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Sustainable development in the new methodology of Serbia's accession to the EU

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Abstract: The aim of this article is to analyse all elements of sustainable development, especially in the context of the new enlargement policy for the Balkan countries. Basically, the analysis is based on the concept from Agenda 2030. The second concept consists of two methodologies for EU accession, where the criteria are grouped through chapters (old methodology) and clusters (new methodology). The research question in this paper is whether the new EU accession methodology is a guarantee for achieving better values of indicators of sustainable development or not. Multi-criteria decision analysis (MCDA), more precisely the Analytic Hierarchy Process (AHP method), is used to prioritize sustainable development criteria based on the sustainable development indicators through two different concepts. The results of the analysis showed that the achievement of the SDGs according to the Agenda 2030 was established methodologically by country, while respecting the specificities of countries and their policies. Also, the results showed that the acceptance of the new methodology, that is, organizing the chapters into clusters and accordingly regrouping the indicators, showed better results. The conclusions from this article can be applied in making decisions about choosing the best approach to sustainable development for individual countries.

Keywords: SDGs, national strategy framework, EU membership, accession process, chapters, clusters, Agenda 2030, AHP method.

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Introduction

Awareness of the importance and significance of the environment at the global level has been evolving over the years. Officially, it all started exactly 50 years ago in Stockholm (UNGA Conf.48/14), when the UN Conference on the Environment was held, at which it was recognized that there is a need to protect and renew our planet. All further activities on sustainable development were carried out within the UN Department of Economic and Social Affairs (UNDESA), until the adoption of two important documents: Agenda 21 (of June 1992 at the Earth Summit in Rio de Janeiro) (UNGA Conf. 151/26) and the Millennium Declaration (of September 2000 in New York) (UNGA Res.55/2). Today, the Department for Sustainable Development Goals (DSDG) within the UNDESA plays a key role in evaluating the implementation of the Agenda 2030 (UNGA Res. 70/1) as a universal strategy. The idea was quite obvious: countries ought to mobilize all resources to achieve the goals till 2030. However, the achievement of all goals in the mentioned period is limited primarily by the global circumstances that the world has faced and will yet face.

Still present, the multi-year economic and financial crisis and the COVID-19 pandemic (in addition to causing economic disruption on the demand side) point to two facts. The first is that they partially slowed down the achievement of the goals within a certain period, and the second is that it is necessary to urgently achieve the set goals of sustainable development (SDGs). On the other hand, far more and with greater consequences, global geostrategic games (politics and wars), followed by a crisis in numerous sectors of the economy (causing major disruptions this time on the supply side) called into question the achievement of the goals set in general. For example, only the energy crisis caused the reactivation of old plants with high CO_2 emissions. Overall, the success of the Agenda 2030 will only depend on the *sincere* commitment of all actors in implementing the global goals. That commitment must be supported by convictions, agreements and adjustments. This also applies to the EU, where there is a problem of fully integrating the European Green Deal (EC, 2019) with the UN SDGs (Agenda 2030) incorporated into the EU's development agenda and priorities (EC, 2016) (see also Filipović et al., 2022; Koundouri et al., 2021; Pianta and Lucchese, 2020; Hafner and Raimondi, 2020).

This paper investigates how in practice, through the process of Serbia's accession to the EU, in compliance with all EU rules and procedures, a framework for monitoring the implementation of sustainable development goals is established. In order to evaluate the best procedure in the process of harmonizing national priorities with the ambitions of the main Sustainability Agenda or with the strategic priorities of the EU, the MCDA approach, i.e. the AHP method, was used. Serbia's choice to take the path towards the EU and entering the pre-accession process clearly defined

the path to achieving sustainable development – from 2015 through chapters, and from 2020 with a new methodology through clusters. In other words, the pre-accession process, in which the process of sustainable development is integrated, defined in advance Serbia's path towards achieving the goals of sustainable development. Although a decision was made on the process of joining the EU, and thus on the sustainable development of Serbia, the author wants to examine the possibility of making decisions on the realization of the SDGs as if there is still a right for policy makers in Serbia to choose one of the three options.

Therefore, the aim of the paper is to analyse three different groups of the SDG indicators (the first through the 2030 Agenda, the second through the EU accession process set in chapters, and the third through the EU accession process set in clusters) and enable decision-making. based on best ranking. The analysis is conducted through two clearly defined concepts. The first concept is fully applicable to all countries in the world and the SDG indicator values by country are available in the UN database. This concept is based on the 2030 Agenda, which has 17 goals and 169 target values. According to the Agenda 2030, these universal goals are integrated and balance the three dimensions of sustainable development (Environment, Society, and Economy), taking into account different national realities, capacities and levels of development, respecting national policies and priorities. Thus, both methodologies of Serbia's accession to the EU grouped the goals and their indicators of sustainable development differently. This opened up space for the author to extend the analysis to both sets of goals – the initial chapter-based process and the new cluster-based process were analysed. So, the second concept is realized in two directions, where the mapping of the national strategic framework by the Government of the Republic of Serbia is basically defined. The first direction (called the chapter direction) was determined by the process of Serbia's accession to the EU through chapters, which was characteristic of all countries that were in the process of negotiations for EU membership. The second direction (called the cluster direction) is determined by the process of Serbia's accession to the EU through clusters, which was actualized in February 2020, originally for North Macedonia and Albania, but which was also accepted by Serbia[2]. For the purposes of mapping of the national strategic framework

[2] The new EU accession methodology was formed as an initiative for North Macedonia and Albania, with the possibility of accepting the same from the two Balkan countries, Serbia and Montenegro. During his first visit to France (on July 10, 2020, https://www.predsednik.rs/pres-centar/vesti/predsednik-vucic-u-dvodnevnoj-poseti-republici-francuskoj) after the European Parliament determined the new accession methodology in February 2020, the President of the Republic of Serbia said that Serbia will also follow that path [accepted by the EC, https://ec.europa.eu/commission/presscorner/detail/en/IP_21_5275]. This meant that by accepting the new methodology for EU accession, Serbia will be forced to create a new mix of sustainable development goals and their indicators, defined in advance according to the new methodology (Tables 1-3).

SDGs are divided within the direction of the Chapter into 4 layers: Economic Growth, Human Resources Development, Environment and Climate, and Institutions, Finance and Cooperation, while within the direction of the Clusters into 6 layers: Basic Cluster; Internal Market; Competitiveness and Inclusive Growth; Green Agenda and Sustainable Connectivity; Resources, Agriculture and Cohesion; and External Relations. More precisely, it meant that by accepting the new EU accession methodology, Serbia will be forced to create a new mix of sustainable development goals and to regroup the SDG indicators.

The basic hypothesis in the paper is: Acceptance of the new EU accession methodology can contribute to achieving better values of sustainable development goals.

For the analysis of these indicators through different concepts in the process of Serbia's accession to the EU, the AHP method will be used. The idea of decision-making analysis according to the AHP model aims to assess whether the already made political decision on accepting the new EU accession methodology can contribute to the achievement of better reference values of certain sustainable development goals and their indicators. AHP method is a well-known and very often used technique of decision-making according to several criteria, in order to make decision on the right actions to be implemented. Complex criteria are broken down into sub-criteria so that performance between them can be directly measured. The application of the AHP method is realized through five steps, in order to calculate the weights of the criteria and alternatives. Policy makers can benefit from this method, as it can help them make the right decisions needed to achieve an adequate level of sustainability.

Sustainable development during the process of Serbia's accession to the EU

For many years, the topic of sustainable development was weaker discipline for Serbian Government. Meanwhile, sustainable development is becoming the dominant discipline. And the most importantly, for the social community, the Government has shown a high level of interest in the sustainable development and we've started with improving all activities related to them. Significant efforts are being made to establish an institutional framework for monitoring the achievement of the country's sustainable development goals (PPS, 2021; PPS, 2020; PPS, 2017).

Taking into account the general interest and recommendations coming from the UN, the Serbian authorities immediately started implementing the activities.

Namely, Inter-Ministerial Working Group for the Implementation of the Agenda 2030 for Sustainable Development was established in December 2015, and the Sustainable Development Goals were defined at the next meetings at global forums. The same activities continued during the COVID 19 pandemic period. It was a successful period from the aspect of sustainable development in times when the economy showed slow economic activities and an unfavourable trend. In that period, Serbia achieved better values of SDG indicators, especially in the area of legislations, parts that are defined in the action plan.

Serbia applied for EU membership in 2009, following the signing of the Stabilization and Association Process, as a special framework for the countries of the Western Balkan. Serbia received the status of a candidate in March 2012, and with the European Commission, it started screening EU legislation, the "Acquis communautaire" (an analytical examination of the chapters) in September 2013. Progress towards EU membership is being made through 35 negotiation chapters (European Council, 1993). Serbia was achieving its path to membership through the chapters (opening and closing chapters) until 2020, when a new methodology for EU accession based on the clusters (EC COM[2020] 57 final) was accepted. The methodology presented by the European Commission has been revised to launch the enlargement process through stronger political governance and in a more credible, predictable and dynamic way. The negotiating chapters are organised according to the new methodology in 6 thematic clusters, which is shown in Table 1.

Table 1. The thematic clusters of negotiating chapters

1. Fundamentals	23 - Judiciary and fundamental rights 24 - Justice, Freedom and Security; Economic criteria; Functioning of democratic institutions; Public administration reform 5 - Public procurement 18 - Statistics 32 - Financial control
2. Internal market	1 - Free movement of goods 2 - Freedom of movement for workers 3 - Right of establishment and freedom to provide services 4 - Free movement of capital 6 - Company law 7 - Intellectual property law 8 - Competition policy 9 - Financial services 28 - Consumer and health protection

3. Competitiveness and inclusive growth	10 - Information society and media 16 - Taxation 17 - Economic and monetary policy 19 - Social policy and employment 20 - Enterprise and industrial policy 25 - Science and research 26 - Education and culture 29 - Customs union
4. Green agenda and sustainable connectivity	14 - Transport policy 15 - Energy 21 - Trans-European networks 27 - Environment and climate change
5. Resources, agriculture and cohesion	11 - Agriculture and rural development 12 - Food safety, veterinary and phytosanitary policy 13 - Fisheries 22 - Regional policy & coordination of structural instruments 33 - Financial & budgetary provisions
6. External relations	30 - External relations 31 - Foreign, security & defence policy

Source: European Commission, 2020

Note: Chapter 34 "Institutions" and chapter 35 "Other issues" will be handled separately.

It is important to emphasize that basically the same rule applies to both methodological approaches, i.e. that chapters are opened and closed one by one. The difference that comes with the new methodology is that each cluster consists of several chapters, forming a new whole. In other words, the connection of the SDGs with the new EU accession methodology is based on negotiation chapters grouped into different clusters (PPS, 2021).

Table 2. SDGs through the chapters and clusters

SDGs	EU chapters	EU clusters
GOAL 1: No Poverty	2, 17, 19, 23	1, 2, 3
GOAL 2: Zero Hunger	11, 12	5
GOAL 3: Good Health and Well-being	1, 14, 21, 24, 28	1, 2, 4
GOAL 4: Quality Education	23, 26	1, 3
GOAL 5: Gender Equality	19, 23, 24, 28	1, 2, 3
GOAL 6: Clean Water and Sanitation	27	4
GOAL 7: Affordable and Clean Energy	15, 21, 27	4
GOAL 8: Decent Work and Economic Growth	1, 2, 4, 17, 19, 20, 24, 25, 26, 30	1, 2, 3
GOAL 9: Industry, Innovation and Infrastructure	10, 14, 15, 20, 21, 25	3, 4
GOAL 10: Reduced Inequality	17, 19, 23, 24, 30, 31	1, 3, 6
GOAL 11: Sustainable Cities and Communities	14, 20, 23, 26, 27, 31	1, 3, 4
GOAL 12: Responsible Consumption and Production	5, 10, 26, 27	1, 3, 4
GOAL 13: Climate Action	27	4
GOAL 14: Life Below Water	:	:
GOAL 15: Life on Land	27	4
GOAL 16: Peace and Justice Strong Institutions	10, 23, 24, 30, 31	1, 3, 6
GOAL 17: Partnerships to achieve the Goal	8, 16, 17, 18, 20, 23, 25, 26, 27, 30, 31, 32	1, 2, 3, 4, 6

Source: Author's elaborations.

Table 2 presents the mapping of SDGs within two different methodologies in the process of Serbia's accession to the EU: the old methodology in relation to the negotiating chapters (column 2) and the new methodology in relation to thematic clusters (column 3). It is obvious that many SDGs are represented in a number of chapters. This unequivocally confirms the fact that SDGs need to be viewed through their interconnectedness, not separately. Here are two examples:

Ex. 1. It is hard to achieve decent economic growth (SDG8) or even food security (SDG2) without first taking care of our ocean (SDG14) as well as was demonstrated in Newfoundland during the collapse of the Atlantic cod fishery in the 1990s.

Ex. 2. Let's use the more recent example of the coronavirus crisis, we can't have everybody in good health (SDG3) and achieve no poverty (SDG1) without taking care first of our land (SDG15), forests and our greenhouse gas emission (SDG13).

So, in order to achieve high levels of sustainability, SDGs need to be properly interconnected. The synergy of two or more SDGs guarantees better results. So, the greater their interconnectedness, the greater the sustainability.

Each of the SDGs has one or more indicators to measure the progress of that goal. These indicators are the subject of constant debates in scientific and research circles because there are differences in their interpretation and meanings within the objectives. They are constantly improved and developed, due to their nature, reliability and availability, as well as their relationship to the goal. Therefore, the governments are free to decide and develop their own set of specific goals, in the context of the specifics and characteristics of the economy and the challenges it faces. The first official list of SDG indicators was compiled by the United Nations Statistical Commission in 2017, which was previously prepared by the Inter-Agency and Expert Group on SDG Indicators (IAEG-SDGs). In the following years, through clarifications, refinements and decisions, the list was up-dated and presented through a Global Indicator Framework (UNGA A/RES/71/313). This Framework covers a total of 248 indicators, but 231 is a unique indicator. In fact, thirteen indicators are repeated under two or three different targets (see Annex, Table A1).

In the last few years, the Government of Serbia has made a significant step forward in terms of SDG indicators. The latest version of the 2030 Agenda (PPS, 2021) contains over 70 public documents, plus 20 completely new documents, as well as over 50 new indicators that will be adapted to the UN methodology of Sustainable Development Goals. From the aspect of availability of official documents, 117 out of 248 sustainable development goals (or 47%) and 130

exploring data sources (or 53%) are available on the official website of the Statistical Office (SORS, 2022).

The mapping of the strategic framework of the Republic of Serbia in relation to the SDG is incorporated in all active strategic documents of the Republic of Serbia. The strategic documents whose adoption is planned according to the National Program for the Adoption of the "Acquis communautaire" are also listed. For each SDG, relevant international processes are described, primarily European ones, in which Serbia participates, and which are important for achieving that goal. The analysis of the mapping results used elements of the United Nations RIA (Rapid Integration Assessment) methodology to identify gaps in the strategic framework, as well as to determine the relative importance of individual strategies for SDGs (PPS, 2021). The application of the RIA toolkit is aimed at faster inclusion of the Sustainable Development Goals (SDGs), the state's readiness to implement them within national and local planning, determining their importance for the country's context, as well as the interconnections between the goals (UNDP, 2017).

SDG mapping through the national strategic network is presented in detail in Table 3 through three concepts. According to the first concept, i.e. 2030 Agenda (columns 1 and 2), mapping was conducted through three layers: Environment, Society and Economy. The 2030 Agenda concept is based on three overlapping circles. In other words, sustainability is usually defined as a place where the economy, social reality and environmental health overlap. The idea of sustainability is seen as the inclusion of several goals of sustainable development - for example, the preservation of the planet, gender equality and profit. This has helped companies realize that more than financial capital is needed for long-term sustainability. It also helped clarify that when companies consider what sustainability means to them, they do not give up on the idea of financial success, with a higher level of social responsibility. In fact, the creation of the 2030 Agenda aimed to change the course of observation of states, companies, institutions and individuals, expand environmental awareness, as well as increase social responsibility. The results show great global progress in the years behind us.

In addition to this mapping concept, the Government of the Republic of Serbia also implements the mapping process through the EU accession process. There are two directions. The first direction refers to the process of parallel mapping through its own planning framework until 2020 (columns 3 and 4), all in accordance with accession negotiations with the EU and dedicated to realization SDGs (PPS, 2017; PPS, 2020). Thus, for mapping purposes, SDGs are classified into 4 segments: Economic Growth; Human Resource Development; Environment and Climate; and Institutions, Finance and Cooperation.

Table 3. Mapping SDGs of the national strategic framework

Agenda 2030	SDGs	EU Chapters	SDGs	Negotiating clusters	SDGs
Environment	6, 13, 15	Economic growth	8, 9	Basic cluster	16
Society	1, 2, 3, 4, 5, 7, 11, 16	Human resources development	1, 2, 3, 4, 5, 10	Internal market	3
Economy	8, 9, 10, 12	Environment and climate	6, 7, 11, 12, 13, 15	Competitiveness and inclusive growth	1, 4, 5, 8, 9, 10
		Institutions, finances and cooperation	16, 17	Green agenda and sustainable connectivity	6, 7, 11, 12, 13, 15
				Resources, agriculture and cohesion	2
				External relations	17

Source: Author's elaborations.

Note: SDG 14 is omitted.

In the **Economic Growth** segment, the results of mapping the planning framework of the Republic of Serbia in relation to SDG8 and SDG9 are described, which primarily relate to sustainable economic growth, employment, improvement of working conditions and sustainable industrialization, infrastructure development, science and innovation. The significance of this segment is that it is deeply connected with many other segments that are the subject of other goals of sustainable development. The **Human Resources Development** segment, as part of the strategic framework, contains several closely related objectives. Poverty reduction SDG1 is closely related to the realization of the goals of SDG2, SDG5 and SDG10, so they form one whole, while SDG3 (health) and SDG4 (education) are described as separate entities. In the **Environment and Climate** segment, the results of mapping the strategic framework in relation to the goals that are relevant for environmental protection (SDG6, SDG7, SDG11, SDG12) and the fight against climate change (SDG13, SDG15) are described. In the last segment, **Institutions, Finance and Cooperation**, the strategic framework of Serbia in relation to SDG16 and SDG17 is mapped, which define relevant horizontal principles for the

implementation of the entire 2030 Agenda, such as institution building, rule of law and partnerships.

Within the second direction of this concept, the mapping of SDGs through the strategic framework in Serbia has been successfully linked to the new methodology of EU accession (PPS, 2021). As mentioned above, the new methodology is based on clusters, which consist of individual chapters. Since the chapters are linked to the corresponding SDGs, further analysis will regroup the SDGs across chapters into negotiating clusters (columns 5 and 6). In accordance with the new mapping of the strategic framework, SDGs are classified into 6 segments: Basic Cluster; Internal market; Competitiveness and Inclusive Growth; Green Agenda and Sustainable Connectivity; Resources, Agriculture and Cohesion; and External Relations. The **Basic Cluster** segment presents a mapping of the strategic framework of the Republic of Serbia in relation to SDG16, which defines relevant horizontal principles for the implementation of the entire 2030 Agenda, such as institution building, rule of law and justice. The **Internal market** segment analyses the development of the market and existing capacities in the context of public health protection (SDG3). The **Competitiveness and Inclusive Growth** segment describes the results of mapping the strategic framework in relation to the goals relevant to human resource development. Poverty reduction SDG1 is closely related to the implementation of SDG5 (gender equality) and SDG10 (inequality) and forms a whole, while SDG4 (education) is described separately. SDG8 and SDG9 were also analysed, which primarily refer to sustainable economic growth, employment, improvement of working conditions, as well as sustainable industrialization, infrastructure development and innovation. It is worth noting here that the *Competitiveness and inclusive growth* segment of the new methodology overlaps with the two segments *Economic Growth* and *Human Resources Development* of the old methodology of Serbia's accession to the EU.

The next segment of the **Green Agenda and Sustainable Connectivity** describes the results of mapping the strategic framework in relation to the objectives relevant to environmental protection and the fight against climate change. This segment of the new methodology corresponds to the segment *Environment and climate* of the old methodology of Serbia's accession to the EU. The **Resources, Agriculture and Cohesion** segment shows the level of agricultural development as well as the availability and safety of food. In the **External Relations** segment, the degree of partnership between state institutions, the private sector and civil society was observed (SDG17). This area includes a number of sectoral policies aimed at improving the level of cooperation at the domestic and international level. In this segment, there is a partial overlap with the segment

Institutions, finances and cooperation of the old methodology of Serbia's accession to the EU.

In the next part, the analysis of SDGs will be conducted through all two previously mentioned concepts, using the multi-criteria decision analysis (MCDA). The aim is to assess which of the following concepts gives the best results in determining the criteria of sustainable development priorities for Serbia.

Data Sample and Methodology

Data

Official data from the UN (UN 2022) and the Statistical Office of the Republic of Serbia (SORS, 2022) will be used to analyse the criteria for sustainable development priorities. All data is available on the site and is easy to use. The second part of the data, which is an integral part of the analysis of the multi-criteria decision-making process, comes from experts. Namely, independent external experts were hired to assess the criteria and alternatives in the decision-making process (Table 4). Experts come from academic institutions, participated in the implementation of various local and national environmental projects, were members of teams for the implementation of regulatory measures and rules related to sustainable development. For the weighting process, experts in the field of sustainable development were questioned[3]. These experts were chosen from four different groups: academic institutions, authorities, ecology, and commercial

[3] An interview was organized for the experts, where they were orally introduced to the idea of the work and the goal of the analysis. Experts were asked to prepare and create criteria structures based on their knowledge and experience, as well as projects in which they analyzed different approaches to the evaluation of SDG indicators. One of the experts presented an analysis from the framework of the analysis of inclusive growth, which he conducted from the point of view of the mix of SDG indicators. He opted for a mix of goals and their indicators that largely correspond to a concept that is closer to a more detailed approach of the new methodology of accession through clusters. Two other experts analyzed the resources and gave preference to the second criterion (two methodological concepts from the EU pre-accession processes) over the first (Agenda 2030). Another two experts analyzed the internal and external market, and their results showed a high degree of generality in the analysis of SDG indicators through Agenda 2030. The remaining two experts analyzed the environment through SDG indicators, and the results did not differ significantly through both methodological concepts. It is important to emphasize that for this analysis the contribution of experts is huge and of great importance, and that this new experience will be useful for future research.

sector, in order to be able to analyse differences as well as similarities between these concepts. The task of experts within the methodological concept of the AHP model is to review and evaluate pairs of criteria and alternatives through different levels in relation to the set goal within the hierarchical structure. In this analysis, the task of experts was not to determine pairs of criteria and alternatives within the hierarchical structure, due to the fact that they are predefined and grouped, but their task was to review the application of predefined groups of objectives. and indicators. All of them analysed the expediency of applying such grouped indicators in the structure and analysed the connections that exist between different hierarchical levels within the structure from their expert point of view. Evaluation is based on the experience, knowledge and skills at their disposal. The main disadvantage of this type of evaluation is subjectivity in evaluation and decision making. This problem is easily solved within the AHP method, by identifying the degree of consistency at one point during the evaluation process. This eliminates errors in the assessment of experts in the process of assessment and decision-making. Such advantage of the AHP method decisively influenced the decision that this method, from the corpus of numerous MCDMs, should be used in this analysis.

Table 4. Experts' profile

	Gender	Age	Education level	Experience	Sector/Institution
Expert 1	Male	52	Master	> 25 YRS	Environment (Association for Food)
Expert 2	Female	38	Master	> 10 YRS	Economy (Chamber of Commerce)
Expert 3	Female	42	Master	> 15 YRS	Ministry (Government)
Expert 4	Male	34	PhD	> 5 YRS	Economy (University)
Expert 5	Female	49	PhD	> 20 YRS	Research (Institute)
Expert 6	Male	55	PhD	> 30 YRS	Organizational Science (University)
Expert 7	Male	61	PhD	> 30 YRS	Ecology (University)

Source: Author's elaborations.

Methodology

Making decisions in the context of sustainable development, through economic, social and ecological criteria, is the basis for the application of multi-criteria optimization methods. The application of the exact method in decision-making helps managers to make a rational decision, in such a way that complex issues are approached with methods of objective reasoning, rather than intuition in order to reach sustainability.

Multi-criteria decision analysis (MCDA) involves the use of various valuable tools, i.e. methods (MCDM) that can be applied to many complex decisions. It has the greatest use in solving the problem of choosing among the alternatives. We find the advantage of this analytical process in significant decision support. The analysis is also interesting because it allows individuals to discuss complex trade-offs between alternatives.

Within the MCDA, there are a number of MCDM methods that are useful in solving complex problems. Researchers, scientists and practitioners have been using multi-criteria decision-making (MCDM) intensively in the last two decades. Sousa et al. (2021) confirm that the MCDM can help decision-makers to address multidimensional issues related to key issues under the 2030 Agenda. Due to its flexibility for decision makers to simultaneously analyse all criteria and objectives, various MCDM methods are applied in many scientific and research fields: energy development and policy (Rigo et al., 2020; Bharadwaja et al., 2019; Kumar et al., 2017), sustainable manufacturing (Malek and Desai, 2020; Kandakoglu et al., 2019), agro-economy (Tošović-Stevanović, 2021, Optiz et al., 2019), management (Danesh et al., 2017), supply chain management (Mangla et al., 2018), sustainable companies' business models (Jurik et al., 2020; El hilali et al, 2020) innovation (Monsonís-Payá et al., 2017), environment (Dutta, et al., 2020), geography (Lehner et al., 2018; Nayak et al., 2018), banking (Ristanović et al., 2021), healthcare waste disposal system (Chauhan et al., 2021), system of education and training of teachers (Weng et al., 2019), decision-making at the local level (Phonphoton and Pharino, 2019), etc.

Previous literature has shown that the AHP method is one of the most attractive and used of all MCDM methods. There are numerous studies that have confirmed this now proven fact. Malek and Desai (2020) conducted a systematic review of the literature of 541 selected articles (from January 2001 to March 2019) and found that as many as 122 papers used the MCDM method, of which 30 were AHP method. Similarily, Kandakoglu et al. (2019) reviewed 343 articles dealing with sustainable development decision-making, published in the period from 2010 to 2017, and showed that AHP/ANP were the most used among MCDM methods.

Also, Mardani et al. (2015) analysed 393 articles published in the period from 2000 to 2014 and showed that the AHP method is the most needed and best ranked. Don Santos et al. (2018) took a step closer to the analysis of sustainable development using the AHP model by conducting a systematic literature review (173 manuscripts published between 2014 and 2018) of the AHP's support for decision making related to SD, thus making it possible to identify gaps and future research pathways. The AHP methods have been used in connection with sustainable development in many different fields: for adoption of green supply chain management (GSCM) (Shen et al., 2015), for monitoring sustainability in the corporate sector (Salvado et al, 2015), for resource planning in manufacturing process (Patalas-Maliszewska, and Łosyk. 2020), for evaluation of operational risk in banking (Ristanović et al., 2021), for responsible research and innovation (RRI) policies and initiatives (Monsonís-Payá et al., 2017), in agriculture (Gómez-Limón et al., 2020; Rezaei-Moghaddam and Karami, 2008), in smart city (Myeong et al., 2018), in energy management (Nakthong et al., 2019; Cheng et al., 2018), and in well-being (Hienuki et al., 2019). In some cases, different integrated and hybrid AHP methods were used, for instance, in management (Calabrese et al. 2019; Ramos-Quintana et al. 2019). From the previous review of the literature, it can be seen that the application of the AHP model mainly refers to decision-making at the micro level, enterprise level, or local level, but not to decision-making related to the general goals of society. However, the application of the AHP model of multiple decision-making at the macro level is the core of such a complex analysis and from that point of view this paper will represent a pioneering endeavour. This certainly limited the author to focus the discussion on the results of the same or similar researches, thus influencing the discussion that will follow to be mainly focused on the results of this research, and very little on the results of other analyses and researches. In the belief that the macro-level analysis will provide adequate results for decision-making by policy makers, the model will be presented below, and after evaluating the weights and links within the hierarchical structure, the results of the analysis will be presented.

The AHP method

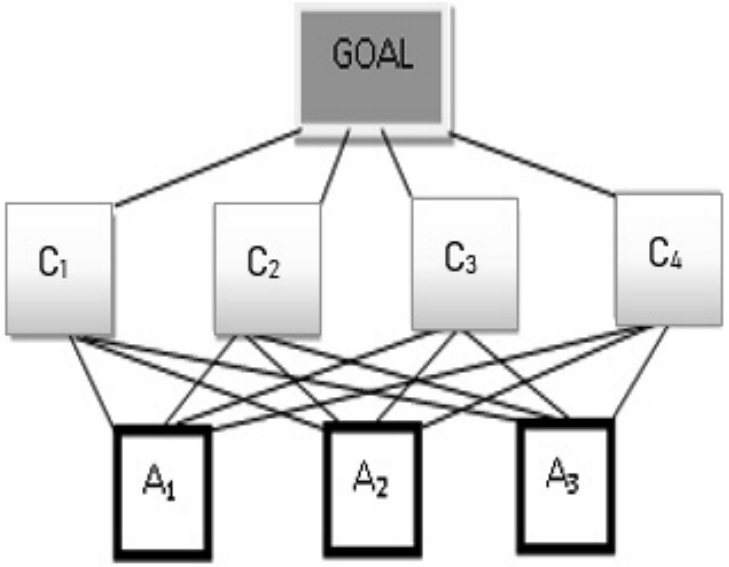
The real question is whether Saaty (1980) could have assumed, in the years when he created the analytical hierarchy process method (AHP method), that his method would be so popular and used in decision-making processes. One of the main advantages of the AHP technique is that the cross-hierarchical structure successfully divides a complex problem into several simple problems. In other words, complex decisions are made through a series of one-to-one comparisons.

All the above-mentioned characteristics of the multi-criteria analytical hierarchy process (AHP method) were the motive for its selection in this article.

Saaty (1980) emphasizes that the AHP method is carried out through three main stages: decomposition, comparative judgement and synthesis. At the beginning, it is necessary to establish a hierarchical structure of objectives, criteria, sub-criteria and alternatives. That structure must have a logical sequence, first to present the problem, then to give logical reasons for it, and then to solve it. Comparison of pairs of criteria and/or alternatives is performed by experts based on their knowledge and experience. In the process of rating compared pairs, experts use Saaty's scale of values, bringing a higher level of objectivity to the evaluation.

Decomposition. The AHP method is based on organizing problems through a logical hierarchical structure, where the general goal (problem) is at the highest level, while the criteria are arranged at the next level. The alternatives (attributes) are located at the last level. Figure 1 illustrates the structure hierarchy tree. This is its original form, and for research purposes it is simple to apply and can be easily decomposed.

Figure 1 Saaty's hierarchy of criteria (C) and alternatives (A) in the analytic hierarchy process model



Source: Saaty, 1980.

Comparative judgement. All elements within the hierarchical structure are interconnected. The criteria are then ranked in pairs. Then, with the help of the AHP method, weights are obtained for each of these selected criteria, which indicates their importance levels. The advantage of paired comparison is that it makes decisions giving preference to only two options in comparison, regardless of other options (Gompf et al., 2021).

The basis of the AHP method is the ranking of all criteria within the structure (complex criteria are broken down into sub-criteria). Ranking is carried out using a system of comparisons in a pair of elements of the hierarchy. Saaty (1994) created a table for comparisons in pairs (Saaty's scale of relative importance), according to which verbal judgments are converted into numerical values on a scale from 1 to 9 (1 means that two criteria are equal, and 9 the importance of one criterion increases relative to another).

Table 5. Saaty's scale of relative importance

Scale	Judgment
1	Equal importance
3	Moderate importance of one over the other
5	Essential or strong importance
7	Very strong or demonstrated importance
9	Extreme or absolute importance
2,4,6,8	Intermediate values between the two adjacent judgements

Source: Saaty (1980, 1994)

A set of criteria (a_1, a_2, … a_n) is created. In the next step, each criterion a_i is related to the weight w_i on the basis of n×n comparisons collected in the comparison matrix A. The principal eigenvector w is obtained by solving the system of equations 1:

$$(A - \lambda_{max} I)\, w = 0 \qquad (1)$$

, where *I* is the unit matrix; λ_{max} the largest or principal eigenvalue of A; and w the principal eigenvector (vector of priority factors).

The elements of the matrix in each row are multiplied together, and then the n-root is taken (where n is the number of elements in the row). The normalized

matrix is obtained by dividing these values by their sum. In the last step, the consistency of the comparison or consistency is checked. Since perfect consistency rarely occurs in practice (If the matrix is perfectly consistent then CI=0), the consistency coefficient (CR) is used to check the consistency of the AHP method. As a rule, pairwise comparisons in the judgment matrix are considered inconsistent if the CR value does not exceed 10%. Otherwise, when the degree of consistency is above 10%, then it is necessary to repeat the entire process of evaluating the vector matrix, i.e. repeat the pairwise comparison procedure until the level below 10% is reached. The consistency coefficient is calculated via the consistency index (CI) which must be evaluated via the random consistency index (RCI) given in the following table 6 (values depend on *n* – number of criteria).

Table 6. RCI values for different values of n

n	1	2	3	4	5	6	7	8	9
RCI	0	0	0.58	0.9	1.12	1.24	1.32	1.41	1.45

Step by step, the column sum of the even matrix is multiplied by the normalized eigenvector and the maximum eigenvalue λmax is calculated. [CI = (λmax - n)/ (n - 1)]. All the above steps are summarized in Table 7 (El hilali et. al, 2020). For more information, see Saaty (1994, 2003); Lipušček (2010); Ristanović et al. (2021); Gompf et al. (2021).

Table 7. Calculations to Obtain the Vector Criteria

Criteria	**C1**	**C2**	**C3**	**Cn**	**Eigenvector**	**Criteria vector**
C1	1	a_{12}	a_{13}	a_{1n}	$V_j = \prod_{i=1}^{n} a_{ij} \wedge (1/n)$	$W_j = V_j / \sum V_j$
C2	$1/a_{12}$	1	a_{23}	a_{2n}		$W_j = V_j / \sum V_j$
C3	$1/a_{13}$	$1/a_{23}$	1	a_{3n}		$W_j = V_j / \sum V_j$
Cn	$1/a_{1n}$	$1/a_{2n}$	$1/ a_{3n}$	1		$W_j = V_j / \sum V_j$
Eigenvalue λmax	$(\sum_{i=1}^{n} a_{ij}) * W_j$				$\sum V_j$	$\sum w_j = 1$
Consistency Ration (CR)	$\frac{(\lambda max - n)/(n - 1)}{RI}$					

Source: El hilali et. al, 2020

Synthesis. Now the priority vectors become columns within the decision matrix. The final results are obtained by multiplying the alternatives with the global weight of the single decision criteria. Thus, the global priority of that element is obtained, which is further taken to weight the elements that are at a lower level compared to each other, and so on down to the bottom level. Finally, the obtained values are ranked (priorities with the highest total weight receive the highest rank value) and a final decision is made.

Results and Discussion

The goal of this analysis is to choose the best alternative for Serbia to achieve sustainable development in the EU accession process. The goal is decomposed into three criteria for achieving indicators of sustainable development, which are grouped according to the 2030 agenda, the approach through chapters and the approach through clusters. The sub-criteria are identified in accordance with tables 1 to 3, as a framework for forming the logical hierarchical structure of the problem.

The analytical process of the AHP method involved selecting criteria and sub-criteria, then comparing them in pairs with the goal (using the Saaty's scale), and then performing a paired comparison of alternatives according to each criterion. Potential errors in determining the value of the criteria in the matrix of pair comparisons were determined by calculating the degree of consistency. The obtained value of the consistency index for all three concepts was less than 0.1. This means that the comparison matrix was well defined (inconsistent). In the next step, the assessment of alternatives was performed according to each criterion separately. The overall hierarchical structure implies that the priorities of the criteria according to the goal and the priorities of the alternatives in terms of criteria are calculated and that the priorities are determined according to the goal. This is done according to the weight vector. At the end of the procedure, a synthesis of the entire selection problem was performed. Only then was it possible to rank all segments according to three different SDG mapping concepts. (Table 8).

Table 8. Ranking SDGs through the different concepts

Agenda 2030	**RANK**	**EU Chapters**	**RANK**	**Negotiating clusters**	**RANK**
Environment	2	Economic growth	3	Basic cluster	6
Society	1	Human resources development	2	Internal market	3
Economy	3	Environment and climate	1	Competitiveness and inclusive growth	2
		Institutions, finances and cooperation	4	Green agenda and sustainable connectivity	1
				Resources, agriculture and cohesion	4
				External relations	5

Source: Author's calculation.

Note: SDG 14 is omitted.

The results showed clear similarities for some criteria, but also significant differences for other criteria. For example, all four groups of experts consistently advocated the point of view that the first concept (Agenda 2030) gives assessments of a general character. The results resulting from the process of European integration provide more detailed, concrete and effective evaluations thanks to a greater degree of dynamism and interconnectedness. Also, all four groups of experts ranked environmental criteria higher than the others. However, a consistent ranking could not be concluded, because the results partially differed between the four groups of experts regarding the grouping of certain objectives in all three different evaluation concepts. In any case, economic criteria were not ranked better than ecology and resources by any criteria. In the ranking of alternatives, for example, all four groups of experts consistently ranked two concepts resulting from EU integration, and it was possible to conclude a consistent ranking. Between the two concepts, the cluster concept is better ranked and favored than the chapter concept.

The results of the analysis showed that there are no significant differences in the mapping of the SDG strategic framework in the process of Serbia's accession to the EU, but that they exist in relation to the more general approach through

Agenda 2030. In fact, the highest ranking was given to those SDGs that relate to basic and existential elements, and then to environmental elements, social values.

Specifically, according to the ranks, of all the segments in each of the concepts, the first two best ranked contain almost identical SDGs:

- In 2030 Agenda these are: SDG6, SDG 13, SDG15 (Environment) and SDG1, SDG2, SDG3, SDG4, SDG5, SDG7, SDG11, SDG16 (Society);
- In EU Chapters these are: SDG1, SDG2, SDG3, SDG4, SDG5, SDG10 (Humane Resource Development) and SDG6, SDG7, SDG11, SDG12, SDG13, SDG15 (Environment and climate);
- In Negotiating clusters these are: SDG1, SDG4, SDG5, SDG8, SDG9, SDG10 (Competitiveness and inclusive growth) and SDG6, SDG7, SDG11, SDG12, SDG13, SDG15 (Green agenda and sustainable connectivity).

These results unequivocally reflect that the priority in the global framework is environmental protection, climate change and maintenance of social values. In addition, the dominance of these segments stems from the large number of sustainable development goals they already contain. At the same time, each of these segments is an integral part of each of the two concepts analysed in this article. In this regard, the hypothesis that the best-rated SDG indicators are grouped through the concept of Serbia's accession to the EU through clusters, characterized by dynamism and interconnectivity, was confirmed.

Conclusion

In this analysis, the author focused on the issue of selecting criteria for achieving the SDGs. Although the process of achieving the SDGs for Serbia was already defined in advance through the process of Serbia's accession to the EU, the analysis was extended to different concepts of grouping SDG indicators. The aim of the paper is to evaluate the various criteria for achieving the SDGs in Serbia, their ranking and the selection of the best option for which today's policy makers could decide on their own.

The presented research confirms the expectation that the grouping of SDG indicators according to the concept based on the 2030 Agenda leads to the achievement of sustainable development that does not change the essence of the activities defined by national strategic documents. In other words, the concept that balances the three dimensions of sustainable development (Environment, Society and Economy) is suitable for each country, and although it can be adapted

to the characteristics of the country and the system, it is not necessarily tied to the process accession of Serbia to the EU. It is defined by the UN methodology and is not favoured over other concepts in the analysis of this paper. As such, it is implemented in parallel with the achievement of the SDG indicators defined by the pre-accession process.

The shown connection of the SDGs with the new EU accession methodology, which is based on negotiating chapters divided into clusters, shows the best results. The new joining methodology has the most effective associated goals and indicators. Their evaluation process showed that grouping goals can have a more effective outcome, which can be achieved simultaneously in several areas during negotiations. Closing a cluster means opening several chapters at the same time, i.e. achieving a greater number of SDGs and adequate coverage of the area with the existing strategic framework.

Criteria, weighting criteria, weight vector values, and alternatives are calculated by the Analytical Hierarchy Process (AHP method). This methodological concept enabled an adequate assessment of all three concepts that are crucial for mapping SDG in accordance with the negotiation process between Serbia and the EU.

The prepared analysis confirms the dominant influence on the goals of sustainable development, and not their grouping when observing the old and new methodology of Serbia's accession to the EU. It is certainly easier to open / close chapter by chapter and it is easier to adjust the dynamics to current needs or interests. In principle, the new methodology changes the fact that opening a cluster will mean working on several goals at once, even when it does not correspond (or less corresponds) to current needs or interests. In other words, with the new methodology, order or dynamics will be under some pressure.

Overall, progress only in those sustainable development goals that will be ranked best is not necessarily the best strategy. In fact, policy makers need to focus on their own potential for better performance, respecting all criteria. A country that focuses on important goals of sustainable development will benefit more than those identified externally as important. The biggest advantage of sustainable development is that they are inexhaustible and interconnected goals of sustainable development, which can always be upgraded. And they are visible and measurable, which makes the job easier.

In this paper, it is unequivocally shown that the cluster-based concept in the process of Serbia's accession to the EU is the best ranked. Nevertheless, regardless of that, achieving the goals of sustainable development becomes imperative for a better quality of life and future generations. Bearing in mind that accession to the EU is a strategic goal of the state and that all reforms are in the function of reaching

that goal, there is a complete consensus that the realization of the sustainable development goals is implemented through the process of EU integration (PPS, 2021). Therefore, this research can be a good basis for analyses that would have a different angle of observation, for example, whether the methodological concept of European integration of Serbia could be based primarily on the achievement of sustainable development goals. In this context, a rhetorical question arises as to whether achieving the goals of sustainable development would speed up or facilitate the process of Serbia's European integration?

The final evaluation showed that these different approaches to the SDGs, whether they were conceived with a standard approach and a free choice of the combination of SDGs through the Agenda 2030, or for EU candidate countries through a pre-defined methodology in the mix of SDGs, is the greatest emphasis on the social, ecological and economic aspect from Agenda 2030, and that for the candidate countries the transition to a new methodology and a new mix of goals does not represent a significant change in value and access, how much time was lost in the new adjustment to other groups of indicators. Serbia has not yet managed to fulfil all the necessary calculations for indicators of sustainable development either according to the UN methodology or the EU methodology. In recent years, efforts have been made to adapt the methodology through strategic documents and action plans. A number of new indicators are trying to be subsumed under existing methodologies in order to more easily arrive at the rating of the SDG indicators. The biggest problem is that the implementation of the SDGs is an expensive process (UN SDSN, 2019), as it requires greater capacities in finance, human capital, and time.

The proposed methodology has the potential to consider a new approach to measuring, comparing or ranking countries and regions in terms of sustainable development, as well as to monitor improvements or the impact of policies introduced. Finally, it is important to note that providing this robust information on sustainable development should be the basis for more detailed approaches to addressing sustainability issues.

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Annex

Table A1 List of indicators that repeat within the global indicator framework

7.b.1/12.a.1
8.4.1/12.2.1
8.4.2/12.2.2
10.3.1/16.b.1
10.6.1/16.8.1
13.2.1/13.b.1 (with a slight amendment)
15.7.1/15.c.1
15.a.1/15.b.1
1.5.1/11.5.1/13.1.1
1.5.2/11.5.2
1.5.3/11.b.1/13.1.2
1.5.4/11.b.2/13.1.3
4.7.1/12.8.1/13.3.1

Source: UNGA Global indicator framework.

Vladimir RISTANOVIĆ

ODRŽIVI RAZVOJ U NOVOJ METODOLOGIJI PRISTUPANJA SRBIJE EU

Apstrakt: Cilj ovog članka je analiza svih elemenata održivog razvoja, posebno u kontekstu nove metodologije politike proširenja za zemlje Balkana. U osnovi, analiza se zasniva na konceptu iz Agende 2030. Drugi koncept se sastoji od dve metodologije za pristupanje EU, gde su kriterijumi grupisani kroz poglavlja (stara metodologija) i klastere (nova metodologija). Istraživačko pitanje u ovom radu je da li je nova metodologija pristupanja EU garancija za postizanje boljih vrednosti indikatora održivog razvoja ili ne. Više-kriterijumska analiza odlučivanja (MCDA), tačnije Proces analitičke hijerarhije (AHP metoda), koristi se za određivanje prioriteta kriterijuma održivog razvoja na osnovu indikatora održivog razvoja kroz dva različita koncepta. Rezultati analize su pokazali da je postizanje SDG-a prema Agendi 2030 utvrđeno metodološki po zemljama, uz uvažavanje specifičnosti zemalja i njihovih politika. Takođe, rezultati su pokazali da je prihvatanje nove metodologije, odnosno organizovanje poglavlja u klastere i shodno tome pregrupisavanje indikatora, pokazalo bolje rezultate. Zaključci iz ovog članka mogu se primeniti u donošenju odluka o izboru najboljeg pristupa održivom razvoju za pojedine zemlje.

Ključne reči: COR, nacionalni strateški okvir, članstvo u EU, proces pristupanja, poglavlja, klasteri, Agenda 2030, AHP metod.