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ENVIRONMENTAL PROTECTION, SUSTAINABLE DEVELOPMENT AND CORPORATE RESPONSIBILITY IN WOOD INDUSTRY. PART 1: ENVIRONMENTAL SUSTAINABILITY

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Abstract:
This paper has two parts. In the first part, using the data from the Human Development Reports of the United Nations we will analyse the Environmental sustainability in EEA Countries by using complex indicators. HDR comprises, at the moment, 187 countries ant territories, and all the European countries are in the top 100 as far as Human development is concerned. Their position is due to the fact that they are concerned with environmental protection and strive to find solutions for a harmonius sustainable development. In the second part of the paper, using the same data and using the results from the analyses of the first part we will present the essential aspects of the sustainable development through the perspective of the way in which Romania wood industry organisations understand to account for the accepted European social responsibility values.

Key words: *ecological footprint; environmental performance index; composite measures of sustainability; primary energy supply; renewable sources.*

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INTRODUCTION

The Human Development Report (HDR 2013) is an independent publication commissioned by the United Nations Development Programme (UNDP). In 2011, the subject of HDR was: Sustainability and Equity: A Better Future for All (HDR_2011 2013). The urgent global challenges of sustainability and equity must be addressed together. We must identify policies on the national and global level that could spur progress towards the Millenium Development Goals.

The first Human Development Report introduced a new way of measuring development by combining indicators of life expectancy, educational attainment and income into a composite human development index, the HDI (HDI 2013). The breakthrough for the HDI was the creation of a single statistic which was to serve as a frame of reference for both social and economic development. The HDI sets a minimum and a maximum for each dimension, called goalposts, and then shows where each country stands in relation to these goalposts, expressed as a value between 0 and 1.

The HDI was created to emphasize that people and their capabilities should be the ultimate criteria for assessing the development of a country, not economic growth alone. The HDI can also be used to question national policy choices, asking how two countries with the same level of GNI per capita can end up with such different human development outcomes.

This year's (2013) HDI has been calculated for 187 countries and territories, 18 more than the 169 covered in the 2010 HDI. The HDRO (Human Development Report Office) (HDRO 2013) has worked with international data providers and national statistical agencies to estimated the missing indicator, using the methods and models recommended by the Report's Statistic Unit and Statistical Advisory Panel.

The necessary data required to calculate HDI are provided by (HDI 2013).

Life expectancy at birth is provided by the UN Department of Economic and Social Affairs; mean years of schooling by independent researchers; expected years of schooling by the UNESCO Institute for Statistics; and GNI (Gross national income) per capita by the World Bank and the International Monetary Fund. The Human Development Report Office does not collect data directly from countries.

The 2013 Human Development Index is divided into four quartiles: "Very High", "High", "Medium" and "Low" human development achievement. The new HDI based on the geometric mean takes into account differences in achievement across dimensions. Poor performance in any dimension is now directly reflected in the new HDI, which captures how well a country's performance is across the three dimensions. That is to say, a low achievement in one dimension is not anymore linearly compensated for by high achievement in another dimension.

OBJECTIVES

In this paper we have analysed the environmental changes which have occurred in the 30 European countries part of the European Economic Area – EEA (EEA 2013) plus Iceland, Norway and Switzerland – European Free Trade Association (EFTA 2013). There was no available data for Liechtenstein.

METHOD

All the environmental information were taken and processed from the United Nations Human Development Reports – Human Development Report 2011 – Sustainability and Equity: A Better Future for All (HDR_2011 2013) and the 2013 Human Development Report – "The Rise of the South: Human Progress in a Diverse World" published on the 15th of March 2013 (HDR_2013 2013).

Except for Romania and Bulgaria, which are placed in the High Human Development category, with a Human Development Index (HDI_Value_2012 2013) of 0.786 and 0.782 respectively, for 2012 (ranking 56 and 57th according to the HDI index), the other 28 countries analysed in this paper are in the Very High Human Development category (HDR_2013_Rank 2013).

Table 1a

First 15 countries analysed in this paper according to the HDI Value (2012)
(Source: 2013 Human Development Report – "The Rise of the South: Human Progress in a Diverse World")

No	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Countries	Norway	Netherlands	Germany	Ireland	Sweden	Switzerland	Iceland	Denmark	Belgium	Austria	France	Finland	Slovenia	Spain	Italy
HDI Rank	1	4	5	7	7	9	13	15	17	18	20	21	21	23	25
HDI Value	0,955	0,921	0,920	0,916	0,916	0,913	0,906	0,901	0,897	0,895	0,893	0,892	0,892	0,885	0,881

Table 1b

Last 15 countries analysed in this paper according to the HDI Value (2012)
(Source: 2013 Human Development Report – "The Rise of the South: Human Progress in a Diverse World")

No	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Countries	Luxembourg	United Kingdom	Czech Republic	Greece	Cyprus	Malta	Estonia	Slovakia	Hungary	Poland	Lithuania	Portugal	Latvia	Romania	Bulgria
HDI Rank	26	26	28	29	31	32	33	35	37	39	41	43	44	56	57
HDI Value	0,875	0,875	0,873	0,860	0,848	0,847	0,846	0,840	0,831	0,821	0,818	0,816	0,814	0,786	0,782

RESULTS

The first analysed indicator was the Ecological footprint.

Ecological footprint:

Amount of biologically productive land and sea area that a country requires to produce the resources it consumes and to absorb the waste it generates.

The data comes from the HDR 2011 report and refers to the last official global measures from 2007 (HDR_2011_Tables 2013). We can see that Iceland, Malta and Cyprus have a very small ecological footprint, almost negligible. They are followed by Romania and Hungary with ecological footprints between 2 and 3 hectares.

Then, with a ecological footprint between 4 and 5ha are Slovakia, Bulgaria, Poland, Portugal, Lithuania and the United Kingdom. Most of the EEA countries (12) have a ecological footprint between 5 and 6ha (Italy, France, Switzerland, Germany, Austria, Slovenia, Greece, Spain, Norway, Latvia, Czech Republic and Sweden).

Following these countries, with a ecological footprint between 6 and 7ha are Finland, Netherlands and Ireland. The largest values in the EEA are held by Estonia, Belgium, Denmark and Luxemburg, between 7.9 and 9.4. At a global level these are some of the highest values alongside Canada, the United States, United Arab Emirates and Qatar. All the countries listed in this last paragraph are part of the Very High Human Development category. On the other side, the Russian Federation has an ecological footprint of only 4,4ha.

The second analysed indicator was the Environmental performance index.

Environmental performance index:

Index comprising 25 performance indicators across 10 policy categories covering both environmental public health and ecosystem vitality. It has values ranging from 1 to 100. The data comes from the 2011 HDR are refers to the last official global measurements from 2010 (HDR_2011_Definitions 2013). This compound indicator (synthetic) is used alongside the Ecological Footprint and the Adjusted Net Savings for the Composite Measures of Sustainability.

Based on this, human development scenarios were created for the 2020-2050 period, thing into account that environmental changes have an accelerated rhythm and a higher impact on the planet and its inhabitants.

We can see that all the 30 analysed countries are in the top part of the global board, the rest of the countries from the HDR having an Environmental performance indicator of maximum 50 points.

So, the global top 3 (for Europe as well) are Iceland (93,5), Switzerland (89,1) and Sweden (86,1), followed closely by Norway (81,1). These are the countries which best fit the current official guidelines regarding environmental protection in Europe.

On the next spots are France (78,2), Austria (78,1) and Malta (76,3). Basically between 75 and 65 points 17 of the 30 analysed countries are situated: Finland (74,7), Slovakia (74,5), United Kingdom (74,2), Germany (73,2), Italy (73,1), Portugal (73,0), Latvia (72,5), Czech Republic (71,6), Spain (70,6), Denmark (69,2), Hungary (69,1), Lithuania (68,3), Luxembourg (67,8), Ireland (67,1), Romania (67,0), Netherlands (66,4) and Slovenia (65,0).

Also in the top half of the world ranking, but at the end of the analysed group are Estonia (63,8), Poland (63,1), Bulgaria (62,5), Greece (60,9), Belgium (58,1) and Cyprus (56,3).

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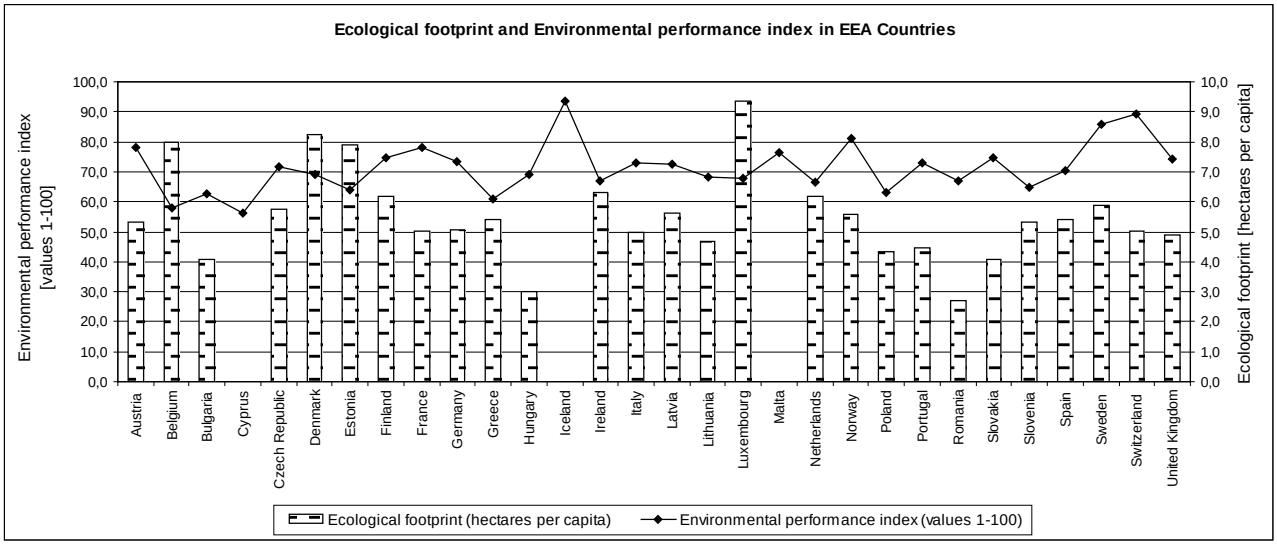

Fig. 1
Ecological footprint (2007) and Environmental Performance Index (2010) in the Countries analysed according to the most recent year available measurements (Source: Human Development Report 2011 – Sustainability and Equity: A Better Future for All)

The chart above illustrates the Ecological Footprint and the Environmental Performance Index for each country. For easy analysis, in this chart and the following ones the countries have been arranged alphabetically.

The following indicators refer to the Primary Energy Supply, from 2 sources: fossil fuels and renewable sources (HDR_2011_Tables 2013).

Primary energy supply, fossil fuels:

Percentage of total energy supply that comes from natural resources formed from biomass in the geological past (such as coal, oil and natural gas).

Primary energy supply, renewables:

Percentage of total energy supply that comes from constantly replenished natural processes, including solar, wind, biomass, geothermal, hydropower and ocean resources and some waste. Nuclear energy is not included.

The data regarding these two indicators come from the 2013 HDR and refer to the last official global measurements in 2009.

The share of electricity consumption from renewable energy sources, according to the European Environment Agency (EEA_EU 2013) provides a broad indication of progress towards reducing the environmental impact of electricity consumption on the environment as renewable electricity is generally considered to have lower life-cycle environmental impact per unit of electricity produced than fossil-fuelled power plants. Increasing the share of renewables in electricity consumption will help the EU to reduce the Greenhouse gas emissions from power generation but the overall impact will depend on which generation sources are being replaced in the energy system.

As far as fossil fuels are concerned (HDR_2011_Tables 2013), we can see that only two countries have their consumption percentage under the 35% of the total energy supply: Iceland (15, 7%) and Sweden (32,7%). Iceland has the largest percentage of renewable sources 84,2% while Sweden has 34,8%, the rest being supplied by nuclear energy.

With a significantly larger percent of fossil fuels are France (51,0%), Switzerland (53,3%), Finland (54,0%), Lithuania (55,8%), Norway (58,8%), Latvia (59,5%), Slovenia (69,3%) and Slovakia (69,5%). As we can see from the Environmental Performance Index, this does not mean that these energy sources are not properly managed to ensure environmental protection but rather that, for the moment, renewable energy sources are used at a lower percentage than wanted.

These countries are followed, in ascending order of Fossil fuel usage, by Austria (70,2%), Bulgaria (73,1%), Belgium (73,6%), Hungary (74,2%), Romania (76,3%), Portugal (78,0%), Germany (79,5%), Czech Republic (79,6%), Spain (79,9%) and Denmark (80,4%)

The remaining countries, according to their Fossil Fuel usage percentage, are Estonia (84,8%), United Kingdom (87,3%), Italy (87,5%), Luxembourg (88,8%), Greece (92,4%), Poland (92,8%), Netherlands (93,1%), Ireland (95,0%), Cyprus (95,7%) and Malta(99,9%).

Regarding the Primary Energy Supply (HDR_2011_Tables 2013), the difference is made from renewable energy except for the countries which produce Nuclear energy.

The situation is as follows: countries which do not have Nuclear energy supplies in order: Iceland (84,2%), Norway (43,3%), Latvia (37,1%), Austria (27,8%), Portugal (19,7%), Denmark (17,4%), Estonia (15,1%), Italy (9,7%), Poland (6,7%), Greece (6,4%), Ireland (4,5%), Cyprus (3,9%), Luxembourg (3,1%), Malta (0,1%). (The last official data is from 2005).

The rest of the countries in the analysed group have Nuclear energy but also use renewable sources: France (42,6% nuclear plus 7,7% renewable sources), Sweden (36,2% plus 34,8%), Lithuania (31,9% plus 10,4%), Slovakia (24,8% plus 7,3%), Bulgaria (24,3% plus 6,2%), Switzerland (22,5% plus 17,7%), Belgium (21,9% plus 3,9%), Slovenia (21% plus 12,7%), Finland (17,3% plus 23,8%), Czech Republic (14,3% plus 5,8%), Hungary (13,0% plus 7,4%), Germany (12,3% plus 8,7%), Spain (10,3% plus 9,6%), United Kingdom (9,1% plus 3,2%), Romania (3,8% plus 15,3%) and Netherlands (1,3% plus 4,0%).

Therefore, in all the analysed countries, the largest percentage in the Primary energy supply is held by fossil fuels, with the exception of Iceland where most sources are renewable. On the second spot we have nuclear energy (except for Finland) and on third we have renewable sources.

The differences between fossil fuels and renewable sources for each country can be seen in the chart below.

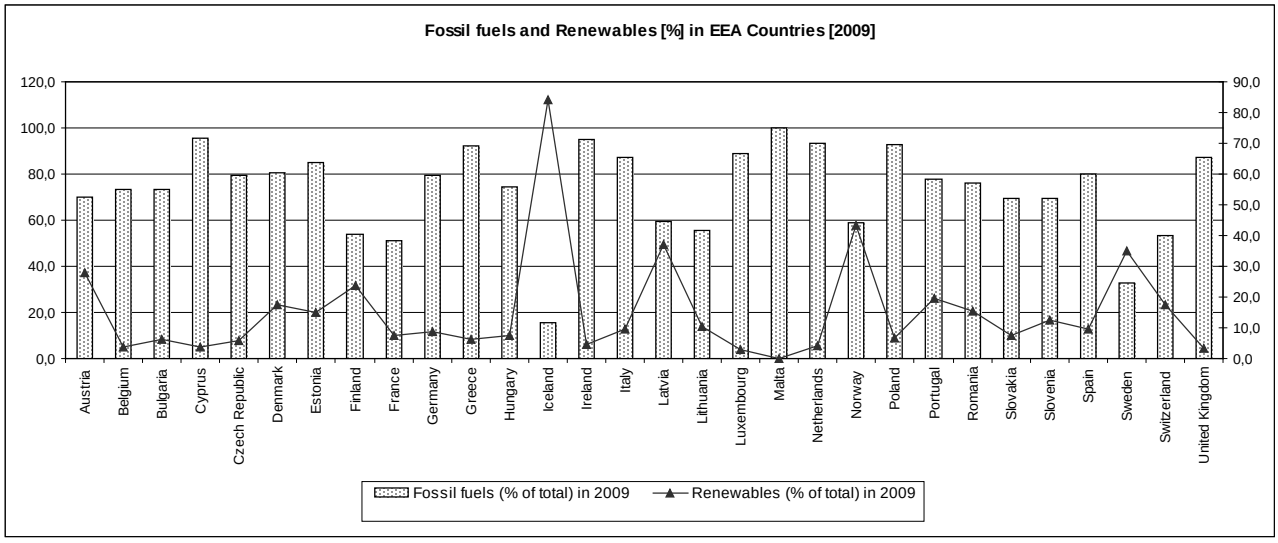

Fig. 2

Primary energy supply – fossil fuels and renewable sources in the Countries analysed according to the 2009 measurements (Source: 2013 Human Development Report – "The Rise of the South: Human Progress in a Diverse World").

CONCLUSIONS

Continual human development is not possible without taking into account the changes man has made on the environment – devastating changes, of which we are not completely aware.

In developed countries (with Very High and High Human Development) the necessary steps which need to be taken, according to the indicators presented in the 2011 Human Development Report of 2011 - Sustainability and Equity: A Better Future for All, Environmental Section are:

1. The increase in percentage of the Adjusted Net Savings of the GNI (Gross National Income) so as the country can go on the path of sustainable development.

2. The decrease in the number of hectares a country uses to produce the resources it consumes and to dispose of the waste it generates, also known as the Ecological Footprint.

3. Developing an improved global performance regarding environmental protection expressed through the Environmental Performance Index (Index comprising 25 performance indicators across 10 policy categories covering both environmental public health and ecosystem vitality). This means, firstly, that the government policy of the respective countries need to generate major changes in the environmental public health and ecosystem vitality.

The there indicators constitute the Composite Measures of Sustainability in the 2011 HDR.

4. The increase of the percentage of renewable energy in the total fuel consumption and the maximum decrease of fossil fuel usage.

5. The reduction of carbon dioxide and green house gasses emissions and in general of all pollution sources. Except for water pollution, which is extremely dangerous, and air pollution, the pollution of air inside buildings is a individually quantified.

6. Reduction of urban pollution – caused by man's influence and natural conditions.

7. Looking at the planet as a whole, in Medium and Low Human development countries the number of people who are killed by natural disasters is very high, as well as those living on degraded land. Other areas in need of urgent improvement are fatalities caused by malnutrition and lack of water, diseases.

We must start acting now to keep these changes under check before they become irreversible and lead to the destruction of the planet.

Each country must contribute to the global effort to stop pollution and reduce its devastating effects so we can enjoy decent lining conditions, both for us and future generations.

REFERENCES

HDR (2013) The Human Development Report, About the Reports, http://hdr.undp.org/en/reports/about/

UNDP (2013) United Nations Development Programme, http://www.undp.org/content/undp/en/home.html

HDR_2011 (2013) Human Development Report 2011, Sustainability and Equity: A Better Future for All, http://hdr.undp.org/en/reports/global/hdr2011/

HDI (2013) Human Development Index, Indices & Data, http://hdr.undp.org/en/statistics/hdi/

HDRO (2013) Human Development Report Office, The Human Development Report Team, About us, http://hdr.undp.org/en/contacts/about/

EEA (2013) European Economic Area, European Union, European External Action Service, http://eeas.europa.eu/eea/

EFTA (2013) European Free Trade Association, About EFTA, http://www.efta.int/about-efta.aspx/

HDR_2013 (2013) Human Development Report 2013, The Rise of the South: Human Progress in a Diverse World, http://hdr.undp.org/en/reports/global/hdr2013/

HDI_Value_2012 (2013) Human Development Index Value for 2012, according to the 2013 Human Development Report, Key to HDI countries and ranks, 2012, pag. 143, http://hdr.undp.org/en/media/HDR2013_EN_Statistics.pdf

HDR_2013_Rank (2013) 2013 Human Development Report, Table 1: Human Development Index and its components, pag. 144, http://hdr.undp.org/en/media/HDR2013_EN_Statistics.pdf

HDR_2011_Tables (2013) Human Development Report 2011, Table 6: Environmental sustainability, pag. 146, http://hdr.undp.org/en/media/HDR_2011_EN_Tables.pdf

HDR_2011_Definitions (2013) Human Development Report 2011, Table 6: Environmental sustainability, pag. 149, http://hdr.undp.org/en/media/HDR_2011_EN_Tables.pdf

EEA_EU (2013) European Environment Agency, Data and Maps, Indicators, Share of renewable energy in final energy consumption, Created: Dec 20, 2012, Published: Mar 19, 2013, Last modified: Mar 20, 2013, 12:03 am, http://www.eea.europa.eu/data-and-maps/indicators/renewable-gross-final-energy-consumption-1/