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THE RELATIONS BETWEEN SUSTAINABLE DEVELOPMENT DIMENSIONS IN THE NEW EU CONDITIONS

Cristina CĂUTISANU

Alexandru Ioan Cuza University of Iași, Romania

Email: cautisanucristina@yahoo.com

Mariana HATMANU

Alexandru Ioan Cuza University of Iași, Romania

Email: mariana.hatmanu@uaic.ro

Costică MIHAI

Alexandru Ioan Cuza University of Iași, Romania

Email: ticu@uaic.ro

Summary

At the level of economically developed countries, there is a profound awareness regarding the need to ensure sustainable development, which has become a priority for governments, governmental and non-governmental organizations. The purpose of sustainable development is to ensure a long-term balance between meeting the needs of present and future generations and managing the available natural resources. This balance can be achieved by applying policies that prioritize interactions between the three components of sustainable development: environment, economy and society. The aim of the paper is to analyze the relationships between representative aggregates for each of the components of the sustainable development: Environmental Performance Index, Economic Performance Index and Social Progress Index. The study was conducted at the level of the 28 EU member states and aimed to make a comparison between their sustainable development level of 2008 and 2016. The methods applied were cluster analysis and regression analysis. The results of the analysis showed that there exist significant relationships between the economic and the environmental components in 2008 and between the economic and the social components in 2016.

Introduction

In the context in which both the global population volume and the amount of used natural resources have an increasing trend, sustainable development has become a highly discussed concept in the specialised literature. Sustainable development is defined as development that aims to achieve a long-term balance

between economic growth, quality of life and the preservation of the environment and its resources. Sustainable development has the following characteristics: equity (removes the disparities between rich and poor, between generations or among nations in regarding the access to resources), long-term approach (manages the natural resources taking into consideration the needs of future generations) and systemic thinking (understands the interactions between environment, economy and society) [1].

The first institutional approach concerning the sustainable development at the global level was in 1972 at the UN Conference on Human Environment in Stockholm. At this conference were established the principles of environmental preservation in the industrialized countries. A few years later, in 1992, at Rio de Janeiro took place the United Nations Conference on Environment and Development in which was adopted the Agenda 21, a concrete program that proposes key policies for sustainable development, taking into consideration the need to harmonize economic and social needs with the limited availability of resources in the environment. Following the decisions taken at the 2002 United Nations Summit on Sustainable Development in Johannesburg, sustainable development has become a key element of the UN's activity directions and were established the political directions for implementing Agenda 21 adopted in Rio de Janeiro in 1992 .

At EU level, there was a series of 7 environmental action programs, the latest of which was adopted in 2014. The 7th Environmental Action Program aims at implementing policies to ensure, by 2020, "a good life within our planet "[2].

A particular importance is given to study of the sustainable growth and environmental protection not only in national and EU policies, but also in specialised literature that tries to find a better understanding and explaining of the phenomena, measure them, identify their determinants, etc. Given the complexity of the sustainable development phenomenon and its components, many authors are trying to create the definition of composite indicators in order to explain synthetically and coherently these phenomena. We mention composite indicators such as: Environmental Performance Index [3], Composite Index of Environmental Performance [4], Economic Performance Index [5], Social Progress Index [6].

In the present paper, we propose a statistical analysis of the interdependencies between the three components of sustainable development: the environmental, economical and social component. If the objectives established in the Sustainable Development Strategy and the Environmental Program are achieved, we expect that the improvement of environmental performance to have a positive impact on economic and social sustainability.

The composite indicators used in the paper are: Environmental Performance Index for the environmental component, Social Progress Index for the social component and Economic Performance Index for the economical component. The survey is conducted at the level of the 28 EU countries, in 2008 compared to 2016.

The paper is structured as follows: Section 2 presents research methodology and data analyzed; section 3, statistical analysis and interpretation of the results; Section 4, conclusions and future research directions.

Literature Review

The specialised literature assigns a separate place for studying the concept of sustainable development. Thus, there are many theoretical studies that have as objectives the definition of sustainable development and the identification of the directions to be followed for its realization. Sustainable development is defined as the type of development “that meets the needs of the present without compromising the ability of future generations to meet their own needs” [7]. Regarding the directions pursued, sustainable development is “the sum of the economic, social and environmental aspirations of some human groups that may or may not have economic growth as a priority” [8].

From a practical point of view, the specialised literature presents a limited number of studies regarding the evaluation of the level of sustainable development for the developed countries or the interactions between the components of this type of development.

A study conducted in 2013 [9] across 20 countries in Europe and Asia indicated that there were significant correlations over the period 2000-2010 with respect to representative indicators for economic and environmental components. Thus, GDP per capita was positively correlated with increased Access to Improved Drinking Water and Access to Improved Sanitation. At

the same time, there was a negative relationship between GDP per capita and Climate Change and Energy category. These results suggest that wealthy countries tend to have poor performance in managing environmental issues.

At the level of the Latin American countries, there was performed a study in 2011 [10] which verified the possibility that they could implement environmental conservation policies without significantly affecting the level of economic growth. The results showed that only Argentina, the Dominican Republic, Mexico and Panama could maintain a high level of economic growth if environmental policies would be adopted. At the same time, the study highlighted the fact that countries such as Bolivia, El Salvador, Guatemala and Trinidad and Tobago can not take the lead in implementing environmental reforms as some preconditions need to be met at both social and economic levels.

Data and Methodology

The analysis was structured in 4 steps. In the first step, we studied the specialised literature and we identified the main indicators which measure the components of sustainable development: the Economic Performance Index, the Environmental Performance Index and the Social Progress Index. The second step of the analysis was to check if, for the years 2008 and 2016, we have data available for each of the three indices. Thus, we determined the scores for the Economic Performance Index correspondent to both years considered. Also, for the Social Progress Index, we determined the scores for each EU country in 2008. In the third step, we grouped the EU countries taking into consideration the similarities between them concerning the scores of the composite indicators using the cluster method. The fourth step of the analysis consisted in finding the correlations between the three composite indicators using the correlation analysis. Finally, in the last step we estimated a regression model for each of the years 2008 and 2016. In each regression model, we estimated the variation of the Economic Performance Index and Social Progress Index, respectively, depending on the variation of the Environmental Performance Index.

The Economic Performance Index it is a composite indicator which is used in order to measure the economic component of the sustainable development. Its aim is to measure the performance of the economy's three primary segments: households, firms, and government [11]. Thus, it

comprises the following variables: the inflation rate, the unemployment rate, the budget deficit as a percentage of total GDP and the change in real GDP. Taking into consideration these variables, the score of the Economic Performance Index can be determined using the following formula:

$$\text{EcPI} = 100\% - |\text{Inflation Rate}| - \text{Unemployment Rate} - \text{Budget Deficit/GDP} + \text{Change in Real GDP}$$

The score for Economic Performance Index has values in the range 0-100. The performance scale is assign as follows: "Superior" for scores above 100, "Excellent" for scores 95-99.99, "Good" for scores 90-94.99, "Fair" for scores 80-89.99, "Poor" for the scores 60-79.99, and "Fail" for scores below 60.

In our study, the data for the Economic Performance Index weren't available for the EU countries for both years. Because of that, we determined the EcPI scores for each of these countries using the previous formula and data corresponding for the years 2008 and 2016.

The Environmental Performance Index [12] represents one of the most used indicators in order to measure the environment performance in the context of the sustainable development. The index is a composite indicator which is based upon two components: Environmental Health and Ecosystem Vitality. In the construction of the index, the comparison between countries is essential and situates each country relative to targets for worst and best performance. Taking into consideration the assumed targets, the index is calculated as follows:

$$\text{EnPI} = \frac{x - x_-}{\bar{x} - x_-} \cdot 100$$

where x is a country's value, \bar{x} is the target for best performance and x_- is the target for worst performance.

The Environmental Performance Index can have scores between 0 and 100. If a country is has a better environmental performance than another one, it will have a score near 100. Otherwise, it will have a score near 0.

In the case of EU countries, the data is available for both 2008 and 2016.

The social component of the sustainable development can be measured using the Social Progress Index. It refers to three broad dimensions of social progress: Basic Human Needs, Foundations of Wellbeing, and Opportunity. Each of these dimensions is broken down into

four underlying components and each component is determined as a ponderate sum of a number of 3 to 5 indicators. Thus, a component “c” can be calculated as follows:

$$\text{Component}_c = \sum_i (w_i \cdot \text{indicator}_i)$$

where w_i represents the weights which are determined through a PCA and indicator_i are the correspondent indicators for each of the components considered. In order to determine the score for each of the four dimensions, there must be calculated the average of the four components that make up that dimension “d” using the following relation:

$$\text{Dimension}_d = \frac{1}{4} \sum_c \text{Component}_c$$

The overall Social Progress Index is calculated as the average of the three broad dimensions of social progress, Basic Human Needs, Foundations of Wellbeing, and Opportunity:

$$\text{SPI} = \frac{1}{3} \sum_d \text{Dimension}_d$$

The scores for the Social Progress Index, the dimensions and the components are scaled from 0 to 100. A score of 100 indicate a high level of social progress, meaning high levels of fulfilling the basic human needs, high levels of population’s wellbeing and many opportunities for the individuals.

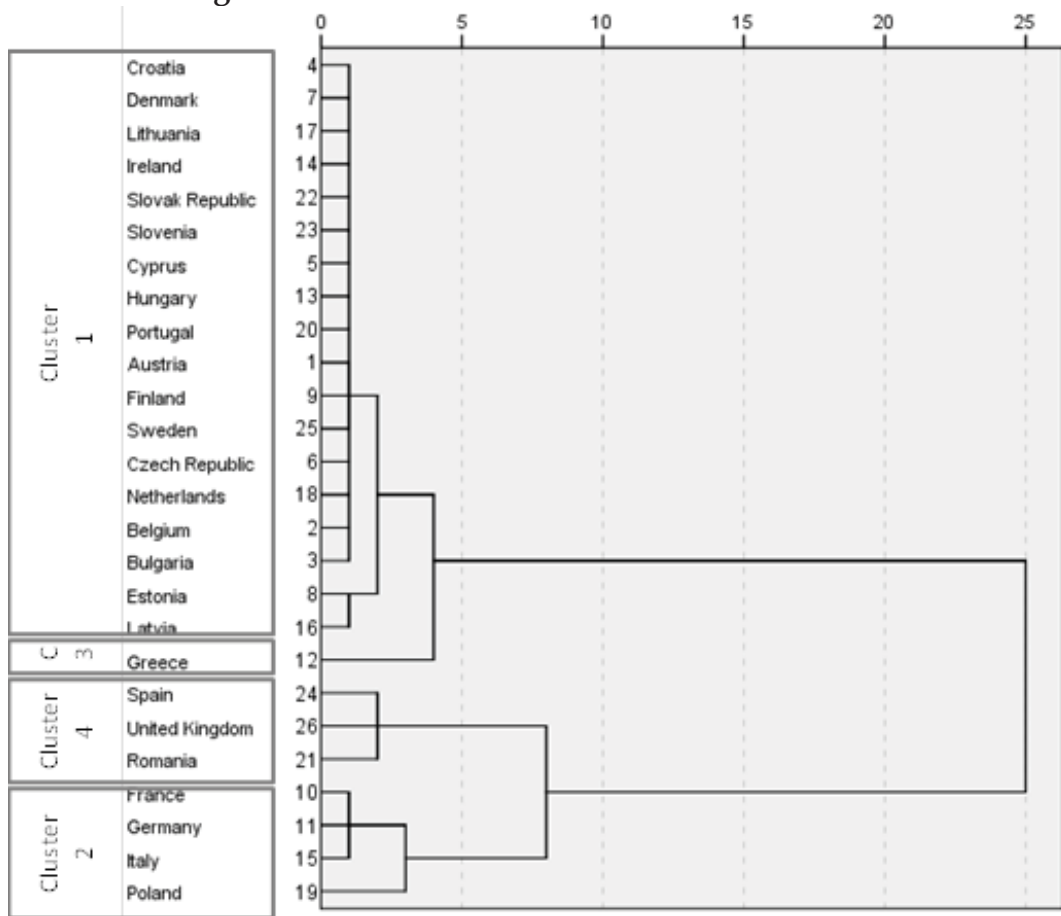
The Social Progress Index data is available for the period 2014-2017. Thus, because the aim of the paper is to compare the level of sustainable development for the 2008 and the 2016, we determined the score for 2008’t Social Progress Index.

Results

For each of the years considered, taking into consideration the similarities between scores for Economic Performance Index, Environment Performance Index and Social Progress Index, we grouped the EU countries in 4 clusters.

The Figure 1 presents the groups of the EU countries resulted for the 2008 case. The first cluster contains countries with very low scores for each of the three indices. In the case of the cluster 2, the values of the scores for each of the three indices are low. The third cluster includes 4 countries: France, Germany, Italy and Poland. These countries are characterized by a high score for the Social Progress Index. Regarding the other 2 composite indices, the countries included in this cluster have a low level score. Finally, the fourth cluster is composed of countries that have high scores for Economic and Environmental Performance Indices.

Figure 1. Clusters of EU countries for the 2008 data

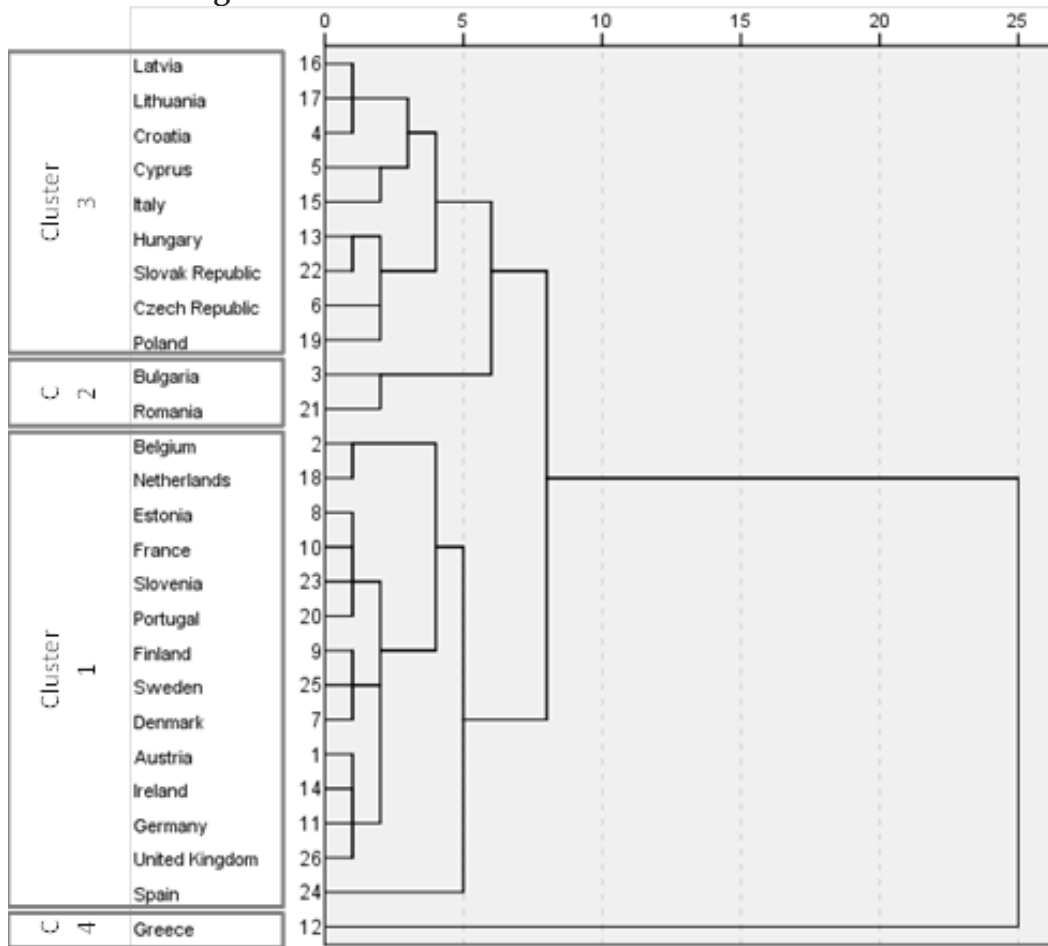


Data source: Authors' processing

Figure 2 contains the clusters created for the EU countries in the 2016. The first cluster contains the higher values for the both Environmental Performance Index and Social Progress Index. In the second cluster, the countries have a very high Economic Performance Index and very low

scores for Environmental Performance Index and Social Progress Index. In the third cluster, the component countries have low levels for each composite indicator. The fourth cluster consists of 1 country – Greece. This country has a very low score for the Economic Performance Index and low scores for the other 2 indicators analysed.

Figure 2. Clusters of EU countries for the 2016 data



Data source: Authors' processing

Comparing the clusters obtained for 2008 and 2016 it can be seen that, in time, the interests regarding the protection of the environment and the social progress grew. Thus, in 2016, more than half of the EU countries had higher scores for Environmental Performance Index and Social Progress Index.

The correlation between the Economic Performance Index, Environment Performance Index and Social Progress Index was analyzed at the EU level for 2008 and 2016. The results are presented in the Table 1.

Table 1. Correlation matrix

| Correlation | | 2008 | | | 2016 | | |
|-------------|-------------------------------------|--------------|--------|--------|--------|--------------|-------|
| | | EcPI | EnPI | SPI | EcPI | EnPI | SPI |
| EcPI | Pearson correlation coefficient | 1 | -0.466 | 0.345 | 1 | -0.070 | 0.124 |
| | Significance for the Student t test | - | 0.016 | 0.084 | - | 0.734 | 0.547 |
| EnPI | Pearson correlation coefficient | -0.466 | 1 | -0.156 | -0.070 | 1 | 0.411 |
| | Significance for the Student t test | 0.016 | - | 0.446 | 0.734 | - | 0.037 |
| SPI | Pearson correlation coefficient | 0.345 | -0.156 | 1 | 0.124 | 0.411 | 1 |
| | Significance for the Student t test | 0.084 | 0.446 | - | 0.547 | 0.037 | - |

Data source: Authors' processing

The results of the correlation analysis between variables at the 2008 level highlight the fact that for a 5% risk there are significant relationships between the Economic Performance Index and the Environmental Performance Index. Also, taking into account a 10% risk, we can identify significant relationships between the Economic Performance Index and the Social Progress Index.

In 2016, the situation is exactly the opposite, in the sense that the Economic Performance Index indicator is no longer correlated with any of the Environmental Performance Index and Social Progress Index indicators, but there is a significant correlation between the Environmental Performance Index and Social Progress Index indicators.

The results of the correlation analysis may highlight the fact that the three components of sustainable development have different evolutions. To verify that there are significant differences between the average scores for the indicators corresponding to the components of sustainable development, we applied the Student Pair Test.

The results of the Student test show that there are significant differences between the average scores for 2008 and the ones corresponding

to 2016 of the Environmental Performance Index and Social Progress Index indicators, while for the Economic Performance Index indicator there were no significant differences. Therefore, the implementation of the measures applied on the environmental and social component had significant results compared to those on the economic component.

Based on the results of the correlation analysis, a simple linear regression model of the Economic Performance Index depending on the Environmental Performance Index in 2008 is identified. The equation of the regression model is the following:

$$\begin{array}{rcl} \text{EcPI} = & 131,92 & - 0,482 * \text{EnPI} \\ & (15,660)* & (0,187) \\ & [8,424]** & [-2,582] \end{array}$$

where * represents standard error and ** represents the calculated value of t statistic

For the year 2016, a simple linear regression model of the Social Progress Index is identified depending on the Environmental Performance Index. The equation for this regression model is:

$$\begin{array}{rcl} \text{SPI} = & 19,945 & + 0,731 * \text{EnPI} \\ & (28,418) & (0,331) \\ & [0,702] & [2,208] \end{array}$$

Therefore, environmental indicators have a significant influence on the indicators of the economic and social components respectively, but in different years.

We expect that the alignment of the interactions between the core indicators of the three components will be evident until 2020, after reaching all the targets set in the EU's development programs and strategies.

Conclusions

Significant changes in the evolution of the three indicators analyzed in the period 2008-2016 highlighted the fact that environmental protection and social progress have become a priority in the actions for achieving sustainable development.

The results of the research confirm the relationships between the index specific to the environmental component and the indices corresponding to the other components, but the relationships are different for different years. The comparative analysis in the years 2008 and 2016 indicated significant changes in the average scores of the indicators for the social and environmental component, but not in the economic indicator. These differences indicate different rhythms of development of the three components and explain the total change in the form of relations between indicators in the two years compared.

For 2008, significant correlations of Economic Performance Index were obtained with Environmental Performance Index and Social Progress Index. In line with the objective of identifying the relationship between the environmental indicator and the other indicators, a model of regression of Economic Performance Index in relationship with Environmental Performance Index was identified.

For the year 2016, significant correlations between Environmental Performance Index and Social Progress Index were obtained and a regression model of Social Progress Index depending on Environmental Performance Index was identified.

Both regression models were statistically significant.

We consider that the results corresponding to the year 2016, which indicated that there are no significant correlations between Economic Performance Index and Environmental Performance Index can be explained by the existence of a temporal gap between the implementation of environmental measures and their impact on the economic climate.

In relation to the strategies adopted by different countries, there may be differences between the level of environmental quality and the status of economic development for at least two reasons: on one hand, high levels of economic activity often reflect a high degree of activity intensity generating consumption of resources, pollution or even less concerning for environmental responsibility; on the other hand, economically difficult periods lead to a "voluntary omission" of expenditures or actions to reduce pollution or depletion of resources, which leads to at least a temporary degradation of the state of the environment (a situation characteristic to the period during the economic and financial global crisis). Present research can be continued with the verification of this hypothesis.

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THE ROMANIAN TOURIST POTENTIAL FACTOR OF ECONOMIC GROWTH IN THE NEW CONTEXT

Sorin Sergiu CHELMU

University „BIOTERA“ Bucharest, Romania

Email: ruxandrar2003@gmail.com

Abstract

Romania's tourism potential is very varied, which allows the practice of most forms of tourism and is represented by the following kinds of tourist resources: littoral, balneal, lacustrian, mountain, cultural and historic, rural and protected areas. This paper examines the exploit manner of the tourism potential of our country studied on the tourism supply and demand indicators.

Keywords: *tourism potential, tourist destinations in Romania, tour indicators, analysis of the Romanian tourism potential*

Introduction

Romania is a country with great tourism potential, proper for prolific tourism activities, being a good source for recreation, rest, recovery forces and pleasure travel.

The natural resources and the man made ones, beautiful, rich and varied are distributed all over the country and are suitable for most forms of tourism practice, while being suited both for international and domestic tourism.

Romania's tourism potential

All geographical areas are potential carriers of some tourist activities that through development and enhancement, specialization or diversification, can lead to the creation of tourist spaces of various types and sizes¹.

Both at a general level and in the Romania, tourist space typology can be approached in different ways, based on quantitative and qualitative criteria, which relate in particular to the tourism phenomenon. Thus, the

¹ Căndea, M., Bran, F. (2006), *Organizarea, amenajarea și dezvoltarea durabilă a spațiului geografic*, Editura Universitară, București, pag. 208-211

tourism potential of each area can be demarcated littoral, balneal, mountain, cultural and historical, rural tourist areas, etc., of local, regional, national or international importance.

The littoral tourist potential

The littoral tourist space refers to the space where are spending their holidays most of the Romanian and foreign tourists in the summer months, the key factors being defined by bathing in the blue sea and the tan sessions on the fine sand².

The Romanian littoral is characterized by very favorable natural conditions in terms of tourism, also for resort development (including the balneal ones), provided by the vast beaches, weather conditions with low humidity and the availability of mud treatment³. Beautiful sandy beaches are facing east, daytime sunlight have over 11 hours and are of two types: opened (in small bays where the littoral currents have deposited quantities of sand) or closed (surrounded by cliffs and headlands).

The resorts have in general a stereotypical organization that begins with the water plan, which involves or not technical equipment annexes, a pleasure port, etc., and around the water plan are found the accommodation structures (hotels, villas, holiday villages, camps), which may include various facilities for recreation and amusement. Then, to the exterior side, there are peripheral areas without constructions, frequently agricultural or saved for later extensions⁴.

The reorganization of the seaside spaces should focus on appropriate action for the new travel requirements by creating and promoting naturism centers by finding staying and animation formulas adapted with the conditions and needs of each customer segment, creating holiday clubs, etc.

In this area, as tourist destinations are the remarkable historic towns Tomis (Constanța) and Callatis (Mangalia) and the tourist resorts, such as Mamaia and Năvodari (camps for children), Eforie Nord, Eforie Sud and Techirghiol (balneal cure resorts) and Costinești, Neptun-Olimp, Jupiter,

² Quote opera, pag. 225;

³ Zotta, B., (1995) *Geografia Municipiului Constanța*, Editura Muntenia, Constanța, pag. 121-122;

⁴ Cădea, M., Bran, F. (2006), *Organizarea, amenajarea și dezvoltarea durabilă a spațiului geografic*, Editura Universitară, București, pag. 226-227;

Cap Aurora, Venus, Saturn, 2 Mai and Vama Veche (for holiday in a natural and also rustic environment).

The balneal tourism potential

The thermal-balneal cure was originally for private care under medical control, but since the nineteenth century, cities with thermal water sources, with special qualities have turned into resorts, in real tourist areas⁵.

The elements that formed the basis for the development of balneal-climacterically tourism and balneal medicine are the presence of the mineral waters from the mountainous and hilly areas, the salted lakes present in the diapered whetstones area, in the arid steppes of the Romanian Plain and in the littoral Black Sea zone and the specific bio-climates.

The main resorts of this type are the Băile Herculane, Băile Felix, 1 Mai, Geoagiu, Moneasa, Lipova etc.

The revaluation of the potential of the natural mineral water, the water and mud from the salty lakes, the gas emanations' from the "halo mofette", the salt mines, the medicinal herbs allowed the natural components of the space to be used for treatment since Roman times, the phenomenon is particularly developed by 1880-1890, and in the second half of the twentieth century, the material basis of specialized resorts on their use has been updated so that Romania currently has modern facilities for treatment services, accommodation and meals offered, under the same roof, such as: Sovata, Băile Tușnad, Vatra Dornei, Călimănești, Căciulata, Covasna, Sângeorz Băi, Slănic Moldova, Amara, etc.

The lacustrian tourism potential

In Romania, although this type of space tourism is not well developed, due to their important distinctive landscape and facilitated access by upgraded roads, many of the lakes of our country have become tourist attractions for the urban population⁶.

About 90% of our country's lakes have areas less than 1 km², the largest being the lakes: Razim, Sinoe, Porțile de Fier, Izvorul Muntelui, Vidraru, etc. Some smaller lakes are also important: Firiza, Gilău, Poiana Mărului și Călimănești.

⁵ ditto, pag. 235-237;

⁶ Căndea, M., Bran, F. (2006), *Organizarea, amenajarea și dezvoltarea durabilă a spațiului geografic*, Editura Universitară, București, pag. 239-241

In our country there are many lakes that through the healing qualities of their waters and sapropel or mineral mud present, led to the formation of large resorts, a category which includes the salty lakes from the diapered whetstones area (Ursu, Slănic, Ocnele Mari, Ocna Sibiu,, etc.), the balneal (Techirghiol, Mangalia), or from the Eastern part of the Romanian Plain (Amara, Sărat).

The mountain tourism potential

The planning and organizing the mountain area should take account of its territorial characteristics, which are qualitative and quantitative (terrain, accessibility, vegetation, ski area, the endowment, etc.) and involve a combination of factors, from the existing natural conditions and to the processing of the tourism product⁷.

The Romanian mountain area's natural conditions led to the development of three major resorts - Poiana Braşov, Sinaia and Predeal - which concentrate more than half the capacity of the existing accommodation in the mountain resorts of our country, two thirds of all slopes furnished and mechanical installations going up and most of the tourist movement in the mountains, respectively, over half of foreign tourists arrivals, very popular resort for winter sports, as required by international tourism.

There are many other resorts in our country where mountain tourism are practiced the winter sports, having regard the arranging of a suitable material base, but at a lower level compared with the three resorts mentioned. According to the facilities of these resorts they are suitable for domestic tourism, but have prospects to be launched in the international tourism by setting up their valuable natural potential in the coming years, major examples being: Păltiniş, Semenic, Borşa, Durău, Stâna de Vale, Lacu Roşu, Buşteni, Bâlea, etc.

The historical and cultural tourism potential

Under this category are found the tourist destinations including beautiful cities for urban tourism, castles and walled cities of great historical significance and places of worship of great religious and architectural interest.

⁷ Quote opera, pag. 249-251

The main destination for this type of tourism is the city of Bucharest, the Romanian capital, with the main tourist attractions: the Palace of Parliament, the Arc of Triumph, the Watchtower of Fire, the Romanian Athenaeum, and many museums, memorial houses, theaters and parks.

Romania's tourist towns are: Iași, Timișoara, Arad, Alba Iulia, Constanța, etc., which are important destinations for the urban tourism. Another category of interest for the urban tourism consists of the medieval cities⁸ of our country, true historical centers such as: Bistrița, Brașov, Cluj, Mediaș, Sebeș, Sighișoara and Sibiu, that was assigned as European capital city in 2007.

Romania is a collection of castles and walled cities⁹, representing a rich national medieval heritage, the most notable being the Corvinești Castle, built on the site of a former Roman camp, the Peleș Castle, which contains priceless European art and, of course, the Bran Castle, which constitutes a major international attraction.

The painted monasteries of Bucovina, whose external walls are decorated with frescoes that represent saints and prophets, scenes from the life of Jesus, images of angels and demons, the best preserved being the monasteries in Humor, Moldovița, Pătrăuți, Probota, Suceava, Sucevița, Voroneț and another smaller from the Arbore village¹⁰. Other important monasteries in our country are located in the Muntenia region such as the Snagov monastery, located close to Bucharest and Curtea de Argeș Monastery, so famous because of the legend of Master Manole that tells the history of its construction. Another important area in terms of these sights is that of Oltenia, with well-known places of worship, such as the monasteries of Cozia, Turnu, Govora, Bistrița, Hurezi, and Dintr-un lemn.

The rural tourism potential

The attractiveness of the rural tourism is that the rural areas are spaces where is being maintained a balanced relationship between humans and nature and where are well preserved the traditions, the customs and the craftsmanship of the Romanians.

⁸<http://www.romaniatourism.com/medieval-towns.html>

⁹<http://www.romaniatourism.com/castles-fortresses.html>

¹⁰<http://www.romaniatourism.com/painted-monasteries.html>

The main areas where the rural tourism takes place in Romania are the following¹¹:

- the Maramureş Depression, from the Maramureş county located in the north of the country;
- the Suceava county, found in the Bucovina region;
- the Iaşi, Bacău, Vaslui, Neamţ, Vrancea, Buzău and Galaţi counties, from the Moldavia region;
- the counties of Bistriţa-Năsăud, Cluj, the Sighişoara area of the Mureş county, the Ciuc-Harghita area from the Harghita county, the region of Mărginimea Sibiului in the Sibiu county, and the Mureş and Alba counties, which are located in the Transylvania region;
- the rural areas around the cities of Timişoara, Arad and Oradea from the country's western part;
- the Prahova Valley, the Văleni-Cheia area and the Cerna-Herculane area from the Prahova county, are found in the most common and most developed tourist mountain area in Romania;
- the Braşov county with the Poiana Braşov resort and the Rucăr-Bran passage, from the Bucegi mountains and the Făgăraş area, which includes parts of the Argeş and Dâmboviţa counties, from the Făgăraş Mountains, which are included in the Meridional Carpathians;
- the Oltenia Sub-Carpathians region, which overlaps the northern parts of the Gorj and Vâlcea counties;
- the Hunedoara-Haţeg area;
- the Stone Land, located in the northern of Alba County, in the foothills of the Apuseni Mountains;
- the area of the course of the the Danube river called the Danube Basins, situated in the south of the Mehedinţi county;
- the Ialomiţa and Brăila counties in the south-eastern part of Romania;
- the Danube's Delta, from the Tulcea county and the Navodari - Vama Veche area, in the Constanţa County that are located in the Dobrogea region.

In this type of tourism, the traditional villages are of great interest to passengers, representing special destinations in terms of culture and ethnography.

¹¹ <http://www.agroturism.com/>

Regarding the presence of traditional villages¹², Mărginimea Sibiului is one of the best preserved ethnographic regions of Transylvania and includes a series of 18 traditional Romanian villages, which are Boița, Sadu, Râul Sadului, Tălmăciu, Tălmăcel, Rășinari, Poplaca, Gura Râului, Orlat, Fântânele, Sibiel, Vale, Săliște, Galeș, Tilișca, Rod, Poiana Sibiului and Jina, rich in architecture, history and heritage.

The villages in the Apuseni Mountains are represented by those of the Arieș Valley, such as Albac, Garda, Arieșeni but also Pătrăhăitești where is played the famous specific Romanian horn.

The traditional villages in Bucovina, located in the Bârgău Valley are Livazele, Josenii Bârgăului and Prundu Bârgăului.

The protected areas' tourism potential

The reservations and the national parks include large areas of geographic or special interest of outstanding natural beauty, with a role for conservation and protection for many rare species of animals and plants and also for the preservation of the local customs, traditional crafts and historic settlement patterns, of architecture and regional¹³.

Therefore, the ecotourism is generally associated with the tourism performed in the protected areas.

Within the protected areas of our country, the Danube's Delta is the most valuable area of tourist interest, both nationally and internationally.

The Danube's Delta Biosphere Reservation, covering an area of 580,000 hectares, or 2.5% of Romania's surface, was founded in 1990 by its inclusion in the international network of biosphere reservations within the "Man and Biosphere" (MAB) program, launched by UNESCO, being the only delta in the world declared a Biosphere Reservation¹⁴.

Meanwhile, the Danube's Delta Biosphere Reserve is one of the largest wetlands in the world - as the habitat of water birds, is a member of the RAMSAR Convention, is part of the ecological network Nature 2000 and is included in the World Cultural and Natural Heritage List.

Specific activities for this area are observing birds, fishing (which is conducted according to the required limitations) and visits to areas such as

¹² <http://www.romaniatourism.com/traditional-villages.html>

¹³ <http://www.romaniatourism.com/national-parks.html>

¹⁴ www.ddbra.ro

the Danube's arms (Chilia, Sulina and Sfântul Gheorghe), the cities of Tulcea, Sulina, Lacul Roșca, Letea, Pădurea Caraorman, Mila 23, Murighiol.

Of great importance and tourist interest are also the national parks and the natural parks in Romania. The National Parks in our country are: Cheile Bicazului-Hășmaș, Călimani, Ceahlău, Cozia, Domogled-Valea Cernei, Munții Măcin, Cheile Nerei-Beușnița, Piatra Craiului, Retezat, Munții Rodnei, Cheile Semenic-Carașului and Buila-Vânturarița. The natural parks are presented below: Apuseni, Balta Mică a Brăilei, Bucegi, Comana, Grădiștea Muncelului-Cioclovina, Lunca Mureșului, Munții Maramureșului, Porțile de Fier și Vânători Neamț.

2. THE ANALYSIS OF THE TOURIST ACTIVITY INDICATORS IN ROMANIA

The analysis of the indicators of tourism demand and supply reflect the interests of tourists in Romania to areas of our country but also that of the entrepreneurs to ensure the proper planning of its practice. Based on this analysis we can see how it is properly exploited Romania's tourism potential, being enhanced the strengths and weaknesses of the tourist activity organization.

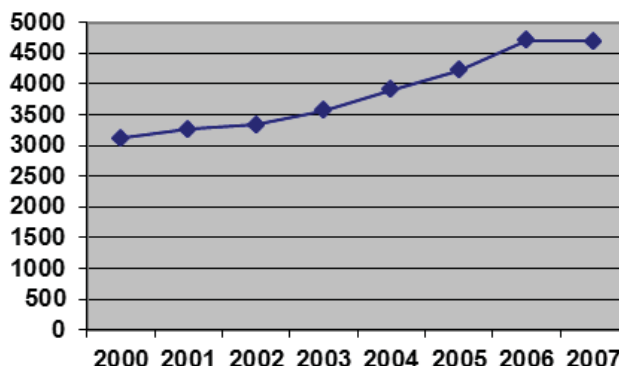
The number of establishments for tourist reception with functions of tourist accommodation in Romania during the period of 2000-2007 is increasing, indicating an increase in tourist supply in our country (Table 1 and Figure 1). Of the total number of such structures the hotels are about 25%, these values having increased for the specified period.

Table 1. The number of establishments for tourist reception with functions of tourist accommodation in Romania

| Years | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 |
|-------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Total (number) | 3121 | 3266 | 3338 | 3569 | 3900 | 4226 | 4710 | 4694 |
| of which: hotels | 812 | 829 | 837 | 886 | 928 | 993 | 1066 | 1081 |

Data source: Anuarul Statistic al României 2008

Figure 1.The number of establishments for tourist reception with functions of tourist accommodation in Romania



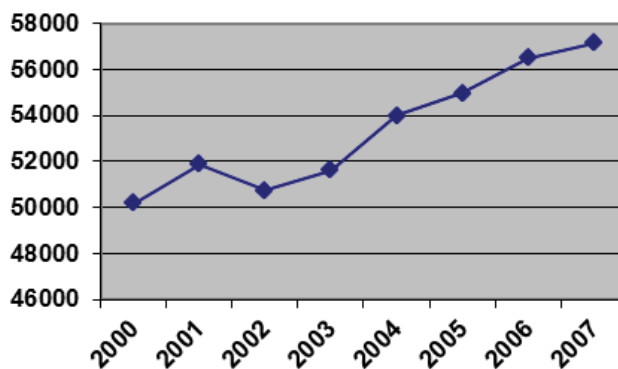
In our country during the years 2000-2007, the tourist accommodation capacity in operation had an upward trend, which is gratifying for Romania's tourism activity (Table 2 and Figure 2). In this capacity, more than half is provided by the hotels, the value for this indicator increasing in this interval.

Table 2.The tourist accommodation capacity in operation in Romania

| Years | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 |
|--|-------|-------|-------|-------|-------|-------|-------|-------|
| Total (thousands accomodatio n- days) | 50197 | 51882 | 50752 | 51632 | 53989 | 54979 | 56500 | 57138 |
| of which: hotels | 33573 | 34339 | 34558 | 35552 | 36460 | 37041 | 37777 | 38479 |

Data source: Anuarul Statistic al României 2008

Figure 2.The tourist accommodation capacity in operation in Romania



*THE ROMANIAN TOURIST POTENTIAL FACTOR OF ECONOMIC GROWTH
IN THE NEW CONTEXT*

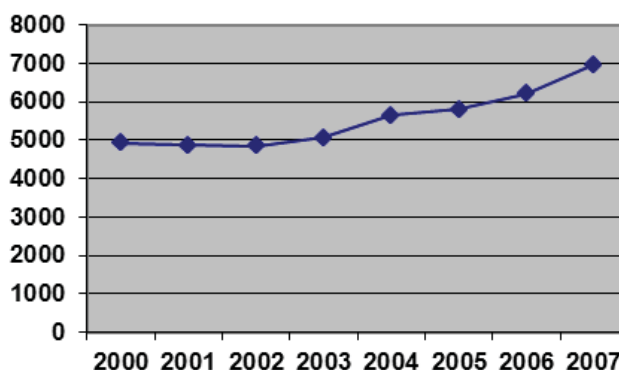
The tourists' arrivals in our country have been increasing in the period of 2000-2007, compared to the first year of the period 2007 recorded a considerable increase, which indicates a high interest of tourists to Romania zones (Table 3 and Figure 3).

Table 3.The tourists' arrivals in Romania

| Years | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 |
|-----------------------------|------|------|------|------|------|------|------|------|
| Total (thousands) | 4920 | 4875 | 4847 | 5057 | 5639 | 5805 | 6216 | 6972 |
| of which: foreigners | 867 | 915 | 999 | 1105 | 1359 | 1430 | 1380 | 1551 |

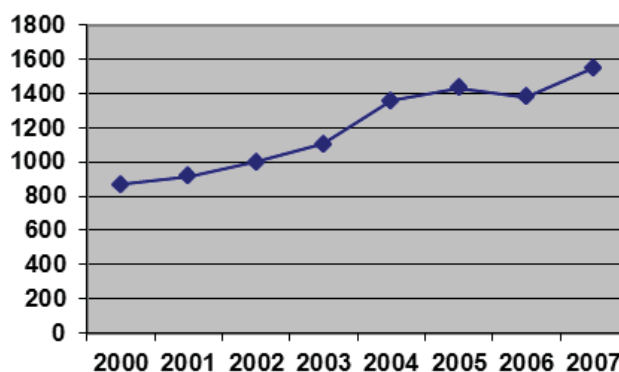
Data source: Anuarul Statistic al României 2008

Figure 3.The tourists' arrivals in Romania



Of these, approximately 20% are foreigner tourist's arrivals, indicator that increased and almost doubled at the end of the studied range, showing a positive trend for the Romanian tourism, the foreigner tourist's arrivals being an area that can be further encouraged (Figure 4).

Figure 4.The foreigner tourist's arrivals in Romania



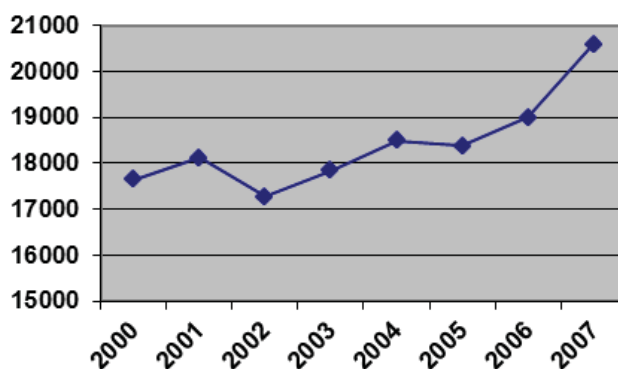
Regarding the indicator the tourists' spent nights in Romania in 2000-2007, this had an upward trend, which shows a favorable situation for the tourist activity (Table 4 and Figure 5).

Table 4. The tourists' spent nights in Romania

| Years | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 |
|-----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|
| Total (thousands) | 17647 | 18122 | 17277 | 17845 | 18501 | 18373 | 18992 | 20593 |
| of which: foreigners | 2149 | 2391 | 2534 | 2766 | 3333 | 3464 | 3242 | 3586 |

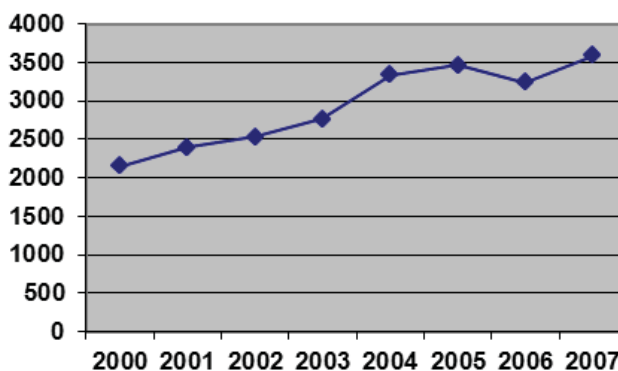
Data source: Anuarul Statistic al României 2008

Figure 5. The tourists' spent nights in Romania



In the tourists' spent nights in Romania, the proportion of the foreign tourists is 10-15%, the latter recording a value almost double in 2007 compared to the first year of the interval (Figure 6).

Figure 6. The foreigner tourists' spent nights in Romania



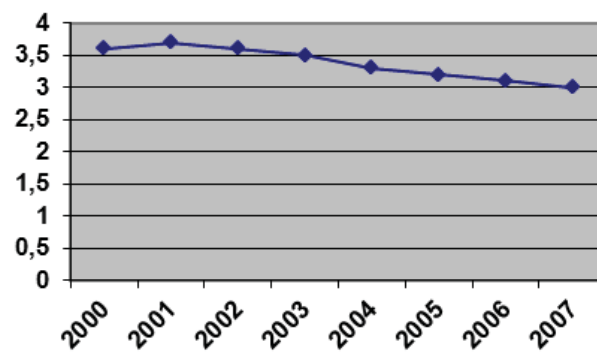
The average length of a tourists stay in Romania's tourist areas are decreasing during the analyzed period, but the fact that the values are only a bit different reflect a relatively steady interest in our country (Table 5 and Figure 7).

Table 5.The average length of a tourists stay in Romania

| Years | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 |
|-----------------|------|------|------|------|------|------|------|------|
| Duration (days) | 3.6 | 3.7 | 3.6 | 3.5 | 3.3 | 3.2 | 3.1 | 3.0 |

Data source: Anuarul Statistic al României 2008

Figure 7.The average length of a tourists stay in Romania



Conclusions

The natural and arranged tourism potential of the tourist destinations in our country is a solid base for building a tourism which is an important active part of Romanian economic sector.

Regarding the study of the tourism indicators of Romania, trends in the period 2000-2007 are generally favorable, allowing present and future development of the tourism sector in appropriate conditions in our country.

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SUSTAINABLE DEVELOPMENT IN THE SOUTH-MUNTENIA REGION OF THE ECOLOGICAL PERSPECTIVE

Sorin Sergiu CHELMU

University „BIOTERA“ Bucharest, Romania

Email: ruxandrar2003@gmail.com

Abstract

The sustainable development is a concept of great importance today, defined by several dimensions, such as referring to the fulfillment of human interests, the environment created aimed at matching the natural man, but by the social. The definition and its practical implementation must take into account more factors and the specific principles. From the economic perspective, economic policy must integrate the ecological principles that ensure its successful development to be sustainable in the long term. This paper presents the case of economic and ecological approach in territorial that is about developing the South-Muntenia Region of Romania.

Keywords: *economic approach, ecological approach, sustainable development, new economy*

INTRODUCTION

Currently, the natural world indicated a series of negative effects of the economic activity undertaken by humans, resulting in the need to take steps leading to the juxtaposition of these two areas: economical and environmental. Just by what means the intersection of these two plans can be expected to achieve sustainable development aspirations.

The question arises how to deal with change, defending the concept of a new economy, which is put in balance with economic interests in the natural world, so taking into account the common elements of both perspectives to choose the best course of action regarding the development of certain areas.

The concept of sustainable development

Development is influenced by five factors: population, natural resources and environment, agricultural production, industrial production and pollution, and the sustainable development strategy aims to find the most appropriate criteria to optimize the ratio needs - resources, by designing and carrying out an economic environment which, through its inputs and outputs, to be in a dynamic compatibility with the natural environment and the needs and interests of the present and future generations which are now and will come¹.

It follows therefore that the sustainable development is defined through several perspectives:

- the dimension of present interests and future generations;
- the rational dimension - state, which refers to the coherence of the optimization criteria, regarding the fact that the man-made environment is compatible with the natural environment.
- the social dimension - human, regarding all the exits from the man-made environment that must respond directly to the needs at a regional or global level.

The concept of sustainable development appeared in the World Commission on Environment and Development report in 1987 covers the following elements²:

- the feature of the environmental problems that is becoming of international, even global interest;
- the long term prospects regarding the consequences of the deepening decline of natural resources and pollution for the future generations;
- the obligation to maintain or enhance this legacy is a key element of sustainable development;
- the general welfare depends not only of the economic growth but also of its quality;
- the distinction between the different forms of capital that contributes to the creating of the welfare and of the inheritance for the future generations: "the man-made capital", "the human capital" and "the

¹ Rojanschi, V, Bran, F. (2016), "Cuantificarea dezvoltării durabile", Ed. Economică, București, pag. 21

² ditto, pag. 22-23

natural capital” which refers to the maintaining of the natural resources stocks and the pollution diminishing;

- the ability to make a substitution between various forms of capital, which means that we must expect a certain possibility of substitution between the natural capital stocks, on the one hand, and the accumulated human capital, on the other hand.

By adopting the goal of the sustainable development is aimed the fighting of the environmental problems, such as:

- The pollution control, the resource management and the ensuring of the life quality;
- Establishing the effective institutional framework for formulating and implementing the environmental policies;
- Promoting the technological progress for a “green” economic growth;
- A wider use of the economic instruments;
- The need to make regulatory instruments become more effective and less costly;
- Changing the production and consumption trends;
- A greater use of strategies in the formulation and implementation of the environmental policies;
- Developing the integrated strategies that include the environmental sector;
- A more detailed analysis of the links between the environment and economy.

Sustainable development and the new economy

The new economy should develop according with sustainable development requirements, the way to address economic life being the way to change that will ensure continuity of economic and population, which manages the business³.

The principles that are necessary for creating the new economy are considered to be those listed below, which are appropriate for each geo-economic area, each level, each feature of economic and social life:

- Systematic principle approval;

³ Rojanschi, V, Bran, F. (2016), “Cuantificarea dezvoltării durabile”, Ed. Economică, București, pag. 27-30

- The principle of systematic conservation and environmental resources on which the sustainability of the environment;
- The principle of relocation policy and ethical factors in conjunction with economic factors;
- The principle of the qualitative values, not just quantitative values;
- The principle of the female values, not just those men.

The policy implementation is possible through the systematic features of the new economy are the following:

- Realistic perspective about human nature;
- The systematic and synergistically;
- The critical and constructive;
- The dynamic character of labor;
- The chancing character.

Currently, all efforts should be directed to building and implementing new economy, which is described as a sustainable economy that will challenge major activities from the market, namely those profitable both for the employees and the economy. The other economic systems are so left behind, such as the centralized one, the long-term development that integrates ecological principles and found no place to be accomplished.

In this type of economy, government should give confidence and encourage the population to be more productive and efficient by developing an appropriate regulatory and financial code, the market should reach to serve human interests and also highlights the importance the new economy nonprofit organizations, groups representing civil society, voluntary organizations to find its proper directions.

The politics of the “new economy” is concentrated towards the sustainable development of economic and social life, with particular focus on population, thus different from that of conventional economies focused on business, finance, trade organizations, employees who work directly influences economic. Areas covered by the policy implementation of sustainable development are agriculture, tourism, energy, services, construction, transport, health, law and order, local development, business, technology, etc., through their high proportion of government revenue being shifted towards the population income.

In the context of the new economy, implementation of economic policies relating to:

- Restructuring the tax system for environmental sustainability, use of labor, use of natural resources;
- Introduction of unconditional payment to all citizens from the income of the population;
- The complete restructuring of energy systems - which would help to reduce non sustainable development of this branch;
- Introduction of public procurement policy that encourages contractors to adopt sustainable practices;
- Development of local economies through financial support and would help change the image locally, would build a strong local infrastructure to ensure easy access to running residential population of productive activities, tourism, environment, etc..;
- Use of economic indicators, social, environmental, performance and progress;
- Development of audit procedures, reporting and establishing sustainable business performance and organizational levels;
- Implementing policies to reduce demand for transportation and energy resources and the need to assess their implications in terms of social, economic and environmental;
- Promoting changes that took place in the international companies that had the effect of encouraging sustainable forms of development.

Case study: the South-Muntenia Region of Romania

With a total surface of 34,453 km² (14.54% of the total area of Romania), the South-Muntenia Region⁴ consists of seven counties (Argeş, Călăraşi, Dâmboviţa, Giurgiu, Ialomiţa, Prahova and Teleorman).

The relief of the Region 3 South-Muntenia is characterized by variety, the difference in level is over 2400m allocated in proportion, stepped down from north to south of the Făgăraş and Bucegi mountains and ridges to the Danube Valley, which leads to the types of mountain, hill and plain climate.

Like all developing regions of our country, in the South-Muntenia Region also are made efforts to attain the sustainable development objectives. The situation of the region is studied through analysis of the economic indicators and environmental development.

⁴ www.arpm-pitesti.ro

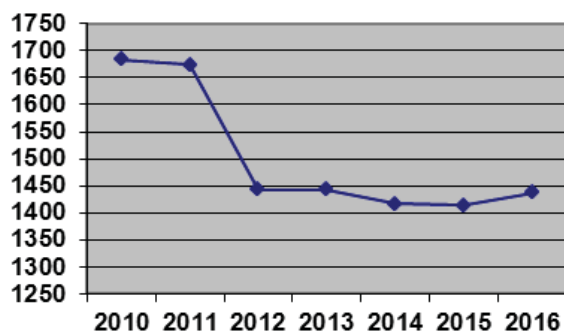
The employed population indicator has been a downward trend in the South-Muntenia Region in the 2010-2016 periods, reflecting the economic instability of the inhabitants of this development region of our country (Table 1 and Figure 1).

Table 1.The employed population in the South-Muntenia Region in the 2010-2016 periods

| The employed population | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|-------------------------|------|------|------|------|------|------|------|
| Number of people | 1684 | 1674 | 1443 | 1443 | 1417 | 1414 | 1437 |

Data source: www.insse.ro

Figure 1.The employed population in the South-Muntenia Region in the 2010-2016 periods



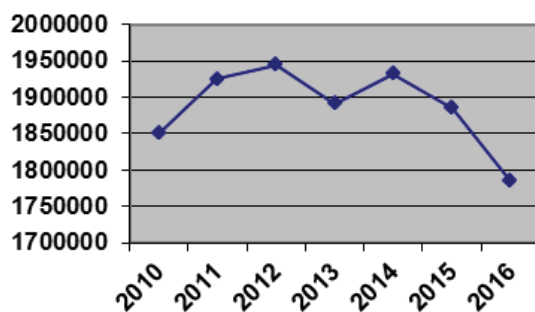
An indicator that reflects the Romanian agriculture is the cultivated surface in the South-Muntenia Region, indicator whose values have decreased during the 2010-2016 years (Table 2 and Figure 2).

Table 2.The cultivated surface in the South-Muntenia Region in the 2010-2016 years

| The cultivated surface - total | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|--------------------------------|---------|---------|---------|---------|---------|---------|---------|
| hectares | 1850467 | 1925543 | 1944669 | 1891341 | 1932176 | 1885424 | 1784510 |

Data source: www.insse.ro

Figure 2.The cultivated surface in the South-Muntenia Region in the 2010-2016 years



Regarding the indicators that reflect the situation of the surface occupied by forests, the forested fund in the South-Muntenia Region in 2010-2016 has decreased slightly, along with the indicator reflecting the surfaces where were made afforestations with values slightly increased (Tables 3-4 and Figures 3-4).

Table 3.The forested fund in the South-Muntenia Region in the period of 2010-2016

| The forester fund | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|-------------------|--------|--------|--------|--------|--------|--------|--------|
| hectares | 659295 | 659408 | 659168 | 655764 | 655986 | 657076 | 659043 |

Data source: www.insse.ro

Figure 3. The forested fund in the South-Muntenia Region in the period of 2010-2016

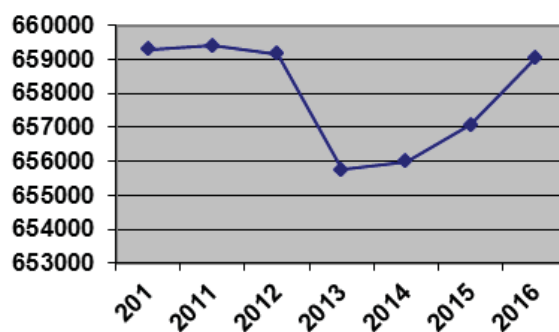
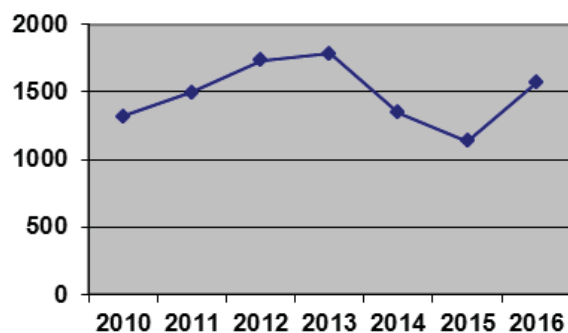


Table 4.The afforestations in the South-Muntenia Region in the period of 2010-2016

| The afforestations | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|--------------------|------|------|------|------|------|------|------|
| hectares | 1317 | 1494 | 1737 | 1782 | 1349 | 1139 | 1571 |

Data source: www.insse.ro

Figure 4.The afforestations in the South-Muntenia Region in the period of 2010-2016



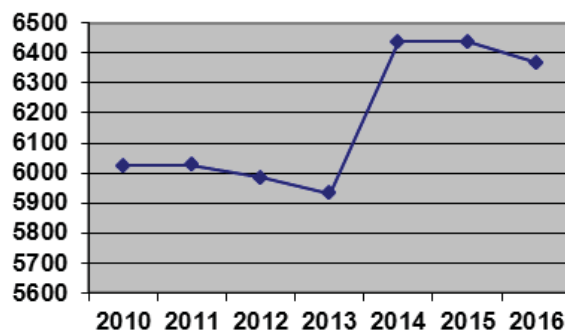
Regarding the reorientation of services and tourism as a subordinate activity in order to promote and develop the area, the values of the tourist accommodation capacity in service in the South-Muntenia Region in 2010-2016 are increasing (Table 5 and Figure 5).

Table 5.The tourist accommodation capacity in service in the South-Muntenia Region in 2010-2016

| The tourist accommodation capacity in service | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|---|--------|--------|--------|--------|--------|--------|--------|
| Thousands accomodation-days | 6025,3 | 6026,9 | 5985,1 | 5932,9 | 6437,8 | 6439,0 | 6367,1 |

Data source: www.insse.ro

Figure 5. The tourist accommodation capacity in service in the South-Muntenia Region in 2010-2016



In the South-Muntenia Region the analysis of these indicators reveals some problems, first regarding especially to their varying development, and on the other hand, highlights a number of efforts to achieve a sustainable region.

Conclusions

Current issues that are facing the environment and human society have imposed the need for the emergence of new ways of treating economic development, allowing natural factors and improve the quality of people's living conditions. This is why appeared the concept of new economy along with sustainable development, defined as development for future generations as effective as those for the future.

The implementation of the sustainable development can be achieved only by simultaneously addressing both to the economical and ecological problems of the related business achievement. Only by considering the two perspectives it can be achieved the sustainable wishes, at general, national and territorial level.

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INFORMATION MODELS FOR THE PRODUCTION AND MONITORING OF TRANSABILITY IN AGRICULTURAL FARMERS

Cristian Ioan COSTACHE

Bucharest Academy of Economic Studies, Romania

Email: kostache@gmail.com

Summary

The paper addresses the modeling aspects of production in livestock farms and taking into account the current requirements for product traceability. Analyzes the main requirements related to building information models in support of their decisions on farm livestock production to increase performance. In such cases, a good foundation of decisions requires proper sizing of the lots. A linear model of optimal batch size for slaughter animals could provide decision-maker dual variable values associated with optimal program and allow comparison of costs associated with lots of different sizes, and incremental cost analysis of the slaughter line breaks.

Keywords: *Traceability, production modeling, decision, requirement information.*

Introduction

Background process and decision making in general, and hence the decision to drive production in a livestock farm, was based, long time, the experience gained from trial and error. More recently, decision-making is considered by some authors [7] as an art. General economic progress led to an ever increasing complexity of the decisional problems management activities of economic entities [1]. Currently, the need to maintain a satisfactory level of efficiency in relation to competition, and therefore increase performance require prompt and accurate decisions and framework means giving a rigorous scientific substantiation process and decision making. On this line, falls and substantiate decisions with economic-mathematical modeling. Moreover, recent requirements for product traceability [3,4,5.] impose new constraints on models of foundation construction decisions.

Modelling and traceability

Traceability systems currently used in EU countries, but also on other continents [2,6,8.] are generally structured at the level of farm production, for a lot or even at the animal (DNA traceability). Each of the three systems may involve information requirements in November. For example, implementing an information system on pork carcass traceability requires information on the costs of animal identification, animal tracking costs cut, and to the maintenance of specific records, etc.. Also to be considered and cuts costs made the cut on the animal. In the case of relatively large lots, these costs will be relatively small (fewer interruptions), while for small batches, these costs are relatively higher.

In such cases, a good foundation of decisions requires proper sizing of the lots. A linear model of optimal batch size for slaughter animals could provide decision-maker dual variable values associated with optimal program and allow comparison of costs associated with lots of different sizes, and incremental cost analysis of the slaughter line breaks.

Of course, such fundamental decisions "costs" more than those adopted based on experience and intuition. But applying positive effects of such a system, such as increased efficiency of pork production and marketing competitive advantage obtained outweigh the effort. Moreover, studies worldwide show that the increased availability for consumers are paying a higher price for a product that gives more information about it.

In an animal farm can be build, in principle, mainly the following types of models:

- Models for determining the optimal structure of production;
- Models for determining the optimal structure of livestock;
- Models for determining the feeding needs;
- Models for determining the feeding ratio;
- Other various models for optimization the farm activities.

Each model propose various informational requirements. A synthesis of those is shown below:

Table 1. Informational requirements in modeling the activities of livestock farms

| <i>No.</i> | <i>Informational requirement</i> | <i>Justify</i> | <i>Observations</i> |
|------------|--|--|--|
| 1 | Structure of production | Choosing the growing animal categories from a model list | Categories: Pregnant and lactating sows Baby pigs 2-4 months, Pigs for fattening over 70 kg, Pigs for fattening under 70 kg, |
| 2 | Livestocks-per heads | The numbers of animals will be introduced for each category | Shows the modifies of the livestock in the farm |
| 3 | Feeds | The basic feed and the other feeds will be selected in part for each category of animals | Allow the differences between growing technologies, and the feeding ratios |
| 4 | Input prices | Inputting these prices (which could be annual estimations) is structured on different types of row materials and also corresponding technology materials | |
| 5 | Selling price for primary production (also for the secondary production) | Allow calculation of economic indicators in determining the variables in different models, and appreciation for the loss, the price threshold | |
| 6 | The subsidy per head (if any) | Will be made annually based on regulations | |
| 7 | Feeds consumption | Daily feed ratio Materials purchased to be part of animal feed | Name Quantity Value |

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| <i>No.</i> | <i>Informational requirement</i> | <i>Justify</i> | <i>Observations</i> |
|------------|--|---|--|
| | | ratio | |
| 8 | Water consumption | Daily consumption | If it is possible to measure, insert the value of the quantity of water consumed feed |
| 9 | Energy consumption | Daily consumption | Input price |
| 10 | Labor force consumption | Days/man | Unit wage costs and contributions to production personnel, auxiliary, other than providing performing mechanical and manual work |
| 11 | Biological expenditures | Daily expenditure | The amount of the purchase or production of biological material that lies at the basis for the establishment of a category |
| 12 | Veterinary expenditures | Daily expenditure | Expenditures which include medicines, veterinary stuff, and the veterinary fee |
| 13 | Expenditures with other materials | Daily expenditure | Price/day |
| 14 | Fuel consumption | Daily consumption | Expenditures with fuels for production and also for others |
| 15 | Percents used in estimative calculation of | A number of expenditures needs an annual input of | |

| <i>No.</i> | <i>Informational requirement</i> | <i>Justify</i> | <i>Observations</i> |
|------------|---|--|---------------------|
| | expenditures | calculations, as supply costs, shares of contributions to the state budget for income from wages, management expenses, interest expenses, the amount of redemptions. | |
| 16 | Primary production price Secondary production price Subsidies Primary production level Secondary production level | Production value | |
| 17 | Supply expenditures percent Insurances expenditures percent | Expenditures with row materials Expenditures with energy Variable expenditures | |
| 18 | General and management expenditures percent Interest expenditures percent Damping value | Labour expenditures Fixed expenditures | |

All the above basic elements must be related to production technologies and framework allow design their economic budgets.

In the strictly informational needs revenue and expenditure, it could be extracted from databases for other information systems of enterprise, not necessarily that of traceability. That could be as below:

Table 2. Informational requirements for categories of expenditure and revenue

| <i>No.</i> | <i>Informational requirement</i> | <i>Justify</i> | <i>Elements from database</i> |
|------------|--|--|-------------------------------|
| | Fuel expenditures – other machines | - fuel expenditures used for purposes other than production | Value |
| | Water expenditures – others than irrigation water | -water expenditures used for purposes other than production | Value |
| | Third party expenditures | - third parties expenditures, other than mechanical and supply ones | Value |
| | Other expenditures with labour force | - wages expenditures and farm contributions for the support staff, others that the ones who performed the mechanical and manual work | Value |
| | Costs and reimbursement rates for loans, current account rates (only at exploitation budget) | - monthly rates by banks excluding interests, loan repayments and interest on current account of the bank holding | Value |
| | Other tax expenditures | - other taxes excepting profit and revenue tax | Value |
| | Other expenditures | - all the expenditures which could not be included in the above categories | Value |

| <i>No.</i> | <i>Informational requirement</i> | <i>Justify</i> | <i>Elements from database</i> |
|------------|---|---|-------------------------------|
| | Feed expenditures | - all buyed row materials used for feeding ratios | Name Quantity Value |
| | Other materials | - costs with various materials used in animal cheltuieile cu materialele necesare în exploatarea animalelor | Name Quantity Value |
| | Water expenditures | - if it is possible to mensure the quantity of water consumed will be inputed | Value |
| | Veterinary expenditures | - expenditures with medicins, veterinary stuff , value of veterinary service, etc. | Value |
| | Biological expenditures | - price of producing or buying the biological | Value |
| | Other parts transportation expenditures | - occasionally expenditures for transportation with the row materials and also the third parties materials. | Value |
| | Fuel expenditures | - occasionally expenditures with row materials transportation andf other materials by own cars | Value |
| | Insurance, interest on the loan production expenditures | - be placed under contracts. Spread sheets take account of only the interest on the loan each month. Annuities are inserted above the | Value |

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| <i>No.</i> | <i>Informational requirement</i> | <i>Justify</i> | <i>Elements from database</i> |
|------------|---|--|-------------------------------|
| | | expenditure rates and loan repayments. | |
| | Labour expenditures | - wages expenses and firm contributions | Value |
| | Depreciation expense of buildings and utilities | - depreciation according to the degree and period of use | Value |
| | Tax expenditures | - amounts payed to the state budget for tax land and corporation tax or income | Value |
| | Revenues from primary production | - revenues from the primary production | Quantity Price Value |
| | Revenues from secondary production | - revenues from the secondary production | Quantity Price Value |
| | Other revenues | - are inserted when the user get other income | Value |
| | Subsidies | - livestock subsidies, other subsidies, distinguishing the animal categories | Value |
| | Proceeds from loans, including its capital contribution | - any amounts that increased cash flow, such as loans, own contributions, etc. | Value |

Conclusions

An important requirement is currently implementing informational systems for traceability of livestock farms. The effort needed to achieve this is a good opportunity to add the database information system of traceability and information required by decisions shaping the entire business of the farm by economic and mathematical modeling. Beneficial effects would materialize in

a rigorous foundation management decisions, thus contributing to increased performance.

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RELATIONSHIP BETWEEN BUSINESS AND ENCOURAGING ENVIRONMENT

Cristian Ioan COSTACHE

Bucharest Academy of Economic Studies, Romania

Email: kostache@gmail.com

Summary

In almost entire civilized world there is an emerging consensus about respecting the environment and an increasing level of the sound of voices that sustain that companies have social and environmental responsibilities. But not always it was the same thing. Great economic and political personalities sustained that this issue is of secondary importance for our business. Nowadays, the idea of including environmental protection among the production factors, near capital and human resources has more and more followers.

Keywords: *Environment, business, social responsibility, environmental laws*

Introduction

This is a comparatively recent development. In *Capitalism and Freedom* Friedman (1962, p. 133) observed:

The view has been gaining widespread acceptance that corporate officials and labour leaders have a "special responsibility" that goes beyond serving the interest of their stockholders or their members. This view shows a fundamental misconception of the character and nature of a free economy. In such an economy there is one and only one social responsibility of business - to use its resources and engage in activities designed to increase its profits ... Few trends could so thoroughly undermine the very foundations of our free society as the acceptance by corporate officials of a social responsibility other than to make as much money for their stockholders as possible.

This approach to economics stands within a tradition established by Adam Smith. By directing his industry "in such a manner as its produce may be of the greatest value", each individual:

... intends only his own gain, and he is in this, as in many other cases, led by an invisible hand to promote an end which was no part of his

intention. Nor is it always the worse for society that it was no part of it. By pursuing his own interest he frequently promotes that of the society more effectively than when he really intends to promote it. I have never known much good done by those who affected to trade for the public good. It is an affectation, indeed, not very common among merchants, and very few words indeed need be employed in dissuading them from it.

Similar views have been expressed by management theorists such as Drucker (1973, pp. 345, 348):

To do something out of social responsibility which is economically irrational and untenable is . . . never responsible. It is sentimental ... That business should stick to its business, that is, to the economic sphere, is not a denial of responsibility. It is indeed the only consistent position in a free society.

The growth of environmental awareness

The environment became a major subject of public (and political) concern in the 1970s. Greenpeace and Friends of the Earth were both founded in 1971. The 1972 United Nations Conference on the Environment (Stockholm) was the first major international conference which addressed environmental issues in a systematic and coherent manner. The following decade witnessed the emergence of coherent systems of environmental law in the UK, the USA and the European Community. Early legislation tended to be concerned largely with pollution. "Acid rain", for example, was an important issue in many European countries. In the 1980s there was increased interest in conservation and "sustainable development". The publication of *Our Common Future* by the World Commission on Environment and Development (1987) (the Brundtland Commission) was highly significant. The principle of sustainable development received international support at the 1992 United Nations Conference on Environment and Development (Rio). The evolution of international environmental law was given further encouragement at the 2002 Johannesburg Conference.

Environmental law is relatively new, but legislation is developing rapidly. More prosecutions for environmental offences are taking place annually. Much of the legislation is based on the "command and control" approach. This approach has been criticised and market based alternatives advocated. Market failure suggests that an absolute trust in markets is

misplaced. Alternative solutions to the regulatory problem have been sought in self-disclosure. Although this is a regulatory approach there are both legal and economic benefits accruing to firms from environmental auditing and self-disclosure.

Corporate social responsibility

How have businesses responded to the challenges of sustainable development and related environmental issues? Corporate social responsibility (CSR) is an umbrella term used to describe the various ways in which firms attempt to integrate environmental and social obligations within their business activities. According to the European Commission (2002, p. 5):

Socially responsible initiatives by entrepreneurs have a long tradition in Europe. What distinguishes today's understanding of CSR from the initiatives of the past is the attempt to manage it strategically and to develop instruments for this. It means a business approach, which puts stakeholder expectations and the principle of continuous improvement and innovation at the heart of business strategies.

A recent PricewaterhouseCoopers survey revealed that 70 per cent of the global chief executives interviewed took the view that CSR was "vital to their companies' profitability" (Dickson, 2002). Although CSR is widely regarded as a good thing many companies seem to interpret it rather narrowly. Social issues tend to receive far more attention than environmental ones.

Emphasizing corporate philanthropy is also easier than analysing and remedying the consequences of a firm's activities on the environment. Many executives undoubtedly feel that CSR is essentially a matter for their marketing departments.

Despite its rising profile, the debate about CSR often lacks depth. A major problem is the scarcity of reliable evidence concerning the relationship between CSR and profitability. The situation is described by Dickson (2002):

Numerous academic papers have concluded that improved corporate reputation, better recruitment prospects and bigger sales to environmentally conscious consumers are among the benefits [of CSR]. All such studies are long on

description, but the vast majority are distinctly short of quantitative data.

„Triple bottom line“ reporting (which measures a company’s economic, environmental and social performance) is potentially a valuable source of such information (Elkington, 1999).

Auditing for the environment

Why should firms engage in environmental and social auditing? In most jurisdictions, companies are only required to audit their economic activities. Additional audits and reports absorb time and resources without producing the immediate results associated with traditional corporate philanthropy. Demands on staff may cause salaries to rise (Sinclair-Desgagne and Gabel, 1996). Advocates of triple bottom line reporting such as Elkington (1999) argue that these costs are more than off-set by the advantage of having a green reputation.

Analysts have calculated that approximately 25 per cent of their company’s reputation is linked to issues relating to sustainable development. They estimate that overall customer satisfaction would fall by about 10 per cent if all CSR activities were abandoned (Dickson, 2002).

This was confirmed in studies cited by McDonagh and Prothero (1997) where respondents to questionnaires reported a concern for the environment and even a willingness to pay more for goods manufactured in a way which produced less pollution.

Conversely the evidence strongly suggests that a poor reputation on an environmental issue can be damaging. Bad environmental news certainly appears to have greater commercial significance than its opposite (Chan and Milne, 1999) and firms often adopt environmental reporting procedures after receiving damaging media coverage (Brown and Deegan, 1998; Deegan and Gordon, 1996).

Moon and Bonny (2001) are clear about why companies should adopt an ethical stance, saying that the motives are to avoid expensive court cases, to avoid bad publicity, to avoid activist action, to boost brand value and attract funds from investors. In *Business Ethics: Facing up to the Issues* (Moon and Bonny, 2001) they argue that unethical behavior can cost a company its reputation, hard cash, and reduce its share price. To back this up they give the examples of Nestle which was, and they say remains, tainted by its unethical stance on baby nutrition in selling baby milk to mothers in less

developed countries, Perrier for selling contaminated water, and Shell for its perceived non-environmentally-friendly disposal of the Brent Spa oil rig.

Nature of environmental auditing

Environmental auditing and environmental disclosure are increasing in popularity with corporations. An environmental audit is a means of assessing environmental performance and, as Welford and Gouldson (1993) point out, the first corporate environmental audits were carried out in the USA in the 1970s in response to domestic liability laws. During the 1980s these audits were extended beyond simply adhering to legislation. Shell Oil introduced a proactive audit as early as 1981.

The environmental audit checks (at least in theory) a corporation's environmental performance against stated objectives and environmental policy. It is an integral part of the environmental management system (EMS) and is promoted by institutions such as the International Chamber of Commerce and the European Commission. The aims and objectives of the audit would be to check regularly and systematically, amongst other things, whether the management systems are performing well, compliance with health and safety legislation, and the impact of the organisation's activities on the environment.

It is increasingly common for businesses to conduct audits to assess environmental risks, energy consumption, and waste or pollution emissions. They often seek third-party verification of their EMS using a standard such as ISO 14001, the European Eco-management and Audit Scheme (EMAS), or by signing up to an initiative such as the United Nations' Global Compact. Although corporations set standards and gather masses of data, the disclosure of environmental information is not compulsory in most countries and there are no internationally agreed standards. In 2001 Tony Blair, the British Prime Minister, challenged all FTSE 350 companies to publish environmental reports by the end of the year. Only 76 did so. In the White Paper *Modernising Company Law* (DTI, 2002) the Department of Trade and Industry (DTI) proposes that companies should be obliged to produce environmental reports if their directors take the view that such issues are a material consideration for shareholders.

The importance of environmental reporting

A study by Gray *et al.* (2001) examined social and environmental disclosures. In their own study the authors found that larger companies and those in environmentally sensitive industries made greatest use of voluntary disclosure. They also cited findings from earlier studies such as Deegan and Gordon (1996), Filos (1985), Jones (1990) and Tilt (1994) which highlighted factors such as organizational culture, experience with pressure groups, and media profiles. From their research Gray *et al.* (2001, p. 33) concluded that:

Social and environmental disclosures are an important phenomenon employed by corporations for a variety of purposes.

Is honesty the best policy?

Rather than analyzing why firms undertake environmental disclosure, Niskanen and Neiminen (2001) looked at whether reporting is objective. To establish objectivity the authors tried to establish whether firms report equally on positive and negative environmental issues related to their own operations. After studying the annual reports of Finnish companies published between 1985 and 1996 they concluded (Niskanen and Neiminen, 2001, p. 29):

The environmental reporting of the sample firms cannot be considered as objective since the proportional share of negative events reported was negligible compared to the respective percentage for positive events.

Between 1985 and 1996 there were only seven negative news items disclosed by firms out of a possible 50. Niskanen and Neiminen (2001) say that it is not only Finnish companies which do not report on environmental issues objectively. Indeed, their findings have been replicated in studies in other countries.

There is considerable evidence that British companies seek ISO 14001 accreditation without making genuine efforts to improve their environmental performances.

According to Brian Kraus, the chief executive of ERM Certification and Verification Services, firms often exhibit a "breathtaking level of commitment to achieving certification". Unfortunately:

Resources are largely being expended in a way that is giving little of value to the environment, to companies themselves, or to the communities they operate in . . . Most companies do not realise the

true costs of waste and other causes of poor environmental performance. However, ISO 14001 certification seems to be yielding little in these terms for companies.

Accountancy and the environment

When the impact of the corporation's activities on the environment is reported in company accounts, accountants face the difficulty that in economic terms the environment has typically been treated as a free good. That is, no price is recorded in the marketplace for such things as clean air, quietness and a beautiful countryside. Such things are therefore not easy to value. In similar fashion, pollution has been treated as an externality, i.e. something external to the marketplace. So long as corporations do not incur recorded costs such as the fitting of air filters or water purifiers, the cost of pollution will also go unvalued. It would be difficult, though not impossible, for firms to estimate these costs. This is unlikely to happen in the absence of a willingness to commit the resources necessary to gather such information.

Conclusion

The Coalition for Environmentally Responsible Economies (CERES) is attempting to address this issue by launching an international reporting initiative which corporations could participate in but this may be some time in coming. In the meantime, the above studies suggest that as long as environmental accounting continues to be a voluntary activity over which the corporations have total control, there must be a real danger of businesses either ignoring the process entirely or of skewing their environmental reporting in order to "greenwash" their accounts.

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ANALYZING THE ENVIRONMENTAL KUZNETS CURVE FOR THE EU COUNTRIES: THE ROLE OF ECOLOGICAL FOOTPRINT

Eyup DOGAN

Department of Economics, Abdullah Gul University, Kayseri, Turkey

E-mail: eyup.dogan@agu.edu.tr

Mehmet Akif DESTEK

Department of Economics, Gaziantep University, Gaziantep, Turkey

E-mail: adestek@gantep.edu.tr

Recep ULUCAK

Department of Economics, Erciyes University, Kayseri, Turkey

E-mail: r.ulucak@erciyes.edu.tr

Abstract

The Environmental Kuznets Curve (EKC) hypothesis claims that there is an inverted U-shaped relationship between environmental degradation and economic growth. This relationship implies that initial stage of economic growth and development make environmental quality worse, and after per capita income reaches a threshold economic growth and development enhance environmental quality (Grossman & Krueger, 1995). Therefore, people can achieve a higher standard of living and care more about the quality of environment. If this mechanism really works, policy makers should not be concerned that economic growth is driving force of environmental improvements. From this point of view, a large number of studies have been carried out to test the EKC hypothesis for different countries and country groups, and a large part of these studies verify the existence of the EKC hypothesis (Al-Mulali et al., 2015; Dogan and Seker, 2017; Aslan et al. 2018).

The most important question thus is not whether the analysis of the EKC hypothesis is necessary- to that it seems there is an overall consensus in society-but “What should be used to proxy for environmental pollution?” A great majority of the EKC literature use CO₂ emissions to represent environmental degradation. Indeed, this is an important shortage in application of the EKC concept because environmental degradation cannot be captured by CO₂ emissions only. There are also other parts of the environmental degradation such as degradation in soil stock, forestry stock,

mining stock, oil stock and so forth. Additionally, CO₂ emissions may really decrease owing to technological innovations or stringent environmental regulations made by governments while aggregate waste and pollution level increases (Stern, 2014). Hence, the inverted-U relationship might be valid for emissions of pollutants, but might not be valid for resource stocks (Arrow et al. 1995). So, results may be misleading policy makers when CO₂ emissions is solely used to proxy for environmental degradation. Therefore, researchers should use an inclusive environmental variable to obtain more dependable results.

Ecological footprint developed by Wachernagel & Rees (1996) can potentially be more appropriate representative for the environment. It is the sum of six subcomponents (Cropland, Grazing Land, Fishing Grounds, Forest Land, Built-up Land and Carbon Footprint (Lin et al. 2016). The ecological footprint has been used as a variable of environmental degradation for the EKC analysis (Bagliani et al. 2008; Ozturk et al. 2016; Mrabet & Alsamara 2017). The motivation of this paper is to investigate the EKC hypothesis for the EU countries by using the ecological footprint. To the best of our knowledge, this is the first study that analyzes the EKC hypothesis by the ecological footprint for the EU countries. The EU countries are preferred since the EU has the world's highest environmental standards and common environmental policies. Also, this paper includes trade openness, renewable and non-renewable energy as control variables to observe their effects on the environment.

In order to investigate the validity of EKC hypothesis for the ecological footprint and compare relative performances of renewable and non-renewable energy consumption on environmental pollution, the annual data of 1980-2013 is examined for the 15 EU countries: Austria, Belgium, Bulgaria, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Portugal, Spain, Sweden and the UK. The panel version of empirical model constructed as follows:

$$\ln EF_{it} = \gamma_0 + \gamma_1 \ln Y_{it} + \gamma_2 \ln Y_{it}^2 + \gamma_3 \ln RC_{it} + \gamma_4 \ln NC_{it} + \gamma_5 \ln TR_{it} + \mu_{it} \quad (1)$$

Where t , i and μ_{it} refer to time period, cross-section and residual term, respectively. In addition, $\ln EF_{it}$ is natural log of the ecological footprint per capita, $\ln Y_{it}$ ($\ln Y_{it}^2$) is natural log of real GDP per capita (natural log of the square of real GDP per capita), $\ln RC_{it}$ is natural log of renewable energy

consumption per capita, $\ln NC_{it}$ is natural log of non-renewable energy consumption per capita and $\ln TR_{it}$ is trade openness. The ecological footprint is measured in the sum of cropland, grazing land, fishing grounds, forestland, carbon and built-up land footprints, The real GDP is measured in 2010 constant US dollar, renewable and non-renewable energy consumption are measured in Kwh and the trade openness is measured in the total trade share in GDP. The data of real GDP and trade openness is obtained from World Development Indicators, the data of renewable energy and non-renewable energy use is retrieved from US Energy Information Administration and the data of the ecological footprint is downloaded from Global Footprint Network.

Panel data methodologies which ignore the cross-sectional dependence may lead to unreliable results due to high integration throughout the world. Therefore, we first test the existence of cross-sectional dependence among EU countries using with Pesaran's (2004) cross-sectional dependence (CD hereafter) test. In order to take into account the cross-sectional dependence, we use well-known and frequently used unit root test cross-sectional ADF (*CADF*) developed by Pesaran (2007). Furthermore, *CIPS* is retrieved from the average of *CADF* statistic for each country. To test the validity of the long-run relationship between real income, the square of real income, renewable energy consumption, non-renewable energy consumption, trade openness and ecological footprint, we utilize error correction based cointegration method proposed by Westerlund (2007). Last, this study uses Dynamic OLS (DOLS) and Fully Modified OLS (FMOLS) to estimate the long-run estimators.

In the first step of analysis, we examine the presence of cross-sectional dependence among countries. The null of cross-sectional independence is rejected for CD test. This means a shock occurred in one of sample country may be spill-over other countries. The validity of cross-sectional dependence implies that we should using second-generation panel tests which allow cross-sectional dependence.

In the second step of analysis, we use augmented IPS (*CIPS*) unit root test of Pesaran (2007) which allows the cross-sectional dependence among countries to determine the degree of integration level of variables. The findings show that the null hypothesis of unit root process cannot be rejected for the level form of all variables. However, at first differenced form, the null hypothesis is rejected and all series become stationary. Next, we

examine the presence of long-run relationship between variables using with the error correction-based cointegration test of Westerlund (2007). The findings from G_{α} and P_{α} confirm the null hypothesis while G_t and P_t statistics show the evidence of rejection of null hypothesis which implies there is no cointegration. Therefore, it is concluded that real GDP per capita, the square of real GDP per capita, renewable energy use per capita, non-renewable energy use per capita, trade openness and the ecological footprint per capita are cointegrated. In the next step, we examine the effect of selected explanatory variables on the ecological footprint for the whole panel using with the group-mean FMOLS and the group-mean DOLS estimators. The findings reported that the coefficient of real income on the ecological footprint is negative and the coefficient of the square of real income is positive for both estimators. This result confirms the invalidity of EKC hypothesis. In addition, according to the results of FMOLS estimator, it is concluded that an increase in renewable energy use by 1% will decrease the ecological footprint by 0.109%; an increase in non-renewable use by 1% will increase the ecological footprint by 0.274 % and an increase in trade openness by one percent will decrease the ecological footprint by 0.229 % for the EU countries. Similarly, based on the DOLS results, the coefficient of real income (square of real income) is negative (positive) therefore the U-shaped relationship is found. Dynamic OLS estimator results also show that an increase in renewable energy use and trade openness by 1% will decrease the ecological footprint by 0.093 % and 0.485 %, respectively. In addition, an increase in non-renewable energy use by 1% will increase the ecological footprint by 0.216 % in the EU countries. Finally, country-specific fully modified OLS and dynamic OLS estimator results are reported in Table 6. In case of the findings from the FMOLS, the coefficient of real GDP (square of real GDP) is negative (positive) and statistically significant in Austria, Denmark, Germany, Italy, Netherlands, Portugal, Spain and the UK. Therefore, the U-shaped relationship between real GDP and the ecological footprint is found for these countries. However, the inverted U-shaped EKC hypothesis is found only for Portugal. In addition, the negative and statistically significant coefficient of renewable energy use is found in almost all countries except Austria, Netherlands and Sweden. The coefficient of trade openness is also negative and statistically significant in Denmark, Germany, Italy, Netherlands, Portugal and the UK. Moreover, we found the positive coefficient of non-renewable energy use in Austria, France,

Germany, Greece, Ireland, Portugal and the UK. The dynamic OLS estimation results are highly consistent with the results of fully modified OLS estimation. In case of dynamic OLS estimation, the U-shaped relationship between income and the ecological footprint is confirmed for Austria, Denmark, Finland, Germany, Italy, Netherlands, Spain and the UK while the inverted U-shaped relationship is supported for France and Portugal. Additionally, the negative coefficient of renewable energy use is valid for 10 EU countries. To sum up, based on the mean-group results, it is concluded that the U-shaped relationship exists between economic growth and the ecological footprint. This means environmental degradation has been decreased with the increasing economic growth to a certain point, and after turning point, economic growth increases the environmental degradation. In addition, we found that increasing renewable energy consumption (non-renewable energy consumption) decreases (increases) the ecological footprint. Moreover, increasing trade openness reduces environmental degradation in the EU countries.

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MODELING THE PROCESSING FROM AN INFORMATION SYSTEM FOR MONITORING TRACEABILITY ON THE WINE SUPPLY CHAIN¹

Mihai DORNEANU

Bucharest Academy of Economic Studies, Romania

E-mail: mdorneanu7@gmail.com

Abstract

The trust of the end consumer into the alimentary products which are consumed became to be influenced, in a significant percentage by the existence of some systems for monitoring the traceability. This fact is determined by the growing exigency related to the quality of the alimentary products of the contemporary consumer, exigency determined by the huge amount of available information related to this subject, information which determine a continuous growth of the “educational levels for feeding” of the consumer. In the first part of the paper is presented a short review of the main concepts regarding databases and in the second part are presented sequences from the conceptual model of processing and from organizational model of processing from an information system for monitoring the traceability on the wine supply chain.

Keywords: *Information system, traceability on wine supply chain, food safe and security*

Introduction

According to Regulation no. 178/2002 of the European Parliament and of the Council of 28 January 2002, the traceability represents “*the ability to trace and follow a food, feed, food-producing animal or substance intended to be, or expected to be incorporated into a food or feed, through all stages of production, processing and distribution*”, where the concept of food (or foodstuff) represents „*any substance or product, whether processed, partially processed or unprocessed, intended to be, or reasonably expected to be ingested by humans*”,

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including „drink, chewing gum and any substance, including water, intentionally incorporated into the food during its manufacture, preparation or treatment”.

Data and databases

In information technology is a difference between information – at the semantic level – and data – a representation of a information.

Data can be: text, number, imagine, sound, which can be stored and processed using computers. Data used in real life can have different types like: date/time, persons’ name etc. translated in a programming language the nature of data it is implemented by data types.

About information it is possible to have a debate only after the data semantic is known. More specific, number 123 is a data that, standalone, doesn’t represents very much; but if is associated with the identification number (ID) of a partner then immediately can be defined the utility of this information.

In order to become information a data must be processed.

A database represents a set of data which are related, together with data description and relationships between them. A relational database represents a set of structured data, using the homogeneity criteria, into tables.

A table contains homogenous data from a specific subject (for example, table Customers will contains data regarding all registered customers that belong to an organization).

A field represents a characteristic of the subject described in the table and is defined by the following main elements:

- *field’s identification or name*; for example: ID Customer, Customer Name, Customer Address etc.;
- *associated data type*, provides the type of information which can be stored into the field, for example: text, number, boolean, date-time;

Supplementary, for a field can be specified and other properties such as: its dimension (the maximum number of characters that can be stored into the field), a specific format of displayed data etc.

Table’s structure represents the set formed by all its fields.

The field’s value represents a specific data allocated for that field. For example, 123 is a value for the field ID Customer, and “BETA SA” is a value of the field Customer Name.

The main concept in the theory of the databases is represented by the record (a line of data). A record from a table represents the set formed from all values allocated to each field that formed the table's structure. For example, the set {123, "BETA SA", "Bucharest", RO4112201, J40/17175/1997} is a record that belongs to the table Customers (one of the table's lines).

The field's domain represents the entire set of values that can be allocated to this field (can be assimilated with a data column).

Primary key (PK) for a table can be formed by one or more fields in order to identify, in a unique way, each records from this table. For example, for the Customers table primary key is represented by the field ID Customer. Duplicate records are not allowed; therefore each record will be unique in one table. The primary key from a table can be used in order to establish logical connections with other tables. A fundamental constraint for using these relationships between tables is to have and use foreign keys.

Foreign key (FK) for a table represents a field or a group of fields that is primary key in another table, a table that will be in a connection with this table. For example, the field ID Customer from the table Invoices is foreign key in this table and is used in order to build a logical link between the records from table Customers and the records from table Invoices (the invoices issued to the customers).

Usually the foreign key has the same name and the same data type that the field from the table where is primary key.

Designing processing for an information system for monitoring traceability on the wine supply chain

In the method Merise (Methode d'Etude et Realisation Informatique par le Sous - Ensemble representatif) for modeling the existing processing into information systems are used the followed models:

- (a) conceptual model of processing (CMP);
- (b) organizational model of processing (OMP).

The role of the conceptual model of processing is to present the operations from the designed system in order to fulfill de functionalities and capabilities of the proposed system. If the conceptual model of processing is detailed and all operations are allocated to the departments (administrative units of the organization) and for each operation is specified the type

(automat, manual etc.) will be obtained the organizational model of processing.

In figure 1 and figure 2 are presented sequences from the CMP and OMP for a system designed to monitoring traceability on the wine supply chain.

Figure 1. Sequence from the conceptual model of processing

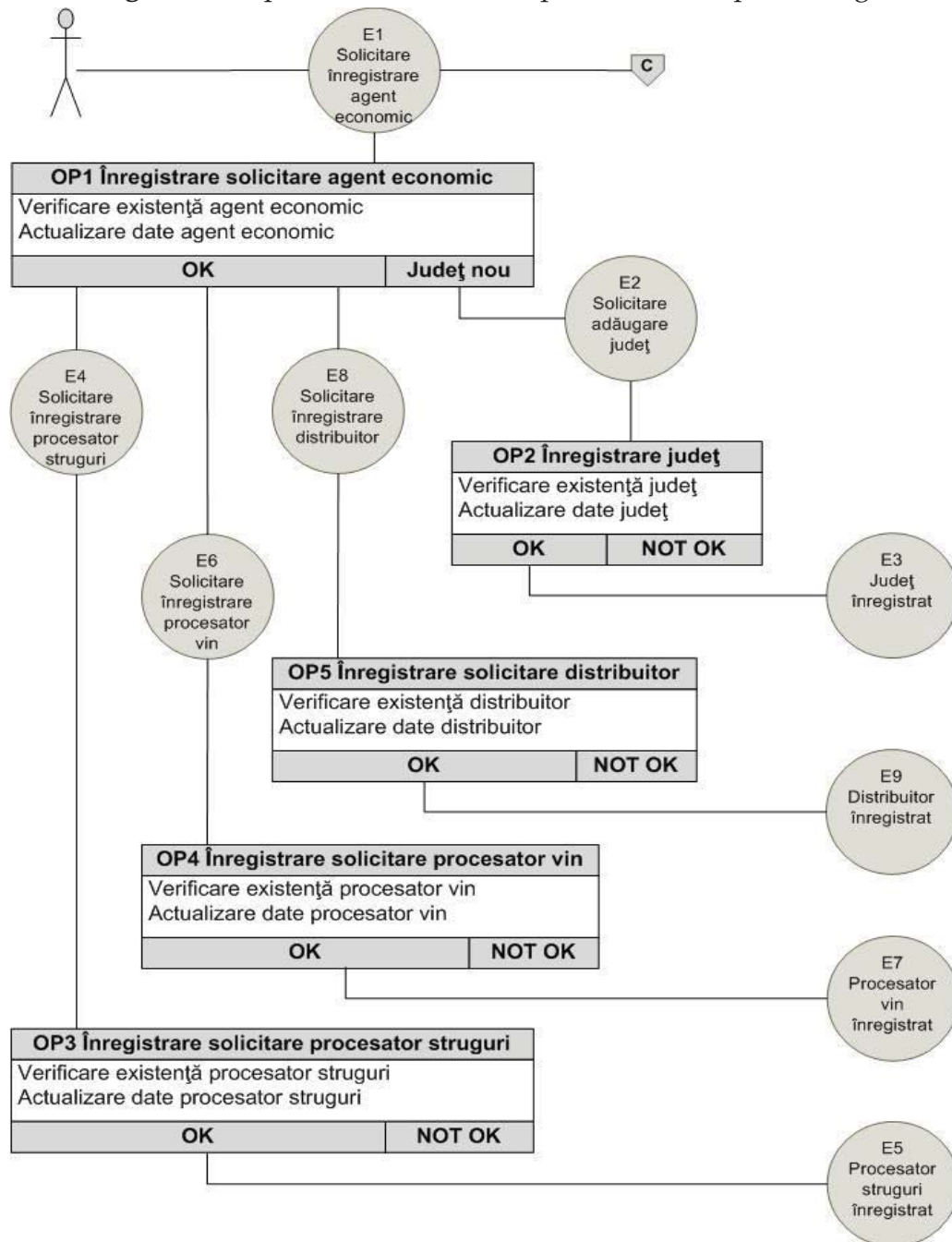
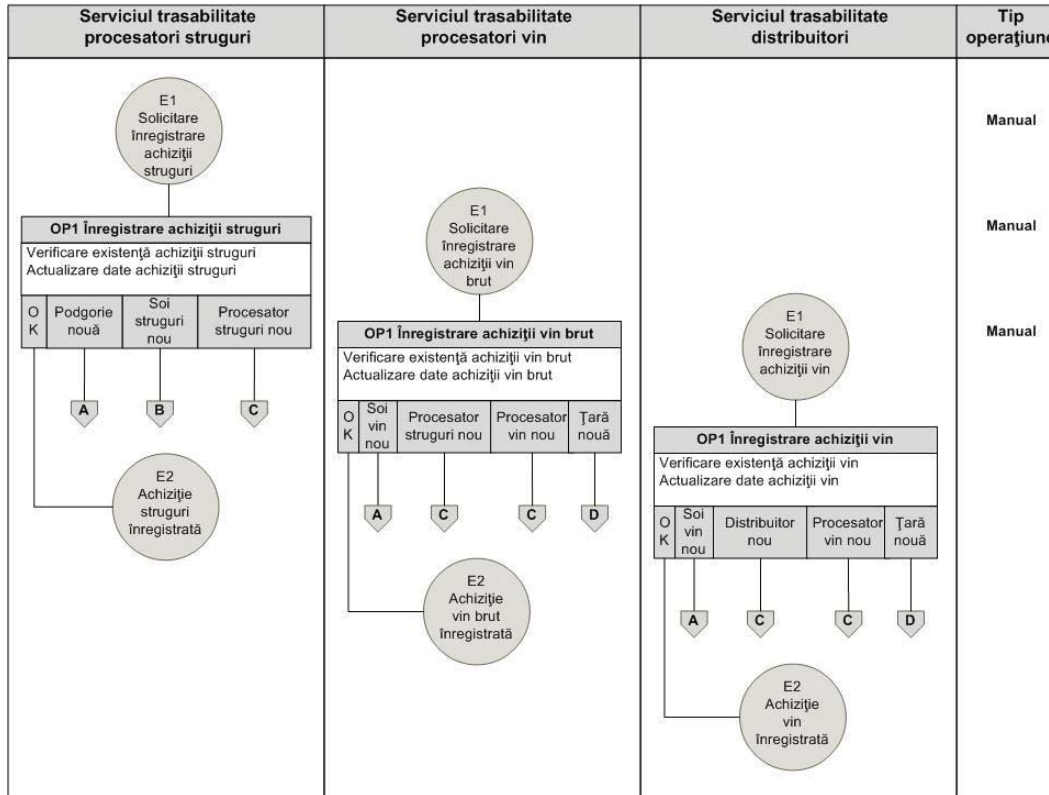


Figure 2. Sequence from the organizational model of processing



Conclusions

In the last years the focusing on the enhancing security and safe of the food has determined designing, developing and deploying of information systems capable to monitor in a continuous and efficient way of the activities from the food supply chain. An important role is played by the processing designing both at the conceptual and organizational level. This paper proposes two models (CMP and OMP) which are included in an information system for monitoring the traceability on the wine supply chain.

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IMPROVING THE QUALITY MANAGEMENT OF AGRO TOURISM SERVICES IN ROMANIA

Mihai DORNEANU

Bucharest Academy of Economic Studies, Romania

E-mail: mdorneanu7@gmail.com

Abstract

The international economic crisis will drastically reduce the number of tourists visiting Romania this year. There will be a tough fight over tourists' money. One way for keeping the existing tourists and gaining new ones is by raising the quality of accommodation and nourishment services.

The hereby study analyzes the possibility of developing the management of the quality services in agro tourism by implementing the Q brand in the agro tourist hostels in Romania. In 2003, the Ministry of Tourism has initiated a project named "The Q Brand" regarding the increase of quality services offered to tourists in Romania. Unfortunately, along with the liquidation of the Ministry of Tourism, it was impossible to promote and develop this program.

In order to analyze the possibility of introducing the Q Brand, we have carried out a study on one hundred hostels located in the main agrotourist areas of the country: Bucovina, Neamt, Maramures, Bran, Marginimea Sibiu, Vrancea-Buzău, Danube Delta, Harghita Covasna, the Apuseni Mountains and Oltenia under Mountain.

The first part of the study comprises a set of quality criteria for the agro tourist hostels. These criteria have been applied on the spot, in order to determine exactly the possible level for implementing the Q brand in the countryside area.

The conclusion is on a country level, the average possible implementation amounts to 42.5%; that more than half of the agro tourist hostels studied will not be able to implement the Q brand in a short period of time.

Keywords: *The management of the quality services, The „Q” Brand, the international economic crisis, the agro tourist hostels*

Introduction

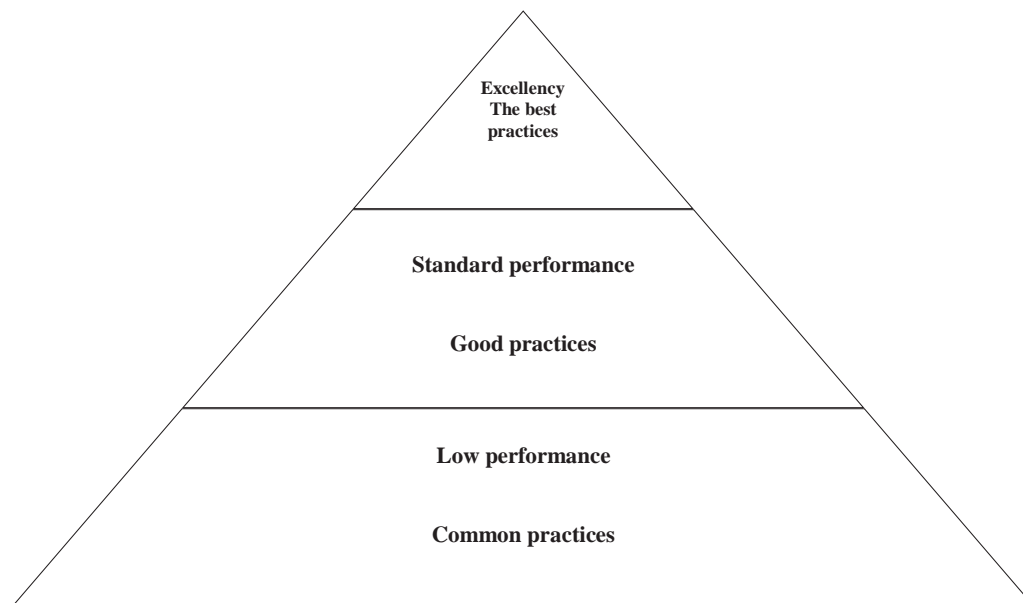
Quality is the main factor of success on the market when it comes to agro tourist hostels [13]. This is no major discovery as we all know that quality goods do not need advertising and sell by themselves. In this case, a quality service cannot be something else than a quality goods. Quality is the main factor determining competitively, performance, results and therefore profit. Quality supposes good practices (on a high level, that of excellencies,

this means the best practices), in conformity with the standardized models, with standards (and on a high level, with the excellency models) [2]. These items are figuratively illustrated (in the figure no. 1).

The criteria for adhering to the European Union, the more and fierce competitiveness with the tourist markets in the region, the increase in the clients' exigency, either Romanians or foreigners, for quality services in tourism, force us to approach this topic with a completely different view than the operators in the Romanian rural tourism system have been previously accustomed to [7].

For the future, the three evaluation levels of conformity on the offered services will be configured as such: the base level will be compulsory, the standard and the excellence levels will be voluntary and certified by the accredited structures for certifying quality and management, including according to ISO 9001, ISO 22000 [4].

Figure 1. Performance and good practices



Results and discussions

The quality criteria can be divided into 10 components [2]. Each of them regulates the activity of a part of the B&B's services. These components are: MANAGEMENT; STAFF PERFORMANCE; ACCESSIBILITY/

LOCATION; FRONT FACE/EXTERIOR SPACES/PARKING; COMMON SPACES; RECEPTION; ROOMS/TOILETS; BREAKFAST/RESTAURANT; CUSTOMER SERVICE/RECREATION; SUPPLY.

For each component we will also mention the specific criteria, according to the type of B&B (according to the European norms adopted by ANTREC) [11]. Following herewith, we shall analyze these criteria for the three, four and five daisies B&B [12].

Management (pension manager)

Managers will establish and communicate the organization's vision, mission, values, policies and strategies to the employees or to other interested partners; managers will establish and communicate the unit's policy and objectives with regard to quality; managers will establish the short, medium and long-term detailed objectives in order to meet the customers' needs, requirements and expectations. Managers will focus on providing the value expected by the customers and other interested partners; Managers will establish a system of determining the needs of the market, by identifying target clients according to market segments; Managers will create a working environment favourable to a continuous improvement and innovation within the organization [1].

Managers will create a working environment which would impose ethical and legal attitudes and behaviours; the manager will continuously evaluate the organization's and staff's performances; managers will organize an efficient and effective communication system both at internal level as well as with partners outside the organization; the managers will elaborate position sheets for all the employees; the managers will check the permanent update of the customer database and will ensure their being kept confidential; managers will elaborate checklists for all the activities; managers will organize a daily information session of the employees regarding the activity of the bed and breakfast; managers will organize and maintain a system for collecting staff's feedback; managers will establish a rightful system of recruiting, selecting and motivating the employees; managers will provide a personal example of attitude and behaviour with respect to quality; managers will create a transparent environment within the organization; managers will promote teamwork at all levels; managers will establish an efficient and effective system of solving quality issues; managers will create a system of permanent evaluation of the customer's

satisfaction level; managers will keep contractual terms confidential in their relationship with the providers, customers and creditors.

Staff performance

General: the employees must permanently have a neat and adequate aspect; the employees who come in contact with customers must speak at least one or two internationally used foreign languages, according to the B&B type; the employees will provide information with respect to the services offered by the respective bed and breakfast; the employees will ensure the security and confidentiality of the customer's personal information.

Answers to the reservation request: the employees will provide a personalized answer to the reservation request; the reply will contain details regarding the services which have been booked; the reply will mention the means of transportation and the access route to the B&B.

Reservation: phone calls answer will be prompt (at most 3 calls before answering it, at the 4th call the phone machine of the B&B will be connected); the reply will be polite and will include a greeting formula which will mention the name of the bed and breakfast and of the person answering the phone; the reply will be stated clearly, accurately and in a friendly manner; the reply will provide correct information with respect to the means of transportation and the access route to the bed and breakfast; the reply will include alternative suggestions in case the bed and breakfast is fully booked; the reply will include services suggestions (non-smokers rooms, conference rooms, swimming pool, sauna, recreation etc.); the reply will include an information request with respect to the customer's arrival date as well as the instructions in case the customer will arrive late; the reply will repeat at the end all the data of the reservation; the conversation will end up with a friendly greeting.

Welcoming: the customer will be welcome by all the reception staff standing up; ideally, function of the area where the bed and breakfast is located, the customer should be welcomed according to the area's customs (with bread and salt, with plum brandy, with knot-shaped bread, and the person who welcomes the customer can wear a traditional costume); the customer will be greeted politely; the employees will welcome their customers smiling; the employees will establish the eye contact with the customers; disabled persons will be welcomed with increased care; the

requested services will be provided immediately; the employees will permanently show availability, affability and solicitude in their relations with the customers; the employees should offer at least a map of the tourism area of the bed and breakfast and accurate and complete information regarding the tourism, sports, cultural, ethnographic activities of the area, as well as the addresses of the institutions which facilitate these activities; the employees will guide the customers towards the access ways to the rooms.

During the customer's stay: the employees will work without making noises, without smoking in the presence of customers or in the kitchens; the managers will check at random the way the rooms have been prepared for the customers.

Restaurant: the customer is welcomed by the employees of the restaurant in a cordial manner; the customer will be greeted politely; the employees will welcome their customers smiling; the employees will establish eye contact with the customers and will guide them to their tables; the employees will take the customers' orders quickly and promptly; the employees will adapt their waiting speed according to the client's requirements; the employees will answer correctly to the customers' questions; preferably, the customers will be offered fresh and natural local products, produced in the host's household or in the respective area; the employees will ask the customers if they would like to order anything else; the employees will wait their customers according to the latter's orders; the employees will make sure of the customers' satisfaction, by asking them questions; the employees will greet the customers in a friendly manner at the customers' departure.

Payment: the customers are greeted politely; the employees will welcome their clients smiling; the employees will establish eye contact with the customers; disabled persons will be attended with increased care, the requested services will be provided immediately; the employees will make sure of the customers' satisfaction, by asking them questions; the employees will offer the customers suggestions with respect to calling a cab; the employees will make a copy of the pay bill in case of any further checking; at the customer's departure, the employees will address them in a friendly and polite manner.

Accessibility/ Location

There are street marks with respect to the nearest main route; the street marks are clean; the street marks are well cared for; the street marks are updated; there is a plan/ map/ other materials of the locality where the position and the means of transportation to the bed and breakfast are marked [9].

Front Face / Exterior Spaces / Parking

The name of the bed and breakfast is easily readable both during day and during night; the name plate of the bed and breakfast is kept clean; the surrounding area of the bed and breakfast is well illuminated; the night illuminating system is functional; the garbage tanks/ the rubbish disposal areas are not visible to the customers; the supply entrances and other areas for equipment and services will be kept clean; the supply entrances and other areas for equipment and services will be well cared for; the doors and door cases will be kept clean; the doors and door cases will be well cared for; front faces will be kept clean; front faces will be well cared for; the fence will be kept clean; green areas will be kept clean; green areas will be well cared for; the sidewalks will be kept clean; the sidewalks will be well cared for; the furniture and accessories of the sidewalks and alleys will be kept clean; the furniture and accessories of the sidewalks and alleys will be well cared for.

Parking (preferably with permanent surveillance): the parking will have indicators; the parking will be illuminated; in the parking/ garage there will be waste bins (at least one for 20 parking spaces); the gates will be well cared for; the parking security will be ensured [10].

Common spaces

Cleanliness and general aspect of the welcoming and reception hall: the reception and the hall will be permanently clean; there will be no unpleasant smells in the reception area/hall; the reception and the hall will be well illuminated; the reception and the hall can be heated (if the bed and breakfast is open between October and April).

Other common spaces specialized for the customer (living room, TV, club, conference room): common spaces specialized for the customer will be permanently clean; the common spaces specialized for the customer will be well determined.

Reception

There will be a reception counter and a key panel which will be kept clean and well cared for; there will be phones; there will be a tariffs notice; the authorizations obeying the regulations in force will be posted at sight; there will be personalized typified for all kinds of services; there will be informative materials: leaflets, maps, phone numbers, trains, buses, planes and boats schedule, events timetable; there will be a valuables safe-deposit box; the reception area will be clean [2].

Rooms/ Toilets

The room will be sound-insulated; the entrance door will be illuminated; the entire room will be illuminated properly; 20% of the rooms will be for non-smokers.

Furniture and equipment

Cleanliness and general state of the rooms

Toilets

Cleanliness and general state of the toilet

Breakfast / Restaurant

Breakfast

Available products (preferably natural, traditional, produced in own household or surrounding areas); cleanliness and general state of the breakfast room.

The restaurant

Diversifying the menu; Cleanliness and general state of the restaurant (if it is different from the breakfast room).

Services provided to the customers

Non-paid services: providing information, giving messages, wake-up alarm on request, booking restaurant tables.

Paid services: renting event halls; renting halls equipment; communication services (internet, inter-city and international phone, fax, etc.); swimming pool, sauna, and massage; selling alimentary and non-alimentary products, souvenirs, handicraft products etc; special areas and playgrounds for children (who will be looked after); all the services must be advertised by means of adequate pictograms, materials and indicators.

Supply

The process of selecting and assessing the suppliers must be efficient and effective; the products purchased must have specifications, a contract, a quality certificate; purchases are performed in order to obtain a maximum efficiency, profitability and to improve the B&B's image; the supply requests are specified by technical and commercial standards, the brand or the commercial name; the system for establishing the necessary supply must be efficient and effective, and it must aim at avoiding useless stocks [1].

Conclusions

The results of the study carried out in the main agro tourist areas in the country are not satisfactory, but the discussions with the hostels owners and their willingness to learn give us the hope that agro tourist hostels in Romania will have in the future a management of quality services close to the European Union standards.

The possible implementation degree of the Q brand in the 10 agro tourist areas studied is shown under (inset no. 2).

Figure 2. The possible implementation degree of the Q brand on the 10 agro tourist areas studied



It is obvious that the closest areas to the requirements of the Q brand are Bran and Mărginimea Sibiului, while the farthest are the high parts of Oltenia and the Danube Delta.

On a country level, the average possible implementation amounts to 42.5%. The conclusion is that more than half of the agro tourist hostels studied will not be able to implement the Q brand in a short period of time.

We can only hope that the re-establishment of the ministry will lead to finalizing the program for all public nourishment and accommodation units.

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ENVIRONMENTAL MANAGEMENT. THE RELATIONSHIP BETWEEN TOURISM AND ENVIRONMENTAL PROTECTION

Cristian-Mihai ENACHI

"Stefan cel Mare" University of Suceava, Romania

Email: Cristian.enachi@yahoo.com

Summary

The environment is an essential part of any development process and encompasses the links and interdependencies between people and natural resources. As a result, changes in the environment are not only due to natural events but also to the practical manifestation of development models, practices and lifestyles. Concurrently, any change in the physical environment has important socio-economic consequences that influence the quality of life. The effects of environmental pollution, manifested through the emergence of serious health problems and ecological disturbance, recognized at international level by the Stockholm Conference, have led to the emergence of a broad "environmental movement" both in developed countries and in developing countries. This response included the active participation of the public and private sectors. Tourism, more than any other field of activity, is dependent on the environment, being its "raw material", and the field of tourism development, being its framework support, the bearer of its resources. Tourism is carried out in the environment and through environment, its quality can favor or deny tourist activities. The tourism potential is an integral part of the environment, its existence and its development depend on its quality, so it can be considered a possible quality index for its environment, in other words, a "barometer" of its quality. At the same time, through the "exigencies" it claims, tourism can be a practical solution for unaltered environmental preservation.

Literature review

Literature in tourism field shows that the components of a sustainable tourism strategy have been set, the requirements of this activity - presented in a synthetic way - are:

- respect and care for the way of life of human communities;
- increasing the living standards of human habitats;
- conservation of the Earth's ecosystem, its biodiversity;
- reducing the use of depleting resources and maintaining the planet's support capacity;

- changing individual attitudes in favor of sustainable development;
- creating opportunities for communities to maintain their own environment, parallel to the implementation of the national framework for development and integrative conservation.

Along with the awareness, acceptance and implementation of this strategy, there is a great dilemma and problem waiting for the solution: costs. At the moment, but especially in the long term - the financial costs for sustaining sustainable tourism, including ecotourism, seems to be high. Looking ahead and analyzing realistically, however, we will see that later the costs for ecological recovery are much higher, and the negative effects on the environment can be largely irreversible. Specialty literature shows that economic and social objectives are two categories that are not of an alternative nature but which, on the contrary, need to be harmonized. The incentives offered by the government for tourism development are instruments used to achieve the objectives set by sustainable tourism policy in the field of tourism. It is important to ensure that strategic objectives do not conflict with one another and that incentives offered to investors are compatible with such objectives.

Methods

The main methodology used consists in a theoretical approach on some of the main problems identified in the correlation between sustainability and environment that can easily be transformed in economic growth through sustainable tourism. Most studies assess the economic impact of tourism activities in terms of number of arrivals, tourist income, average duration of accommodation and other economic indicators. Unlike many studies that treat only the physical and human environment, Miller et al. (2010) presents a series of indicators covering many aspects of sustainability: environmental issues, employment, financial leakage, customer-related issues (satisfaction, consumer behavior, social responsibility of companies in tourism, etc.). Depending on the level of correlation between variables, one can act in the direction of development by developing strategies for increasing the number of tourist's arrivals, facilities for extending the length of stay.

Ko (2005), HwanSuk and Sirakaya (2006) consider that most studies on sustainable development of tourism are descriptive, based on qualitative and subjective data in their conclusions, thus lacking a rigorous

methodology. After identifying this gap in the literature, the above mentioned authors develop a conceptual framework for the sustainable tourism assessment based on eight dimensions: political, economic, socio-cultural, production aspects, environmental impact, ecosystem quality, biodiversity and environmental policies. Each dimension is evaluated on the basis of several quantitative and qualitative indicators that are scaled and grouped to measure the durability of a tourist destination.

Environmental management represents the method by which human activities affecting the environment are organized in order to maximize social welfare and to prevent and mitigate possible environmental effects by treating generative causes. Environmental issues cannot be viewed in isolation, but must be addressed in conjunction with development, taking into account the essential importance of maintaining an appropriate balance between economic development, demographic growth, rational use of natural resources, environmental protection and preservation. Society has identified valid reasons for answering the question of "why the environment should be protected". The concept of sustainable development can answer the question "what should be done to protect the environment." It is not possible to develop a policy in the absence of values. The system of values underlying decisions has a great influence on how decisions are made, on the factors that are taken into account, and on the way in which political alternatives are assessed. Individuals involved in formulating environmental policy must ensure that personal values do not interfere with national goals.

Results

The protection and preservation of tourism potential is shaped as a distinct activity with specific problems requiring the collaboration of specialists or from various fields. This action can be satisfactorily efficient only in the context of ensuring an adequate legal and administrative framework, requiring administrative organization, economic resources, legal support, efficient and sustained citizenship education.

The measures that are imposed on the protection of tourism potential and the prevention of its degradation mainly aim at the scientific and rational exploitation of tourism resources so that their exploitation rate does not exceed their rate of recycling and regeneration. The intensity of the direct or indirect relations of the tourism with the environmental factors does not exceed the limits of their support capacity analyzing the relation

between the tourism activity and the polluting economic activities in order to prevent the degradation caused by the factors in other sectors of activity by reporting the competent institutions about the sources of pollution and harmful actions on tourism resources. In-depth knowledge of the problems of maintaining the equilibrium of the ecosystems on a global-territorial level, through a thorough analysis and better rational management of the country's or even more restricted land resources (counties, areas), so that the touristic valorization to be solved in the context of capitalizing on all natural resources and the protection of the environment.

This correlation is achieved theoretically in the territorial planning studies which thus become the main instrument in the hands of the decision-makers and the basic document in the scientific, rational and efficient territorial planning. One of the important measures to protect and preserve the tourism potential is: adequate and superior planning and organization of areas, trails or tourist objectives.

The development of mountain tourism requires the proper organization of mountain areas by knowing all the landscapes and ski areas, other resources that will provide the basis for designing the future tourist facilities (paths, markings, installation of stairs or cables in difficult parts, arrangement of sight-seeing spots, winter sports facilities, forest conservation, forest replanting, etc.).

The protection of the environment and tourism heritage is influenced to a large extent by the ecological awareness of the population and by the feeling of love and respect for the homeland's nature, the historical places and the monuments of art and architecture created over time. This can be achieved through a sustained educational action on the environment and the tourism potential, which must be done at the level of the whole nation, by instilling an attitude of respect and responsibility towards natural resources in order to protect them. Ecological education for the protection of nature and tourist potential must be made permanent for all ages, but it is important to start from childhood. Ecological education can take place through conferences, exhibitions, radio and TV, press, projections, excursions, tourism and nature associations, etc. The whole educational work in environmental protection and tourism potential is interdisciplinary, as a continuous process and an integral part of education in general. It covers the main issues of protection in a global but regionally correlated perspective and examines the issues of environmental development and

growth in the context of environmental protection, insisting on local, regional, national cooperation in addressing all aspects of pollution.

Analyzing all aspects of the environment as a tourist potential, it can be established that its protection and preservation is realized within an overall view of the country's economic development, conception located at the same level as the general development problems of the economy.

Internationally, countries with old tourist traditions adopt national tourism planning based on the aspect of protecting their own tourism resources. In order to develop sustainable tourism, three main objectives were taken into account:

- economic - essential in identifying, capitalizing and increasing the exploitation of tourism resources;
- social - special through the permanence of the population, increasing the employment rate, supporting the practice of traditional crafts and attracting the population into the practice of tourism;
- ecological - important for avoiding degradation, environmental pollution and ensuring a balanced and long-term exploitation of tourism resources.

Tourism development plans based on long-term global tourism forecasts, in line with foreign market trends and concrete plans conducted on medium term (four to five years) or short (three-year) made on regions, areas or forms of tourism are based on European standards and norms on the exploitation of tourism resources, development and modernization of tourism structures and services.

The development of forecasts and tourism development plans is the main point of support for the sustainable tourism strategy, which implies, among others:

- preservation of natural and anthropic tourism resources for the purpose of continuous and future use;
- raising the living standards of local communities;
- better knowledge and awareness of the idea of environmental preservation, both by the local population and visitors.

Analyzing all the aspects of the environment as a tourist potential, it can be established that the protection and preservation of the environment is realized within an overall view of the country's economic development, conception located at the same level of importance as the problems of general development of the economy.

Conclusions

Sustainable tourism is based on a common partnership action between the actors called upon to make the key decisions on achieving this goal. Joint action plans for the sustainable development of tourism in protected natural areas imply knowledge and solving of the following issues:

- the clear establishment, from the outset, of the protection objectives for each national park, with the participation of specialists and all those interested in their tourism valorization;
- inventory of all natural and cultural features that can form the basis of tourism potential and analysis of all the obtained information;
- ensuring working conditions in partnership and multidisciplinary teams, with better collaboration with the local population, with regional and local organizations interested in tourism;
- identifying all the values and finding all the opportunities that can be the basis of sustainable tourism in protected natural areas;
- the appreciation of the support capacity of the different components of the protected natural areas, in order to ensure the quality at the level of the international standards;
- construction and analysis of the domestic and international market and tourist requirements for the diversification and development of tourism activities;
- providing specialized consultancy to support tour operators or businesses interested in developing activities that are compatible with national and local environmental protection policy;
- analysis of the exploitation of the resources and taking into account the protection requirements;

Currently, tourism practiced in national parks and biosphere reserves in developed European countries does not meet the attributes of sustainable tourism. The presentation of the underlying principles, the development and tourism development projects of the protected natural areas has an important role for the tourist facilities of the national parks in Romania, especially in order to avoid the negative sides present in other countries, related to their economic exploitation.

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ENERGY AND ENVIRONMENTAL POLICY - A CHALLENGE FOR EUROPE

Mihaela-Claudia ENACHI

“Stefan cel Mare” University of Suceava, Romania

Email: olariumclaudia@gmail.com

Summary

Environmental issues are related in the contemporary period to demographic growth, urbanization, production and consumption levels and structure, and technical evolution.

Energy strategy is undoubtedly one of the central elements in public policy making by the authorities of any state, with significant regional and global implications.

Gradually, society focused on the pattern of competition. In this way, the tariffs were competitive and the consumer's freedom to choose was much higher.

The environment is an economic factor of the highest importance, traditionally considered by economic analysis as a factor of production alongside capital and labor.

The European Commission has launched a document through which environmental policy integrates into energy.

In this context, the objective was to achieve sustainable economic, social and environmental development. Among the changes brought by the integration of environmental policy into the energy one, are the transfer of responsibility from environmental authorities to energy field, and then this transfer to extend to all sectoral policies. Sustainable energy policy can be defined as a policy that maximizes the long-term well-being of citizens by maintaining a reasonable balance between food security, the competitiveness of energy services and environmental protection in response to the challenges of the energy system. The development of such a policy must be seen as a continuous process that seeks to provide optimal solutions for the long-term well-being of citizens. Environmental issues consist of acid rain, air quality, climate change, energy resource use, and the use of nuclear energy.

The approach to the environment-energy problem has been advanced. Energy suppliers are more diversified, competition has improved, energy efficiency is rising and environmental impact has been reduced. The European Union has a strong industry with potential in the field of energy efficiency. However, there is still much to be done to meet the current challenges: energy demand is steadily increasing, liquid fuel will be replaced by natural gas and renewable sources, progress in increasing competitiveness is modest, and CO₂ emissions are increasing, as well as import dependence.

The ever smaller number of energy resource owners only adds pressure to the community as a whole. The European Union has made efforts in appropriate approaches to these issues, such as: increasing energy efficiency, limiting vulnerability, reducing environmental effects, etc.

Literature review

According to the literature, in the attempt to delimit the concepts very clearly, other specific challenges arise from the fact that any energy or environmental policy deals with both the resources and the technology.

The main reflections in the literature on the new energy and environmental concerns of the European Union are based on the creation of a European energy union and the strategic framework of the European Strategic Energy Technology Plan (SET).

Equally, the legislative and regulatory framework of the Union is useful through European directives and regulations in the field of environmental policy.

At the basis of the scientific approach are investigations and results of studies and researches both within the national and international literature. Thus, among the most representative studies addressing the new priorities of the European Union energy strategy, there are: Jopp, M. (2014), Baumgärtner St., Becker Ch., Frank K., Müller B., Quaa M. (2017), Michael Pollitt (2017), Jayseh Parmar and Phil Leonard (2017), Michelle Melton and Andrew Stanley (2016), Mathias Bieri (2016), Aileen McHarg (2017).

To support any debate on energy policy, it is essential to understand that there is a strong correlation between economic growth and energy consumption. This link is recognized and validated in the studies of Andrleit, H., Bahr, A., Babies, H.G. et al. (2016) Berger S. (2008); Kraft J. and Kraft A. (1978); Masih A. and Masih R. (1996).

In order to be able to study closely the way in which environmental protection is achieved, but and its impact on the economy, we analyzed the legal framework of environmental policy, the history and the underlying causes of environmental protection, but also the trend regarding the type of protection chosen within the European Union.

We recall the directions of action set out in the 1970 Green Paper:

- Electricity demand management. Energy consumption will need to be controlled and guided, particularly through close monitoring of energy efficiency and diversification of primary energy sources.

- It is necessary to supply strategic oil stocks and to coordinate their use, as well as solidarity between Member States in times of crisis.
- For the sake of security of supply, it was agreed to create a new EU-Russia energy partnership, which will include provisions on network security, investment protection, major projects of common interest.
- New and renewable energy sources. The target in this area is close to 20% by 2020.
- Nuclear energy is of global interest with renewable sources if used efficiently. At the same time, nuclear safety will be very strictly regulated.
- Internal energy markets must be encouraged and developed, being the only ones able to ensure healthy competition.
- Energy trade in the EU is only 8%, and interconnection of systems can lead to increased efficiency in this area.

Methods

The type of research used is descriptive in order to document and understand phenomena, and research methods have been used to observe, analyze documents and analyze content.

The research methodology was achieved through the reading of numerous written sources, as well as through the research / analysis of many Internet pages listed in the Bibliography, for finding information from several sources, using descriptive research to document and understand the phenomena, through the document analysis method.

I consider this article an interdisciplinary scientific approach trying to analyze the efficiency of the use of energy sources from an ecological and economic point of view.

I used the following methods of scientific research:

i. The causal relationship (including the relation of conditioning and interdependence)

Causal relationship is the permanent link between two or more processes or economic phenomena, a cause and effect relationship. This will be commonly found in this paper to determine, for example, what the effect of limiting pollution processes would be.

ii. Inductive or deductive method

The inductive method starts from a set of ideas generated by the analysis of concrete cases leading to a series of conclusions with a higher or

lower generalization. It has been used in this paper to demonstrate the reliability of an investment using a renewable energy source with a low environmental impact. The deductive method starts from the general aspects of trying to separate particular ideas.

iii. The grouping process

The grouping process takes into account the delimitation in homogeneous groups of units and will be used to present the links between the statistical characteristics regarding the economic indicators that we will consider.

iv. Analysis and synthesis

Analysis and synthesis are two interrelated operations. While the analysis notes the importance of each element for the whole, the synthesis reconstructs the object from the elements discovered as a result of the analytical process. These will be used, for example, to analyze the factors underlying the growth and economic development of the European Union under the impact of environmental policy

v. The comparison process

The process of comparison is one of the methods encountered and used above all when observing differences in environmental policies among EU Member States.

The information gathered comes from different sources, such as the international and autochthonous literature, concretized by books, articles and studies, sources of Community and international legislation in the field. For scientific documentation on the elaboration of this paper, after informing on the sources, we collected the necessary data from official sources such as those offered by to the Organization for Economic Cooperation and Development, the European Agency for Development Environment, European Geothermal Energy Council, European Energy Council Regenerable, National Institute of Statistics, etc.

Results

The aim of the paper is to identify the new priorities of the European Union energy strategy under current economic and political conditions. Within this framework, we aim to achieve the following research objectives:

- the delimitation of the complex concept of energy policy within the literature;

- characterizing the stages of evolution of the EU energy policy relevant to the policy development in the energy sector at European level;
- Analysis of the main segments of the European energy market: the electricity market, the oil market, the natural gas market and the coal market;
- to produce a forecast to estimate the evolution of renewable energy consumption in the next period at EU level;
- analyzing energy interrelations - economic development and determining the impact that energy consumption has on the economic development of the Union;
- identifying European energy perspectives;

Through this paper we have come to support scientists in the field of economic and ecological sciences with an innovative, interdisciplinary approach.

We want to sensitize economic operators and local authorities to take into account investment projects for local development from renewable energy sources.

We want to give a comprehensive and current look at the issue of the economic impact of environmental policy in the European Union, the influence of Community environmental legislation on economic growth.

Conclusions

The adoption of a unitary energy policy would lead the European Union towards a more competitive and sustainable economy but at the same time characterized by a low energy consumption from safe sources.

Personally, I think that, although initially unattractive, the issue of energy is a vital one for the European Union. Internal factors, but especially external ones, contribute to creating unimaginable pressure. Gradually the states of the community understood the importance of this sector and the initiatives were not delayed

In summary, the objectives of such a policy are, as a matter of priority, to ensure the competitive functioning of the single internal energy market, to ensure a consistent and secure strategic supply, to concretely reduce greenhouse gas emissions from energy consumption / production, which would strengthen the image of the unity of the European Union on the international scene.

In order to reduce the pollution phenomenon, conserve resources and exploit them for as long as possible, the state has no alternative but to impose new rules on the exploitation of resources and their processing through environmental legislation. In this regard, environmental actions, together with their related economic activities creates, on the one hand, value, and on the other hand, costs.

We want to highlight that the assessment of existing environmental regulations and environmental policy instruments and principles leads to maximizing social welfare in the European Union.

Another direction that can be improved in the future is the investment strategy by analyzing appropriate technologies from renewable primary sources and reducing the negative impact on the environment by reducing the pollution level: setting up defenolization, deionization, purification stations; reinjection of thermal waste water, etc.

The European Union is the largest importer and second energy consumer on the international energy market. The European Union depends on imports for half of its energy supply and this dependence could rise to 70% in 2030. For natural gas, dependence could reach 70%, for oil to 90% and for carbohydrate even 100 %.

Measures in the energy sector must pursue a more stable energy flow, ultimately supporting the Union's efforts to ensure peace, stability, security and prosperity.

From the point of view of primary energy sources, the Member States can be divided into three categories: net producers, net importers and the category of cohesion countries.

The European Union must act "with one voice" and promptly. He must exploit all the tools at his disposal. I believe that the European Union must be the key character in concluding international agreements.

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ROLE OF INSTITUTIONS IN PROMOTING SUSTAINABLE DEVELOPMENT. THE CASE OF FAIR TRADE

Grażyna ŚMIGIELSKA

Department of Trade and Market Institutions

Cracow University of Economics, Poland

Email: smigielg@uek.krakow.pl

Abstract

The aim of the paper is to show that although Fair Trade (FT) is now institutionalized and due to that very often criticized because of losing its original character, it still contributes to sustainable development (SD). It is traced to beginning when it was social innovation (solidarity stage) through the development of non profit organizations (ATOs stage) until now when big corporation are involved in it (mainstream). These stages are characterised in relations to the goals and tools of promotion FT. Also the main areas of FT contribution to sustainable development are identified as well as how it overlaps with the 2030 Agenda of Sustainable Development. Contemporary FT is shown through the prism of standards of participating in the system and its accompanying institutions as the Fair Trade Towns or Fair Trade Schools and their contribution to SD. Some experiences from the development of these institutions in Poland are also presented

Introduction

Since Brundtland Report, which warned about threats resulting from accelerated economic growth, was published in 1987 (Brundtland Report, 1987) a lot of discussion takes place how to develop in more sustainable way. Here one of the institutions which contributes to sustainable development (SD) – the Fair Trade (FT) is discussed. Its idea is to buy products from farmers in developing countries on terms that are relatively more favourable than commercial terms and marketing them in developed countries at an ethical premium (Bird and Hughes 1997, De Pelsmacker et al, 2005, p. 51, Stefańska and Nestorowicz, 2015, p. 35). It is also defined as trading partnership that aims for SD of excluded and/or disadvantaged producers by providing better trading conditions, raising awareness and campaigning (Krier 2001). FT was set up not by governments but because consumers noticed the problem of economic and social inequality and it has

evolved towards formalized institution. Here it is shown how sustainable development was promoted on different stages of its institutionalization process and even if now it is criticized due to involvement of big corporations its sales has been boosted what converts into benefits for poor countries.

Institutions and their role in the economy

The discussion on institutions have long tradition. For example in 1964 Bierstedt stated the institution is “a define, formal and regular way of doing something, an established procedure (Bierstedt et. al 1964). King (1976) indicated the role institutions in society defining them as “repetitive patterns of interaction through which society undertakes certain actions”. In turn North analyzing problem of institutions importance in economy defined them as „ A set of rules, compliance procedures and moral and ethical behavioral norms designed to constrain the behavior of individuals in the interest of maximizing the wealth or utility of principals”(North 1981 p. 201-202). It means that institutions prohibit, permit or require specific type of action, i.e. political, economical or social but by the same token they are important for reducing transaction costs, for improving information flows and for defining and enforcing property rights. In broad sense they include also organizational entities. Putting it in another way they are rules, enforcement characteristics of rules, and norms of behavior that structure repeated human interactions (North 1989). They involve formal rules that include laws and contract as well as informal means such as social norms and conventions that evolve over the time (Wiggins and Davis, 2006). Jütting (2003) analyzed them according to:

- The degree of formality
- Different levels of hierarchy
- The arena of analysis

The degree of formality is important criterion because institutions consist of formal written rules (e.g. constitutions, laws, socially sanctioned norms of behavior, internally enforced standards of conduct) as well as typically unwritten codes of conduct that under underlie and supplement formal rules.

Institutions are developed in different areas usually identified as: economics, political, legal and social. Political and legal institutions are not

of interest here; the focus is rather on economic institutions as well as social. As far as the first group is concerned they might aim at:

- Establishing and protecting property rights;
- Facilitating transactions
- Permitting economic cooperation and organization (Wiggins and Davis, 2006).

Social institutions are related to the access to health and education, have an impact on gender balance and govern more generally relations between economic actors.

These institutions could emerge in two ways: either informally through repeated interactions between organizations that establish expected norms of behavior; or else formal through deliberate design.

The research on institutional development mostly relates to the analyzing two main areas of their influence:

1. How they foster exchange by lowering transaction costs and encouraging trust
2. How they affect the state and other powerful actors to protect private property and persons rather than expropriate and subjugate them.

Analysis and discussions often concerns poor countries when institutions are not well developed and were often informal relations prevailed. As a consequence they have problems with joining the global economy and the problem of poverty is growing.

Now the poverty is one of the major challenge. It is estimated that 2.2 bn people 1/3 of world population lives in poverty whereas chronic hunger affects 842 mln people (12% population). One of the reason of such a situation is unemployment and its consequences - 1.5 bn of employees does not have formal work agreement. Most of them lives in so called global South made of Africa, Latin America. developing Asia, including Middle East and Oceania. "The term Global South functions as more than a metaphor for underdevelopment. It references an entire history of colonialism, neo-imperialism, and differential economic and social change through which large inequalities in living standards, life expectancy, and access to resources are maintained" (Dados and Connell 2012, pp.12-13

The role of FT in sustainable development

The problem of inequalities between Global South and Global North was noticed by the World Commission on Environment and Development in 1987 which stressed the necessity of more sustainable development (SD) which was defined as “Development which meets the needs of current generations without compromising the ability of future generations to meet their own needs” (Brundtland Report, 1987, p. 11). The Commission stressed that it means not only counteracting degradation of the environment, but also attitudes towards meeting needs of the society as a whole (fight against destitution and poverty), pursuit to set up the market system based more on cooperation than competition as well as in opposing degradation of the cultural variety and tradition (Dąbrowska, et. al., 2015). So FT which idea is to buy products from the producers in developing countries on terms that are more favourable than free market terms and marketing those products in developed countries at the ethical price premium contributes to sustainable development (Śmigielska et al. 2015).

Merchandise consists now of the two main products category: food and non food. The most traded products in the category of food include: coffee, banana, sugar, cacao, tea and in the category of non food - cotton and souvenirs. They are manufactured in three regions in Africa and Middle East, Latin America and Caribes and Asia and Oceania. It should be stressed that these regions overlap with the poorest regions in the world.

Fair Trade Premium (Community Development or Social Premium) is invested in building community infrastructure: schools, health clinics, provision of educational scholarships, improvements in water treatment systems, conversion to organic production techniques. It contributes to sustainable development by offering better trading conditions to, and securing the rights of marginalised producers and workers - especially in the South. It is implemented by defining the rules of cooperation between producers, intermediaries and final buyers which protect the weakest partner (Nicholls 2002, p.7). Contribution to sustainable development is also made by fulfilling several other FT goals like: developing the long term buyer - seller relationships that facilitate greater access to financing for producers, improving working conditions, developing the producer or workers organizations and contributing to the regional development by e.g. donations for education. It should be noticed that Fairtrade goods are

produced and distributed in a way which does not destroy the environment (Dragusanu, et. al., 2014) what is also very important goal of SD.

As such Fair Trade has become an excellent part of the Millennium Development Goals adopted by the UN in 2000 (UN, 2000), as it contributes to a stable and sustainable development and helps to combat poverty. As stressed by Pongratz-Chander (2014, p. 234) it can be located within the sustainable development approach to development because it recognizes that any project of development must take into account the social and environmental costs of doing business.

Fair Trade fits to Sustainable Development Goals (SDGs) of the 2030 especially to :

Goal 2: *End hunger, achieve food security and improved nutrition and promote sustainable agriculture;*

Goal 5: *Achieve gender equality and empower all women and girls;*

Goal 8: *Promote inclusive and sustainable economic growth, employment and decent work for all;*

Goal 12: *Ensure sustainable consumption and production patterns and*

Goal 17: *Revitalize the global partnership for sustainable development*

Fair Trade could be also considered as supply chain. as a supply chain takes care of people, planet and at the same time is profitable in this way fulfilling three main conditions for sustainability.

The current form of FT has evolved in the long process of its institutionalization described below during which different forms of its promotion have been implemented.

FT institutionalization - how it determines the process of its promotion

History of FT is the history of institutionalization and mainstreaming of its product in which three waves could be identified (Nicholls and Opal 2005). The first one is related to work of relief and charity organisation, which become active after World War II (Stefańska and Nestorowicz, 2015). They were involved in import and selling handicrafts produced in the Global South countries but also in Eastern Europe. These organizations, which associated FT activist, included inter alia Edna Ruth Byler the founder of Ten Thousand Villages, which in 1946 started to sell in US handicrafts from Puerto Rico. In the mid forties last century Edna Byler visited Puerto Rico when travelling with the husband. She tried to help woman struggling

with poverty by buying pieces of fine embroidery and then selling it to her friends and neighbours in US. That simple idea blossom into a global fair trade movement¹. That time the stories about the makers describing what is purchase meant for the producers living in the poverty in the South became the very important part of every selling process. In Europe nongovernmental British organization started to sell goods from less developed countries in its own stores and via catalogues. The main form of promotion of FT ideas and products was personal selling.

The next wave of FT development started with setting up the first Alternative Trade Organization (ATO) what happened in 1965 in UK. It was followed by the other organizations, which tried to marry the social development with trading activities like Perketi in Jakarta (1975) or Traidcraft in UK (1979) (Strong 1997, p. 5). ATOs aimed at diminishing the role of exploitative middleman in trading transactions. The supply chain developed by them involved small farmers and cooperatives, which were responsible for production process, producers groups controlled by ATOs and finally shops with exclusively fair trade assortment only (Worldshops) or catalogue selling. They have crucial role in traditional crafts and folks art sales growth across Europe and in North America. In the 1970s alternative trade buying organizations had been meeting informally in conference every few years to talk about issues that concerned them all. At that time FT kept is original character including its promotion although ATOs had contributed a lot to increase the range of its impact.

Incorporation of retail business into supply chain in eighties last century initiate the third wave of FT development which is considered by some scholars e.g. Moore (2004) as one of the most important. That time agricultural product like coffee and tea began to be added to the assortment. It created so called mainstream channel of supply which included producers' groups which had to be certificated by Fairtrade Labelling Organization International - FLO (nowadays Fairtrade International), middlemen and finally goods become offered consumers also in hypermarkets, supermarkets and other conventional retailers. As a starting point of this wave the launching of the first certification label Max Havelaar in 1988 is accepted which allowed to sell the coffee from Mexico in Dutch supermarkets.

¹ <https://www.tenthousandvillages.ca/about>

So this phase of FT's development is also characterized by the progressive institutionalization of this movement. The most important institutions which was founded in this stage includes Fairtrade Labelling Organizations International, FLO, founded in 1997 as well as:

- 1987 European Fair Trade Association, (EFTA)
- 1989 World Fair Trade Organization, (WFTO), brings together producers and Alternative Trade Organizations (ATO)
- 1994 - Network of European World Shops, NEWS!) - brings together Worldshops
- 1998 - FLO, IFAT, NEWS! and EFTA made FINE - with the aim of coordination process and lobbying

FT operators mainly ATOs convey education campaigns directed towards consumers (Becchetti, Huybrechts, 2008). Their idea is to promote FT, and more globally educate citizens (and governments) towards consumption habits that are more respectful for the environment and the people - producers in the South. Sales growth resulted also from adding to the assortment so called FT composite products - muesli, chocolate, cakes which have ingredients sources in the South whereas they were produced in the North. These require from the ATOs the cooperation with mainstream business to achieve the economics of scale. The new mainstream channel on the one hand caused the significant increase in sales of FT products but on the other hand it has been losing its original character what is often criticized by the enthusiasts of that movement.

Very important role in promotion FT have initiatives developed in XXI century which include inter alia:

- World Fair Trade Day,
- FT Schools
- FT Towns
- Fair trade communities

World Fair Trade Day is the initiative of WFTO, taking place on the second Saturday of May each year, which was introduced for the first time 4.05. 2002 and it was modelled on similar initiative in Europe starting in 1996 called European World Shops Day (Kocken 2003). The idea of it is to promote every year different important for FT issue. For example in 2018 the focus was on #Live Fair, one product at a time. People were encouraged to purchase products from organisations committed to fair trade principles in FTF verified stores. They could also participate in it by hosting or

attending a fair trade event and/or sharing for fair trade educational resources².

The initiative of FT Towns started in the UK in 2001. It promotes FT by fulfilling its goals, inter alia ³:

- Fair Trade products availability in the area's shops & served in local cafes/catering establishments.
- Using Fair Trade products by a number of local work places & community organizations (faith groups, schools, universities etc).
- Attracting media coverage & popular support for the campaign.
- Convening a local Fair Trade steering group to ensure continued commitment to its Fair Trade Town status.

This institution is very popular in June 2018 there were 2062 towns all over the world, mainly in Europe, involved in this initiative.

FT Schools as well as FT communities, which are usually church communities have similar purposes and in similar ways promote FT. These "Fair Trade organizations, backed by consumers, are engaged actively in supporting producers, raising awareness and in campaigning for changes in the rules and practice of conventional international trade" (Fairtrade International, 2013, p.7). The key players are: Fair Trade Producers which usually represent co-operative or associations in developing countries, retailers which sell FT product to the consumers and other organizations e.g. The Fairtrade Labelling Organization. So originally Fair Trade was only a movement whereas now it is institutionalized and organizations labelling the products play an important role.

As it has been shown FT from the informal institution become very formalized based on standards including ⁴

- Producer and Trade Standard and general reference documents
- Product Standards
- Climate Standard
- Textile Standard
- Standard Operating Procedures

² World fair Trade Day; May 12, 2018, available on <http://www.fairtradefederation.org/wftd/>

³ <http://www.fairtradetowns.org/resources/goals-action-guides>

⁴ Available

on:https://www.fairtrade.net/fileadmin/user_upload/content/2009/standards/documents/List_of_Fairtrade_Standards.pdf

These standards are précised in guidance documents related to:

- Hired Labour (not only Hired Labour, but also Guidelines for revised rules for Premium use)
- Contract Production
- Trader Standard
- Coffee (Guidance of Price Risk Management)
- Fairtrade Prices (Guideline for estimating Cost of Sustainable Production)

It should be stressed that FT is not organization but it is institution which fosters economic cooperation and facilitates transactions. Its main role is to foster exchange but lowering transaction costs of consumers who would like to help people leaving in poverty in the countries of Global South. It started from the initiative of people sensitive to human unhappiness to become the alternative to conventional trade in a contemporary economy characterized by aggressive competition directed towards cost reduction. FT practices have got increasing impact on the global value chains producers as well as trading companies. As far as producers are concerned the direct influence on their capacity to invest in sustainability practices are stressed. FT “supply chain interventions do-to some extent, and upstream in the supply chain - positively influence capacity to trade and the awareness of good trading practices, increased transparency and safeguards for suppliers” (Aidenvironmental report: 2017).

Institutions created to promote FT idea and products have now an important role in developing its market especially they are important in the countries which this initiative is little known like for example Poland. In Poland for a time being there are two institutions dealing directly with promoting FT: Polish Fair Trade Association (PFTA) and Fair Trade Coalition (FTC). PFTA was established in 2003 with the ideas to promote Fair Trade, educate on sustainable development and distribute Fair Trade products which are expressed in the goals. It has one store with FT products in Poznan and also online store as well as it is leading organization which coordinates Fair Trade Towns & Schools Campaigns. Since 2010 PFTA is the member of World Fair Trade Organization.

Fair Trade Coalition in the years 2009 -2013 was informal institution. It was registered as nonprofit organisation in 2013. Its mission is to support

marginalised producers and smallholders in the Global South by making Fair Trade an integral part of people's everyday choices.

- Develop and promote Fair Trade
- Raise awareness and create positive image of Fair Trade
- Develop representation of the fair trade movement in Poland
- Supporting entities interested in working for fair Trade
- Support initiatives aimed at ensuring accessibility of Fair Trade products in Poland
- Support research on fair Trade operations and its impact on the producers

These nongovernmental organizations promote sustainable development mostly indirectly by promoting FT which, as it has been shown, contributes to SD but also directly by raising the awareness of the problems faced by contemporary world as poverty, environmental degradation, social inequalities.

Including corporations in FT supply chain has got even a dramatic impact on its popularization. They now use their global distribution channels to sell FT products what makes them more available for the consumers. But corporations are led by the aim of profit so in the countries where Fair Trade idea is not still very popular like in Poland they are present only on small scale.

Conclusion

FT is not organization but it is an institution. It has been started as informal institution and has become more and more formalized. Due to the institutionalization process Fair Trade market is now a mixed form of the market when different types of players coexists. Along with nongovernmental organizations on this market very active are profit organizations which now participate in its promotion.

Nongovernmental organization ATOs set up Worldshops and sell FT products via catalogues. People working with them are very engaged in the idea so selling process is accompanied by the promotion. Also the other national, European, and world organizations promote SD by educating society and encouraging its members to buy FT products through many initiatives like FT Towns, FT Schools and Universities, FT communities and so on.

It should be stressed that although the involvement of profit organization caused waves of FT criticism because of losing its original character on the other hand it would not had been so popular now. The growing role of Corporate Social Responsibility in companies strategies as well as consumer expectations make them being more and more active but they should be aware that they are all the time watched so they should obey FT standards.

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ADULT EDUCATION AND LEARNING AS A DETERMINANT OF SUSTAINABLE DEVELOPMENT

Martyna KAWIŃSKA

Cardinal Stefan Wyszyński University in Warsaw, Poland

Email: m.kawinska@uksw.edu.pl

Traditionally formed values, life, social and professional experience are the foundation of human life. In the postmodern world, however, we experience so many changes that they force us to undertake intensive update of our own identity, which may lead to uncertainty, anxiety, insecurity or doubt. Such new experiences can be particularly difficult to an elderly person who faces challenges he or she has never faced before. The patterns of ageing and experiencing old age differ from those fixed in our awareness, which may make experiencing one's own old age extremely difficult. On the one hand, the average life expectancy is increasing, as a result of which the period of experiencing old age is increasing in a natural way. On the other hand, acquired lifelong experiences will generate the quality of ageing thus contributing to sustainable development.

I define education as a complex process which should prepare an individual and society to the ageing process. It is not only the matter of being aware of changes taking place in life but also being able to adapt to such changes ensuring the longest possible independence and self-reliance to oneself. Therefore, education is an inherent part of active ageing, and its role in individual stages of human lifecycle is becoming more and more important. In the concept of active ageing learning is perceived as a lifelong and continuous process comprising all areas of human life. In such a dimension education is implemented in the formal, informal and non-formal system. Each of those systems aims at teaching so that it could be possible to live together and participate in social life, to know how to participate in this life and derive as many benefits from it for oneself and for society as possible.

The aim of the presented paper is to indicate the role of education with regard to the concept of active ageing as a phenomenon which is stimulating and determining sustainable development. The presented

deliberations are mainly of theoretical character, extended with literature of the subject and statistical studies. The main conclusion coming from the paper is the conviction that systemic and long-term education is an opportunity and guarantee of active ageing, it favours the social inclusion of an individual and conditions the implementation of sustainable development.

Education for old age and in old age - the update of knowledge, qualifications and skills

It is assumed that education can facilitate seniors' adaptation to social, cultural or economic changes which accompany contemporary societies. It is important for it to start at an early period of life, owing to which "meeting old age" will be less acute. Special significance of education should be assigned to middle age, when the first signs of the ageing of the body appear. It is usually the time of reconciliation with the fact that children are gradually leaving home and becoming independent, and the time of care for ageing parents. Thus, a necessity appears to accept conflicting trends arising from biological, physical, mental or economic changes. Therefore, youth and old age, activity and passivity, integration and isolation can occur simultaneously, and the acceptance of these trends will be the sign of wisdom and maturity towards the experienced changes. In middle age we should consolidate and develop competences acquired previously, and acquire new ones which will enable to keep balance between the past, the present and the future, which will be the testimony of the implementation of specific developmental tasks [Miś, 2000, pp.55-56].

Taking the above into consideration, we can assume that preparation to old age will consist in maintaining life activity as long as it is possible due to health reasons with the simultaneous maintenance of previous interests and discovering new areas within family and social contacts. Such activities may serve the limitation of the social isolation of seniors and primarily their loneliness, but this requires high awareness of one's own needs and habits, as well as the ability to adapt to changing conditions [Kamiński, 1974, p.369].

Education, as a system of learning and acquiring competences, has such varied areas of influence that it can be implemented both in educational institutions and outside them, for example in the family or social environment [Kargul, 2005, p. 46]. Elderly people use mostly informal and non-formal forms of education, implemented outside the institutional

education system. Thus, in the process of seniors' education a lot of importance is attached to practical activities which are often implemented during conversations and social meetings, where the exchange of information is the source of knowledge and keeping in touch influences the perception of the world surrounding us. This learning affects better understanding of the world and oneself [Roguska, 2009, p. 77], which translates into a better quality of living. The civilisation progress and the dynamic social development impose permanent learning on an individual, which is defined as a lifelong process of acquiring knowledge, qualifications and skills. This form of education, along with formal and informal education, plays a special role in the process of the preparation to old age, and its advantage is a lot of freedom in the choice of tools and methods responsible for a change in the perception of old age and the role of an elderly person in society [Halicki, 2013, p.143].

A characteristic feature of the elderly population is high variety in terms of the level of education, family or economic situation, because of which their educational needs will be also varied. It is also related to life experience they have acquired all their life, to habits and expectations towards the approaching or just experienced old age. In the period of late adulthood and early old age there is the reduction of opportunities to extend one's competences, because of which the sense of rejection, isolation and uselessness may intensify. Therefore, it is very important to create an educational offer for seniors, which would consider their resources and individual needs. Thus, it indicates the necessity to design educational activities for the elderly that would take into consideration changes taking place in their lives [Sienkiewicz-Wilowska, 2013, pp. 35-36].

The elderly, through the participation in education, more and more often find not only intellectual and cultural entertainment but also mental training which is the path to permanent development and maintaining self-reliance and independence as long as possible [Fabiś, 2006, p.34]. Therefore, the concept of lifelong learning, according to which education is an open and never ending process, is becoming more and more important [Kowalska-Dubas, 2013, pp.59-70]. In such an approach, it is implemented through all aforementioned forms of education which are undertaken throughout one's life in order to broaden one's knowledge, develop skills and competences in the individual and social context. Via lifelong learning an individual has an opportunity to become the source of competitiveness

not only on the labour market but also in the sphere of social and family life. Thus, promoting the lifelong learning concept serves to support active and productive ageing.

Contributing to the continuous development of an individual, lifelong learning meets the assumptions of sustainable development, which aims at self-improvement of an individual, the prevention of social exclusion and an increase in the value of human capital. Ultimately, it translates into economic growth and the improvement of the quality of living of citizens. Therefore, we can assume that by raising educational awareness and expenditure on education it is possible to create innovative economy guaranteeing the responsible development of future generations.

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PROMOTION MEASURES ON TOURISM AND ENVIRONMENTAL SUSTAINABILITY

Magdalena REIFS LÓPEZ

*Center for Documentation and European Studies of Córdoba,
University of Córdoba, Spain
Email: cd3relom@uco.es*

Fernando LLAGAS GELO

*Faculty of Law and Business and Economic Sciences,
University of Córdoba, Spain
Email: fllagas@uloyola.es; dt1llgef@uco.es*

Abstract

Sustainability and rational management of the environment are concepts that have been referred to the economic growth and the use of resources in terms that allow their more prolonged use. Thus, the Treaty on the Functioning of the European Union, regarding these principles says that the environmental policy establishes the mandates of preserving, protecting and improving the quality of the environment, and the prudent and rational utilization of natural resources.

Environmental policies usually contain regulatory, control and sanction measures that allow to manage and use resources sustainably, but in a certain way the approach to environmental management has neglected the risks and consequences of measures to promote and enhance the value of resources through measures of recognition, promotion and even protection that sometimes suppose the creation of a true product itself, in a ready-to-consume format with a significant impact on the environment and on the resource itself. Such decisions, coming from the cultural, territorial or urban policy, imply an "exaltation" and visualization of the reality that in many cases has the consequence of a more intensive use (in terms of consumption) of it and an increase of the amount of the resources needed for its use, which are intensified.

These policies determine, on one side, a displacement of the habitual users of the resources (residents in natural parks, historical districts...), and the redesign of the reality according to a rationality that has no more basis in many cases than to facilitate and increase the consumption with a distribution of costs in many cases not equitable.

One of the areas in which this is really striking is “the city”. The city is, in principle, the area, the field, in which the daily life of its inhabitants develops, which can be converted into a product itself, as a simple value to be consumed, essentially by tourism. Though declarations of recognition of urban areas (touristic towns, preserved historical centers, and even, World Heritage City, or European Capital of Culture...) suppose an increase in the standards on urban quality and care, at the same time they produce a “call effect” in attracting visitors and consumers to the resource that affects its sustainability and alters the equilibrium between the needs of its inhabitants and the resources at their disposal. In the industrial age, capital gains and profits were obtained essentially from the use of people and other resources in the productive process; in this postindustrial era, capital gains are also obtained through the exploitation of daily life that has been incorporated into the process of income and profit generation.

These "positive" promotion measures, which imply an undeniable realities' simplification, and an identity theft to their inhabitants, should also be judged from the point of view of environmental sustainability. In this judgment, the active participation of the legitimate users and residents of such resources should be allowed: These are the people who have that reality "at hand" and who have life experience in it. Likewise, criteria for contributing to the increase in costs of these spaces must be established, which are no longer spaces of use but spaces for consumption.

CORPORATE SOCIAL RESPONSIBILITY IN THE BANKING INDUSTRY: ENCOURAGING ENVIRONMENTAL FRIENDLY PRACTICES

Alexandru LUNGU

*Doctoral School of Economics and Business Administration,
Alexandru Ioan Cuza University of Iasi, Romania*

Email: alex.lungu87@yahoo.com

Summary

The financial crisis of 2007/2008 revealed the importance of a healthy, stable and sustainable financial system where central banks could and must play a crucial role. In fact, people lost trust in these banks during and short after the burst of the crisis and a lot of effort was made from their part to restore the people's confidence in central banks, financial institutions and the financial system as a whole. One of paths that the institutions from the banking industry took was to engage in various activities that can better contribute to sustainable social, environmental and economic growth. In this context, the current paper discusses corporate social responsibility (CSR) actions taken in the banking industry, with a special focus on environmental friendly practices.

When analysing the economic literature and the existing practices in the field, one can notice that CSR is getting more and more attention from the public as well as from business. Aside from financial related interests (obtaining profit for shareholders or owners), more people and firms express real concerns whether corporations (including credit institutions) are operating socially responsible in current times. In fact, the bigger the corporation is, the higher their involvement in social responsibility practices are expected to be (given their big budgets).

If we were to make a comparison between developed and developing or less developed market economies, we would find that the first ones show a growing interest in issues related to CSR and its effects. This is backed up by the substantial theoretical and empirical literature on this topic. When referring to the banking industry, Fijałkowska et al. (2018) draws attention on the existing literature which clearly demonstrates a positive relation between CSR commitment and financial results of banks in mature markets. On the other hand, when analysing a group of banks from Central and Eastern European Countries (the biggest 20 public banks), they found that there is no impact of corporate social-environmental performance (CSP) on Corporate Financial Performance (CFP). The statistical results of the research

revealed that the publication of a CSR report does not influence the changes in the banks' financial results; panel regressions have not shown that there is such a link. With regard to the theories that could explain the relationship between CSP and CFP, the most commonly encountered are the following: legitimacy theory, stakeholder theory, and agency theory (e.g., Dyduch and Krasodomka, 2017; Campbell, 2007; Guthrie and Parker, 1989). These three major theories suggest that companies should be sustainable and should incorporate corporate sustainability in their core strategic goals because the adoption of social-environmental practices allows for companies to save production costs by reducing environmental risks, while enhancing their relationship with the key stakeholders, which contributes to achieving competitive advantages, and thus improves their corporate financial performance in the long term. This approach states that CSR can be strategically managed to add value, sustainability and competitiveness to the company and seeks to foster CFP through CSP (Esteban-Sanchez et al., 2017). However, the neoclassical economic theory indicates that through the implementation of CSR policy the company's profitability could be decreased as a result of high production costs linked to environmental innovation (Manrique and Martí-Ballester, 2017). The banking sector responded relatively late to the challenges of CSR. First it considered environmental, than social issues (Viganò and Nicolai, 2009). Although banks have smaller direct impact on the environment, their indirect environmental and social responsibility may increase if they grant credit to companies which pollute the environment, produce unsafe products or violate human rights (Idowu and Filho, 2009). This way banks act as mediators of sorts, which may cause significant damages (Thompson and Cowton, 2004). The indirect impact may arise not only in relation to the users of banking services, but also the suppliers. As the management element of the responsible supplier chain, integrating environmental and social aspects into supplier policies has been adopted to finances as well. With regard to environmental efficiency, the bank's activities have impact on the environment such as its buildings and information technology systems. To provide services in an environmentally friendly way, the bank works hard to reduce energy consumption, waste and CO₂ emissions. For instance, with regard to the involvement of banks in environmental protection, these institutions usually involve in activities such as: reducing annual employee carbon emissions from 3.5 tonnes to 2.5 tonnes by 2020, reducing annual energy consumption per employee by 1MWh, recycling 100 percent of office and electronic waste, increasing self-generated electricity from 0 to 5 percent, increasing energy consumption from renewables from 24 percent to 40 percent, using Leadership in Energy and Environmental Design (LEED) buildings, promoting paperless banking by giving customers access to internet banking, and having sustainable travel by using video-conferencing and webinars. Many credit institutions, especially in Asian countries, promote themselves as being environmental responsible. these banks strive to reduce waste production and energy consumption, and to use environmental friendly products and materials in operations. One key initiative helps to conserve natural resources and protect

environment bringing positive change to the lives of villagers; another initiative aims to serve as a catalyst for positive environmental change among manufacturing companies. Other services such as e-Banking services, Green Banking Integrated Account promotes environmental awareness among full-time tertiary education students, and sponsorship of the Friends of the Earth (Hong Kong) 'Power Smart' Energy Saving Contest etc.

Keywords: *Banking; credit institutions; Corporate Social Responsibility; Environmental Sustainability; Environmental protection; Environmental practices.*



EFFECTS OF AIR POLLUTION TO THE GLOBAL SCALE

Otilia Rica MAN

Galati University "DUNAREA DE JOS", Romania

Email: otilia.man@ugal.ro

Abstract

The air becomes polluted when the concentration of newly introduced substances from human activities or from natural sources, systematically or accidentally, exceeds a certain level that generate toxicity for humans or for other living beings. This is one of the most often cited definition of air pollution. Beyond the dirtying effect suggested by this statement there are other effects too that come into action in certain conditions. The paper aims to uncover some of these effects by referring to the impact on the regulatory mechanism of the atmosphere and also the consequences in terms of changes in the living conditions.

Keywords: *air pollution, greenhouse gases, climate change, ozone depletion*

Introduction

The atmosphere is the gaseous cover of the Earth and by its characteristics is the closest to the significance of this definition. This reflects a certain continuity that does not allow spatial isolation. In this condition the scale of human impact could vary widely being influenced by the general and local dynamic of atmospheric processes. another important aspect is timing. From this point of view the atmosphere is a complex system in a dynamic equilibrium that maintains constant its characteristics as a result of the interaction among its components and among them and external factors. In general terms, this equilibrium is quite stable (Bran et al., 2009).

The air becomes polluted when the concentration of newly introduced substances from human activities or from natural sources systematically or accidentally, exceeds a certain level that generate toxicity for humans or for other living being. The dirtying effect suggested by this definition is not sole. The air pollutant could not reach toxic concentrations but still have negative environmental effect. This situation occurs than the concentration of gases below toxic level change the physical properties of the air with impact on living conditions such as temperature, rainfall regime, wind regime etc.

In fact process that undergo in the air lead to the elimination or neutralization for most of the pollutants. Nevertheless, than the path of emission exceeds the path of elimination, some pollutants mount up and generate the so called cumulative effects (IPCC, 2007). These cumulative effects enter into action at different spatial scales by various mechanisms. It could be differentiated global, regional, and local cumulative effects. Our paper refers to the first category and uncover its mechanism, causes and consequences.

Global cumulative effects of air pollution lead to changes in living conditions worldwide, regardless to the repartition of emission sources. Generally speaking it comes into action within a large timeframe. This characteristic poses serious difficulties for decision making since the only information is provided by research, and even this is subject of various interpretations.

Climate change

Climate change is the first environmental priority of contemporary society. Such position is explained by the complex and serious consequences in terms of economic, social, and environmental effects. Some of them are presented briefly in box 1.

This process is unleashed by changes in the composition of atmosphere. These changes mean increased concentration in carbon dioxide, nitrous oxide, methane, and freons.

Box 1. Climate change consequences

Atmospheric and marine systems that regulate climate will be modified at such extent that this will yield a novel pattern of climate distribution and different characteristics of climate types. Thus, it is foreseen an increased frequency and intensity of storms due to the more intense energy change between atmosphere and marine systems and increased strength of vertical currents. This process is important in the development of tropical cyclones, tornadoes, lightning, and hails. A material proof could be considered the large number of natural disasters and the size of damages produced in the last five years. A 3 to 4 Celsius degree increase in sea water temperature will enhance with 5% the destructive power of hurricanes and will generate very powerful winds (beyond 150 km/hour) (Brown, 1996).

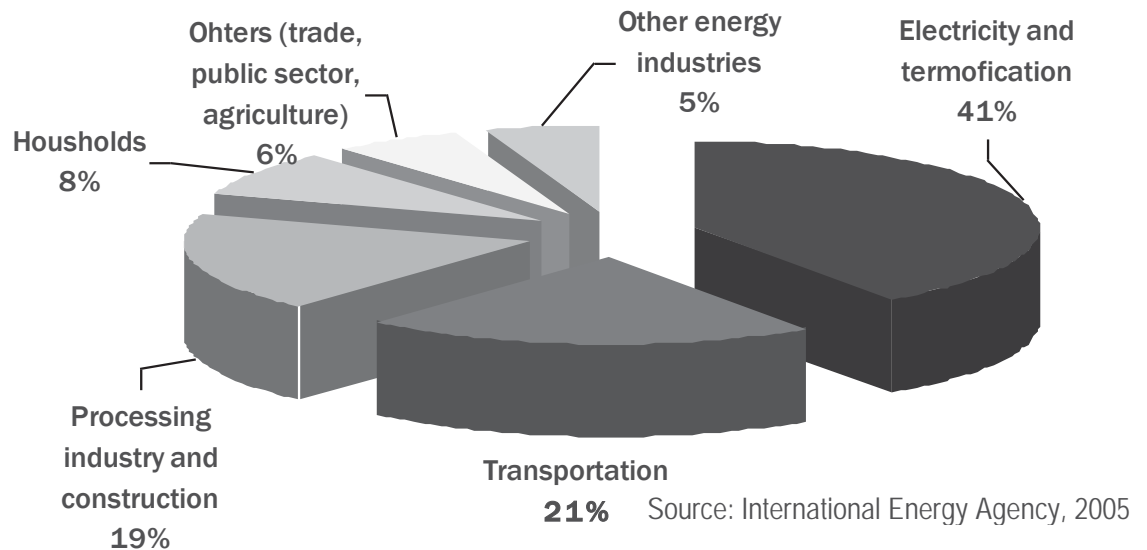
Level of seas and oceans. Increased temperatures in polar areas lead to the meltdown of icecaps. This will contribute to a 20 cm increase in sea level until

2030, respectively 65 cm until the end of the century. Consequently important terrestrial areas will be flooded, including deltas, estuaries, high human density lands, triggering massive migration of human population with serious social problems.

Water resources, especially aquifers, will suffer a reduction do to seawater infiltration, reduction of glacier contribution, and drought. Thus important surfaces, especially in islands and mountain areas will become inappropriate to be inhabited by human population.

Agriculture is the main provider of food and it will be seriously affected do to changes in crop distribution, expansion of drought in wheat producing areas, unavailability of irrigation water. On the other hand, areas that are now improper for cereal crops will become producers, while the increased carbon dioxide concentration will add up on crops productivity.

Figure.1. The structure of GHGs sources

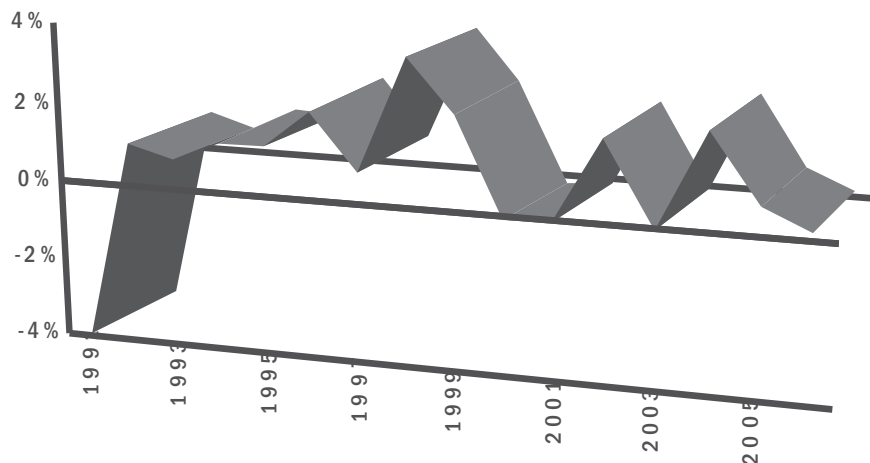


The main concern is related to carbon dioxide, which is also the largest contributor to this process (more than 50%). The structure of emission sources for greenhouse gases (GHG) is presented in Figure 1.

One important source of GHG emissions is fossil fuels burning. In the oil century we consider relevant to present the contribution of oil industry to this priority global environmental issue.

Although GHGs emissions occur in every stage of the oil products life cycle, this final stage is by far the most important contributor. In fact, the contribution of this stage to the total emissions of oil industry is 50 times higher than the contribution of the other stages.

Figure 2. Annual rates of GHGs emissions in transportation



Source: United Nations Framework Convention on Climate Change, 2008

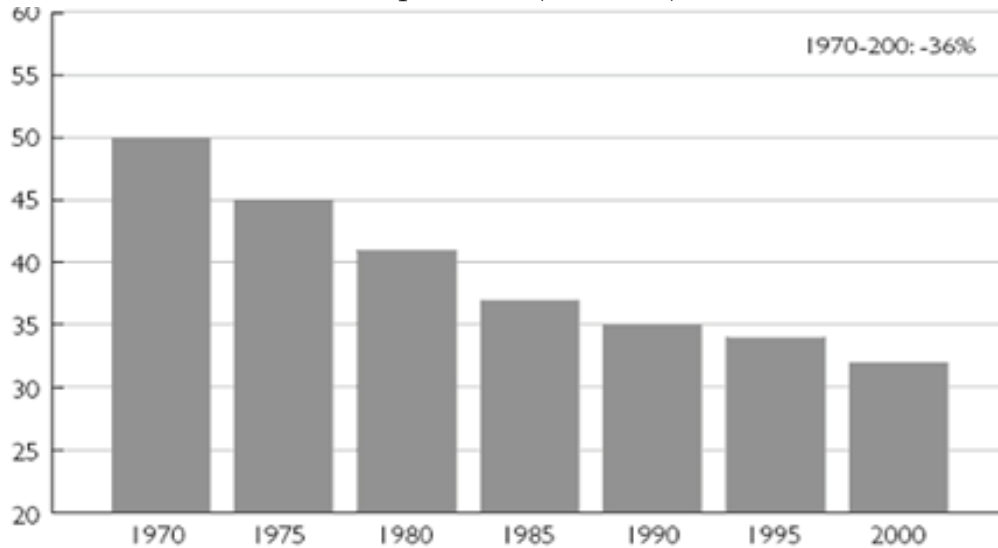
Transportation annually releases 3.7 million Ggrammes of GHGs. This amount continuously increased in the last two decades, with a total increase of 13.5% between 1990 and 2006 (Figure 2). In this period only in four years the variation was negative (1991, 2000, 2001, and 2003). The annual rates were of 1 or 2%, although there were also recorded 4% variations, both upward (1998) and downward (1991).

Road transportation is the main contributor of GHGs (85%). The other transportation means (air, railway, naval) have comparable contributions. In the 1990-2006 period road and air transportation emissions increased, but they were unequal (20.2%, respectively 2.4%). Meanwhile naval and railway transportation has decreasing emissions, the reduction being more significant for naval transportation (-10.6%).

The above analysis provides enough reasons to consider road transportation as the most relevant intervention stage for GHGs emissions reduction. This transfers the responsibility to automobile industry.

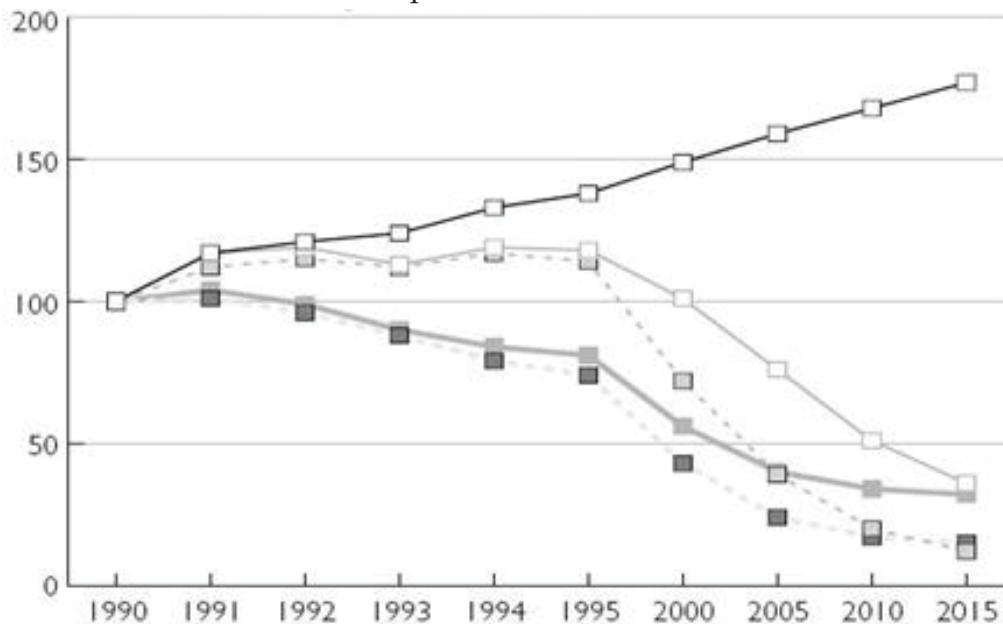
Considering the evolution of specific consumption (Figure 3) it could be stated that a positive trend is recorded.

Figure 3. Evolution of specific fuel consumption for commercial transportation (l/100 km)



Source: Verband der Automobileindustrie (VDA)e.V.

Figure 4. Evolution of commercial transportation emissions rate and transportation distance rate



Source: IFEU Institut für Energie und Umweltforschung, Heidelberg

Thus in case of 40 tones tracks the fuel consumption for 100 km dropped from 50 liters in 1970 to almost 30 liters in 2000. Nevertheless,

several sector studies suggest that the most effective technological changes are already in place. This means that on short run there are not expectable further significant reductions in fuel consumption.

On the other hand, a decoupling between fuel consumption and emissions could be brought in discussion. Thus, nitrogen oxides, hydrocarbons and other emissions' evolution and perspectives (Figure 4) against transportation distances' evolution and perspectives reveal that after 1995 the emissions rate became opposite to transportation distance rate.

Road transportation's environmental impact could be reduced by:

- reducing the road transportation distance through encouraging alternative transportation means (public transportation, bicycle, foot);
- reducing the health impact of road transportation.

Oil industry could contribute on the second pillar, by improving the quality of fuel in order to reduce consumption, on the one hand, and to reduce health impact of emissions, on the other hand.

Ozone depletion

The depletion of the ozone layer is a result of mounting quantities of chlorfluorocarbons (CFCs or freons) that have a high chemical stability and also the capacity to destroy ozone molecules at the stratosphere level.

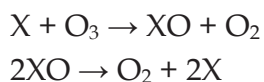
The mechanisms of this process was explained with a high certainty level in the 1970s. Thus, in 1974 American researchers demonstrated that CFCs could destroy ozone molecules. The effects of this chemical behavior at the stratosphere level was described in 1985 when a dramatic diminishment in the ozone layer thickness was recorded over Antarctica. During the astral spring an ozone hole is formed where the layer's thickness was of only 1.5 mm. The ozone hole's position over Antarctica is explained by the specific weather patterns of this area. In the winter, the stratosphere lying over this region is isolated from the rest of the world due to the strong winds that rotate as a whirlpool. In addition, ice particles are up lifted to the polar stratosphere providing good surfaces for the speeding up of ozone's chemical reactions. Although ozone depletion is the most intense over Antarctica (40% loss), the process was recorded in other locations too: Arctic pole (20%); 53-64 degree of latitude (23%); and 40-52 latitude (1.7%).

CFCs were first produced in 1900, being used as industrial cooling agents. Later new uses were found: cleaning of plastics, metals and electronic components; propulsion for sprays, industrial foam agents.

Expanding the use of these compounds is explained by a number of advantages:

- low toxicity;
- are not inflammable;
- high solubility;
- low production and storage costs.

These advantages contributed to the increase of their production that reached 1 209 million tones in 1986 and also to their mounting and lifting up in the atmosphere. Here, under the action of ultraviolet radiation they release the halogen atoms (chlorine, fluorine, bromine) and these catalyze the ozone molecules degradation reaction. It is estimated that a molecule of CFC could destroy 104-106 molecules of ozone through the following mechanism (Gore, 1994):



Where X is a molecule of halogen

It has to be added the fact that each CFC molecule persists for decades in the atmosphere.

The depletion of ozone layer has significant ecological impact and determines serious human health problems by reducing the protection against ultraviolet radiation. One percent reduction in ozone concentration intensifies ultraviolet radiation with two percents. The main effects are:

- reduction of foliar surface for many crop plants (beans, cabbage, soybean etc.);
- phytoplankton's productivity is reduced in seas and oceans with important repercussions on the entire ecosystem;
- lower intensity of photosynthesis;
- reduced immunity;
- increased occurrence of cataract;
- skin cancer;
- reduced effectiveness of vaccination, especially against tuberculosis.

The mechanism of ozone depletion is among the best explained environmental processes with clear demonstration of cause-effect relations.

This is mirrored in a higher effectiveness of environmental policies enacted for mitigation.

Conclusions

The industrialization unleashed a number of processes that undermine the stability of Earth's ecosystems. Climate change and ozone depletion are among the most challenging processes favored by intense industrial development. Both processes come into action to cumulative effects of air pollution and have significant impact on the overall living conditions. Therefore mitigation has to be planned at global level and has to be urgently enacted. This already in case of ozone depletion, but is still struggling for climate change. The latest climate conference (Copenhagen, 2009) produced disappointment and demonstrated again that short term economic interests are beyond long term sustainability in decision making. The scientific controversies over the mechanism of climate change could be therefore considered active, although the latest IPCC report "pronounced" the so called scientific consensus over the anthropogenic determination of climate change.

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ENVIRONMENTAL ACCOUNTING MANAGEMENT

Otilia Rica MAN

Galati University "DUNAREA DE JOS", Romania

Email: otilia.man@ugal.ro

Abstract

Starting from the ecological calamities that are accentuating in the last period, and they are leading to the natural resources disappearance, some vegetal and animal species disappearance, economical entities should introduce the natural environment management on the two planes: strategic and operational.

The accounting professional, indifferent if he is accounting expert, management controller, financial auditor or normalized, he should be concerned about the inclusion in the content of his mission in practice, the green accounting concept. As a part of the green accounting is also included the managerial accounting, which must be orientated on providing the necessary information for the economical decisions regarding the investments, the new products launch, the production level and structure. Any economical entity in the actual development stage of the new economy, ecological economy, should regard, in the preparation of the decisions related to development, to the environmental costs.

The impact of the organization activity to environment, is the subject of the green accounting at the entity level, and the national level, green accounting has the subject, the national economy impact to the environment.

Keywords: *managerial accounting, green accounting, added value, new economy, environmental costs, decision.*

Introduction

Most countries are concerned with the development of the new green economy following the devastating ecological crisis in the whole current ecosphere. Events such as environmental catastrophes, extinction of the certain species of animals and plants, more pronounced reduction of the natural resources have led the decision to introduce environment management in the two plans of the economic entity level: operational and strategic.

Socio-economic subsystem, as a part of the Ecosphere requires efforts to maintain or increase economic and material efforts to increase disorder in the Ecosphere.

Condition for sustainability is that no material consumption and no waste production should not be larger than Ecosphere production capacity of goods and assimilation of sewage.

Entities that make investments in environment protection resulting increases in value added from year to year instead of one who neglects environmental investments are penalized by the social partners and investors.

Starting from the interests of each entity to increase value-added strategy is interest for environmental management. This is the interest of all entities regardless of the size and economic sector in which they operate.

The issues presented above led to the need for environmental accounting, green accounting respectively.

Green Accounting users are both internal and external ones. Information on green accounting for the external users is in the financial statements, developing reports information on environmental policy. Internal users (management entity) receive information from the internal green accounting whose objective is, to provide useful information in decision making on environmental costs.

Material and methods

Research methodology is based on a multidisciplinary approach to generating advanced environmental, economic, social. Materials for study are drawn from the professional literature and national and international practice. All the results and conclusions will have a particularly unique, but may be applied by all entities. Also, the results will be analyzed and discussed with experts in the field, in order to validate research methods and results.

Results and discussion

Green accounting has different meanings in different contexts starting as follows:

- In the context of the national accounting, green accounting is accounting called natural resources and has a macroeconomic

dimension. It provides information on consumption, the quantity and quality of natural resources, renewable or non-renewable;

- In the context of the financial accounting, green accounting refers to estimating and financial reporting of environmental costs and liabilities in accordance with accounting standards;
- In the context of the managerial accounting, green accounting is oriented towards providing information needed substantiation economic decisions on investment, and the structure of production from the environmental costs associated with an organization / department / production line / system.

Management entities to green accounting needs of a synthesis of information about natural hazards and environmental costs. For the sustainable development strategies should be known by management to develop strategies that cost be borne by the entity as a result of outsourcing activities related to the environment.

Macroeconomic management accounting in the new ecological economy must bring changes in the definition of environmental costs.

And negative economic evolution is going from medium, therefore, required additional capital expenditure both at the macroeconomic level but especially at the microeconomic level. They would involve:

- *transition to the exploitation of ores with low content of useful substances;*
- *reusable resource recovery;*
- *ensuring the protection of natural environment;*
- *improving the natural environment*

As a result of human intervention on the natural environment, resulting an indissoluble link between economic growth and environment. As a result of human intervention on the natural environment, resulting an indissoluble link between economic growth and environment. In terms of economic, environmental consequences are:

- *environmental pollution;*
- *depletion of the natural resources;*
- *raise of the environmental entropy.*

In terms of environmental influence on the economic environment imposes restrictions such as:

- *internalization of the negative externalities;*
- *creation of the clean economic structures;*

Economical growth now is conditioned by recent activities such as:

- *used water protection activities in industry, agriculture and household consumption;*
- *air purification activities*
- *soil and forest protection activities*
- *the collection of waste and industrial residues;*
- *flora and fauna protection activities.*

Environmental activity is part of the social production process, generating important economic value, its cost is reflected in the price of goods and services.

The purpose of environment protection activity, be it outsourced to specialized units, whether it's internalized, is to bring profits.

Starting from the competition in the market economy the profit of the entities acting on environmental protection is required motivation, imposed. Deepening contradiction between the natural environment requires that profit and growth to become a lever important values, a source for the formation of budget for environmental activities. It follows that the profit that highlights environmental protection work must be received at first as activity retention of environmental quality, protection of its resources on the other hand a source of development.

Merchandise value structure must be considered work and living expenses for environmental protection materialized.

Each entity needs to rethink new tools management, an important aside the Environmental Management System (EMS), the purpose being to protect the environment in which the entity operates.

Environmental policy actions are reflected in environmental costs, component costs should not be neglected. The latter has now led to the development of environmental costs Managerial Accounting (EMA-Environmental Management Accounting) Environmental management accounting is the application areas:

- Assessment of the annual environmental costs;
- Pricing products and services;
- Evaluation of the environmental investments;
- Drawing up the environment;
- Calculation of the cost savings and benefits resulting from environmental projects;
- Designing and implementing the environmental management systems;

- Evaluation of the environmental performance indicators and benchmarking;
- Obtaining clean production, pollution prevention;
- Developing the environmental projects;
- Promotion outside spending, investment and environmental obligations;
- Environmental Reporting (including the statistical agencies and local authorities)

Environmental costs can be classified as:

- costs related to the downloading and storage of waste, emissions and their treatment;
- insurance costs and provisions for environmental liabilities;
- Cost forecasting and environmental management including research and development costs related to the environmental projects.
- Materials and processing costs of the non-value supply products containing materials that are present in waste;
- Processing costs of non-product outputs
- External costs generated by the public entity or the relevant costs for suppliers and customers;

Environmental costs in terms of management, there is a new approach to Cost Calculation based on the objective of organizing production and losses considering the technological flow, information structure more efficient.

The two directions of system costs, the economic and ecological, from the purpose of calculating the cost and system which is to obtain information about the allocation of the total cost of production, have brought improvements in cost calculations. From the economic point of view highlight material costs, value and places it appears and the ecological, reducing costs and energy used materials lead to positive ecological effects embodied in reducing waste and emissions.

Entities to implement the system of environmental management costs, must apply a methodology that should take the following steps:

- Identification of the environmental aspects of the entity;
 - Development of material and monetary company flows;
- Green accounting so far met four stages of development.
- 1970s: developing descriptive models of regulatory action;

- 1980-1990: debates on the role of accounting in the reporting of information on activities related to environmental conservation;
- 1991-1995: shaping environmental accounting and financial disclosures designed to launch the concept of environmental auditing;
- 1995-present: VC role orientation to assess environmental performance and develop an accounting framework for reporting performance in correlation with environmental requirements, aiming: increased impact of environmental factors in the activity of companies, guidance in order to identify environmental issues, the their assessment and reporting, providing interdisciplinary educational programs focusing on environmental issues and accounting treatment, specific accounting practices development environment. [13]

International Federation of Accounting in August 2005 published a guide on applied management accounting environment, in which summarize the best practices observed worldwide, based on which to comment. [9]

The guide is not that of standard or regulation he aimed "to propose an analytical approach, a conceptual framework and definitions to terminate errors are made in terms of applied environmental management. There is currently no definition unanimously accepted the applied management accounting environment and the guide does not attempt to give a definition.

Management accounting should collect reliable data on consumption of raw materials, water, energy, waste generated by activities of the entity, monetary data on the costs of protection and restoration of natural environment, earnings acquired from the environment protection policy and reducing consumption natural resources. [5]

Conclusion:

- Green accounting at the macroeconomic level (the entity) covers the activities of this impact on the environment and the macroeconomic level, national green accounting is to impact national economy on the environment.
- Any training professional accountants and their role should be interested in the new concept of green accounting in general and in particular green accounting management of the environment, each bringing out their content revisions in practice and responsibility.

- Green accounting objective is to consider environmental protection and restoration, respecting the traditional role of accounting, which is to take account of flows and risks of natural environment and communicate internal and external users, "fairly entity."
- The relationship between the entity, its economic activity and the environment is complex.
- Green accounting should not only consider the consequences of centralization of activity on the environment, which is already produced, but also to consider the actions related to prevention of harmful effects, adverse environment.

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HEALTH EDUCATION - AN IMPORTANT FACTOR FOR SUSTAINABLE DEVELOPMENT OF SOCIETY: ROMANIA IN EUROPEAN CONTEXT

Iuliana-Claudia MIHALACHE

Alexandru Ioan Cuza University of Iași, Romania

Email: mihalacheclaudia22@yahoo.com

Mihaela TOMAZIU-TODOSIA

Alexandru Ioan Cuza University of Iași, Romania

Email: mihaela.tomaziu@gmail.com

Felicia-Cătălina APETROI

University of Seville, Spain

Email: apetroifelicia@yahoo.com

Summary

Access to education as well as to health is fundamental rights of the population and each benefit from them according to the level of development of the country in which they live. One of the main reasons why these services in our country are not offered to a high-quality standard is their underfunding. Although considered as a priority, even developed countries face insufficient financial resources, as well as inequalities in accessing the education and health sectors. In a European context, our country benefits from support in the development of health education through various programs of funding and informing the population about the importance of this sector. At the national level, health education can reduce the overcrowding of the medical sector by preventing detrimental treatment, can lead to increased life expectancy, as well as to economic growth through the labor force of the population. This article aims to inform the reader that providing and receiving health education is a help for society and an impetus for sustainable development.

Keywords: *development, education, health, economy*

JEL classification: *A12, I15, I25*

Introduction

There is a close relationship between the health status of the population, its level of education, and the country's economy, because, at a

national level, in the context of a precarious economy, the financial resources allocated to health and education services will be reduced, their questionable qualitative level. At the level of each family, the insufficient budget leads to the impossibility of accessing the studies, as well as the investigation of the health status, actions that result in difficulty in working in the future.

Most times, human capital is a product of society. This modern theory was born around the Chicago University group, coordinated by Theodore Schultz (1902-1988), an American economist, Nobel Prize winner for the economy in 1979, who treated education and health spending as investment, in order to increase labor productivity, which is directly proportional to economic growth. This is because education, as well as professional skills, determine the state of the national economy, on which the income of each family depends. Also, health depends on income and quality of life, being the result of healthy eating and a balanced living. It is known that poverty leads to a low level of educational quality and health of human capital.

Literature review

The history of health education dates back to the end of the nineteenth century, a period in which this issue emerged for the development of health professionals and healthcare professors. (Allegrante et al., 2004, p. 668). In this sense, the first institutions in health education were developed in the USA.

Health education is an important and integral function of public health and can be defined as the systematic application of a set of techniques, on a voluntary and positive basis, to influence health by changing the past history of behavior (awareness, information, knowledge, abilities, beliefs, attitudes and values) to individuals, groups or communities. (Sharma, M.; Romas, J., A., 2008, p. 31).

Downie et al., (1990) defined health education as "a communication activity designed to improve health and prevent or reduce affections among individuals and groups by influencing beliefs, attitudes, and behaviors." (Downie, R Fyfe, C.; Tannahill, A., 1990, p. 28).

The World Health Organization (1998) defined health education as "consciously embracing learning opportunities for learning, involving a form of communication to improve health literacy, including the development of life skills leading to individual and community health." (World Health Organization, 1998, p. 12).

Gold and Miner (2002) defined health education as "any combination of learning experiences, planned and based on solid theories, which gives individuals, groups, and communities the opportunity to obtain the information and skills needed to make quality decisions with on health." (Gold, R., S.; Miner, K., R., 2002, p. 3).

Green and Kreuter (2005) have defined health education as "any planned learning mix designed to predispose, enable and strengthen voluntary health-promoting behavior in individuals, groups or communities." (Green, L., W., Kreuter, M., W., 2005, p. 29).

As a prerequisite for the sustainable development of society, over the years, health education, health education, and health promotion have been talked about. Health education has systematically evolved in the nineteenth century through the publication of books and information brochures or public conferences. In the sec. XX, Romania had a centralized system of health education, which disseminated medical knowledge to the population. After 1989, Romania assimilated all paradigm shifts in the way of prevention, incorporating health education and health promotion measures into the legislative system.

Methods

The research is based on the identification of the specialized literature, its selection, the corroboration and the synthesis of the data, respectively the qualitative analysis of the data; the quantitative data on the evolution of obesity at national and EU level were used to carry out the research and were collected from official sources, www.ec.europa.eu, www.who.int, www.insp.gov.ro. International and native problems and achievements in the field of health education have been identified and analyzed, and one of the effects of lack of this kind of education, namely obesity.

Health education - optional subject matter in schools

Health education is an optional subject introduced in the Romanian education system since 2004, but it is intended to be mandatory. This study is useful in supporting a healthy lifestyle, both individually and collectively, on sports, nutrition, hygiene standards, first aid techniques, and sexual education.

School health education is one of the main ways to promote good knowledge of different aspects of health, and at the same time to build the

attitudes and skills that are indispensable for responsible and healthy behavior. In many countries, health education is compulsory in schools, using age-appropriate programs and teaching materials for each development cycle. (Ministry of Education and Research, 2001, National Program "Education for Health in the Romanian School").

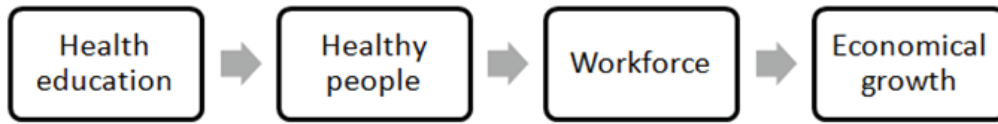
The fundamental objective of "Health Education" is to promote the right knowledge of the skills that are indispensable for responsible behavior in society, such as first aid, as well as other issues related to the health of one's own person and others. (Taylor, N., et al., 2012, p. 6).

It is well known that our country is not well positioned in any of these chapters, which should make the education for health a priority objective, to develop as many projects and programs as possible to raise the level of sanitary population culture. In this respect, projects have been developed at national level, with the support of the European Union and the Ongo, such as "Healthy Cities", in 2015, "Schools Promoting Health" for the years 2013-2015, "School and Health" in 2012, "Education for Health and Life" in 2015. These projects, together with other campaigns in our country, were meant to reduce adolescence deprivation and to promote the importance of maintaining and safeguarding the state of health.

It is necessary to implement to children concepts to which they should pay attention, as well as the ways in which various disturbing factors for health can be avoided, namely the importance of hygiene, the increased index of sexually transmitted diseases, prevention at the expense of treatment, the existence of free health care, the importance of performing normal laboratory medical analyzes, the correct delivery of first aid to a person suffering from suffering, the need to consult a doctor before consuming any medication, the importance of a clean environment for health, balanced nutrition.

The primary purpose of health education is to influence your behavioral history so that healthy behaviors develop on a voluntary basis. (Fertman, C., I.; Allensworth, D., D., 2010, p. 6). Awareness, knowledge, knowledge, skills, beliefs, attitudes, and values can lead to a healthier lifestyle, leading to healthy, healthy people, meaning sustainable development and growth.

Figure 1. The importance of health education for the economy



Data source: author

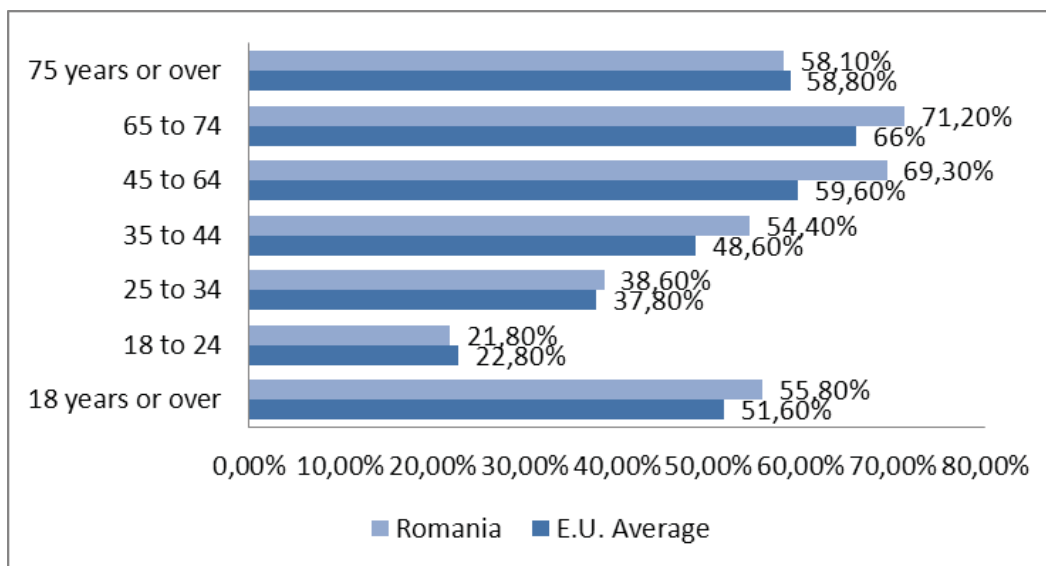
Nutritional education

In health education, an important role is played by nutritional education as an integral part of a healthy lifestyle that means educating the student about the importance of food quality for all the processes of assimilation required for harmonious growth and development, both of the body and of the brain, the need to care for one's own body through a balanced and adequate eating habits. In this sense, education should also aim at creating a healthy culinary culture, cultivating respect for other culinary habits and practices, experimenting with new behaviors in this direction, such as identifying healthy foods that can substitute others such as agave syrup, which can replace sugar or peanut butter that successfully replaces chocolate cream.

In the Health Education and Nutrition Education classes, it is necessary to implement concepts such as the importance of balanced food consumption, the adverse effects of food excesses, illnesses caused by inadequate nutrition, the need to consume healthy food, the importance of keeping the three meals the main day of the day.

It is definitely necessary to introduce this aspect formally within the Health Education discipline, given the increased obesity among children and adolescents as well as adults. This disease is more and more common, affecting, according to statistics, 13% of the population of the entire world, well above the percentage of people affected by alcoholism or drug addicts. Given that today's lifestyle continues, in 2030, half of the world's population is expected to be overweight. This disease favors the development of cardiac, metabolic and oncological diseases and is also responsible for the increased mortality rate, about 3.4 million deaths annually worldwide, according to the World Health Organization.

Figure 2. The share of obesity by age category, Romania compared to the EU average, 2016

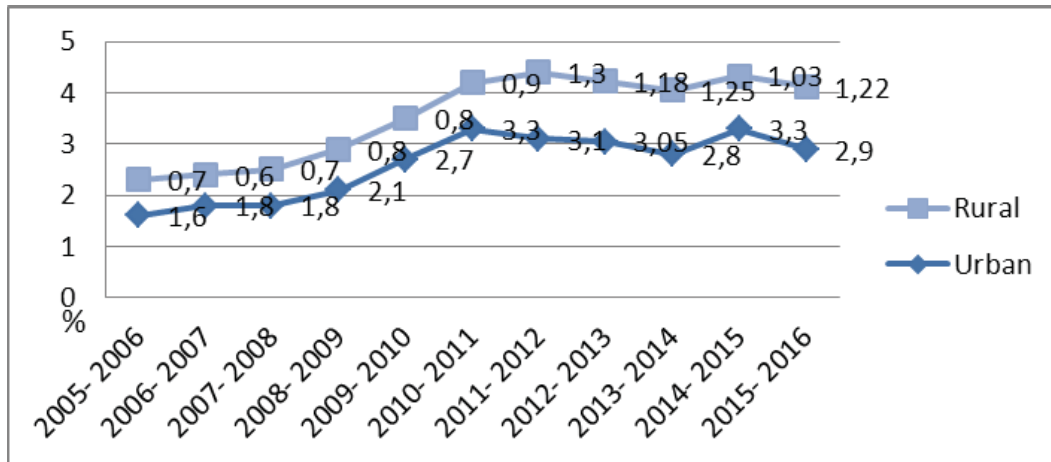


Data source: made by the author based on data available on http://ec.europa.eu/eurostat/statistics-explained/index.php/Overweight_and_obesity_-_BMI_statistics

In terms of the percentage of obesity, Romania is above the EU average, both for young people and for adults and the third age. The most overweight people are those of the third age, the percentage is 71.2%, with the opposite being adults aged 18-24 years, with a percentage of 21.8%. Obesity has serious health consequences, and world-renowned physicians around the world are warning and alarming about the diet and its bad effects on the body. Also, warnings are also directed at early detection of the disease, which means a very large difference in diagnosis compared to late detection.

The number of overweight and obese people has increased in recent years, and many people find it increasingly difficult to maintain a "normal" weight in an overwhelmingly obese diet. This environment means difficulties in accessing the ingredients of a healthy diet, the lack of cooking skills, the abundance and the marketing of foods rich in sugar, the pressures of a lifestyle that often reduce the opportunity for physical activity.

Figure 3. The weight of obesity in Romania, depending on the residence environment



Data source: <http://insp.gov.ro/sites/cnepss/wp-content/uploads/2017/05/Analiza-de-situatie-ZEIO-2017.pdf>

At our country level, the degree of obesity is higher in the urban area compared to the rural one. In recent years, there has been a slight decrease in the number of people suffering from obesity, but the sitter remains alarming. The occurrence of obesity involves, besides the serious health consequences, interactions between social, behavioral factors that result in psychological changes. They have higher consequences for students, but because they make it harder to belong to a group. For these reasons, healthy nutrition as well as combating obesity in pupils should be a priority in public health, given that in children the creation of healthy eating habits is the most effective way to maintain long-term health.

The direct costs of obesity are the resources used in the health care system, which may include costs arising from excessive use of ambulatory care, hospitalization, pharmacotherapy, laboratory or radiological tests, long-term care due to overweight. (Thompson, D.; Edelsberg, J.; Kinsey, K.; Oster, G., 1998, p. 121). The increase in medical costs differs substantially if obesity is moderate or severe, and depending on demographic factors such as age. (Andreyeva, T.; Sturm, R.; Ringel, J., S., 2004, p. 1966). In addition to direct costs, there are also significant indirect costs, by decreasing the number of years of disability and increasing mortality prior to retirement, early retirement, workplace absenteeism or productivity decline, and disability pensions as a result of chronic obesity-related illnesses. (Trogon, J., G., et al., 2008, p. 490). Trogon and colleagues have shown in 31 studies

that obese workers lose more working days due to illness, accidents and disability. Increasing the percentage of obesity in the labor force requires employers to pay more attention to strategies to prevent weight gain employees. (Trogon, J., G, et al., 2008, pp. 489-500).

Results

The main challenges identified were the importance of understanding the need for a healthy lifestyle, especially a balanced diet, as part of a healthy lifestyle. These challenges highlight other issues, including the lack of citizens' information, lack of health education, inadequate training materials in health education classes, and conservative attitudes among families, which leads to the development of a healthy lifestyle. Critical assessment of current approaches, impacts, and performance is critical to understanding the importance of health education and programs to strengthen health systems.

Conclusions

Health, as well as education, have always been important topics of discussion and of major interest for adults. It is an important step to implement these essential concepts of life and children, given that, once you form with these healthy ideas, they will be a real help for a balanced and healthier future society.

It is known that health care is the most important service to the population and, as such, children's education about the preservation of health and prevention at the expense of treatment provides a safer and more equitable future for society. The introduction of the study "Education for Health" in Romanian educational institutions has been an important step in combining health education with the aim of providing the society with open mentalities to help others.

Education and health are well combined to demonstrate that the greatest effectiveness in learning is shared by the needs of the population, is based on individual and collective initiatives and offers the opportunity to put knowledge into practice. So never will the health knowledge be superfluous, it will never be too much or useless. Throughout life, regardless of age, we need to receive and educate about health.

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THE DEVELOPMENT OF AGRICULTURAL SEGMENTS IN ROMANIA

Aurica STOICA

Bucharest Academy of Economic Studies, Romania

Email: aurica.stoica1950@yahoo.com

Abstract

The analysis of the agriculture evolution in our country simply highlights once again the increased ability to cope with fierce competition in the specialty market by providing products that meet required quality standards.

Agricultural development should respect, therefore, limits of support and regeneration of nature in time and space, only in this way, the effect of agricultural production, as purpose and effect of rational use of natural resources, will find its expression in an innovative concept, being the sustainable agriculture.

Increasing gainful trade imposed the integration of consistency and integrity principles, promoting, thus the need for prioritizing the role of Common Agricultural Policy in the economic and social emancipation of Romania, and also the integration of Romanian agriculture outputs into European markets.

Keywords: *dynamics of agricultural production, sustainable development, organic agriculture, restructuring strategy, coherent and gainful balance.*

Amid marketing strategies globalization of quality agricultural products, agriculture has experienced a great intensive increase promoting the specialization of farming and regions. Because of population needs dimensioning, we found ourselves in the position where it becomes imperative the replacement of human and animal factor with fossil fuel energy, using the power of technology over specific activities in the light of growth of productive capacity of soil and crop productivity through efficient use of fertilizers and products protection.

Starting from the premises of integrating technological resources in the agricultural production, although we can not discuss yet, nationwide, of „totally computerized activities”, agriculture has achieved, however, that level which may allow obtaining a short-term profitability of agricultural units, while keeping the tradition of harmony and interdependence,

characteristic of secular relations between agriculture and the natural environment might represent a side difficult to maintain.

As a modern society, Romania, as an European Union member state, aligns to the agricultural development policies, and tends to promote a coherent and cost-effective evolutionary equilibrium, knowing that among the most pressing issues, agriculture has given rise to most debates and polemics in the process of negotiating the European Union with the candidate countries. Although still not up to tech level of the older European Union Member States, the geographical location and soil quality in our country is a worthy competitor in terms of export capacity. Increasing trade cost imposed the integration of consistency and integrity, promoting, thus, the prioritizing of Common Agricultural Policy role in the economic and social emancipation of Romania, and Romanian agriculture outputs integration into European markets.

Accordingly the analysis of agriculture evolution in our country simply highlights once again the increased ability to cope with fierce competition in the specialty market by providing products that meet required quality standards, Romania, as member of the Union European, just has to harmonize its agriculture approach with the European Union one, dedicated to the Common Agricultural Policy.

The analysis of the local development opposed to the evolution of other states in terms of agricultural segment, according to CIA World Factbook 2009, which took in record GDP ranks - composition by sector - agriculture (%) of 148 countries, brings Romania on the 94th rank place worldwide.

Given that in a global context, agricultural development is fundamental, being the one that can provide the necessary food for the population through provision of commodities for human consumption both directly and through processing. If we consider the possibility of reducing or lacking essential nutrients of life, it may be revealed the opportunity of essential social tensions that can cause interference in the human body, affecting the health of the human factor and praeter propter the whole society health.

If we take into account the social dimension of agriculture, as an economic sector, we can emphasize that it is a source of workplaces, providing income, and above all a business friendly climate, being taken into consideration also the local natural resources easily accessible and cheaper,

than in the other State. On the economic-financial level, agriculture plays a central pillar in the creation of reserves available for export and to maintain the equilibrium for the balance of payments.

Based on these assumptions, we can easily fit to support the promotion of intensive agriculture, which can cover wholly, the needs of human elements and also the economic and financial needs, but as we must reflect at the long-term effects of this type of operation. Sustainable agricultural development may be the solution for ensuring the daily demand for food, for a longer period of time.

Socio-economic promotion of less intensive agricultural activities, less polluting and chemicalized can provide products more healthy, rich in natural active principles, organic products whose market is booming. In accordance with these statements, agricultural development must respect the support and regeneration limits of the nature in time and space, only in this way, the agricultural production as effect and purpose of rational use of natural resources, will find its expression in an innovative concept, which is sustainable agriculture.

Given the current economic context, also the agricultural sector performances are affected by the changes in monetary, fiscal and commercial policy, with direct influence on price inputs and outputs, land prices and the exchange rate, their regulation becoming a sine qua non condition for the promotion of sustainable development.

Like other states on the same level of development, also our local agricultural sector has faced many problems due to delayed reforms, the privatization and long restructuring, being affected by major metamorphoses in the property of land nature, the only positive aspect of nature being represented by the formation of predominantly private structures.

But we must not forget that a main feature of the autochthonous agricultural fund is the one that refers to the mostly agricultural area being exploited by the subsistence households that have no technical and material means to cross a certain stage, and on the basis of reducing the public sector percentage within total employment and of the transfer of ownership towards the private sector, the employed population structure in socio-economical sectors experienced mutations with negative effects in terms of efficiency of rural economic structures.

Therefore the rural environment, which owns a significant share of agricultural production, often encounters real obstacles to progress towards modernization, infrastructure being one of the biggest obstacles. Promoting development of physical infrastructure would solve some of the negative aspects that keep in hold the agricultural evolutionary trend, declining differences on living conditions, between urban and rural, should be one of the points needed to be reached. It will also proceed to determining employment in agriculture external activities and should stimulate the process of investment in this environment. Therefore it would solve another important side, that of labor force migration.

But, Romanian agriculture transition to free market systems will not be an easy process, but it will necessitate to be implemented a whole restructuring process based on a comprehensive strategy and a model for restructuring.

Thus, the strategy for restructuring the Romanian agriculture will have to focus on the change of agricultural structure so that it can become compatible with the ones in the European Union, as the strategic objective will always be sizing local competitive advantage in the specialty markets. So, structural transformations of the Romanian agriculture must be made by evaluating the steps and the financial, material, human and informational resources that can be embedded.

But above all, to tending to a continuous upward trend can not be conceived outside of viable economic structures, where private agricultural exploiting is in top place.

Clearly, the coherent and cost effective equilibrium maintenance, between agriculture and environment, will represent the connecting link between sustainable development and desired economic growth.

The successful harmonization of agricultural development with the environment will be due to a systemic politically, socially, economically and ecologically approach, in which scientific research must make an important contribution.

One can not forget any beneficial effects of agriculture over the environment. Part-time farming, for example, became in some countries a mean to enable, in the same time preserving the quality of the landscape and facilitating the development of tourism, recreational places and decentralized industries from which the environment, rural communities and agriculture have only advantages.

Over time, agriculture has undergone great quantitative increases in direct proportion to the degree of mechanization, chemicalization and provision of water to crops. Technological progress with the genetically progress led to the practice of intensive agriculture using agricultural technologies have increased the productivity of agricultural land.

At the local level, lack of effective technology doubled by the human capital migration to other European Union countries and the change in climatic conditions have led to a significant reduction in agricultural capacity.

The 2007-2009 agricultural evolutionary trend analysis shows a sharp decrease of total production from 7181 thousand tones to 5170 thousand tons only, provided that the implant surface increased from 1975-in 2007 to 2207.3 in 2009.

As you can see, the free fall of agricultural production:

Figure 1. Production dynamics 2007-2009: Wheat (genus *Triticum aestivum* L.)

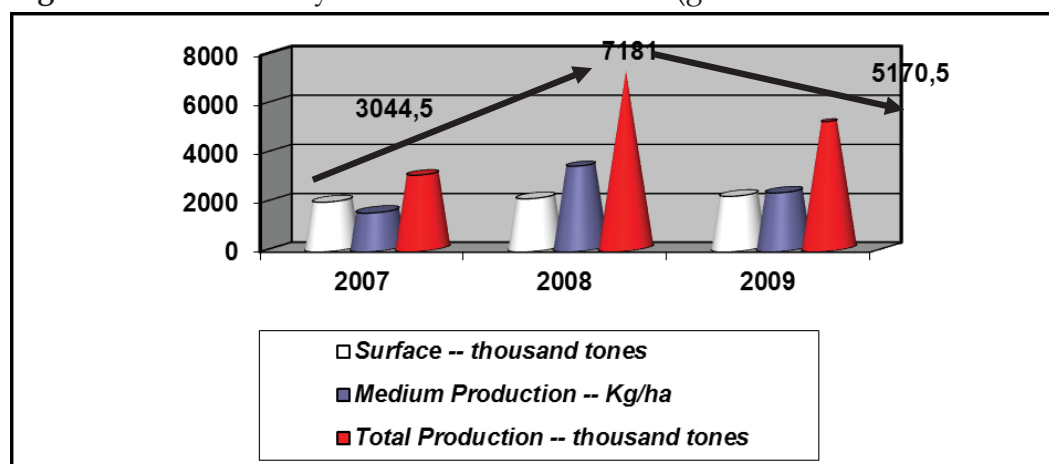


Table 1. Production in 2007-2008-2009: wheat (genus *Triticum aestivum* L.)

| Criteria | Year: 2007 | Year: 2008 | Year: 2009 |
|------------------------------------|------------|------------|------------|
| Surface--thousand ha | 1.975 | 2.110,3 | 2.207,3 |
| Medium Production-- Kg/ha | 1.541 | 3.403 | 2.342 |
| Total Production -- thousand tones | 3.044,5 | 7.181 | 5.170,5 |

Therefore, natural and socio-economical environment can not sustain an intensive agriculture, which leads us to looking up for solutions to ensure sustainable agricultural exploiting, which is also a major factor of social stability with an essential role in maintaining the ecological equilibrium.

All these lead us to a single common nominator of reducing the average production problems kilograms per hectare - from 3403 in 2008 to only 2342 in 2009, and that is increasing integration of specific ecological agriculture activities, (this term protected and given to Romania by the European Union to define this system of farming, is similar to the terms "organic agriculture" or "biologic agriculture" used in other Member States).

This new system of agriculture is a "modern" process to grow plants, raise livestock and produce food, which differs fundamentally from conventional agriculture.

The role of organic farming is to produce food that is much cleaner, more appropriate to the body metabolism, but in complete correlation with environmental conservation and development in respect to nature and its laws. One of the main goals of organic farming is the production of food with genuine and attractive taste, texture and quality.

These foods are obtained in production stage at the farm through strict prohibition of the use of genetically modified organisms (GMOs and their derivatives) and severe restrictions on the use of synthetic fertilizers and pesticides, of promoters and growth regulators, hormones, antibiotics and intensive systems farming.

Ecological agriculture has a major contribution to sustainable development, to increasing economic activities with an important added value and to increasing the interest for the countryside.

Romania understood the premises and proceeded to their implementation within local agricultural development. Therefore, according to the statistics published by the Ministry of Agriculture and Rural Development the total certified for organic agriculture area (ha) increased remarkably in 2006-from 143,194 ha to 221,411 ha in 2008, and the number of registered players in organic agriculture increased from 3409-in 2006 to 4191 in 2009, and is in continuing, encouraging, growing, as can be seen:

Table 2. Operators and surface dynamics in organic agriculture

| Indicators | Year: 2006 | Year: 2007 | Year: 2008 |
|--|------------|------------|------------|
| Number of registered players in organic agriculture | 3.409 | 3.834 | 4.191 |
| Total certified organic farming area (ha) | 143.194 | 190.129 | 221.411 |
| Certified area for organic agriculture on arable land (ha) | 45.605 | 65.112 | 86.454 |

Regarding the year 2009, the cultivated area with organic vegetables increased by 15.7% to approximately 300 hectares compared with 2008, according to the statistics published by the Ministry of Agriculture and Rural Development.

Therefore, the signs of a new era in local food economy are undeniable. So far we have managed to increase agricultural production through the combination use of increased quantities of fertilizers with the adaptation of new plant varieties highly productive. Unfortunately, this system of agriculture has been effective only about half a century, it no longer works so well because the soil is increasingly impoverished and polluted, and chemical fertilizers and pesticides are harmful to human health.

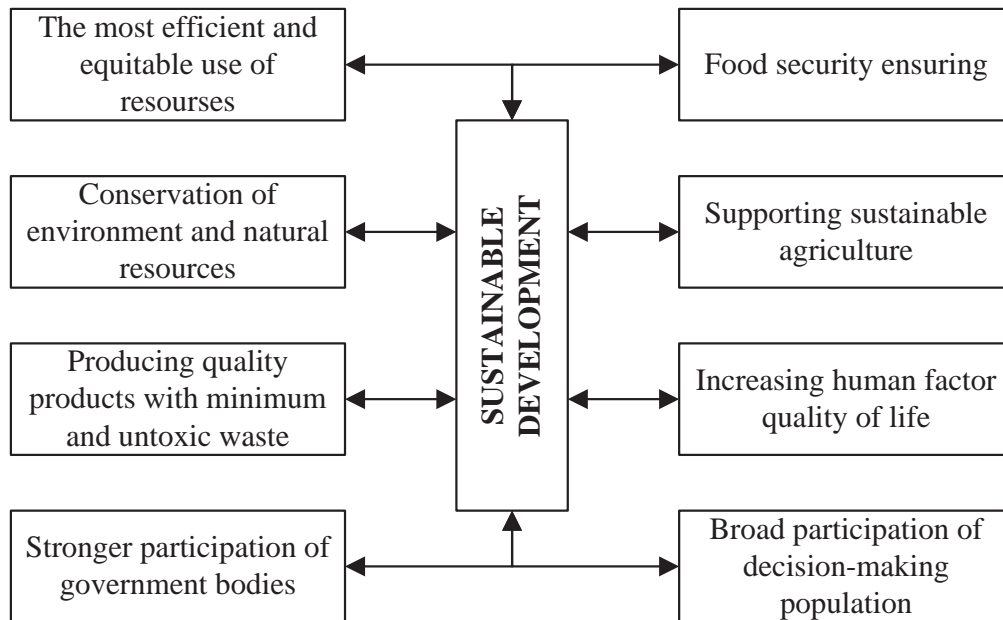
Practice and at the same time, the literature highlights the need to submit rules for farmers to form sustainable agricultural exploiting, in order to induce the eminently political dimension of the environment and food security problem. It is this requirement and it presumes the regulatory intervention of “public force” which has the legitimacy to impose a collective right.

The political character of that assistance is even more visible as it is in the general interest of humanity. Therefore, the ecological agriculture premises should lead to the desirability of promoting long-term beneficial effects..

The premises of effective sustainable development for agricultural segment can thus ensure the continuing viability of the social and economic

environment through, first of: using the most efficient and equitable resource, as can be seen:

Figure 2. Assumptions and effects of sustainable development in agriculture



Finally, the transformations taking place in the market economy requires a systematization of the activities in the agricultural segment, with a highly creative, flexible and dynamic character, so as to facilitate at maximum in pursuit of the most profitable economically and socially activities.

Thus, as the literature also highlights the need for organization administration within agricultural exploiting on the basis of sustainable development in this period is more than necessary, as the changes occurring in agrarian structures produced essential changes and even radical ones, within the types and forms of agricultural units. These holdings resulted from the application of existing legislation, are in the process of adapting to new economic and social environment.

Therefore, sustainable development must meet, in an ingenious way, the three essential dimensions: economic, social and ecological.

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NEW APPLICATIONS OF NEUROSCIENCE AND FISH BEHAVIOUR FOR REGULATIONS OF PESTICIDES LIMITS IN ENVIRONMENT: THE NEUROTOXICITY EFFECTS OF DELTAMETHRIN ON FISH COMMUNITY

Stefan-Adrian STRUNGARU

Alexandru Ioan Cuza University of Iasi, Romania

Email: stefan.strungaru@uaic.ro

Mircea NICOARA

Alexandru Ioan Cuza University of Iasi, Romania

Email: mirmag@uaic.ro

Gabriel PLAVAN

Alexandru Ioan Cuza University of Iasi, Romania

Email: gabriel.plavan@uaic.ro

Summary

More than one hundred years ago, man was unable to explain the cause of death produced by exposure to different chemical compounds released in environment by anthropogenic activity. Years later, based on observations resulted from rudimentary experiments and medical reports, it was concluded that exposure to certain man made chemical compounds is deadly for many life forms. This conducted to new applications in agriculture especially for pest control. In the close period after WW2, chemistry produced new "weapons" that helped human population to compete with insects and other harmful pests and to have a high productivity in agriculture. More food and less disease vectors led to a fast population growth, longer life expectancy, prosperity, industrial and economic development. In that period of time the research technology involved in the toxicity tests, risk assessments and safe dose estimation was not well developed to measure all the negative effects. A simple laboratory test involving LC₅₀ on animals was enough to prove that the chemical compound was safe for human population and environmental health. Base on this kind results were made some of the first regulations on maximum permitted limits in environment. This was not enough! Later when the scientific technology permitted other types of measurements, many insecticides were banned in developed countries because of their high cellular toxicity and carcinogenic properties (a good examples is DDT). In this study were

presented applications of neuroscience and behaviour for measuring the neurotoxicity of pesticides of fish community. This will help us in the future to write new regulations for pesticide maximum permitted limit in environment for aquatic ecosystems preservation.

Literature review

The synthetic pyrethroids were considered to have a high insecticidal activity, a low toxicity in mammals and no residue in the biosphere (He et al. 1989). At least this was mentioned in the past. On now days the scientific community agreed that synthetic pyrethroids are quite dangerous in environment to many vertebrate and invertebrate organisms. Deltamethrin [(S) α -cyano-3-phenoxybenzyl-(1R)-cis-3-(2,2-dibromovinyl)-2,2-dimethylcyclopropane-carboxylate] is a type II pyrethroid extensively used in agriculture and forestry because of its high activity against insect pests (He et al., 1989; Şimşek Köprücü et al., 2008; Dubey et al., 2013; Dinu et al., 2010). This insecticide once released in environment can easily reach in the aquatic ecosystems and it will do damages in life forms populations. It produces significant damage to the fish community. Most of the studies on fishes were focused on effects of deltamethrin resulted after acute exposure. Zebrafish (*Danio rerio*) can be successfully used to understand the toxicity and impact of pesticides on fish community due to its wide successful applications (Strungaru et al., 2018). The experiments in laboratory conditions with this organism can simulate scenarios to describe the toxicity mechanism and effects of pesticides in case of an environmental contamination. It is less known how chronic exposure with deltamethrin can affect the fish community health and behaviour. In this way, it was designed this study where zebrafish specimens were exposed for 15 days to 0.25, 0.5, 1 and 2 $\mu\text{g L}^{-1}$ non-lethal concentrations of deltamethrin knowing that is the active compound in insecticides used on agricultural crops.

Methods

The animals were strictly maintained and treated according to EU Commission Recommendation of 18 June 2007 on guidelines for the accommodation and care of animals used for experimental and other scientific purposes and Directive 2010/63/EU of the European Parliament and of the Council of 22 September 2010 on the protection of animals used for scientific purposes. This experiment has been approved by Faculty of

Biology of “Alexandru Ioan Cuza” University, with the registration number 4465/2017.

This experiment was conducted on five study groups (a control group and four exposed groups) in the experimental aquariums. Zebrafish has sexual dimorphism and this made possible a fast separation of the genders for study groups. Each group consisted from 10 males and 10 females (20 fish per group) that were random transfer from same housing aquarium. The fish transferred in the experimental aquariums required 4 days to get used with the environment. Each day they were transferred one by one in a temporary aquarium to replace the water and moved back. With this procedure they get used with the stress of being caught and transfer. After this period each group was tested once per day for 3 days to measure and establish the normal behaviour and reactions (initial behaviour). The exposure to deltamethrin started on next day after these tests were completed. The deltamethrin used in this study was the active compound of a well-known insecticide (100 g L⁻¹ deltamethrin) that was purchased from local market with highest certified quality. We chose to use it in our study because we wish to investigate a scenario close to reality. This product is spread around the world and is available to any person that needs it for insect control. This is a water soluble product and permitted us to dilute it until were reached in the experimental aquariums the follow concentrations: 0.25, 0.5, 1 and 2 µg L⁻¹. We studied in a previous experiment that at 3.125 µg L⁻¹ the mortality was 25% in 72 hours (unpublished data) and the concentration of 2 µg L⁻¹ had no mortality.

The behavioral measurements were conducted in a multipurpose cross maze that was turned in to a T maze. This maze is made from transparent Plexiglas in order to let the infrared light pass from a source located under it. The images were recorded with an infrared camera located above the maze, connected to a computer. They were analysed by the software EthoVision XT 11.5 that was previously calibrated for the aggressive behaviour measurements. This test was applied with success in several studies and evaluated the reactions of the fish facing its reflection in a mirror that is known as mirror induced aggression test (Gerlai et al., 2000; Fontana et al., 2016; Strungaru et al., 2018). For behavioural analysis, it was applied firstly the Shapiro-Wilk test for normality distribution of the data. The results of this test demonstrated that all data sets were or not normally distributed in the experimental groups. The one-way ANOVA test followed

by the Tukey HSD test was performed to demonstrate the significant differences variance of the investigated behavioural variables from initial condition of the subjects (initial behaviour) to the end of chronic exposure in the case of each group and between the maze arm in for aggressive behaviour. The results were presented as average \pm SE. These were chosen based on Shapiro-Wilk test results.

Results

The quantification of anxiety level produces by DM chronic exposure in this experiment was based on the activity of zebrafish during the trials. This was explained with the variables extracted from activity. When the zebrafish moved in maze it was active. When it did not moved it was considered an inactive behaviour. These variables were used in anxiety tests and well described. This test consists in the reduced capacity of exploration of the maze and among the described variables specifics to anxiety behaviour is longer freezing activity (Stewart et al., 2012). The chronic exposure to DM did not significant ($P>0.05$ ANOVA) increased the anxiety level of the zebrafish and was not considered responsible for this in the experimental groups. The results of these variables were measured knowing that a trial had precisely 240 seconds length and these were: control group was active for 198.7 ± 14.2 - 233 ± 2.62 seconds (s) and not active for 6.74 ± 2.6 - 41.4 ± 14.2 s; group exposed to $0.25 \mu\text{g L}^{-1}$ DM was active for 182 ± 17.8 - 234.1 ± 1.22 s and not active for 6.03 ± 1.2 - 57.5 ± 17.8 s anyway there was Day 5 that modified the significance ($**P<0.01$ ANOVA) of the results and the anxiety slightly increased compared with the other days.

The application of behavioral tests in describing the toxicity is a new approach. This technique had not much accuracy in the past but today with the development of computer processors and analytical software, it can bring significant evidence. Huang et al., 2014 acute exposed for 6h zebrafish adults to different concentrations (0.15 , 1.5 , 3.75 , 7.5 and $15 \mu\text{g L}^{-1}$) and measured as behavioral variables swimming speed, swimming depth, hyperactivity time and surfacing time. Their study conclude that in first hours the hyperactivity and swimming speed significantly increased then very fast decreased till the end of experiment as a toxicological response. Kung et al., 2015 treated zebrafish embryos with 0.25 - $0.5 \mu\text{g L}^{-1}$ during the embryonic period 3-72h postfertilization, after which they transferred them to fresh water until the larval stage (2-weeks postfertilization). They

conclude that developmental exposure to deltamethrin resulted in increased swim activity, changes in neurochemistry and gene expression as evidenced by increased levels of HVA. Their results suggested the risk of low-dose neurotoxicant exposure is high and one of the responses to toxicity was the locomotor activity.

Conclusions

This study concluded that deltamethrin was responsible for social behavioural changes and was neurotoxic for relative small concentrations. These of experimental applications bring new evidence that estimate the damage created to aquatic life forms. Neuroscience can be used as an important tool to understand the behavioural changes also for human society. Exposure to this kind of pesticide can modify our way of thinking and interactions with other people. This may change our social perception and raise question about how safe is to use this kind of chemicals. How the future generations will adapt and respond to their effects.

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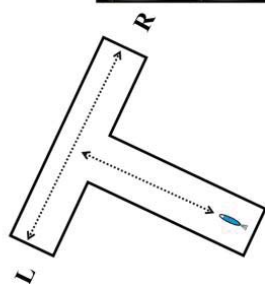
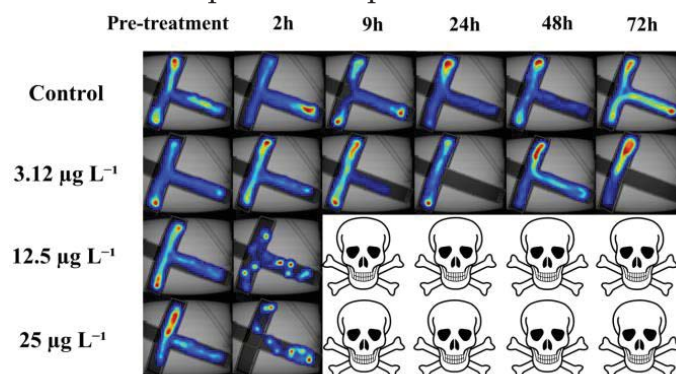
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Figure 1. Acute exposure to deltamethrin on zebrafish conducted in a previous experiment



Data source: unpublished original data



VALUE BY SUSTAINABLE DEVELOPMENT IN ROMANIA

Stefan Alin TODERASC

Bucharest Academy of Economic Studies, Romania

Email: alin.toderasc@gmail.com

Abstract

The new global context based on reconfiguring the way in which companies operate, taking into account the demands for sustainability and economic growth. Development of international relationships between companies through strong growth in the globalization process, led to differentiating companies by strategies related to a high level of performance, and to the impact on the community and environment. Maintaining a high level of performance by value creation, led to developing concerns of social responsibility, and by the increase of competitiveness, these strategies were included in long-term objectives of companies. The objective of this paper is to present how a company can create value through sustainable development.

Keywords: *value creation, sustainable development, environment protection*

Introduction

Development of companies generated a shift from traditional thinking in describing the system in relation to company stakeholders and the environment. Interest increased in the last decade on environmental issues led to the adoption of many regulations both in the economic and social life. A first approach to environmental protection was achieved by Gummesson (1994), which through conducted research suggested that ecological perspectives are very important to "green management", and thus the term ecology needs to be added to the list of evaluation criteria of companies. Gummesson introduced the concept of "green link", which included customers, vendors and community as a whole. Brundtland Report, entitled "Our Common Future" (Brundtland, 1987), added knowledge to ecological importance in a company. His results were published as part of UN World Commission Report on Environment and Development, stating that a balance between environmental issues and social development is required for long-term economic development (Brundtland, 1987, Elkington, 1997, 2001).

Numerous studies searched greater concern for the environmental protection companies. To support these requirements, companies must follow social responsibility programs (CSR), which require modification and adaptation of business models, technology and knowledge to create consistent value (Sharma and Henriques, 2005). A national link between creating value and sustainable development is presented by the author Maria Niculescu (2003) showing that a current performance criterion is "creating value, subject to the desire for sustainable development."

The five dimensions of the value-driven company

Companies are defined by a set of relationships: relationship with employees and company employees, the link between company and suppliers or distributors, between company and customers and the relationship between company and community it belongs to. Environment is also where the company operates and to which shall have a responsible attitude. Thus we discuss five important dimensions in the sphere of influence and interdependence of the company. A graphical representation can be found in Figure 1. Some authors call these dimensions - stakeholders (Stern et al, 2001). A company may adopt decisions on each dimension, with the ultimate goal to create value for both shareholders and company for all stakeholders.

Employees are responsible for operational activities of the company. But their contribution is more than the physical or intellectual effort. Ideas, motivation and their very presence define long-term nature of business. They receive material benefits in the form of salaries and bonuses, and intangible benefits in the form of support, respect, opportunities for advancement. In the classical economic theory, the relationship between employers and employees is treated as a simple exchange of labor for wage. Thus salary is set at a minimum acceptable level for the labor market. Through economic and environmental development and globalization relations, these labor links have developed leading to an environment where employees are considered part of the organization, and thus an important resource of the company.

Suppliers and distributors are what we call part of the company's value chain. Economists argue that a business derives profits by adding value to products and services. The supplier's link to the company may not be based just on a simple exchange. Suppliers can provide innovations in

materials technology and support to achieve the best solutions based on products or services. This link is in both directions, because the company can provide various ideas, proposals, due to the use of knowledge products and services from suppliers. In classical economic theory, the company is required to benefit from the resources provided at the lowest possible price, which meet required specifications. A value-driven company focuses on choosing the suppliers that offer both social benefits as well as meeting the requirements for price, quality and delivery.

Without customers there would be no business. According to classical economic theory, buyers are simply consumers of products and services, and it is expected that any company to take maximum advantage from high prices. Understanding consumers and their behavior is more complex in the current period. Buyers purchasing decisions are based on many factors beyond the notion of price and product characteristics. The concept of branding totals these factors. By studying the evolution of brands, companies have learned that it is vital to know what customers think about products and services. In recent decades, the evolution of communication with customers is becoming more visible. A company directed towards value creation will try to use any opportunity to communicate to customers for improving social responsibility by packages used, advertising campaigns, and programs for environmental protection. It is well known the example of recycling electronic equipment made by manufacturers and distributors, by offering customers discounts and bonuses. In this way, companies pursue three directions: company profits by selling new products, benefit for customers by offering discounts and protection of environment by receiving old equipments, energy consuming and unfriendly to environment.

Community is the place and people around the company premises, even if its activity is focused locally, nationally or globally. In most cases, employees, customers and suppliers are members of the community. Through these links it establishes a direct relationship with the community. This is not only the payment of salaries and taxes, but also influences community character, the benefit of both sides. A value creation company focuses to search for opportunities to maximize its benefits in support of community belonging. The development of a company as part of the community must pursue the potential effects it has on the community action company's processes, products and services. In a traditional company,

decisions are made based on three criteria: cost, quality and availability. Companies focusing on value added another fourth criterion: the impact on the community.

Last dimension is the environment represented by space, air, energy and water that the company uses to survive. Even a company that operates through intellectual capital can not survive without food, air, water and energy. Therefore any company leaves traces on the environment, often more than we imagine. This relationship is conducted in both directions. Companies directly or indirectly use the resources offered by the environment, generating waste that returns in nature, destabilizing equilibrium.

Impact assessment of companies on the environment

In several European Union directives were made to protect the environment while bringing a number of restrictions. Thus, companies have had to reconfigure production processes, packaging and distribution. Depending on the company profile there can be taken various decisions and the business environment. In accordance with the principles of value creation company must seek financial performance, taking into account the long-term effects on those concerned and the environment. Company management should aim to position in three ways listed below: companies that offer products and services that improve quality of life in communities, companies that invest the profit in social and environmental activities, and companies that are different by their responsible way of their activity.

We propose a set of questions that company management should respond for checking the level of impact.

- Means of transport used by the company and employees generate high pollution? The company is the purchase / lease hybrid vehicles and electricity?
- Materials used for various packaging are recyclable?
- Computers, printers and other office equipment scattered large amount of energy or comply with new standards on energy consumption?
- Equipment used in the production process contains defects or the technology level makes them consume large amounts of water or energy, creating waste and high costs for the company? Windows and

frames leak energy, producing both winter and summer high costs of heating and air-conditioning?

- The company's buildings and spaces can be installed alternative energy equipment?

Detailing these questions, the management of company can find the best solutions for protecting the environment, and depending on the financial aspects, best deployment options.

Economic ecosystem of a company. reporting and performance of companies

Although social initiatives, environmental and shareholders are directly related, the exact mechanism by which companies and communities relate to represent a current concern. As noted, environmental regulations can reduce the high costs involved in economic performance that the company will not recover. Proper application of these rules can mean competitive advantage both in economic, social and in the organic. Moreover, the importance sitetizat competitive advantage can be made through company reports. Performance reporting social, environmental and sustainability reporting parties intersite or a concept is becoming increasingly recognized for change both internally, by informing the company management and externally, through influencing investor perceptions (Burns, Accountability, 2003). Investor support indices were created to reflect company concern for the community and environment. One of these indices is the Dow Jones Index Sustainability. It measures the correlation between social-ecological performance and share price, including the social dimension. Social performance is based on responses on the company's social behavior through a complex mechanism of analysis and evaluation.

In a centered company to value creation, the relationship of social responsibility and management by value leads to a direct link between people, resources and capital. The best use of these low results in a higher value created by the company. A very common tool in the management of value is economic value added (EVA), quantifiable operational level. Concern of managers is to find a link between their daily activities on social initiatives, the environment and stakeholders and a high economic value added. Through a growing interest towards value creation, leaders can determine the central value toward social and environmental

activities. These leaders value (long-term objectives of the company) can improve resource efficiency, resulting in sustainable investment.

Conclusions

Developing economic environment led to a further development of social responsibility. Thus, social responsibility encompasses a business approach leads to long-term value creation for shareholders from opportunities that arise and economic risk management, social and environmental. Today's top management creates value for shareholders through sustainable solutions for products and services while reducing and avoiding unnecessary costs.

The quality and performance management of companies to manage economic risk, social and environment can be measured today so investors can track and choose the top companies. Companies today seek sustainable high on several fronts, from compensation and motivating employees and creating an organizational performance, and ending with the expectations of shareholders, customers and community. Sustainable development becomes a chain of interdependent components, and the extent of these ties is strengthened, producing a more positive effect for companies and communities.

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