustainable development endeavours have been and are constantly challenged also by more and more frequent or stronger financial or environmental constraints, increasing the need for developing also new conceptual and political approaches such as the green growth and the circular economy.

The most important concerns raised by sustainable development principles, such as: projecting the social-economic development for the actual carrying capacity of ecosystems; decoupling the economic growth from the environmental destruction; preserving in the long-term the general system viability with all its components, have become stringent nowadays, due to the planned transition to a green economy [11].

The sustainable path of development for a modern, efficient and equitable society and economy requires all the countries to adopt the SDGs while investing further in skills, innovation and emerging technologies, helping to drive the transition to greener production and consumption patterns.

As stated in the recent European Union strategic and reflection paper, for the progress towards the SDGs, there should be urgent action dedicated to "stop global warming and the loss of ecosystems and biodiversity, which

are threatening our well-being, the prospects for sustainable growth, and life itself on this planet. While we have the capacity to do so, we do not have the luxury of time" [4].

The main objective of this paper is a conceptual-methodological grounding and analysing of some objectives and policies designed for progress on the Sustainable Development Goals, also for transition to a greener, sustainable economy in the European Union and ultimately in Romania.

MATERIALS AND METHODS

The methods and materials used are based on:

• A literature review of the main issues linked to the SDGs;

•Explanation and definition of the relevant concepts;

•Figures exhibiting the kind and direction of inter-dependence between the SDGs;

•Analysis and synthesis of the strategic Sustainable Development Goals in the European Union;

•Computations, with data indicators and graphics, for a comparative analysis of the trends and dynamics.

RESULTS AND DISCUSSIONS

Conceptual and methodological grounds

The United Nations General Assembly (in September 2015) has urged countries from all the world to adhere to the 2030 Agenda for Sustainable Development (United Nations 2030 Agenda) with its 17 Sustainable Development Goals (SDGs).

It is a statement that world leaders are committed to struggle for the global environment and development, in order to ensure that people can leave in a healthy climate, in peace and prosperity.

Together with the Paris Agreement (on climate change), the SDGs are credited with the path to a superior world and the nexus for global cooperation on the economic, social, environmental and governance issues of sustainable development.

The 17 SDGs may be observed and remembered easily as represented with their symbols in Fig. 1.

Fig. 1. Sustainable Development Goals (SDGs)
Source: [4].

There are four main conceptual elements considered in the SDGs:

(i)The human wellbeing is intimately connected to the health of natural ecosystems;

(ii)Environmental challenges at global scale jeopardise not only development of the poorest, but also the entire prosperity of development in the long run;

(iii)For the global sustainable development, it is most important to tackle or mitigate any inequalities regarding the distribution of development benefits;

(iv)Essential issues to be considered are the sustainable management, maintenance and preserving of the natural capital [19].

Although the SDGs are now stringent and globally acknowledged so were the Millennium Development Goals in the past, driving the policies of sustainable development with important outcomes.

However, there are still many global challenges that have become increasingly pressing, jeopardizing the prospects of environmental, social and economic well-being. For instance, there is a stronger and stronger pressure and constraints on the main natural resources, from fresh water to fertile land, driven by the more and more demanding human activity for economic development.

As signalled by recent studies, the world is developing towards the quick equalling or exceeding its environmental limits. This occurs since between 1900 and 2015, the total consumption of material resources at global scale has increased fourteen times, and the preview is to more than double in the future, by 2050 [6].

Other increasing risks of unsustainable developments are linked to human actions having affected and still threatening the biodiversity and ecosystems; in just 40 years world vertebrate species populations have declined by 60% on average [21].

Unfortunately, the threat is present in all the parts of the world, including the European Union states, where only 23% of species and 16% of habitats are considered to be in good health. This is since the traditional animal-based food has a particularly high land-use footprint [7].

At the same time, due to high energy consumption, to the intensive resources exploitation eventually affecting of ecosystems, there is a rise at a high rate of the global greenhouse gas emissions. In the European Union, the transport is causing about 27% of the total greenhouse gas emissions; numerous cities or urban areas (including Bucharest, the capital of Romania) have exceeded the EU air pollution limits.

Agriculture and especially food production are still significant consumers of water and energy and pollutants, counting for approximately 11.3% of the EU greenhouse gas emissions.

Also, when considering the social pillar represented by sustainable development goals, such as the SDGs1-3, even in the European Union, around 22.5% of the EU population is considered still at risk of poverty or social exclusion and there is quite a high ratio (6.9%) of Europeans suffering severe material deprivation. The impact of the financial crisis 2008-2011 was quite dramatic so it was only in 2017 that income inequality in the EU Member States started to decrease.

This poverty and inequality status has many social consequences, translating into important differences, in the well-being and quality of life, between the regions and EU Member States. There are, for instance, challenges in securing affordable energy for all Europeans, with millions struggling to keep their homes warm [8].

All these challenges are complex and strongly interlinked, meaning that addressing one may have positive implications for others [4].

This is also the reason why the SDGs are more or less inter-correlated in addressing the most important issues of sustainable and healthy economic development. In gaining speed and efficiency in implementing the SDGs, it is very important, in our opinion, to analyse and emphasize the links and correlations that exist within or between them.

There are several recent studies that have tried to demonstrate and to assess the degree of integration of the SDGs, considered as a holistic approach to sustainable development.

Using techniques of network analysis, an early study showed that the SDGs are a more integrated system than the Millennium Development Goals [14].

One interesting way from the viewpoint of this research, is to recognize five groups as represented (Fig. 2):

(i)SDG 1-5 deal with multiple dimensions of poverty (food, income, health, education, gender);

(ii)SDG 6-9 deal with development infrastructure (water, energy);

(iii)SDG 10-12 deal with the fairness-efficiency balance;

(iv)SDG 13-15 deal with ecological infrastructure;

(v)SDG 16 and 17 deal with institutions [20].

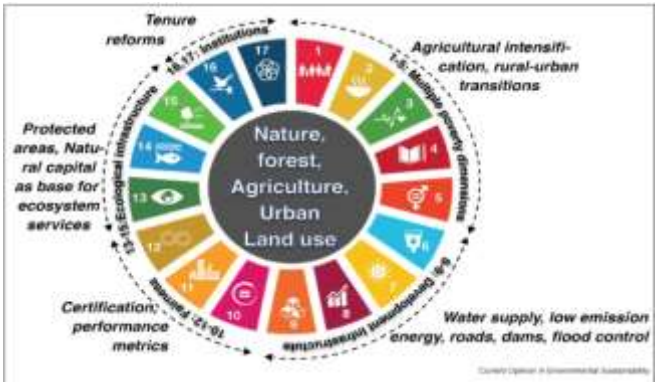

Fig. 2. The main SDG groups nexus
Source: [21].

Links between sustainable development and human development are "mutually reinforcing both on pillars of sustainable development as well as on the idea that SDG conception is based on elemental analysis of human development, while sustainable development is enriched by qualitative elements contained in evaluation of human development" [3].

Another outstanding issue of sustainable development is the need to increase resource-

efficiency, by promoting responsible production and consumption (SDG 12) which is considered as one goal most associated with trade-offs in meeting other SDGs [16].
Research, such as the following in this paper, should always aim to build or integrate links from agricultural or industrial consumption and production to the environment–related SDGs concerned, dealing for instance with food security (SDG 2), water and sanitation (SDG 6), climate change (SDG 13).

Fig. 3. Synergies and trade-offs among the SDGs, with focus on SDG13
Source: [1].

However, although the SDGs articulate a set of aspirations for human development, „their language reflects what was globally acceptable for all countries, without necessarily adequately capturing local perspectives. Individual nations have to translate these aspirations into local and national visions of a development pathway and decide on specific actions towards achieving the goals" [18].
Last but not least, the SDG13 (of the climate action) deserves a lot of attention nowadays since the climate action is essential not only for the sustainable economic development but for the survival of the human societies and civilizations.
At present, climate change is already affecting food systems, while agriculture is among the sectors most dramatically affected by climate change. The impacts on food systems are considered to be widespread, complex, geographically and temporally variable, with a high degree of uncertainty.
A recent study examines SDG 13 and its links to food system actions, with particular attention to agriculture in developing countries. It stresses on the special attention needed to identify and make work all the trade-offs and synergies amongst SDGs (Fig. 3).
The main conclusion is that there must be a transformative approach in food systems to address first the climate change challenge while addressing also some other SDGs. The transformative approach should have elements of technical, political, financial and capacity development character, but also the further impact of the transformative actions must be understood to avoid most negative implications [1].

Progress towards the SDGs in the EU and in Romania

The EU was one of the leading forces behind the United Nations 2030 Agenda and has fully committed itself to its implementation.
It is quite obvious that the European Union project identifies itself with the principles of a sustainable development – the development that meets the needs of present generations without compromising the ability of future generations to meet their needs.
For instance, environmental protection in parallel with economic development, i.e. the main paradigm of sustainable development, is deeply rooted in the European Union environmental law. The EU environmental principles are used in many of government and public authority decisions.
The main EU principles of environmental law are:
(a)The precautionary principle; the precautionary principle allows protective measures to be taken without having to wait until the harm materializes. This principle is valuable in managing risk where there is uncertainty about the environmental impact of an issue.
(b)The prevention principle; this principle requires preventive measures be taken to anticipate and avoid environmental damage before it happens.
(c)The principle that environmental damage should be rectified at source; working

alongside the prevention principle, this ensures damage or pollution is dealt with where it occurs.

(d)The polluter pays principle; according to this principle, the person who causes pollution should bear the costs of the damage caused and any remedy required. It plays a significant role in environmental management, directing accountability for harm.

(e)The integration principle; this principle requires that environmental protection is integrated into all other policy areas, in line with promoting sustainable development [2].

These EU environmental principles work together to ensure high environmental standards by directing how decision-makers should interpret the law.

In the context of sustainable development, the issue of competitiveness has new valences, since the challenge facing the contemporary world, and especially European Union member states, is an even more efficient allocation of available resources to ensure they bring the best possible result, not only in the sense of increasing GDP but also in terms of raising the standard of living for all citizens [15].

Thus, the reflection paper "Towards a Sustainable Europe by 2030", stresses some competitive advantages of the EU enabling the leadership role model for others. They correspond to the sustainable development goals as referring to the:

-high social, health and environmental standards;

-considerable investment in research and innovation;

-strong welfare systems.

According to the latest monitoring report and as suggested by the overview figure (Fig.4), it is considered that the EU has made good progress especially in the SDGs represented at the top of Figure 4; this part is characterized by significant progress towards the goals.

This improvement refers to gains in both actual and perceived health (SDG 3), reductions in certain dimensions of poverty and social exclusion (SDG 1), and increases in the quality of life in cities and communities (SDG 11). It may be observed in the Figure 4 that all these synergistically linked SDGs are placed in the top, close to each other.

As translated in the specific indicators, the progress means that both life expectancy and self-perceived health continued to grow in the EU, while European people seem to move towards healthier lifestyles. At the same time, severe material deprivation and low work intensity rates kept falling, so more citizens became able to fulfil their basic needs.

Fig. 4. Overview of the EU-28 progress towards the SDGs over the past 5 years
Source: [9].

It should be noted here also the particular situation in the case of Romania, as EU member state. Romania is making some progress towards achieving the United Nations' Sustainable Development Goals (SDGs). There are a few specific SDGs where Romania's progress is more evident, according to a recent report, during the last five years [5]. These Sustainable Development Goals are mainly the following:

-SDG 17 "Partnership for the goals", since all its associated indicators show improving performance";

-Good progress performances are found for SDG 1 "No poverty" and SDG 13 "Climate action".

However, it should be acknowledged from the start that current levels for some of these indicators in Romania are still significantly lower than the EU average, such as:
-SDG 4 "Quality education", with all indicators below the EU average;
-SDG 1 "No poverty";
-SDG 3 "Good health and well-being".
In the last five years (2015-2019), there was economic improvement in the European Union, due to a constant economic growth (of the EU's GDP). This economic development progress seems to have been fostered by the rise of investment and employment (monitored by the indicators of SDG 8 'Decent work and economic growth').
However, the EU economic growth was not always followed by good, welcome developments in using natural resources and in impacting the environment, as noticed from the lower, or downside positions of the SDG 7, SDG 12, SDG 13 and SDG 15 in the progress overview (Fg. 4).
Since having some research work and outcomes on the necessity and relevance of increasing resource efficiency on sustainable economic development, it is important to focus on the assessment of SDG 12 "Responsible consumption and production", with its issues in the EU and in Romania, as based on own calculations and analyses from the recent data on the most relevant indicators.
A decoupling of the resource use and of the environmental impacts from the economic development involves a rise of the resource efficiency in all economic sectors. The "gains in resource efficiency, measured by the resource-productivity indicator, underpin all the valuable ideal concepts of economy and development: sustainable development, the green economy and the circular economy, and the strategies dedicated to their objectives". [12].
As compared with last year, the SDG 12 "Responsible consumption and production" shows moderate progress while for the consumption of energy and material there was a relative decoupling from economic growth.
Previous research showed that, in Romania, a downward Resource Productivity (RP) trend was registered in 2000-2012, simultaneously with an upward trend of the RP in the European Union, increasing the resource productivity gap compared to the EU average. So far we had not managed to get closer to the goal of National Sustainable Development Horizon 2020: reaching the current average level of EU countries, for the main indicators of sustainable development [13].
Other research also stated that "increasing resource efficiency, namely the resource productivity of the European Union by 15-30% was essential to deliver the resource efficiency agenda established under the Europe 2020 Strategy for a smart, sustainable and inclusive growth" [11].

Table 1. Indicators of progress assessment towards the SDG 12 "Responsible consumption and production", in Romania and in the EU

SDG / Sub-theme	Indicator	Unit	Romania				EU-28			
			Starting		Latest		Starting		Latest	
			year	value	year	value	year	value	year	value
SDG 12 - Responsible consumption and production										
Decoupling environmental impacts from economic growth	Consumption of toxic chemicals	million tonnes	N/A	:	N/A	:	2013	390.3	2018	310.9
	Resource productivity	EUR per kg, chain-linked volumes (2010)	2010	0.58	2018	0.49	2010	1.88	2018	2.04
	Average CO2 emissions per km from new passenger cars	g CO_2 per km	2010	132.1	2018	121.5	2014	123.4	2018	120.4
	Energy productivity	EUR per kgoe	2010	4.2	2018	5.1	2013	7.9	2018	8.5
Energy consumption	Primary energy consumption	million tonnes of oil equivalent (Mtoe)	2010	38.4	2018	32.5	2013	1 577.4	2018	1 551.9
	Final energy consumption	million tonnes of oil equivalent (Mtoe)	2010	27.8	2018	25.5	2013	1 116.5	2018	1 124.1
	Share of renewable energy in gross final energy consumption	%	2010	23.9	2018	23.9	2013	15.4	2018	18.0
Waste generation and management	Circular material use rate	% of material input for domestic use	2012	2.6	2017	1.8	2012	11.5	2017	11.7
	Generation of waste excluding major mineral wastes	kg per capita	2012	1 162	2016	1 084	2012	1 716	2016	1 772
	Recycling rate of waste excluding major mineral wastes	% of total waste treated	2012	26	2016	38	2012	55	2016	57

Source: Extracted from Table E.1, in [5].

However, the progress report and own analysis based on the data in Table 1 shows that recent increases in the EU's resource and energy productivity are mainly a result of strong GDP growth and do not actually reflect significant more sustainable consumption patterns of natural resources.
As for Romania, there is even a larger scope of reform and of progress required in this respect, since the previously mentioned considerable gap (of 70% from the EU average) in the Resource productivity, has been perpetuated. Nevertheless, as regards the Energy

productivity, the growth rate was a bit larger in Romania (21%) than the EU-28 average (12%), leading to a slight decrease (of about 5%) in the gap of Romania's energy productivity from the EU average.

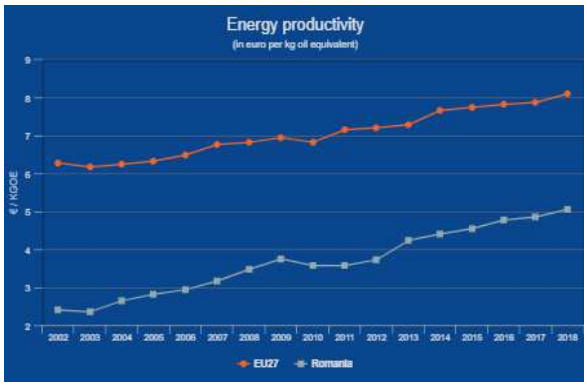

Fig. 5. Progress of the energy productivity, in Romania and the EU
Source: Eurostat [10].

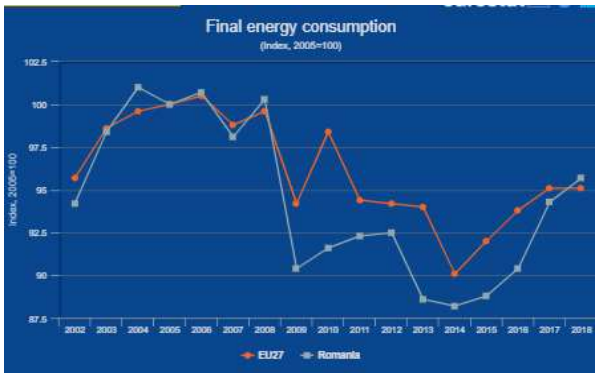

Fig. 6. Evolution of the final energy consumption, in Romania and the EU (Index, 2005=100)
Source: Eurostat [14].

On the other hand, maybe the most negative issue of progress is the increase, in Romania and in the EU, of both the Primary and Final energy consumption, this signifying a remote from the EU target of 20 % higher energy consumption efficiency by 2020 (Fig. 6).
Furthermore, the decline in CO_2 emissions from new passenger cars has slowed down recently in the EU (2.5%), but in Romania the decline was slightly higher (8%), converging to the current EU average level of CO_2 emissions from new passenger cars (120 g CO_2 per km). This Romanian progress is on the track but not sufficient since the EU target for this SDG12 and SDG13 indicator is to have emissions ≤ 95 g CO2 in 2021.
Considering the links and the synergies of the SDGs, it should be mentioned here that this indicator, together with the 23.4% Share of renewable energy in gross final energy consumption (higher than the 20% EU 2020 target) is also a factor of progress towards the SDG13 'Climate action' in Romania. Another matter of concern, in the progress towards the SDG12 at the EU level is that despite the increases in circular material use and recycling, the total waste generation (excluding mineral wastes) continued to grow in the EU [9]. However, the situation is quite reverse in Romania, where, in the analysed period years (2012-2016) there was a slight decrease (of about 6%) in the total waste generation (excluding mineral wastes), but, on the other hand, the recycling rate of waste is still too low, although increasing (30% in 2016, in Romania) as compared to 57% in the EU.

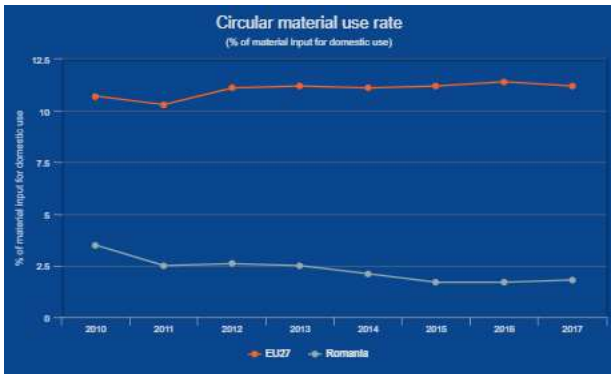

Fig. 7. Progress of the circular material use rate, in Romania and the EU, 2010-2017
Source: Eurostat [14].

One of the most serious factors of concern is the lack of progress in the circular material use rate, especially in Romania, where it was already very low but it decreased, from 2012 to 2017 from 2.6% to 1.8% of the material input for domestic use, while in the EU the circular material use rate slightly grew from 11.5% to 11.7% (Fig. 7). Unfortunately, this trend shows that the resource efficiency outcomes are still poor in Romania and there is still a long way towards the green economy required for sustainable production and consumption paths.

CONCLUSIONS

There are 17 Sustainable Development Goals (SDGs) and their related targets, which represent the core of the UN's 2030 Agenda for Sustainable Development. The SDGs aim to

provide a new policy framework worldwide towards some generally agreed objectives such as: fighting inequalities and all the forms of poverty, while at the same time tackling climate change.

In this paper it was first highlighted the context of the SDGs where the European Union has an advanced starting position and also competitive advantages in promoting the socio-economic and environmentally sustainable development. Politically, the EU is committed to stand as a striker for implementing the UN's 2030 Agenda, even in difficult times of global crisis, mobilizing the member countries in keeping a Green Deal.

There is a brief analysis and evidence of general EU progress towards almost all the SDGs in this paper. However, in some goals it has been more obvious or significant, while in some cases (within goals), there may be also skids from the sustainable development objectives.

The research also focuses on the situation of Romania, (as an EU member state having some national targets) and the more sensitive issue of mixed progress, regarding the sustainable consumption and production patterns or the SDG 12. Here, resource efficiency and circular economy actions aim to decouple economic growth from resource use and environmental degradation.

The analyses in this paper, based on the main indicators monitoring progress towards the SDG12 show that, in the case of Romania, the lagging behind in the Resource productivity (signalled in previous own research on this topic) still holds although there is some convergence in the energy productivity.

As a reaction to many natural capital challenges, the EU has enforced strong environmental legislative approaches and also other policies especially designed to promote sustainable production and consumption.

Progress towards SDG 12 needs an adoption of good practices such as: sustainability reporting by the companies; promotion of sustainable procurement; environmentally friendly lifestyles of the people; further research & development in technologies and production and consumption methods.

Increasing resource productivity, on a feasible target agreed by the EU Member States would draw more political attention and unleash the currently still understated potential of a greener, circular economy to create sustainable growth and jobs.

For Romania there is progress especially in the field of reducing the total waste generation (excluding mineral wastes), but the recycling rate of waste and particularly the circular material use rate are still too low, indicating a quite unsustainable pattern of production and consumption.

Therefore, new efforts, policies and initiatives of eco-innovation are needed and welcome in Romania, especially those promoting the circular and green economy.

In this respect, in view of a sustainable economic development and in difficult times of economic crisis there is a strong recommendation for implementing business models of industrial symbiosis, able to save all kind of natural, human and financial resources, in the middle and long run.

This may be achieved by setting up symbiotic partnerships between companies from various industries, through which wastes/by-products resulted from the activity of one unit become resources for another activity, thus reducing raw material consumption, the amount of waste generated and the associated negative impact on the environment while promoting economic growth, hence fostering the regional and national sustainable development.

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