ENVIRONMENTAL COMPETITIVENESS OF THE VISEGRAD GROUP COUNTRIES

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Abstract. In recent years, within the ongoing process of globalization, the world is facing many global problems and challenges. One of the contemporary issues is the ecosystem degradation and loss (e.g. water is becoming scarce, decline in soil quality, deforestation, etc.) caused by the human acting and that is resulting in ecological scarcity and social inequity, which are clear indicators of unsustainable economy. Deterioration of ecological environment and resource depletion impede the sustainable economic growth and therefore it is necessary to transform the economic growth to so-called ‘green’ growth. Since the concept of green growth or green economy is rather frequently discussed topic, the environmental competitiveness is relatively less discussed. The aim of this paper is to develop the concept of environmental competitiveness and shows how it applies to countries of Visegrad group – namely to the Czech Republic, Slovakia, Poland and Hungary. To achieve this goal, the descriptive method and quantitative data analysis is used. As expected, the first investigation on this topic revealed a lack of environmental competitiveness of these countries. Only Slovakia surprisingly performs among top twenty countries in the terms of environmental competitiveness out of 133 countries surveyed.

Keywords: Environmental Competitiveness, European Union, GHG emissions, Green Economy, Visegrad Group (V4).

Jel classification: F00, F64, Q56.

1. Introduction

In recent years the issues of global climate changes, environmental pollution and waste or increasing scarcity of the natural sources are more frequently discussed topics. The mankind is exposed to a greater and greater risk stemming from his rash action. Even though these issues are seen for many years, the action on the global level and significant importance is received to them mainly in the last two decades.

Awareness of how serious the situation is and how could be the situation in a future has prompted states all around the world to act. Most of the countries have committed themselves to reduce emission within the international bodies, institutions, initiatives, etc. Some global goals were set up within the international organizations. For instance, within the widely known international agreement – the Kyoto Protocol\(^1\) – extending the United Nations Framework Convention on Climate Change from 1992, the parties have committed themselves to reduce greenhouse gases (GHG) emissions. In December 2012, the Doha Amendment to the Kyoto Protocol amended this agreement, where the existing targets for a second commitment period were revised (UNFCCC, 2014). Within another important international body – the European Union – the ambitious climate and energy targets 20-20-20\(^2\) within the EU climate and energy package were set up in March 2008. This package obliges all EU member states to undertake the set objectives by the 2020 (European Commission, 2014). As the basis for setting 20-20-20 targets was the Stern Review on the Economics of Climate Change that was published in 2006 (for more details see Stern, 2006). The Stern review stressed the need to act on climate change and noted that if states will not act, the costs will outweigh the action (e.g. the estimated losses of at least 5% of global GDP) with many reasoning.

The world is already facing global problems as climate change, energy insecurity or ecologic scarcity, which represent the major concerns. All that can be solved by the encouraging

\(^{1}\) Entered into force in February 2005

\(^{2}\) A 20% reduction in EU GHG emissions by at least 20% of 1990 levels, cutting of the energy consumption by 20% of projected 2020 levels by improving energy efficiency, and increase the use of renewable sources by raising the share of EU energy consumption produced from renewables to 20%.
of the strategic economic policy agenda, which can help to achieve sustainable development that aims to improve the quality of human life without the constraints of the environment. Unfortunately, “policy-makers increasingly place economic growth at the center of discussions over environmental management” (Fankhauser et al., 2013). Not long ago, the concept of environmental competitiveness was introduced, but this concept is not as developed and discussed as the competitiveness of economic performance. The aim of this paper is to develop the concept of environmental competitiveness and shows how it applies to countries of Visegrad group – namely to the Czech Republic, Slovakia, Poland and Hungary.

2. Green Economy and concept of environmental competitiveness

World is getting to be more and more energy-intensive. Rising consumption of the energy is going hand in hand with increasing CO₂ emissions that have recorded over last decades an increasing tendency. IEA (2014) points out the fact that among the GHG emissions produced by the human activities, the use of energy is representing the largest source of these emissions (see Fig. 1). CO₂ emissions from the generation of electricity and heat in past decade almost doubled what was driven by the large increase of energy generation from coal (this sector contributes to global CO₂ emissions by 42%) and together with transport are these two sectors producing nearly two-thirds of global CO₂ emissions (IEA, 2014, p. 10). The transport (23%) and industry (20%) are the other most intensive sectors that produce considerable emissions.

![Fig. 1. Shares of global anthropogenic GHG (2010)](image)

Note: Others include large-scale biomass burning, post-burn decay, peat decay, indirect N₂O emissions from non-agricultural emissions of NOX and NH3, waste and solvent use.

Source: IEA (2014, p. 7)

The issue of climate change and environmental degradation is closely associated with the question of externalities associated with air pollution caused as a result of burning fossil fuels, especially in energy sector and in industry. These negative externalities (also known as external costs) represent the stereotypical approach to this issue and refer to the situation when the producer by his activity negatively affects the third party and his private costs are tend to be lower than the ‘social’ cost of his production. The problem of externalities employs many economist almost last hundred years and there is a vast of the literature on negative externalities, and environmental taxation as the commonly know tool to reduce them. The most important contributor to the issue of the externalities is a British economist Arthur C. Pigou (1920) who introduced this concept and provided a solution in the form of
so called Pigouvian taxes and subsidies. Neither Pigou’s tax-subsidy approach did escape criticism. For example, William Baumol (1972) saw a gap in the determination and evaluation of cost of pollution because many of these cost are psychological and individual. Further criticism of the Pigou’s work came from James M. Buchanan (1969). The other very important contributor to the issue of externalities was Ronald Coase (1960) who putted in relationship the property rights and externalities where the well-defined property rights make the negotiation on externalities feasible. Other important contributors are, for instance, Hal R. Varian with his contribution (1994), or Kenneth J. Arrow (1969).

Many economies focus mainly on the economic race but they are not considering the environmental issues. The ‘green race’ should be actually an integral part of this economic race and should not be sidelined. Countries all around the world are more or less aware of the environmental damage and climate change and aware of the fact that it is necessary to act to reduce this damage, to protect the environment and to prevent our society from many ecological problems rising from not being conscious of how the production can harm the environment. But the governments all around the world face a crucial issue – how to deal with the problem – how to reduce this environmental damage while minimising harm to economic growth? Actually, one of the most discussed is the concept of a green economy (UNEP, 2011; OECD, 2013).

2.1 What is a green economy?

The United Nations Environment Programme (UNEP) (2011) defines the green economy as a low-carbon3, resource efficient, and socially inclusive economy that results in “improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities”. In that economy “growth in income and employment are driven by public and private investments that reduce carbon emissions and pollution, enhance energy and resource efficiency, and prevent the loss of biodiversity and ecosystem services” (UNEP, 2011, p. 16). The main objective of a transition to the green economy is to enable economic growth and investment while increasing quality of the environment and social inclusiveness.

Nowadays, world is facing the ecosystem degradation and loss (e.g. water is becoming scarce, decline in soil quality, deforestation, etc.). That is caused by the human acting and results in ecological scarcity and social inequity that are clear indicators of economy, which is not sustainable. According to the UNEP report (2011) the countries that have reached a high level of human development often have attained that at the expense of their natural source based, quality of environment and high GHG emissions. All the EU countries are considered to be very highly or highly human developed. All of these countries have considerably raised their human development index (HDI) from 1990 – in average by 0.1%. The evidence from UNEP (2011) points out the fact the enjoying the high HDI is at the cost of large ecological footprint. As the interpretation of the sustainability (sustainable development) in UNEP report (2011, p. 17) says “an increase in well-being today should not result in reducing well-being tomorrow”. This highlights the necessity of the transition towards the green economy as the way to eliminate the threats that world is facing now and the way how to ensure for future generations at least the same level of economic opportunities and economic welfare as we currently have.

According to the UNEP (2011), the transition towards a green economy requires enabling conditions such as the national regulations, policies, subsidies and incentives, as well as international market and legal infrastructure, trade and technical assistance (to see the examples of tools used for greening economy see Tab. 1).

3 Low carbon economy (LCE), also referred as the low fuel fossil economy (LFFE), is an economy that is based on low carbon power sources and has a minimal output of greenhouse gas (GHG) emissions due to anthropogenic (human) activity. GHG emissions are considered to be the cause of climate changes where the primary GHG gas is carbon dioxide (CO₂) emitted through human activities within the combustion of fossil fuels (coal, oil and natural gas) for energy, transportation, industry etc.
According to the OECD (2011, p. 9) the green growth means “fostering economic growth and development while ensuring the natural assets continue to provide the resources and environmental services on which our well-being relies” based on speeding up of investment and innovation that will boost the sustained growth and new economic opportunities. The OECD (2011) sees the green growth going through several channels as productivity, innovation, new markets, confidence, stability, resource bottlenecks and imbalances (see OECD, 2011).

Fankhauser et al. (2013, p. 903) interpret the green growth as “an economy-wide transformation, rather then the expansion of the environmental goods and services sector” and they are equally interested in the structural changes within a sector as in the expansion of one sector on the expense of another one. As an example they state the promotion of emergence of solar panel production on the expense of coal mining (Fankhauser et al, 2013).

### 2.2 Concept of environmental competitiveness

Competitiveness is among the most important concepts of the present economic science and there are many concepts of competitiveness differ by author (e.g. Porter et al., 2007; Slaný, 2006; Gardier et al., 2004; Kadeřábková, 2003; Plchová, 2011). The ongoing globalization entails the pressure to increase competitiveness of economies, sectors, products, businesses etc. that is needed to compete in the increasingly intense competition in global markets. There are several indexes to measure the competitiveness. Among the most know is the Global Competitiveness Index (GCI) and its competitor World Competitiveness Index (WCI), but there are numerous more or less complex indexes examining competitiveness in many other economic areas. But there is also another aspect of competitiveness – the environmental competitiveness.

Since the “economy and environment are mutually influential and interactive, constituting an interdependent economy-environment system” UNEP (2013, p. 12) it is necessary for today’s interdependent and globalized world facing deterioration of ecological environment and resource depletion, to boost the green transformation of the economic development which is needed to ensure the sustainable development of economy, society and environment for future generation.

The first economist who emphasized the relationship between environment and industrial competitiveness and pointed out a need of entirely new way of thinking about this relationship was Porter and Linde (1995). There is not so much literature related to this topic, but for instance Fankhauser et al. (2013) designed the analytical framework for measuring and understanding the competitive process. Anyway, this paper is focused on new way of measurement of global environmental competitiveness designed by the UNEP (2013), which was introduced for the first time. The measurement of nation’s environment competitiveness is called Global Environmental Competitiveness (GEC) which is defined by the UNEP (2013, p. 3) as “a whole new way to measure
the competitiveness in the context of the contradiction between world economic development and environmental protection” and which has become increasingly intensified. The GEC evaluates the level of environmental competitiveness across selected countries all around the world and is based on five sub-index constituting the major aspects and framework that covers ecological environment (Ecological Environment Competitiveness, EEC), resource environment (Resource Environment Competitiveness, REC), environment carrying (Environment Competitiveness, ECC), environmental management (Environmental Management Competitiveness, EMC) and environment harmony (Environmental Harmony Competitiveness, EHC). All this elements are captured in Fig. 2.

**Fig. 2. Scheme of Global Environmental Competitiveness**

Source: UNEP (2013, p. 33), own proceeding

GEC should serves as a base for complete scientific analysis aiming to analyze environmental situation and to propose development strategy.

For more information about methodology and construction of the model see the Report on Global Environment Competition (UNEP, 2013).

### 3. Situation in the V4 group and its position within the EU

China, US, India, Iran, Korea, Russia, Japan, Germany, Canada and UK are among the top ten most polluting countries in the world in terms of producing the CO₂ emissions (World Bank, 2014). Within the EU, the biggest polluters are besides above-mentioned EU member countries Italy, France, Poland, Spain, Netherlands, Czech Republic or Belgium (see Fig. 3). Two out of the four countries of the Visegrad group are among the ten biggest ‘polluters’ in the EU (Poland and Czech Republic). Even if take a look at the Fig. 4 that compares the CO₂ emissions in metric tons per capita and where the situation changes, these countries are still in leading positions.

The problem of degraded environment characterized by the significant levels of air, soil and water pollution is a problem of many other economies. In case of V4 countries or broader group of Central and Eastern European countries (CEE) in which this group of countries belongs to, the problem has deep roots going back to the days of previous communist regime. It is well known that former communist countries have been suffering from many economical, social, political, but also environmental problems. During the communist era were most of these problems denied or overcoming. Unfortunately, the legacy of the previous regime is in these countries evident even
nowadays. Some of communist economies were highly industrialized, for instance the Czech Republic was one of the most industrialized socialist economy, and environmental issues at that time have been sidelined. Therefore it is not surprising that these countries used to be ones of the most polluted countries in Europe, or even in the world. For instance, at the end of the communist era, the air pollution of the Czech Republic was among the worst in the world (Horák, 2001). It was cause mainly by the use of coal as the main source of energy, which was heavily polluting by the combustion of lignite coal.

**Fig. 3.** Total CO₂ emissions from the consumption of energy in the EU (million metric tones) (2012)

![Fig. 3](image)

Note: CO₂ emissions are a product of fossil-fuel combustion as well as other processes (petroleum, coal, and natural gas)

Source: U.S. Energy Information Administration, own proceeding

Fig. 4 also compares the share of sources that are consumed and are responsible for the CO₂ emissions. The situation differs country by country. Whereas Malta and Cyprus are completely depended on petroleum and petroleum represents and important source of energy in many other countries, for instance, in Luxemburg, Netherlands or Belgium the petroleum is dominating source of energy. Focusing on the V4, we see that the Czech and Polish economy contribute the to the CO₂ emissions mostly by combustion of the coal which is also used as the main source of energy production (see Fig. 5).

**Fig. 4.** CO₂ emissions by the source of consumption (metric tons per capita) (2012)

![Fig. 4](image)

Note: **Petroleum** – class of liquid hydrocarbon mixtures (crude oil, lease condensate, unfinished oils, refined products obtained from the processing of crude oil, and natural gas plant liquids, non-hydrocarbon compounds, such as additives and detergents, after they have been blended into the products); **Coal** – combustible black or brownish-black rock whose composition, including inherent moisture, consists of more than 50% by weight and more than 70% by volume of carbonaceous material; **Gas** – a gaseous mixture of hydrocarbon compounds, the primary one being methane (consumption and flaring of the natural gas).
Within the global targets to reduce GHG emissions is significant pressure placed on the reducing of carbon intensity of economies. Greening of the power sector can be achieved several ways. According Keyway et al (2004) it can be achieved mainly by demand reductions because of increased price of energy, gradual transition to another energy source, for instance nuclear and renewable, or by using of clean technologies or clean coal technologies (e.g. Carbon Captures and Storage, CCS).

According to EPA (2014), the most effective way to reduce overall greenhouse gas (GHG) emissions is to reduce fossil fuel consumption as it produces most of the CO2 emissions (around 90% of global GHG emissions) and are mostly produced by the production of energy.

There are several ways (strategies) to reduce CO2, for instance:

- **Energy efficiency** – improvement of the insulation of buildings, using of more fuel-efficient vehicles or using of more efficient electrical appliances;
- **Energy conservation** – reducing personal energy use or use of vehicles to reduce the petroleum consumption;
- **Fuel switching** – transition to renewable sources and using the lower-carbon fuels;
- **Clean Coal technologies** – for instance Carbon dioxide capture and sequestration – a set of technologies that can potentially greatly reduce CO2 emissions from new and existing coal-and gas-fired power plants, industrial processes, and other stationary sources of CO2.

Other ways to reduce the GHG emission represent regulation (e.g. Carbon emission trading4), taxation (environmental taxes) or subsidies (e.g. subsidies for innovations).

One of the ways to reduce CO2 emissions could be switching from the fossil fuels to renewable sources of energy. Compared with the previous years, nowadays the energy demand is rising and it is expected that the demand for energy resources continue to rise in the future. The majority of the world is dependent on the fossil fuels (coal, oil and natural gas). Fossil fuels are considered to be non-renewable resources of energy causing their rising prices and gradual depletion. Even tough the share of using the non-fossil fuels as the world primary energy supply rose up from 1971 – 14% of total to 2012 – 18% of total, the amount of the primary energy supply more than doubled (for more details see IEA, 2014). The estimations of the future energy consumption as well as trend in CO2 are not optimistic and it is assumed that they will significantly rise up. For these reasons it is necessary to reduce the negative effect on the environment or if possible, retreat from their use and switch to another sources of energy – the renewable energy sources (e.g. wind, hydropower, solar, geothermal, etc.). But as is shown on fig. 4, the energy consumption in most of the countries of the EU is based on fossil fuels. All V4 countries are dependent on fossil fuel that represents the elementary source of their energy consumption. Polish energy consumption is over ninety percent based on fossil fuels. The other V4 countries do not really differ (see Fig. 5).

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4 Carbon emission trading within the EU, so called EU Emissions Trading Scheme (EU ETS), was launched in 2005 and represents the incentive to reduce the CO2 emission.
Figures 6-8 show the share of electricity production in percentage of total by different source of energy. The shares of electricity production from fossil fuels by different kind of fossil fuel vastly differ. Whereas most of the northern European countries use for production of the electricity renewable and nuclear power, central and eastern and southern Europe countries produce the electricity mainly from combustion of the fossil fuels.

If we take a look at economies of Visegrad group, we see that Poland and the Czech Republic are strongly dependent on fossil fuels that are the most significant sources of electricity production. Since the fossil fuels are predominant in electricity production (in case of CR it is 58% of total electricity production and in case of Poland it is 87%), it will be rather difficult to switch to another source of energy. Coal as a source of energy plays an important and inherent role in those economies mainly because of its wide usage for electricity generation for many years, which is given by the fact that these countries are coal producers. Coal production of these countries is somewhat significant even on global scale. Whereas Poland was in 2012 the night-largest coal-mining country in the world and second largest in Europe, the Czech Republic was the sixteenth-largest coal producer in the world and the fifth-largest in Europe (EIA, 2012). Most of the coal production is then used in the country of origin.

As is evidenced by the figures below, Slovakia use mix of energy sources for electricity production where is predominant 55% of electricity production come from nuclear power, 28% from use of fossil fuels (where coal and natural gas are prevailing) and almost 18% electricity production is made of use of renewables (hydroelectric prevailing) sources. Hungary is using for electric production mainly fossil fuels (49%, mainly natural gas) and nuclear energy (44%), then the rest – 8% of electricity production – comes from renewables.
Fig. 6. Electricity production from fossil fuels (% of total) (2011)

Note: Coal – all coal and brown coal, both primary (including hard coal and lignite-brown coal) and derived fuels (including patent fuel, coke oven coke, gas coke, coke oven gas, and blast furnace gas). Peat is also included in this category. Natural gas – natural gas but excludes natural gas liquids. Oil – crude oil and petroleum products.

Source: U.S. Energy Information Administration (2014), own proceeding

Fig. 7. Electricity production from renewable sources (% of total) (2011)

Note: Renewable sources – excluding hydroelectric – includes geothermal, solar, tides, wind, biomass, and biofuels.

Source: U.S. Energy Information Administration (2014), own proceeding

Fig. 8. Electricity production from nuclear sources (% of total) (2011)

Source: U.S. Energy Information Administration (2014), own proceeding
3.1 Performance of the V4 countries within the Global Environmental Competitiveness and selected environmental targets set up within the international bodies

The previous section was describing the situation in V4 countries and comparing at the same time their position within the EU. From above-mentioned is obvious that the V4 group is not in favor of renewable energy sources and among significant energy sources are mostly fossil fuels (coal prevailing) and less, but significantly nuclear fuels. All that is reflected in their performance in the comparison of Global Environmental Competitiveness.

The analysis of global environmental competitiveness covers 133 selected countries (the list of the countries at UNEP, pp. 73-77). The best performance on GEC out of above-mentioned sample has Switzerland which reached a global score 58.7, followed by Germany (58.5) and Norway (58.2) and the worst performance has Iraq (131), Lesotho (132) and Niger (133). Performance of the Visegrad group countries is captured in tab. 2. While Slovakia performs the best (rank 13) — the Hungary performs the worst out of the group (rank 65). Performance in sub-indexes is captured in Tab. 2.

Table 2. Performance of Visegrad group on Global Environmental Competitiveness (2012)

<table>
<thead>
<tr>
<th>Indicator</th>
<th>GEC</th>
<th>REC</th>
<th>EEC</th>
<th>ECC</th>
<th>EMC</th>
<th>EHC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Country</td>
<td>Rank</td>
<td>Score</td>
<td>Rank</td>
<td>Score</td>
<td>Rank</td>
<td>Score</td>
</tr>
<tr>
<td>Slovakia</td>
<td>13</td>
<td>55.7</td>
<td>85</td>
<td>15.8</td>
<td>3</td>
<td>69.1</td>
</tr>
<tr>
<td>Poland</td>
<td>38</td>
<td>52.8</td>
<td>88</td>
<td>15.1</td>
<td>17</td>
<td>60.1</td>
</tr>
<tr>
<td>Czech Rep.</td>
<td>47</td>
<td>51.7</td>
<td>8</td>
<td>29.7</td>
<td>110</td>
<td>40.6</td>
</tr>
<tr>
<td>Hungary</td>
<td>65</td>
<td>50.0</td>
<td>83</td>
<td>16.0</td>
<td>48</td>
<td>52.3</td>
</tr>
<tr>
<td>Highest</td>
<td>-</td>
<td>58.7</td>
<td>-</td>
<td>36.6</td>
<td>-</td>
<td>73.0</td>
</tr>
<tr>
<td>Lowest</td>
<td>-</td>
<td>32.2</td>
<td>-</td>
<td>4.0</td>
<td>-</td>
<td>23.8</td>
</tr>
</tbody>
</table>


Source: UNEP (2013, p. 73-77), own proceeding

All the V4 countries were signatories of the UN Framework Convention on Climate Change and the Kyoto protocol. For the first period (2008-2012), were all the countries of Visegrad group bound within the Kyoto protocol to reduce GHG emissions, but by different targets. The Czech Republic and Slovakia have committed themselves to reduce GHG emissions by 8% compared to the year 1990 for and Hungary and Poland by 6% compared to the year 1990. All the countries rather rapidly reached set up targets (only Poland was lagging behind and significant decrease was in 1997) and with the exception of Poland which has reduced the GHG emissions to year 2012 compared to year 1990 only by 14%, the Czech Republic and Hungary have reduced the GHG emission by more than 30% and Slovakia even more than 40% of base year (see Tab. 3 and Fig. 9). The pace of V4 countries in reducing of GHG emissions is captured in Fig. 9.

After the first period, the Doha Amendment to the Kyoto Protocol entered in force and within this amendment the EU committed itself to reduce aggregate emissions of GHG for the second control period (2013-2020) by 20% compared to the year 1990 (European Commission, 2012). Until 2012, the EU has not reached the set up target of 80% of 1990 level (in 2012 the EU reached 82,14% of the 1990 level) and then further effort is needed.
### Table 3. Comparison of the level GHG emissions at the base year and after the first control period of commitment within the Kyoto protocol

<table>
<thead>
<tr>
<th>Country</th>
<th>Base year 1990 (tones CO₂ equivalent)</th>
<th>Level of 2012 (tones CO₂ equivalent)</th>
<th>Reduced GHG emissions (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Czech Republic</td>
<td>194 248 218</td>
<td>130 767 900</td>
<td>32.68</td>
</tr>
<tr>
<td>Hungary</td>
<td>72 050 764</td>
<td>42 077 646</td>
<td>41.60</td>
</tr>
<tr>
<td>Poland</td>
<td>563 442 774</td>
<td>483 715 622</td>
<td>14.15</td>
</tr>
<tr>
<td>Slovakia</td>
<td>115 397 149</td>
<td>73 507 984</td>
<td>36.30</td>
</tr>
</tbody>
</table>

Source: UNFCCC (2014) and Eurostat (2015), own calculation

### Fig. 9 Evolution of total GHG emissions percentage base year level = 100, in CO₂ equivalent) in V4 countries

Source: Eurostat (2015)

### 4. Conclusion

Not long ago, the concept of environmental competitiveness was introduced and because this concept is in the shadow of exploration of competitiveness in terms of economic performance, this paper pointed out the linkages between economic growth and sustainable development and environment.

The aim of this paper is to develop the concept of environmental competitiveness and shows how it applies to countries of Visegrad group. These economies are not really well placed on the rank of countries within the Global Environmental Competitiveness (with the exception of Slovakia which performs rather well as the 13 out of 133 countries). The countries of the Visegrad group must increase their competitiveness because otherwise they will not be competitive under the current conditions unsustainable in the long term. The main problems of these economies are the choices made in their selection of sources of energy production that cause the high levels of GHG emissions and other pollutants. Predominant energy source in these countries are fossil fuels, especially coal. Environmental competitiveness of Visegrad group can be improved by lowering the dependency of these economies on coal in the production of energy.

This paper is going to the basis for deeper investigation of the linkages between the economic performance and environmental performance of the Visegrad group and other countries or group of counties. Further research is going to be based on actually available indexes and methods and will strive to construction of a custom index.
At the conclusion of this paper I would like to gratefully acknowledge valuable comments and suggestions from Mr. Thierry Baudassé.

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