Limes – 2019

A II. Rákóczi Ferenc Kárpátaljai Magyar Főiskola
tudományos évkönyve

Науковий вісник
Закарпатського угорського інституту ім. Ференца Ракоці II

Scientific Bulletin
of Ferenc Rákóczi II Transcarpathian Hungarian College of Higher Education

ISSN 2411-4081

МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ
ЗАКАРПАТСЬКИЙ УГОРСЬКИЙ ІНСТИТУТ ІМЕНІ ФЕРЕНЦА РАКОЦІ ІІ

L I M E S

Науковий вісник
Закарпатського угорського інституту ім. Ф. Ракоці ІІ

2019
Том VI

Берегове–Ужгород
2019

УДК 001.89(058)
Л 67

Науковий вісник «LIMES» засновано у 2014 році та видається за рішенням Вченої ради Закарпатського угорського інституту ім. Ф. Ракоці II. У науковому віснику публікуються наукові статті викладачів та студентів Закарпатського угорського інституту ім. Ф. Ракоці II, а також дослідження українських та іноземних учених угорською, українською та англійською мовами. Цей том «LIMES» об'єднує праці з економіки, математики, інформатики, хімії, географії та суспільствознавства.

Свідоцтво про державну реєстрацію друкованого засобу масової інформації
Серія КВ №20762-10562Р від 08.05.2014 р.

Рекомендовано до друку Вченою радою Закарпатського угорського інституту ім. Ф. Ракоці II (протокол № 7 від 20.12.2019 р.)

Друк наукового вісника здійснено за підтримки уряду Угорщини:

Засновник: Благодійний фонд Закарпатського угорського педагогічного інституту (від 2016 року Благодійний фонд За Закарпатський угорський інститут)
Видавництво: Закарпатський угорський інститут імені Ференца Ракоці II (Адреса: пл. Кошута 6, м. Берегове, 90202. Веб-сторінка: www.kmf.uz.ua Електронна пошта: foiskola@kmf.uz.ua Тел.: (00 380-3141) 4-28-29) та ТОВ «РІК-У» (Адреса: вул. Гагаріна 36, м. Ужгород, 88000. Електронна пошта: print@rik.com.ua)
Поліграфічні послуги: ТОВ «РІК-У»

ISSN 2411-4081

ISSN 2411-4081

UKRAJNA OKTATÁSI ÉS TUDOMÁNYOS MINISZTÉRIUMA
II. RÁKÓCZI FERENC KÁRPÁTALJAI MAGYAR FŐISKOLA

LIMES

A II. Rákóczi Ferenc Kárpátaljai Magyar Főiskola
tudományos évkönyve

2019
VI. évfolyam

Beregszász–Ungvár
2019

ETO 001.89(058)
L 67

A „LIMES” című tudományos évkönyv 2014-ben alapíttatott és a II. Rákóczi Ferenc Kárpátaljai Magyar Főiskola Tudományos Tanácsának határozata alapján jelenik meg. A tudományos évkönyv a II. Rákóczi Ferenc Kárpátaljai Magyar Főiskola tanárainak, hallgatóinak munkáit, valamint ukrajnai és külföldi tudósok magyar, ukrán és angol nyelvű tanulmányait adja közre. A „LIMES” jelen kötete a közgazdaság-, matematika-, informatikai, kémiai, föld- és társadalomtudomány különböző területeit öleli fel.

Nyomtatott tömegtájékoztatási eszközök állami nyilvántartásának igazolása: széria: KB № 20762-10562P; kiadta: Ukrajna Állami Nyilvántartási Szolgálata 2014.05.08-án.

Kiadásra javasolta a II. Rákóczi Ferenc Kárpátaljai Magyar Főiskola Tudományos Tanácsa (2019.12.20., 7. számú jegyzőkönyv).

Műszaki szerkesztés: Dobos Sándor
Tördelés: Tótin Viktória
Korrektúra: Grica-Varcaba Ildikó, Vrábely Tamás, Kordonec Olekszandr
Borítóterv: Vezsdel László
ETO-besorolás: a II. RF KMF Apáczai Csere János Könyvtára

A közölt tanulmányok tartalmáért a szerzők a felelősek.

A tudományos évkönyv megjelenését Magyarország kormánya támogatta:

Alapító: Kárpátaljai Magyar Tanárképző Főiskola Jótékonysági Alapítványa (2016-tól Kárpátaljai Magyar Főiskoláért Jótékonysági Alapítvány)
Kiadó: a II. Rákóczi Ferenc Kárpátaljai Magyar Főiskola (Cím: 90202 Beregszász, Kossuth tér 6. Honlap: www.kmf.uz.ua E-mail: foiskola@kmf.uz.ua Tel.: (00 380-3141) 4-28-29) és a „RIK-U” Kft. (Cím: 88000 Ungvár, Gagarin u. 36. E-mail: print@rik.com.ua)
Nyomdai munkák: „RIK-U” Kft.

ISSN 2411-4081

ISSN 2411-4081

MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE
FERENC RÁKÓCZI II TRANSCARPATHIAN HUNGARIAN COLLEGE OF HIGHER EDUCATION

LIMES

Scientific Bulletin
of Ferenc Rákóczi II Transcarpathian Hungarian College of Higher Education

2019
Volume VI

Berehove–Uzhhorod
2019

UDC 001.89(058)
L 67

The scientific bulletin "LIMES" was established in 2014 and is published according to the resolution of the Academic Council of Ferenc Rákóczi II Transcarpathian Hungarian College of Higher Education. The scientific bulletin publishes in Hungarian, Ukrainian and English languages students' and teachers' academic studies of Ferenc Rákóczi II Transcarpathian Hungarian College of Higher Education, and researchers' academic articles from Ukraine and abroad. The given volume of "LIMES" contains academic studies and articles in Economics, Mathematics, Computer Science, Chemistry, Earth and Social Sciences.

Certificate of State Registration of Printed Mass Media, Series KB, No. 20762-10562P,
Issued by the State Registration Service of Ukraine on the 8th of May, 2014

Recommended to publication by the Academic Council of Ferenc Rákóczi II Transcarpathian Hungarian College of Higher Education, record No. 7 of December 20, 2019

Technical editing: Sándor Dobos
Page proof: Viktória Tótin
Proof-reading: Ildikó Grica-Varcaba, Olekszandr Kordonec, Tamás Vrábely
Cover design: László Vezsdel
Universal Decimal Classification (UDC): The Apáczai Csere János Library of Transcarpathian Hungarian College

Authors are responsible for the content of academic studies and articles.

The publication of the scientific bulletin is sponsored by the government of Hungary:

Founder: Charitable Foundation of Transcarpathian Hungarian Pedagogical College (after 2016 Charitable Foundation "In support of the Transcarpathian Hungarian College")
Publishing: Ferenc Rákóczi II Transcarpathian Hungarian College of Higher Education (Address: Kossuth square 6, 90202 Berehove, Ukraine. Website: www.kmf.uz.ua E-mail: foiskola@kmf.uz.ua Tel.: (00 380-3141) 4-28-29) and "RIK-U" LLC (Address: Gagarin Street 36, 88000 Uzhhorod, Ukraine. E-mail: print@rik.com.ua)
Printing: "RIK-U" LLC

ISSN 2411-4081

ЗМІСТ–TARTALOM–CONTENT

STRATEGIES FOR SUSTAINABLE DEVELOPMENT – EXPLORING THE SIMILARITIES AND DIFFERENCES BETWEEN THE EUROPEAN UNION AND THE VISEGRAD FOUR

Kozma, Dorottya Edina

PhD student, University of Pannonia, Faculty of Business and Economics,
Department of Accountancy and Controlling, Department of International Economics
e-mail: kozma.dorottya.edina@gtk.uni-pannon.hu

The sustainable development like everyday concept and interpretation is a widely researched topic nowadays. In my study within the European Union, I examine the countries of the Visegrád Four in terms of sustainability. The Visegrád countries (also known as V4) have gone through great changes during the last two decades in terms of economic, social and environmental perspectives equally. The most important goal of my study is to determine what similarities and differences can be found in the surveyed EU member states or if we want to define in another way in sustainable development framework strategies and indicator systems of the Visegrad Four. I apply a comparative analysis for illustration that suits best the intended purpose.

Keywords: *sustainable development, the Visegrad Four, comparative analysis*

Abstract

A fenntartható fejlődés mint mindennapi fogalom és értelmezés, az elmúlt időszakban széles körben kutatott témává vált. Tanulmányomban az Európai Unión belül a Visegrádi négyek országait vizsgálom a fenntarthatóság szempontjából. A visegrádi országok (más néven V4) gazdasági, társadalmi és környezeti szempontból egyaránt nagy változásokon mentek keresztül az elmúlt két évtizedben. Legfontosabb célom annak meghatározása, hogy milyen hasonlóságok és különbségek találhatók a vizsgált EU-tagországok között. Más megfogalmazásban a visegrádi négyek fenntartható fejlődési keretrendszereit és indikátorrendszereit vizsgálom. Összehasonlító elemzést alkalmazok, ugyanis ez a módszer képes a legjobban bemutatni a kitűzött célt.

Kulcsszavak: *fenntartható fejlődés, visegrádi négyek, összehasonlító elemzés*

Introduction

The sustainable development is present in our daily lives, whether it is an integral part of our family or work. The man when starts to think about the definition or when it was evolved, it is not sure that he knows the answer. The first conception of environmental crisis awareness was published in 1962 in the Silent Spring by Rachel Carson, American naturalist. Here the primary problem was caused by the excessive use of plant protectant sprays which are both harmful for the fauna and the flora (Kerekes, 2011). The Club of Rome made the first steps in the direction of sustainable development. The aim was to reveal and analyze the environmental problems that may arise and try to find solution to it (Rosta, 2008). Essentially, steps have been taken towards sustainable development since 1968. Many international conventions (Stockholm – 1972, WCED – 1987, Rio de Janeiro – 1992, Johannesburg – 2002) were concluded, which also try to find the answer

for economic, social and environmental challenges. The real breakthrough was brought by the work of the Brundtland Commission (Gyulai, 2008). The sustainable developed definition and concept was developing by them and first appeared in 1987 in Our Common Future. The concept was determined as follows: *"Development which meets the needs of current generations without compromising the ability of future generations to meet their own needs"* (WCED 1987). The theory is designed to bring consistency between the growth of the population, the material needs of society and the use of natural resources. Following next conferences and world meetings (Rio de Janeiro – 1992, Johannesburg – 2002) took onward the concept of the Brundtland Commission (Láng 2001). Action plans on sustainable development and sustainability have shaped the thinking of mankind to preserve the environment. In 2015 it was necessary to renegotiate future objectives. In Paris 193 United Nation members gathered to discuss the new sustainability program, resulting in the AGENDA 2030 for Sustainable Development. They formulated 17 goals (SDG) on the basis of which the European Union has developed its new sustainable development indicators. This AGENDA 2030 is valid for all the nations without exception (Jancsovszka 2016).

During the review it becomes visible what the meaning of sustainable development (definition) nowadays is and under what circumstances it has developed. Sustainable development features the quality of life. For the whole world it is a typical problem that in several places the population lives in unequal economic and social conditions. Consequently, the main purpose of my study is to determine what similarities and differences were found in the application of the Sustainable Development Framework Strategy and indicators system of the countries (V4).

Research question and hypothesis

During the study my main purpose is to determine what similarities and differences can be found in the surveyed EU member states or if we want to define it another way in sustainable development framework strategies and indicator systems of the Visegrad Four. Based on this, I have determined my research question as follows:

Q: To what extent do the surveyed Member States use the indicators of the SDIs or SDGs developed by the European Union? Did they build into their strategies in the same way or are they using their own systems?

To answer this question it is necessary to examine the country's sustainable development strategy which takes place in the second chapter. Naturally, it is also necessary to comprehensively study the sustainability indicators and indexes of the Visegrad Four countries. In these, the SDIs and SDG system are providing a comparison basis and great help as well as the countries sustainable development strategies which contain and identify the indicators. For those countries which developed their own indicators the statistical office plays an important role. My hypothesis is the following:

H: None of the surveyed Visegrád countries has taken over the European Union's Sustainable Development Indicator System or the SDG indicators. In each case it serves as a kind of comparison basis.

The answer of the research question and hypothesis will be shown after the presentation of the Visegrad Four's sustainable development indicators because it would be impossible without the overview of the systems.

Literature review

The V4 group has a long-term past in all historical, economic and cultural perspective (Káposzta–Nagy 2015). In the past and pre-

sent these countries represented/represent a civilization based on social and cultural roots (Brokešová–Vachálková 2016).

The background of my study is the review and examination of the Visegrád Four countries and the European Union's sustainable development framework strategy. The examination of the countries' sustainable development strategies is inevitable to understand what objectives and indicators have been set.

Starting point: the European Union's sustainability strategy

The countries involved in the examination – Hungary, the Czech Republic, Poland and Slovakia – their sustainable development strategy or action plan is largely linked to the strategy which was developed by the European Union. This connection is also good because when all of the 28 European Union member states developed their strategies this gave them a kind of basis.

When can we say that the European Union has a sustainable development strategy? The first steps to develop the strategy were made during the Helsinki Summit (1999) (Magyar Természetvédők Szövetsége, 2005) and the final touches were done in 2001. From that date we count on the implementation of the action plan. The European Union Sustainable Development Strategy was finally adopted at the Göteborg European Council (Fischer et al., 2013). This means that the Lisbon Strategy was completed with the third dimension which is the environmental dimension (Schmuck, 2002). The sustainability strategy of the European Union is a three-pillar strategy consisting of three parts:

- to formulate sustainability (some policies have to be coordinated towards sustainable development);
- primary objectives (they addressed six key challenges);

to take steps which are needed to achieve strategic goals (Magyar Természetvédők Szövetsége 2005).

If we draw up a parallel between the work of the Brundtland Commission and the concept of sustainable development that may be formulated, we are certainly talking about a long-term strategy which affects the three dimensions. At the same time it coordinates the appropriate policies in order to meet the present and future generation needs and provide these generations' a better standard of living and prosperity. The general goal is to develop and identify those measures which enable the European Union to improve the quality of life successfully and continuously in a long term perspective. These actions can only be achieved by establishing a community that effectively utilizes and manages the existing resources. Long-term objectives are also associated with threats such as climate change (hurricanes, floods and global warming), public health, transport failure, etc. (EU COM 2001). Following the presentation of the strategy in 2001, it was reviewed in 2006 and then in 2009. These revisions complemented new targets which were adjusted to the sustainable development indicators.

The Czech Republic's sustainable development strategy

In the Czech Republic sustainable development is primarly assessed at national level. Three years after the European Union's strategy was established the Czech Government adopted the country's sustainable development strategy, the official name is: Czech Republic Strategy for Sustainable Development. It is a framework for the development of various policies and similar official documents which includes sectoral policies and action programs. It serves the basis for strategic decision-making: in each sector and in inter-sector cooperation as well as in cooperation with other interest groups. It aims to

identify the most important strategic sub-objectives, goals and tools that are designed to eliminate the weightlessness problems in each sustainability pillar). The framework strategy concentrates on the following areas: competitiveness of the economy; landscape, natural resources and environmental protection; stability and cohesion; R&D, education; European and international context and good governance (Office of the Government of the Czech Republic 2006).

The development of goals and strategies forms part of the Progress Report issued by the Ministry of Environment. Based on the Brundtland Commission's definition the focus of the planning is to ensure the best possible quality of life for today's generations and to create high level quality conditions for future generations. The last 2010 Czech sustainable development strategy names five key priority axes which are also the strategic vision of sustainable development: society, people and health; economy and innovation; spatial development; landscape, ecosystems and biodiversity; a stable and secure society (Ministry of the Environment of the Czech Republic, 2010).

The strategy of the Czech Republic shows that the three-dimensional division of the Brundtland Commission is an active part so the pillars of sustainability can be demolished from an economic, social and environmental point of view. Each examined country has its own specificity in the development of sustainable development.

Sustainable development strategy of Hungary

Hungary developed its first sustainable development strategy in 2007 after joining the European Union. The European Union gives free hand to the Member States to develop their sustainable development strategy summarizing their own goals and priorities. In case of Hungary it is true that the first strategy (National Sustainable Development Strategy) was completed in 2007 but there were many preliminary ambitions for sustainability. There were essentially not yet concrete strategies but plans, drafts (NFÜ 2007). The focus point is to develop sustainability priority objectives. The assessment of unsustainable processes, the Future Finding – the assessment of the National Sustainable Development Council started the establishment of the second action plan or the so-called framework strategy. Hungary's second sustainable development strategy was published in 2013 covering the period from 2012 to 2024 (Kis-Orloczki 2014). The main goal is to recognize the so-called lending process of future generations as well as commit themselves to presenting conditions of natural resources of the state and how these could be used to develop the maintenance system (NFFT 2013).

The interpretation of the strategy is much narrower if we compare it with the sustainability strategy of the European Union. Solving problems is not necessarily just the task of political government. In order to be able to solve them we must involve families and businesses alike. The Brundtland Commission's concept and definition is at the center of the strategy considered as a so-called "guideline" and is fully integrated into the whole strategy. When we compare it to the European Union's strategy we can only find difference between the three dimensions (economic, social and environmental). In case of Hungary the three dimensions are supplemented with one additional which is the human dimension. The overall goal of Hungary's sustainable development framework strategy is to create and secure the conditions for continuous adaptation for all sustainability dimensions. In addition, it should be able to ensure that cultural adaptation is improved (NFFT 2013).

Poland's sustainable development strategy

As one of the countries of theVisegrad Four, Poland was the first that developed a sustainable development strategy in the spirit of the millenium (2000) which is essentially a long-term strategy for sustainable development (Kis-Orloczki 2014). In Poland the conception of development is a constitutional principle. The 5th Article of the Polish Constitution (2 April 1997) contains the principle of sustainable development (Urbaniec, 2015). On this basis, sustainable development is considered as a socio-economic development which integrates political, economic and social actions.

The NSDS of Poland typically analyses the changes since transition to the market economy. The main goal of the strategy is to reverse the negative tendencies of the past. Another objective of the strategy is to provide Polish families with welfare growth and to minimize development gaps against developed countries. It naturally takes into account the three dimensions of sustainability (Ruotsalainen 2005). It is a very important factor to do these goals by taking into account the current status of the Polish economy as well as the consequences of Polish law and the concepts they formulate (Zuzek 2007). Similarly to Hungary and the Czech Republic's sustainability program, it is a long-term, multidimensional framework program which presents a general vision of the future Poland. It also provides guidance on how to revise sectoral and regional plans, programs and policies in order to strive for sustainability (Zieschank 2004). The country's sustainable development strategy is complemented by two additional areas which are the political and institutional dimensions (Urbaniec 2015).

Sustainability in Slovakia

Slovakia's national sustainable development strategy is: National Strategy for Sustainable Development for the Slovak Republic. The Slovak Government adopted the sustainability strategy on 10 October 2001 and the National Council did so on 3 April 2002. Sustainable development is regulated in the 6th Article of Law 17/1992. Sustainability strategy is based on the definition of the Brundtland Commission, is formed on three dimensions (economic, social, environmental) and is complemented by culture (Kis-Orloczki 2014). From an economic point of view, the emphasis is placed on the effective use of natural resources as well as the pursuit of economic development which is consistent with the conservation of natural resources. If we look at sustainability from a social view of point the goal is to provide the so-called respectable life for the population and distribute income from resources equally between groups of society. The environmental dimension aims to preserve the living conditions, forms and heterogenity of the Earth (Izakovičová–Oszlányi 2009). According to the basis of the strategy, they are constantly striving to enforce the principles of sustainable development which necesitates the activation of state and international resources at regional level as well as the use of all available external resources. Furthermore sustainable development is based on stable economic growth, the economical utilization of natural resources and the reduction of excessive consumption. The social and cultural needs of the population and of course, environmental protection must also be respected. The main objectives are the following:

- an advanced democratic country and modern state/administrative system;
- enforcing the fundamental interest of the Slovak Republic;

- ensure the development of advanced civil society, citizen's lives and security;
- social solidarity and social protection, balanced territorial development;
- the conservation and rational use of natural resources (Koločány 2014).

The sustainable development strategy set out two Action Plans for the period after 2000. One between 2005 and 2010 ("Action Plan for Sustainable Development") and the other between 2007 and 2013. The horizontal priority objectives for sustainable development 2007–2013 are to support all three pillars of sustainable development from the National Reference Framework. Of course, this must be consistent with the objectives and the indicators of the European Union Sustainability Strategy. Cumulatively, it focuses on intelligent and inclusive growth and respects the economic, social and environmental dimensions (Koločány 2014).

Looking back to the sustainable development strategies of the four countries – the Czech Republic, Hungary, Poland and Slovakia – we can conclude that each country has its own characteristics of sustainability. There are even bigger differences compared to the European Union's strategy but the fact that but the countries have to rely on the EU at some level. What are these similarities and differences? The most important similarity is that each state has developed its own strategy and in each case it has been developed by the 1992 Rio Conference as well as the indicators. A difference can be seen in the year of publication, sustainability goals, objectives and implementation time.

Objectives and methods

In 2015–2016 the European Union used the European Union Sustainable Development Indicator System (EU SDIs) to measure sustainable development. Neverthless, the AGENDA 2030 for Sustainable Development which was presented in the framework of the United Nations Climate Change Conference in 2015, has developed new indicators for sustainable development. This system is well suited to evaluate the performance and progress of member countries both methodically and statistically. Data which is required for the indicators can be assessed on EUROSTAT's website from 2007 and includes data form all 28 Member States. However, we can not ignore the old system anyway. Moreover, of course each country has developed the most appropriate indicators for its own goals, objectives and progress plan which can be said to be country specific. Overall, the indicators are intended to show the achievement of countries in their own sustainable development indicator systems. In my study I would like to present the sustainable development indicators of the surveyed countries – the Czech Republic, Hungary, Poland and Slovakia – in a comparative analysis. We can not use other methods because the similarities and differences of the indicators/indicator systems cannot be identified by any other technique. It is not possible to show in any other way because there are no methods which concentrate on specific features.

Results

Before the presentation of the indicators, index numbers we can analyze what the meaning of the word indicator is. Different words are used in the literature to formulate the indicator word. For the given phenomenon it shows the properties of the phenomenon as well as helps to get through and last but not least based on these features it makes the phenomenon comparable (Havasi, 2007). In my opinion the definition of Havasi (2007) describes more accurately the definition of indicator: *"The indicator is a signal, index number, which simplifies our orientation in the world and it illuminates the essence of the phenomenon."*

The definition of sustainable development indicators are based on different specifications of development concepts. They can be at local, regional and national levels as well as at the European Union's level. The primary role of sustainable development indicators is the operationalization of sustainable development at local, regional and national leves in order to monitor the various plan documents (Urbaniec 2015). In addition to defining the indicators for achieving the goals and objectives, they also have a kind of role control so we can use them for examination.

Indicators in the European Union

The European Union's SDI system contains nearly 130 indicators. The strategy and the indicators were adopted at the same time at the Göteborg Summit (2001) by the Commission in 2005. The purpose of this system was to show how far the Member States of the European Union have progressed to achieve their goals which are esentially described by the EU Sustainable Development Strategy. The main indicators can be divided into additional operational, explanatory and contextual indicators that are built in pyramid shape. All in all they can be split up into three main and one additional level and it looks like a pyramid shape (EUROSTAT 2015).

On the part of the European Union, the EUROPE 2020 strategy played an important role in the development of AGENDA 2030 for Sustainable Development. It is a strategy for the eradiction of poverty and the promotion of sustainable development. This strategy is tangible and must be consistent with measures that address a wider range of social needs and promote the creation of fair, peaceful, inclusive societies and also protect them. In addition, they naturally protect the environment and they give help in managing climate change. The European Commission has undertaken to monitor the development of the objectives for sustainable development. It is not binding on UN members but it is a requirement that governments undertake and set up at national level the backdrop for achieving the 17 goals. The strategy developed indicators for all 17 goals and for the 169 objectives which are related to them. The indicators are revised by the UN Statistical Commission (Fleming et al. 2017).

The indicators of AGENDA 2030 are in line with the UN Global Indicator list. It also contains indicators that are specifically EU-specific and suitable for incorporating into the EU's various, long-term policies. The SDGs are monitored at different levels both at regional and global levels equally. The set of indicators adopted in 2017 contains totally 244 different indicators covering the 169 goals. These is also a large number of indicators which belongs to several goals. The European Union uses 144 of these 244 indicators which are to be provided by all 28 Member States (EUROSTAT 2017).

These indexes cover the three dimensions of the Brundtland Commission's concept and one more institutional dimension. They complement the global and regional indicators and have been chosen to take into account the relevance of EU policies' availability, quality and "freshness". There are a few exceptions such as the EU Sustainable Development Indicators (EU SDIs) and indicators for the EUROPE 2020 strategy. Depending on their rating, they can be divided into two groups: show a longer or short term trend. The long term indicators focus on the last 15 years (2000–2015, 2011–2016) and at least 10 years of data are available. Short time indicators cover the past 5 years (2010–2015, 2011–2016) but are available for at least 3 consecutive years (EUROSTAT 2017).

It can be seen that the EU SDIs were used in the past period and were obsolete at some level. To maintain this the European Union uses the SDG system. Overall, the new system uses far more indicators worldwide (244) but

the European Union uses only 144. Though the 3+1 dimensions of sustainability can be separated.

Sustainable development indicators in the Czech Republic

While the collection of country-wide indicators is not a problem we must not forget the fact that the examination of lower levels of public administration can cause some sort of headache (Štreimikiene et al., 2016; Fischer et al. 2013). In case of the Czech Republic, we can divide the indicators in two ways. The first splitting method is based on the three dimensions of sustainable development (economic, social, environmental) and three addtional dimensions (research, development, education; European and international context; good governance). In this case we can speak about 34 aggregated indicators (Government Council for SD – Ministry of the Environment 2009). The second way is when we divide the Czech Republic's sustainable development indicators into five main priority axes at the same time and we get completely different indicators. The priority axes are the following: 1. society, people and health (7); 2. economy and innovation (13); 3. spatial development (12); 4. landscape, ecosystems and biodiversity (7); 5. stable and secure society (7). Their number (47 indicators) is not the same as the dimension based resolution (Ministry of the Environment of the Czech Republic, 2010).

The currently used Czech Strategy contains 47 indicators that are close to achieving each strategic goal. Essentially for communication purpose they use the 34 aggregated indicators.

Hungary's sustainable development indicators

Until the appearance of the second framework strategy in 2013, Hungary used the indicators divided by the EUROSTAT. The indicators were identical with the EU SDIs. By developing the strategy, they have completely revised the indicators and made them country specific. As with all the countries surveyed the Hungarian Central Statistical Office is responsible for the publication of index numbers. Most of these data are available from 1995 onwards (KSH 2015). Totally, 103 indicators can be identified in Hungary which can be divided according to the 3+1 dimension of sustainability: 23 economic, 13 social, 41 environmental and 26 human (Korsós-Schlesser–Marselek 2016). Further splitting of the indicators can also be made depending on which one is considered a true indicator and one is only a background indicator. Based on these, we distinguish 82 real indicators. They are characterized by both positive and negative comparisons. In the other group there are 21 background indicators that provide mainly structural information. There are indicators from which no time series can be set up (KSH 2017).

With this kind of transformation, such as the fact that the Statistical Office differs from the system (EU SDIs) developed by the European Union, there are indicators that we cannot compare with EUROSTAT indicators. These indicators are household indebtedness rate or NGOs. However, it is not a "unique" feature. We have experienced these inconsistencies even in the first examined country (the Czech Republic). We will experience them in the countries that are being examined. Since the strategy was developed in a timely manner rather than the adoption of SDGs, the progress report goals are not linked to SDG. Indicators will only follow these goals in the future.

Sustainaility indicators in Poland

Poland's Sustainable Development Strategy tells us how many indicators are "managed" by the country, how many indicators are used to measure the goals and objectives of sustainable development. In Poland sustain-

able development indicators can be separated on the basis of three dimensions of sustainable (economic, social, environmental) and two additional dimensions (political, institutional) (Central Statistical Office 2011).

Based on these, the country totally manages 76 indicators. Among the countries studied so far, Poland and the Czech Republic have the least sustainable development indicators. Hungary is an exception in this respect, as there are 103 sustainability indicators for the country. Based on the above, we can conclude that the sustainability strategies of the countries have been greatly influenced by the Brundtland Commission's sustainable development concept. We can break down the indicators of all three countries into three basic dimensions (economic, social, environmental) and in some cases based on the addtional dimensions.

Sustainable development indicators in Slovakia

With regard to Slovakia sustainable development is also assessed on the basis of indicators representing the four pillars of sustainable development. These indicators are also suitable for tracking regional inequalities for monitoring regional inequalities (Huttmanová–Chovancová 2014). The introduction of sustainable development indicators in Slovakia was largely influenced by the indicators developed by the Commission. This set of indicator contains in total 134 indicators that can be divided into the 3+1 dimensions: 23 economic, 41 social, 55 environmental and 15 institutional. Their main purpose is to provide the countries the appropriate indicators for measuring sustainability. The secondary objective is to create a better statistical evaluation (Lyytimäki et al. 2011).

As a result of this process in 1997 the Government of Slovakia approved the use of AGENDA 21 as well as the use of indicators. Slovakia defined first its own indicators. This does not really mean the development of fully independent indicators but the adoption of relevant indicators to the country (125 out of 134). At present, indicators for sustainable development are reviewed by the Slovak Statistical Office and the Environment Agency. The Government and other agencies are responsible for issuing databases. The indicators used today are the result of several organizations, programs and conferences, such as AGENDA 21, Rio+10 processes or the Lisbon Strategy (Zolcerova 2016). The Slovak Environmental Protection Agency recommended 92 indicators.

In Slovakia all the indicators which are "circulation" can be split down into four dimensions (economic, social, environmental, institutional). From all of the national indicators 32 more or less correspond to the indicators which are used by the European Union. In case of institutional indicators from three indicators two correspond, while the proportion in socio-economic indicators are half. The most significant differences can be seen in environmental indicators because of these (65) only 16 are similar to those of the European Union. Unfortunately, the list of indicators cannot be found either in the country's sustainable development strategy or in any other area.

The results of the research question and the hypothesis

Overall, it can be concluded that in the examined countries (V4) Slovakia is the only country that does not name the indicators. We cannot find the indicators anywhere. All other sustainability strategies outline how they measure and evaluate sustainable development. Typically, indicators are divided into sustainability dimensions and they are country specific. In Hungary there are 103 indicators, Slovakia has 92, Poland uses 76 while the

Czech Republic numbers 34 aggregated indicators.

During the presentation of sustainable development framework stategies and indicators obvious facts have become visible. They have shown the fact that they are suitable for answering the research question and the hypothesis. Based on these, my answer to the research question is the following.

Q: To what extent do the surveyed Member States use the indicators of the SDIs or SDGs developed by the European Union? Did they build into their strategies in the same way or are they using their own systems?

It can be concluded that among the countries of the Visegrad Four group none of them fully used the SDIs or SDGs developed by the European Union. In the begining the EU SDIs provided great help to countries to develop their own indicators. In case of Hungary you can see best that initially in the strategy set up in 2007, they relied entirely on the European Union indicators. Then in 2013 at the time of the second framework strategy they changed this practice and developed their own indicator system by with the help of Central Statistical Office (KSH). This system contains and uses numerically fewer indicators. In the Czech Republic there is already a deviation from the EU. There are very few indicators we can find — only 34 aggregate indicators in the strategy if we divide them according to the dimensions of sustainable development. This is also the case with the second modal split which divides the indicators according to the five main priority axes. The situation in Poland and Slovakia is no different from this point of view. Slovakia is closer to the EU indicators because the country had great importance in the development of the indicators of the sustainability strategy. The indicators used by V4 are summarized in Tab. 1.

Table 1. ***Sustainable development indicators of V4 countries***

	European Union	The Czech Republic	Hungary	Poland	Slovakia
Name of the strategy	□EU SDS □Agenda 2030	Czech Republic Strategy for SD	Fenntartható Fejlődési Keretstratégia	SD Strategy for Poland up to 2025 – Polska 2025	National Strategy for SD for the Slovak Republic
The year of publishing the strategy	□2001 □2015	2004	2007	2000	2001
The ways of resolution the indicators	□EU SDIs – 3+1 dim. □Agenda 2030 – 17 goals	□3+3 pillar □5 main priority axis	□3+1 dimension	□3+2 dimension	□Indicators of Commission (3+1 dimension) □Environmental Agency (3+1 dimension)
Number of indicators	□EU SDIs – 132 indicators □Agenda 2030 – 144 indicators	□34 indicators □47 indicators	□103 indicators	□76 indicators	□125 indicators □92 indicators

Source: by author

Despite not taking over the SDIs or SDG indicators used by the European Union, they are required to provide data to EUROSTAT on the measurement of sustainability. The other factor that may have contributed to the fact that none of the surveyed countries has taken over the mentioned systems is that the European Union has not made it binding on any country. They are free to choose whether to apply them or not. From the detailed study of the indicators we can see that countries do not use 100% of the indicators but at some level they are using the EU indicators. There are indicators for which the V4 countries have not developed their own indicators. Overall, it can be said that countries can only be compared based on EU SDIs or SDGs.

H: None of the surveyed Visegrád countries has taken over the European Union's Sustainable Development Indicator System or the SDG indicators. In each case it serves as a kind of comparison basis.

To this assumption the answer became visible during the research question. The benchmark is that all 28 European Union Member States are required to provide data to EUROSTAT. The Member States need to become measurable and at the same time comparable in achieving their objectives. Before 2015–2016 the main part of the studies were based on the EU SDIs because it was the only system, set of indicators that contained all the data which were needed for the analysis and evaluations. This situation has changed when the AGENDA 2030 for Sustainable Development and the related 17 goals were developed as a result of the 2015 Paris Climate Convention. The 17 targets can be characterized by about 244 indicators, 144 of which are relevant for the European Union. With these another system was developed to provide basis for comparison for research and analysis. If we should analyze the surveyed Member States based on the self-developed indicator systems, we would encounter the problem of incompatibility. These systems are country-specific and the countries have developed them on the basis of their own objectives. Of course, there are indicators that can be found in every strategy (e.g. GDP), there are more or less comparable and have the "worst category" that is totally incomparable. *As a thesis, it is possible to state that all EU Member States are obliged to provide data on the current SDG indicators, so my assumption is true. Indeed, the SDG system forms a kind of comparison basis because that is the only way to allow equal comparisons between Member States.*

Conclusion

In my paper, I tried to find an answer how the Visegrad Four applied the European Union's sustainability strategy and to what extent they integrated the EU SDIs or SDG indicators into their indicator system. It can be simply phrased what the similarities and differences are between the surveyed countries – the Czech Republic, Hungary, Poland and Slovakia – in their sustainable development strategies and indicator systems. It has been proven that the examination of country-specific strategies is indispensable for the subsequent examination of sustainability indicators. The V4s are completely different from the EU strategy. The strategy of the European Union provided them only a basis to develop their own system. Due to the differences the comparison of the surveyed countries is very difficult. During the research work which preceded the study, it has become apparent that after the Paris Climate Convention in 2015 the European Union does not measure the progress of the sustainable development objectives by the EU SDIs but by the SDG (sustainable development goals). More specifically with the related indicators. These indicators are intended to show how much progress has been made towards achieving sustainable development goals in countries. Each country involved in the study has developed its own

independent system of indicators. It identifies exactly what sustainable development and the related strategy mean for them.

Overall, it can be said, both the European Union and its Member States are investing heavily in developing their own independent indicators. In the former process the national sustainable development strategy, the EU SDIs and the SDGs help them. Although in many cases this is only used as a solid basis.

References

1. Brokešová, Zuzana – Vachálková, Ingrid (2016): Macroeconomic environment and isurance industry development: The case of Visegrad group countries. *Ekonomická Revue. Central European Review of Economic Issues*, no. 19. pp. 63–72.
2. Central Statistical Office (2011): *Sustainable Development Indicators for Poland.* Katowice, Central Statistical Office
3. Dubravská, Mariana (2015): The analysis of chosen development indicators of the sustainable development of the Slovak Republic. *eXclusive e-JOURNAL*, no. 3. Source: https://www.exclusiveejournal.sk/files/files/84/45/85/ac08814fe1764c939edbf39a10cfa39d/ac08814fe1764c939edbf39a10cfa39d.pdf (Download: 2017.12.18.)
4. EU COM (2001): *A Sustainable Europe for a Better World: A European Union Strategy for Sustainable Development.* Brussels, Commission of the European Union
5. EUROSTAT (2015): *Sustainable Development in the European Union. 2015 Monitoring report of the EU Sustainable Development Strategy*. Luxembourg, Publications Office of the European Union
6. EUROSTAT (2017): *Sustainable development in the European Union. Monitoring report on progress towards the SDGS in a EU context.* Luxembourg, Publications Office of the European Union
7. Faragó Tamás (2006): Az Európai Unió megújított Fenntartható Fejlődési Stratégiája. *Ma és Holnap*, vol. 6. no. 5. 7–9.
8. Fischer, Jakub – Helman, Karel – Kramulová, Jana – Petkovová, Ludmilla – Zeman, Jan (2013): Sustainable Development Indicators at the Regional Level in the Czech Republic. *Statistika*, vol. 93. no. 1. pp. 5–18.
9. Fleming, Aysha – M. Wise, Russel – Hansen, Heidi – Sams Linda (2017): The sustainable development goals: A case study. *Matine Policy*, no. 86. pp. 94–103.
10. Government Council for SD, Ministry of the Environment: *Progress Report on the Czech Republic Sustainable Development Strategy.* Prague, EnviTypo
11. Gyulai Iván (2008): *Kérdések és válaszok a fenntartható fejlődésről.* Budapest, Magyar Természetvédők Szövetsége
12. Havasi Éva (2007): Az indikátorok, indikátorrendszerek jellemzői és statisztikai követelményei. *Statisztikai Szemle*, vol. 85. no. 8. 676–689.
13. Huttmanová, Emília – Chovancová, Jana (2014): Evaluation of Sustainable Development in the Regions of Slovakia Using Selected Indicators. *5th Central European Conference in Regional Science*, pp. 300–306.
14. Izakovičová, Zita – Oszlányi, Júlia (2009): Reflection on the concept of Sustainable Development: Progress in the Slovak Republic. In Mather Alexander – Bryden John. (eds.): *Area Studies – Europe. Regional Sustainable Development Review.* Oxford, EOLSS Publishers/UNESCO, pp. 430–463.
15. Jancsovszka Paulina (2016): Fenntartható fejlődési célok (Sustainable Development Goals). *Tájökológiai Lapok*, vol. 14. no. 2. 171–181.
16. Káposzta József – Nagy Henrietta (2015): Status report about the progress of the Visegrad countries in relation to Europe 2020 targets. *European Spatial Research and Policy*, vol. 22. no.1. pp. 81–99.
17. Kerekes Sándor (2001): A környezetügy ötven éve. In Kerekes Sándor – Csutora Mária (eds.): *Fenntartható fogyasztás? Trendek és lehetőségek Magyarországon.* Budapest, Aula Kiadó, 10–20.
18. Kis-Orloczki Mónika (2014): National Sustainable Development Strategies in the Visegrad Four. *Electronic International Interdisciplinary* Conference, pp. 160–163.

19. Koločány, František (2000): Sustainable development in Slovakia in post-2000 period. Source: http://www.sd-network.eu/pdf/conferences/2014_rome/presentations/session%205/Frantisek%20Kolocany.pdf (Download: 2017.12.18.)
20. Korsós-Schlesser Ferenc – Marselek Sándor (2016): Fenntarthatósági indikátorok változásainak elemzése Magyarországon, tekintettel a klímaváltozásra. *Acta Carolus Robertus*, vol. 6. no. 1. 105–116.
21. KSH (2015): *A fenntartható fejlődés indikátorai Magyarországon, 2014.* Budapest, Központi Statisztikai Hivatal
22. KSH (2017): *A fenntartható fejlődés indikátorai Magyarországon, 2016.* Budapest, Központi Statisztikai Hivatal
23. Láng István (2001): Stockholm-Rió-Johannesburg. Lesz-e új a nap alatt a környezetvédelemben? *Magyar Tudomány*, vol. 46. no. 12. 1415–1422.
24. Lyytimäki, Jari – Rinne, Janne – Kautto, Petrus – Assmuth, Timo (2011): Using indicators to assess sustainable development in the European Union, Finland, Malta and Slovakia. *The Finnish Environment*, no. 4. pp. 1–78.
25. Magyar Természetvédők Szövetsége (2005): *Az Unió fenntartható fejlődési stratégiájának végrehajtása és felülvizsgálata.* Budapest, Magyar Természetvédők Szövetsége
26. Ministry of the Environment of the Czech Republic (2010): *The Strategic Framework for Sustainable Development in the Czech Republic*. Prague, Ministry of the Environment of the Czech Republic
27. NFFT (2013): *Nemzeti Fenntartható Fejlődési Keretstratégia*. Budapest, Nemzeti Fenntartható Fejlődési Tanács Titkára
28. NFÜ (2007): *Nemzeti Fenntartható Fejlődési Stratégia.* Budapest, Magyar Köztársaság Kormánya
29. Office of the Government of the Czech Republic (2006): *Interim Report on the Czech Republic Strategy for Sustainable Development.* Prague, Office of the Government of the Czech Republic
30. Rosta István (2008): A tudománytörténetéből – világproblémák, globalizáció. A Római Klub három jubileuma 2008-ban. *Magyar Tudomány*, vol. 169. no. 12. 1516–1522.
31. Ruotsalainen, Arto (2005): *Review of National strategies for sustainable development in the Baltic Sea Region.* Stockholm, Nordregio Working Paper
32. Schmuck Erzsébet (2002): Társadalmi vélemény és részvétel az EU-stratégia tervezési folyamatában. In Faragó Tamás. (ed.): *Nemzetközi együttműködés a fenntartható fejlődés jegyében és az Európai Unió fenntartható fejlődési stratégiája.* Budapest, Fenntartható Fejlődés Bizottsága, 25–32.
33. Štreimikiene, Dalia – Mikalauskiene, Asta – Mikalauskas, Ignas (2016): Comparative Assessment of Sustainable Energy Development in the Czech Republic, Lithuania and Slovakia. *Journal of Competitiveness*, vol. 8. no. 2. pp. 31–41.
34. Urbaniec, Maria (2015): Sustainable Development Indicators in Poland: Measurement and System Evaluation. *Entrepreneurial Business and Economics Review*, vol. 3. no. 1. pp. 119–134.
35. WCED (1987): *Our Common Future*. London, Oxford University Press
36. Zieschank, Roland (2004): *Poland Case Study. Analysis of National Strategies for Sustainable Development.* Berlin, Environmental Policy Research Centre
37. Zolcerova, Valeria (2016): From Stockholm or Rio to New York and Slovakia. Sustainable development agenda – Agenda 2030. *Comenius Management Review*, vol. 10. no. 1. pp. 23–32.
38. Zuzek, Dagmara (2007): Economic and social aspects of the Sustainable Development Strategy for Poland up to 2025. *Management and Sustainable Development*, vol. 17. no. 2. pp. 56–59.

Л 67 **LIMES.** Науковий вісник Закарпатського угорського інституту ім. Ф. Ракоці ІІ. 2019/Том VI. Редакційна колегія: Ільдіко Орос (головний редактор), Вікторія Семйон, Габор Патакі, Мелінда Орбан та Олександр Добош (відповідальний редактор) [та ін.] – Берегове–Ужгород: ЗУІ ім. Ф.Ракоці ІІ – ТОВ «РІК-У», 2019. – 420 с. (угорською, українською та англійською мовами)

ISSN 2411-4081

Науковий вісник «LIMES» засновано у 2014 році та видається за рішенням Вченої ради Закарпатського угорського інституту ім. Ф. Ракоці ІІ. У науковому віснику публікуються наукові статті викладачів та студентів Закарпатського угорського інституту ім. Ф. Ракоці ІІ, а також дослідження українських та іноземних учених угорською, українською та англійською мовами. Цей том «LIMES» об'єднує праці з економіки, математики, інформатики, хімії, географії та суспільствознавства.

УДК 001.89(058)

Наукове періодичне видання

LIMES

Науковий вісник
Закарпатського угорського інституту ім. Ф. Ракоці II

2019 р.
Том VI

Свідоцтво про державну реєстрацію друкованого засобу масової інформації
Серія КВ №20762-10562Р від 08.05.2014 р.

Рекомендовано до друку Вченою радою Закарпатського угорського інституту ім. Ф. Ракоці II (протокол № 7 від 20.12.2019 р.)

Технічне редагування: Олександр Добош
Верстка: Вікторія Товтін
Коректура: Ільдіко Гріца-Варцаба, Томаш Врабель, Олександр Кордонець
Обкладинка: Ласло Веждел
УДК: Бібліотечно-інформаційний центр «Опацої Чере Янош» при ЗУІ ім. Ф. Ракоці II

Друк наукового вісника здійснено за підтримки уряду Угорщини.

Засновник: Благодійний фонд Закарпатського угорського педагогічного інституту (від 2016 року Благодійний фонд За Закарпатський угорський інститут)
Видавництво: Закарпатський угорський інститут ім. Ференца Ракоці II (адреса: пл. Кошута 6, м. Берегове, 90 202. Електронна пошта: foiskola@kmf.uz.ua) *Статут «Закарпатського угорського інституту ім. Ференца Ракоці II» (Затверджено протоколом загальних зборів Благодійного фонду За ЗУІ, протокол №1 від 09.12.2019р., прийнято Загальними зборами ЗУІ ім. Ф.Ракоці II, протокол №2 від 11.11.2019р., зареєстровано Центром надання адміністративних послуг Берегівської міської ради, 12.12.2019р.)* та **ТОВ «РІК-У»** (адреса: вул. Гагаріна 36, м. Ужгород, 88 000. Електронна пошта: print@rik.com.ua) *Свідоцтво про внесення суб'єкта видавничої справи до Державного реєстру видавців, виготівників і розповсюджувачів видавничої продукції Серія ДК 5040 від 21 січня 2016 року*
Поліграфічні послуги: ТОВ «РІК-У»

Шрифти «Times New Roman» та «Minion pro».
Папір офсетний, щільністю 80 г/м². Ум. друк. арк. 48,8. Формат 60x84/8.
Замовл. № 313. Тираж 300.