

## ENVIRONMENTAL PERFORMANCES OF BALKAN COUNTRIES AND TURKEY: A COMPARISON THROUGH THE ENVIRONMENTAL PERFORMANCE INDEX

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### Abstract

*Sustainable development is a multidimensional concept relating to both environmental and social issues. The concept of sustainable development is the result of the growing awareness of the global links between mounting environmental problems, socio-economic issues to do with poverty and inequality and concerns about a healthy future for humanity. There are various indices worldwide focusing on assessing the environmental dimension of sustainability. These indices try to measure and compare the environmental performances of world countries. Since the 1992 Rio Earth Summit, governments are trying to demonstrate improved environmental performance through quantitative metrics across a range of pollution control and natural resource management challenges.*

*Environmental performance index (EPI) compiles environmental data of almost all of the world countries, therefore it is a useful tool to make cross-country comparisons. The purpose of this paper, after a literature review on the country environmental performance and its indicators, is to compare the environmental performances of Balkan countries and Turkey through their EPI scores. Findings will contribute future environmental policy decisions of these countries.*

**Keywords:** *Sustainable development, Enviromental Performance Index, Balkan Countries, Turkey*

### Introduction

Many notions now incorporated within the concept of sustainable development can be traced back through the 1980 World Conservation Strategy and the 1972 Stockholm Conference on the Human Environment to the early days of the international conservation movement. (Board on Sustainable Development, 1999) Today's understanding of the links between environment and development,

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however, stems from the 1987 Brundtland report, *Our Common Future*. The classic definition of sustainable development, ‘meeting the needs of present without compromising the ability of future generations to meet their needs’, was produced by the Brundtland report (WCED, 1987). The idea of sustainable development was given additional impetus at the 1992 United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro. It has rapidly spread and is now a central theme in the missions of countless international organizations and national institutions.

In the extensive discussion and use of the concept since “*Our Common Future*”, there has been a growing recognition of three essential aspects of sustainable development (Harris, Wise, Gallagher, 2001)

- **Economic** - An economically sustainable system must be able to produce goods and services on a continuing basis, to maintain manageable levels of government and external debt, and to avoid extreme sectoral imbalances that damage agricultural or industrial production.
- **Environmental** - An environmentally sustainable system must maintain a stable resource base, avoiding overexploitation of renewable resource systems or environmental sink functions and depleting nonrenewable resources only to the extent that investment is made in adequate substitutes. This includes maintenance of biodiversity, atmospheric stability, and other ecosystem functions not ordinarily classed as economic resources.
- **Social** - A socially sustainable system must achieve fairness in distribution and opportunity, adequate provision of social services, including health and education, gender equity, and political accountability and participation.

In broad terms, the concept of sustainable development is an attempt to combine growing concerns about a range of environmental issues with socio-economic issues. This paper focuses on the environmental dimension of sustainable development. After a literature review on the country environmental performance and its indicators, environmental performances of Balkan countries and Turkey will be compared through their EPI main scores and sub-scores.

### **National Environmental Performance and Assessment**

The environmental crises currently facing the planet are the result of excessive human consumption of natural resources. There is considerable evidence that elevated degradation and loss of habitats and species are compromising ecosystem services that sustain the quality of life for billions of people. (Bradshaw, Giam, Sodhi, 2010) Environmental performance, including the control of pollution and stewardship of natural resources is of growing concern in both advanced and developing economies. Environmental quality plays a major role in quality of life,

with a direct impact on the health and safety of a nation's citizens. (Esty, Porter, 2001)

Since environmental problems rose to prominence in the last third of the twentieth century, they have been a major area of policy for national governments. The assessment of the environmental performance is very important in both developed and developing countries.(Cracolici, Cuffaro, Nijkamp, 2010) A large body of research has explored the explanations for different levels of environmental policy performance among countries. Given the importance of environmental issues and the critical role of the nation-state in addressing them, variations in levels of performance among countries warrant careful study. (Fiorino, 2011)

Continued environmental degradation demands that countries needing solutions be identified urgently so that they can be assisted in environmental conservation and restoration. Identifying those nations whose policies have managed successfully to reduce environmental degradation should be highlighted to motivate other nations to achieve better environmental outcomes for their own long-term prosperity. No single set of measures can adequately describe the multidimensional nature of the environment or fully capture transboundary effects and pollution consequences that accumulate over time.

In the environmental field, a number of initiatives have been launched to develop metrics or indicators of environmental performance. (Esty, Porter, 2005) The past few years have seen an increase in cross-sectional data sets that provide measures of various aspects of environmental management and environmental quality in different countries. International bodies such as the United Nations (UN), the World Bank (WB), the Organisation for Economic Co-operation and Development (OECD) and the Food and Agricultural Organization (FAO) regularly produce and update collections of cross-national environmental statistics. (Duit, Hall, Mikusinski, Angelstam, 2009) Other actors then compile and sometimes transform these data to provide country-level estimates of environmental performance, ecological footprints, and environmental vulnerability. Well-known international "sustainability benchmarking" data collections such as the State of the World reports by the Worldwatch Institute, the Ecological Footprint, and the Environmental Performance Index (EPI) data sets compiled by the World Economic Forum, Yale University, and the Center for International Earth Science Information Network of Columbia University are examples of this approach. The underlying rationale for these indicators is to rank countries according to how far off from a state of hypothetical sustainability they at present are.

### **Environmental Performance Index and Balkan Countries**

Twenty years after the landmark Rio Earth Summit, governments still struggle to demonstrate improved environmental performance through quantitative metrics across a range of pollution control and natural resource management challenges.

With budgetary constraints an issue around the world, governments face increasing pressure to show tangible results from their environmental investments. (EPI, Full Report, 2012)

The toolkit used in this study to compare the environmental performances of Balkan countries is EPI. The Environmental Performance Index (EPI) is a strongly performance-oriented composite index calculated by Yale Center for Environmental Law and Policy of Yale University and Center for International Earth Science Information Network of Columbia University. The Environmental Performance Index (EPI) builds on the Pilot Environmental Performance Index that was published in 2002 and is designed to be a powerful supplement to the environmental targets set forth in the U.N. Millennium Development Goals. The EPI measures progress toward a set of targets of desirable environmental outcomes, taking into account a country's current policies. It is anticipated to be of particular value to decision makers because of its strict input-output framework and short- to medium-term time horizon, which promotes accountability and performance evaluation at the policy level. (Samimi, Ahmadpour, 2011)

The EPI is a measure of performance that identifies broadly accepted targets for a set of indicators and measures how close each country comes to meeting these goals. By means of this distance-to-target approach, the EPI provides policy-relevant benchmarks for pollution control and natural resource management. The issue-by-issue rankings facilitate cross-country comparisons both globally and within relevant peer groups. (World Bank 2008)

As can be seen from Table 1, the 2012 EPI ranks 132 countries on 22 performance indicators in the following ten policy categories: Air Pollution (effects on human health), Water (effects on human health), Environmental Burden of Disease, Air Pollution (ecosystem effects), Water Resources (ecosystem effects) Biodiversity and Habitat, Forestry, Fisheries, Agriculture and Climate Change. These policy categories track performance and progress on two broad policy objectives: Environmental Health and Ecosystem Vitality. (EPI, 2012)

**Table 1: Environmental Performance Index 2012**

	<b>Objectives</b>	<b>Policy Categories</b>	<b>Indicators</b>
	<b>Environmental Health (30%)</b>	Air pollution (effects on human health) (15%)	Indoor air pollution (3.75 %)
			Particulate matter (3.75 %)
		Water (effects on human health) (7.5%)	Access to drinking water (3.75 %)
			Access to sanitation (3.75 %)
		Environmental burden of disease	Child mortality (16%)

<b>ENVIRONMENTAL PERFORMANCE INDEX 2012</b>		(7.5%)	
	<b>Ecosystem Vitality (70%)</b>	Air pollution (effects on ecosystem) (8.75 %)	Sulfur dioxide emissions per capita (4.38 %)
			Sulfur dioxide emissions per GDP (4.38 %)
		Water (effects on ecosystem) (8.75 %)	Change in water quantity (8.75 %)
		Biodiversity and habitat (17.5%)	Biome protection (8.75 %)
			Marine protection (4.38 %)
			Critical habitat protection (4.38 %)
		Forests (5.83%)	Forest loss (1.94%)
			Forest cover change (1.94%)
			Growing stock change (1.94%)
		Fisheries (5.83%)	Coastal shelf fishing pressure (2.92 %)
			Fish stocks overexploited (2.92 %)
		Agriculture (5.83%)	Agricultural subsidies (3.89%)
			Pesticide regulation (1.94%)
		Climate change (17.5%)	CO2 emissions per capita (6.13%)
			CO2 emissions per GDP (6.13%)
			CO2 emissions per electricity generation (2.63%)
			Renewable electricity (2.63%)

**Source:** Emerson, J.W., A. Hsu, M.A. Levy, A. de Sherbinin, V. Mara, D.C. Esty, and M. Jaiteh. 2012. *2012 Environmental Performance Index and Pilot Trend*

*Environmental Performance Index*. New Haven: Yale Center for Environmental Law and Policy.

**Table 2 below ranks the top 10 and the bottom 10 countries according to their EPI scores. The Trend EPI (3<sup>rd</sup> column) ranks countries on the change in their environmental performance over the last decade. As a complement to the EPI, the Trend EPI shows who is improving and who is declining over time.**

Table 2: Top and Lowest Ten Performers in 2012 EPI

Top Ten Performers			Lowest Ten Performers		
EPI Rank	Country	Trend EPI Rank	EPI Rank	Country	Trend EPI Rank
1	Switzerland	89	123	Libya	61
2	Latvia	1	124	Bosnia & Herzegovina	129
3	Norway	84	125	India	95
4	Luxembourg	106	126	Kuwait	131
5	Costa Rica	113	127	Yemen	29
6	France	19	128	South Africa	124
7	Austria	71	129	Kazakhstan	126
8	Italy	12	130	Uzbekistan	69
9	United Kingdom	20	131	Turkmenistan	123
9	Sweden	63	132	Iraq	125

Source: EPI Website, 2012

As can be seen from Table 2, Switzerland (with an EPI score of 76.69) leads the world in addressing pollution control and natural resource management challenges. Latvia (70.37), Norway (69.92), Luxembourg (69.2), and Costa Rica (69.03) round out the top five positions in the 2012 EPI. These results show that it is possible for some middle-income countries, such as Latvia (per capita GDP \$12,938) and Costa Rica (per capita GDP \$10,238) to achieve impressive environmental outcomes. This

suggests that income alone is not a sole determinant of environmental performance – policy choices and good governance also matter. (EPI, 2012)

At the low end of the 2012 EPI rankings are South Africa (34.55), Kazakhstan (32.94), Uzbekistan (32.24), Turkmenistan (31.75), and Iraq (25.32). These countries are water scarce and face significant sustainability challenges.

The Balkans is an important geopolitical and cultural region of southeastern Europe. Relations with Balkan countries is a priority for Turkey from the perspectives of geographical location, economy and culture as well as historic and human links. Basic elements of Turkey’s policy towards the Balkans consist of developing good relations with the Balkan countries, with which Turkey has historic, cultural and humanitarian ties and enhancing the existing atmosphere of regional peace and stability. (TMFA, 2012)

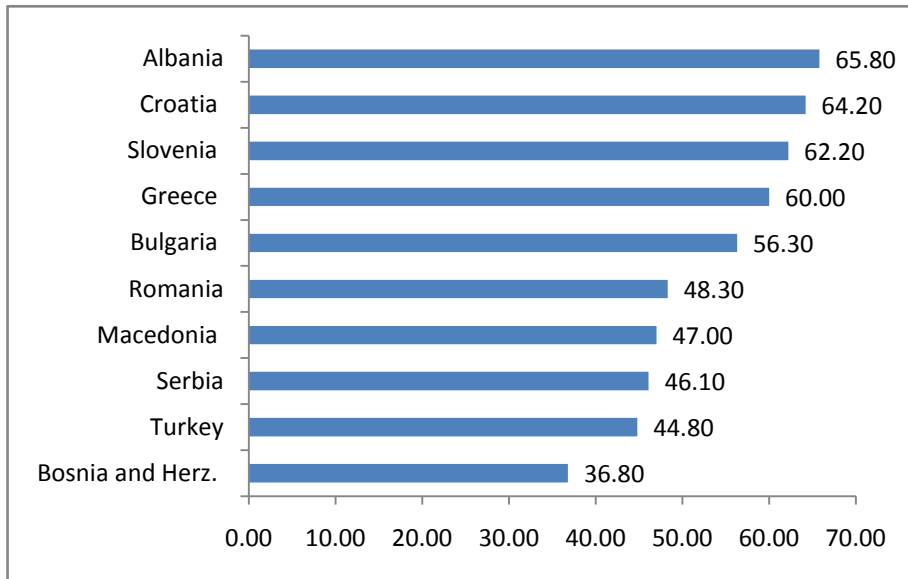
Within the scope of this paper, we will focus on the environmental performances of Balkan countries. The countries which are focus of this paper are Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Greece, Macedonia, Romania, Slovenia, Serbia and Turkey. Table 3 shows EPI scores, EPI ranks and trend EPI ranks of these countries.

**Table 3: EPI Scores and Ranks of Balkan Countries**

Country	EPI Score	EPI Rank	Trend EPI Rank
Albania	65.8	15	4
Bosnia and Herzegovina	36.8	124	129
Bulgaria	56.3	53	16
Croatia	64.2	20	74
Greece	60	33	81
Macedonia	47	97	75
Romania	48.3	88	3
Slovenia	62.2	28	51
Serbia	46.1	103	109
Turkey	44.8	109	17

Source: EPI 2012

Albania has the highest EPI score among Balkan countries, its EPI rank is also high. Moreover Albania ranks 4<sup>th</sup> in Trend EPI rankings. This means that the country is improving its environmental performance over the last decade. Unfortunately Turkey has the lowest EPI score and EPI ranking. Being 17<sup>th</sup> in trend EPI ranking sounds promising. Top and bottom performers of Balkan countries as to the EPI scores can be seen in Figure 1. Albania, Croatia and Slovenia are top three performers and Serbia, Turkey and Bosnia and Herzegovina are bottom three performers according to Figure 1.



*Figure 1: EPI 2012 Scores of Balkan Countries*

Source: EPI 2012

EPI scores of Balkan countries can be examined more in detail as to two different dimensions: environmental health and ecosystem vitality. Environmental health score comprises of 30% of the total EPI score of each country and ecosystem vitality score comprises of 70% of EPI score of each country. According to Figure 2, Greece, Bulgaria and Slovenia score high on environmental health dimension, on the other hand, Turkey, Bosnia and Herzegovina and Romania have the lowest scores.



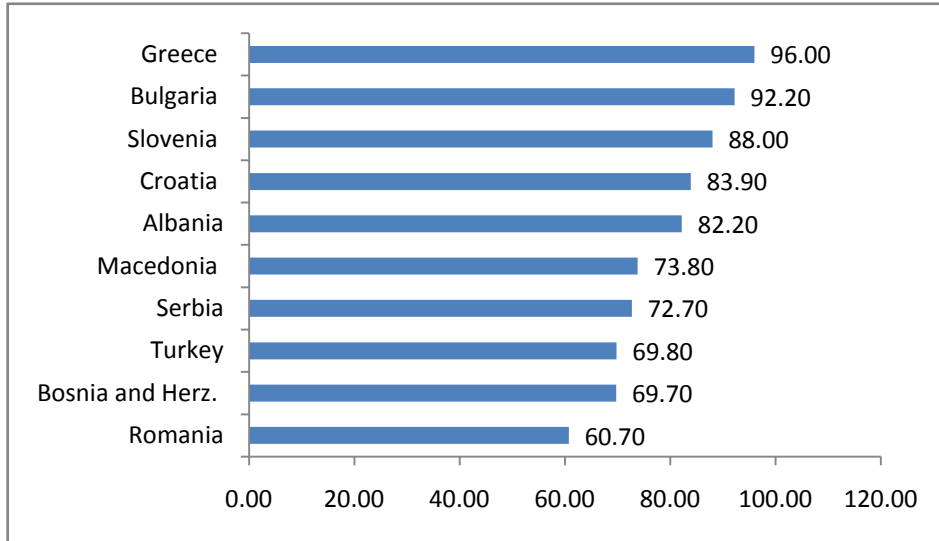


Figure 2: Environmental Health Score of Balkan Countries (30% of EPI Score)  
Source: EPI 2012

Table 4 shows the scores of Balkan countries on three sub-dimensions environmental health.

**Table 4: The Sub-Scores of Balkan Countries on Environmental Health Dimension**

Country	ENVIRONMENTAL HEALTH DIMENSION		
	Air (Effects on Human Health)	Environmental Burden of Disease	Water (Effects on Human Health)
Albania	100	78.2	72.3
Bosnia and Herzegovina	55.2	75.4	72.7
Bulgaria	100.0	84.3	100.0
Croatia	65.1	92.9	84.6
Greece	100	98	88.1
Macedonia	57.3	82.4	73.1
Romania	60.6	77.5	27
Slovenia	67.8	96.2	92.1
Serbia	57.7	82.4	68.3
Turkey	64.8	74.1	66.1

Source: EPI 2012

When we look at the ecosystem vitality dimension, Albania, Croatia and Slovenia score high on this dimension, on the other hand, Serbia, Turkey and Bosnia and Herzegovina have the lowest scores. (Figure 3)

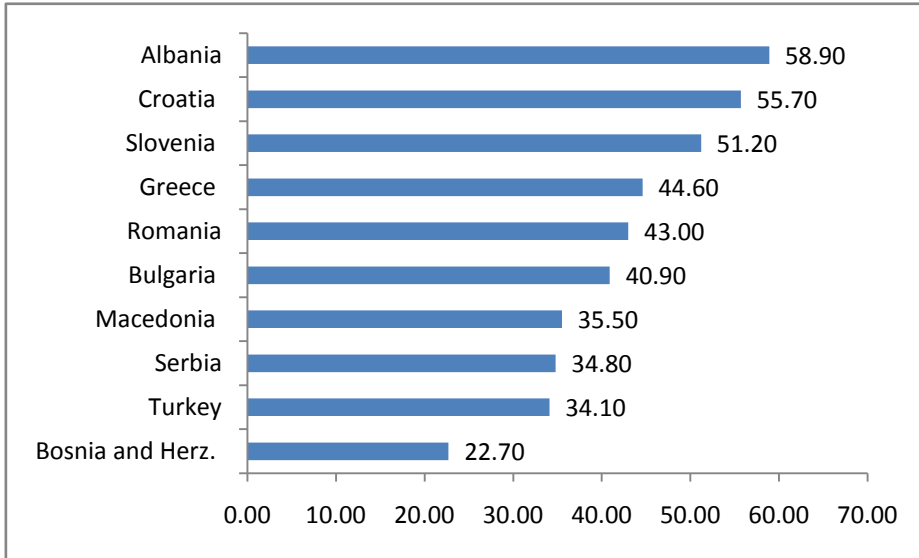


Figure 3: Environmental Vitality Score of Balkan Countries (70% of EPI Score)  
Source: EPI 2012

Table 5 below shows the scores of Balkan countries on seven sub-dimensions of ecosystem vitality.

Table 5: The Sub-Scores of Balkan Countries on Ecosystem Vitality Dimension

Ecosystem Vitality Dimension							
Country	Agriculture	Air	Biodiversity Country & Habitat	Climate Change	Fisheries	Forests	Water Resources
Albania	66.7	57.5	61.7	85.8	17.4	58.3	23.2
Bosnia and Herzegovina	0	6.7	2.9	34.2	6.6	73.0	47.3
Bulgaria	60.1	0.0	57.2	29.6	48	100.0	14.9
Croatia	58.1	39.6	74.5	46.3	24.9	95.3	45.7
Greece	42.1	23.5	79.7	30.1	31.9	85.4	7.9
Macedonia	44.3	20.4	28.2	34.3	-	98.1	19.8

Romania	51.6	21.4	45.3	41.8	39.7	93.2	25.7
Slovenia	46.0	37.3	76.9	35.2	8.1	98.1	46.6
Serbia	68.2	0	35	20.1	-	100	32.6
Turkey	42.8	30.6	20.2	42.7	25.0	91.5	10.0

Source: EPI 2012

## Discussion

Sustainable development being one of the most important concepts on the world agenda is an attempt to combine growing concerns about a range of environmental issues with socio-economic issues. There are various indices worldwide focusing on assessing the environmental dimension of sustainability. These indices try to measure and compare the environmental performances of world countries. Environmental performance index (EPI) is one of them. It compiles environmental data of almost all of the world countries, facilitating cross-country comparisons.

The Balkans is a geopolitical and cultural region of southeastern Europe. There are close relationships between Balkan countries and Turkey. Since the Balkans are in the process of economic transformation, they need to be more cautious in order to keep the balance between the environment, economy and the society.

Within the scope of this paper, we focused on the environmental performances of Balkan countries and Turkey. These Balkan countries are Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Greece, Macedonia, Romania, Slovenia and Serbia. EPI 2012 scores, ranks and trend EPI ranks of these countries were presented and reviewed in the paper. In general, Albania has high rankings on most of the dimensions. All of the Balkan countries and Turkey need to improve their national environmental performance for a more sustainable world.

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