THE ANALYSIS OF SEVERAL RESULTS OBTAINED BY ROMANIA IN THE FIELD OF SUSTAINABLE TRANSPORT

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Abstract: We know that between the transport sector and all other branches of economy there is a strong interdependence link but also between it and the surrounding environment, being one of the most polluting sectors of activity. Transport is considered a primary field in any national economy development context, especially if we take into account its interdependence with other branches of national economy. Developing of transports also includes improving road, rail, river and sea services, as well as air transports. The objectives of the EU aim especially to modernize the transport infrastructures, be them by road, ship or by air, which would result in increasing the speed of freight transport, fluidizing traffic, attracting new foreign investors in various areas, accelerating the renewal of the auto park and decommissioning morally and physically worn vehicles which are extremely pollutant, the revival of maritime transports through Romanian ports, progressive completion of imposed performances through standards and regulations on the transport market, etc. All these objectives have as a main purpose the reducing of energy consumption, reducing transport costs as well as increasing competition in the national transport system. The development of transport has the role of stimulating public transport services and to guarantee a minimum general accessibility to public services for all citizens. Children, the elderly, disabled people or other vulnerable categories of people are not and will not be forgotten, for which certain standards set by the European Union must be respected. The present paper wishes to analyze a part of the results, either positive or negative, in the field of transports, made by our country.

Keywords: sustainable transport, road vehicles, public transport

JEL classification: R41, R58

Introduction
About the necessity of making a sustainable transport system there have been talks during the first times and in the Agenda 21, which represents a guide of actions that need to be taken in order to accomplish sustainable development. The subjects which were debated during it were: (Digby 2001) Agriculture, Atmospheric pollution, Biodiversity, Biotechnologies, Home Insurance for all people of the globe, Demographic, Modifications of the consumption and production structures, Desertification and floods, Ecologic education and awareness in people regarding present and future ecologic problems, Human settlements, Industry and information, International law, Natural resource management, Mountains – warming of the climate and melting of the mountain snows, Seas and oceans – their rise, Poverty, Sustainable tourism, Technologies and technologizing, Transport, Waste – radioactive, solid, household waste, Commercialization of pollution rights.

Then the fifth Environment Action Program called “Towards Sustainability” (Hunter, Smith, 2005) followed. It proposed to accomplish a sustainable development for the 1993-2000 period, through establishing new relations between economic agents and environment. During this program, five activity sectors have been established in which economic
development should be done in a sustainable way: in industry, energy, transport, agriculture and tourism.

For the period between 2013-2020-2030, there are 7 problem categories that have been analyzed in this strategy. We will enumerate and describe them as follows:

1. Climate change
2. Sustainable transport
3. Sustainable production and consumption
4. Conserving and managing natural resources
5. Public health
6. Social inclusion and managing natural resources
7. Global poverty and defying sustainable development

As to what the situation of Romania is concerned in this chapter, the Objective for 2013 follower the promotion of a transport system that would provide safety, speed and efficiency to people and freight at a national and international level, according to national standards.

For accomplishing said objectives we have mentioned earlier, a Sectorial Operational Program for the 2007-2013 period has been made, entitled “Transport” which includes the Strategy for Sustainable Transport 2007-2013, 2020 and 2030. This strategy wants to minimize the negative effects transport has on the environment.

By implementing the Sectorial Operational Program 2007-2013 “Transport” the European and national transport network’s modernization and development was set as objective, but above all, the creation of a sustainable transport. For this, a strategy was created, which follows the diminishing of the negative effects the national transport has on the environment, a strategy that is closely correlated with the policy of the European Union.

For the year 2020, the national objective is reaching the medium level in the EU for economic, social and environment efficiency of transports and making substantial progress in developing transport infrastructure (Strategia Națională pentru Dezvoltare Durabilă a României).

Maybe the most complex definition of the sustainable transport definition is given by Basgan who states the following: “Sustainable transport is defined as a “complex system” destined to ensure mobility for future generations and the social-economic-ecologic levers are shown, through which humanity can develop in a sustainable way in the transport sector” (Bâsgan Ion, www.agir.ro).

We must not forget that the national transport system of Romania, analyzed from the infrastructure, means of transport and transport operators’ point of view is at a middle development level, at present being able to satisfy the needs and wishes of the national and international economic agents at a low rate. As to what the increase of the infrastructure’s capacity is concerned, of the efficiency and safety of transport, efforts have been made starting with the year 1990, but it must not be forgotten that these efforts need to intensify because of the fact that in this field, the demand registers a constantly growing trend.

According to the principles mentioned in the European Sustainable Transport Strategy, the sustainable transport policy has the role of traffic decongestion, reducing noise and pollution made by using means of transport that are less damaging for the environment.

The objectives taken into account through accomplishing the sustainable transport policy are (Strategia Națională pentru Dezvoltare Durabilă a României):

- Creating a durable mobility and transport system;
- Modernizing the European framework for public transport services for passengers, in order to encourage improving efficiency and performance;
From the first chart we see that the transport sector, especially the road sector, by the start of the economic crisis, had massive growth. On one hand, this phenomena appeases us because most of the times it is followed by an economic growth, but on the other hand, it represents an increase of atmospheric pollution and a degradation of the surrounding environment. With the apparition of the economic crisis, the number of road vehicles destined for transport has fallen dramatically and even if it showed signs if improvement in 2011, these were not long lasting.

The renewal of Romania’s auto park with the purpose of reducing greenhouse gasses released in the atmosphere was another objective of Romania. To this purpose, programs financed by the Government have been initiated, meant to support anyone who wanted to change their vehicle with a new one. According to data from the National Statistics Institute of Romania, the number of new road vehicles bought is on a constant growing direction. We must not forget in our analysis the fact that this phenomenon manifests even during an
economic crisis, which makes us believe that once the economy is restarted, the number of new road vehicles will register higher and higher values.

- Detaching the economic growth from the transport demand with the purpose of reducing the impact on the surrounding environment;

**Table 1:** Buying electric vehicles in Romania

<table>
<thead>
<tr>
<th></th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cars</td>
<td>114</td>
<td>439</td>
<td>629</td>
<td>812</td>
<td>1077</td>
<td>1472</td>
<td>2042</td>
</tr>
<tr>
<td>Trucks</td>
<td>-</td>
<td>-</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Buses</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
</tbody>
</table>

Source: made by the author, based on the information supplied by the National Statistics Institute, available on-line at http://statistici.insse.ro/shop, accessed on 19.03.2015.

The renewal of the auto park may reduce pollution levels, but also buying non-pollutant vehicles, like electric vehicles. At this chapter, Romania has made considerable progress but only to what buying new vehicles, which in most cases belong to private economic agents. If we refer to buying trucks and especially busses, the obtained data shows that the efforts made by Romania in this field are not enough.

**Table 2:** Buying of road vehicles that use other sources of fuel (biofuel) besides gas, diesel, electricity, LPG or natural gas.

<table>
<thead>
<tr>
<th></th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cars</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>20</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td>Trucks</td>
<td>5</td>
<td>6</td>
<td>-</td>
<td>-</td>
<td>-</td>
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</tr>
</tbody>
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Source: made by the author, based on the information supplied by the National Statistics Institute, available on-line at http://statistici.insse.ro/shop, accessed on 19.03.2015.

The consumption of biofuel as well as the number of road vehicles using other sources of fuel besides gas, diesel, LPG, natural gas or electricity (most of them use biofuel) have had smaller but constant growth during the post-accession period. According to a European Union directive, member states have to gradually hybridize traditional fuels used in transport with biofuels, so that by 2020, biodiesel should represent 20% of diesel available on the market (Antal 2010, pp 20-30).
Table 3: Evolution of the use of biofuel in Romania

<table>
<thead>
<tr>
<th>YEAR</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thousand tones, petrol equivalent</td>
<td>0</td>
<td>0.861</td>
<td>1.984</td>
<td>2.33</td>
<td>2.4</td>
<td>3.55</td>
</tr>
</tbody>
</table>


Of all those resources, biomass is the most abundant and its use as an energy source dates from the time fire was discovered. We need to state that in the category of forest waste, the following trees are included: dead trees or commercially imperfect ones, as well as old trees which need to be cut to allow the forest to regenerate. Besides, some plant species that are included in the wood biomass category have a greater growth rate, between three and ten years. The first biofuel has been obtained in 1983, by Rudolf Diesel, having peanuts as primary source (Rossillo-Calle 2007, p. 2).

As to what Romania's situation is concerned, it has an important biomass quantity but it is one of the great biomass consumers of Europe, if we take into account that most of the individuals living in the rural environment obtain their energy through burning biomass. It is expected that in the future, biomass will be even more used, not only for cooking and ensuring thermic comforts, but also for producing biofuels. For example, animal waste are an important source of obtaining biofuels, because of the large amounts of biogas present in their composition, while the waste that comes out of extracting the biogas is an important agricultural fertilizer.

Worldwide, biomass is the fourth most used resource in producing energy, after coal, petrol and natural gas. It is mostly used for warming up homes (for example, stoves that burn wood in homes and in some industries), for cooking (especially in developing countries) as well as for producing fuels used in transports, such as ethanol. Biomass and waste contribute to about 10.1% from the total energy supply worldwide and out of this, more than 90% is made up of biomass. In more exact numbers, biomass is responsible for producing electric and thermic energy equivalent with 1067 million tons of petrol (Tushar, Ghosh 2011, p. 329). The greatest amount of biomass is consumed in developing countries, such as Burundi, Ethiopia, Nepal, Rwanda, Sudan and Tanzania, where it is not only used in cooking and ensuring thermic comfort, but it also represents 95% of the total primary energy sources used (Rosillo-Calle 2007, pp. 2-10).

As to what the situation of Romania is concerned, it possesses an important biomass quantity, but it is one of the important biomass users of Europe, if we take into account that most individual living in the rural areas obtain their thermic energy from burning biomass. It is expected that in the future biomass will be even more used, not only for cooking and ensuring thermic comfort, but also for producing biofuels. For example, animal waste are an important source of producing them, because of the large biogas quantity present in them, and the waste that is produced after extracting the biogas becomes an important agricultural fertilizer.

- Diminishing pollutant emission generated by transports to levels that reduce to a minimum the effects on the population’s health/the environment’s state.
The greenhouse gases quantity released into the atmosphere, in CO$_2$ from Romania, has registered a decrease from the level it reached in 2008. We would like to believe these positive results are generated by Romania’s effort to use renewable resources but, at least in the transportation branch, we cannot say that it is so. Still, Romania has made some progress in this chapter, as we can see from this present work, but the efforts it has to make in the future are considerable. From the category of positive results obtained, we can see that the CO2-bio values are on an ascending path.

Even if the quantity of gas emissions released in the atmosphere as a result of air transports and water transports has, starting with 2008, started to register lower and lower values, the CO2-bio quantity has been in a steady decrease, which leads us to believe that the use of biofuel in these transport categories is made in a very small manner.
Reaching sustainable levels of energy consumption for transports and diminishing the greenhouse gases effects generated by transports;

Greenhouse gas emissions, either if we think about the land or air/sea transports, has registered constant decreases since 2008, so, we can conclude that as to what this target is concerned, the results have been achieved.

- Reducing the noise made by transport;
- Respecting the European strategy referring to CO2 emissions generated by light vehicles, the new average auto park should reach CO2 emissions of 140g/km (by 2008/2009) and 120g/km (in 2012) and 95g/km (in 2021) (Green Report);
- Reaching a general savings level of 9% from the total energy consumption, on a 9 year period, by 2017;
- Adapting to the climate changes and reducing their effects should be integrated in all relevant community policies.

In conclusion, at present, transports are one of the main branches of any economy. Its contribution in creating economic growth is probably among the most significant. We must not forget the great impact it has (in a negative manner) on the environment. Because of this, making a sustainable transport system is one of the European Union and Romania’s objectives. In regards to the progress made by Romania in this chapter, we cannot say that it is nonexistent, but if we compare it to the set objectives, we can say that they are insignificant.

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References