MOBILITY AND SUSTAINABLE DEVELOPMENT

Prof. Ion Stancu, PhD.
University of Craiova
Faculty of Economics and Business Administration
Craiova, Romania
Lect. Adriana Lăzărescu, PhD.
University of Craiova
Department of Applied Foreign Languages
Craiova, Romania

Abstract: Sustainable development focuses on meeting the needs of present without compromising future generations' prospects of meeting the same needs plus those which will be present then. The concept of sustainable development was internationally established within the report "Our Common Future" of the World Commission on Environment and Development (a commission convened in 1983 by the General Assembly of United Nations). Reaching global sustainability, satisfying the needs of present without compromising the ability of future generations to satisfy their own needs, is one of the greatest challenges of the 21st century. Where can we place transportation among the sustainable development issues? Transportation is the activity which creates a bond between companies located at different distances from each other. Under such perspective, it is necessary to analyze "the sustainable transportation system" as a part of "sustainable mobility" in order to respond to the requirement of using certain logistics circuits which could lead to an economical transportation between industrial enterprises and distribution companies. The timid, but globally noticeable, trends to overcome the crisis at the beginning of 2010 give high responsibilities to carriers, as they are forced to focus on the quality of transportation and to reconsider the distance concept (together with their beneficiaries) by using "sustainable mobility."

Keywords: mobility, sustainable development, environment, transportation, development strategies.

1. INTRODUCTION

Sustainable mobility is a term which evokes sustainability in transportation and represents the carrier contribution to economic development, with respect for the environment (Commision mondiale sur l'environment et le développment 1987*, Notre avenir á tous*). The direct involvement of transportation in internationalization and globalization through the exchange of goods is also demonstrated by an increase of 4% of the total demand for goods transportation (tons/km) between 1970 and 2000 in the European Union (a period in which globalization was visibly installed).

Sustainable transportation represents a complex system designed to assure mobility needs for future generations without damaging environmental and health issues. By optimizing the energy consumption, sustainable transportation must satisfy

in optimum conditions both the mobility of industries and population, and the protection of the environment.

The scale of toxic substances' sources has changed and, consequently, it is no longer industry the main cause of pollution, but transportation. This is the reason why economists cannot presently consider sustainable development without focusing on a sustainable transportation system which should use non-pollutant means of transportation and which should have a low impact on the environment and health by increasing energy efficiency of fuels and by reducing their consumption. One of the solutions mostly found for this purpose is represented by high taxes and tolls for pollutant means of transportation.

One thing is certain: the improvement of transportation leads to an economic development through the increase of mobility, an increased access to markets, through providing jobs, housing, goods, and services. It also implies a compromise concerning the amount of benefits and constraints brought about by the effects of environmental and social costs. The concept of sustainability involves a balanced economic growth of three dimensions: economic, social and environmental.

2. SUSTAINABLE MOBILITY – A SOURCE OF SUSTAINABLE DEVELOPMENT

Transportation represents an important percent within the GDP. It is a substantial factor, as the globalization and free trade proliferate regional and international mobility for people and goods. The result was a dramatic expansion of transportation infrastructure. Unfortunately, researchers' conclusions have demonstrated that the actual transportation system does not have a sustainable character. The measures taken until now are very important for mobility, but environmental and economic costs are very high: the objective of a sustainable transportation system is to find ways of solving transportation problems applying ecological solutions that are socially equitable and economically viable.

In the European Union, transportation holds a 6% of the European GDP, 6% of labour force, 40% of investments and 30% of energy consumption. This sector has registered a constant growth in the past two decades of 2.3% per year on goods transportation and 3.1% on passenger transportation. But still, what is the price paid for such accomplishments?

It is the pollution of the environment which makes that the above mentioned development should not sustainable.

The European Commission has acted in two directions:

it reduced the effects that sustainable development and sustainable mobility had on the environment;

it issued a set of uniform rules for good functioning and assessment, in order to create adequate conditions for the development of transportation and for the reduction of mobility time for goods and passengers.

The main objective of the European transportation policy is to establish equilibrium between economic growth, on the one hand, and the quality and safety requirements of society, on the other hand, so that a modern transportation system might be developed.

In order to establish a single, multimodal network that integrates land, sea and air transport networks throughout the Community, the European policymakers decided to establish the Trans-European transport network, allowing goods and people to

circulate quickly and easily between Member States and assuring international connections.

However, the Union's enlargement had significantly altered the situation by accelerating traffic flows and increasing the need for better cross-border network coordination. These fundamental changes make it necessary to combine together the Trans-European Networks of the 15 EU countries with the Pan-European corridors and set up a unitary pan-European transport network of the 27 EU countries coordinated on at European level and based on the establishment of well chartered European axes that rise above purely national interests.

In a report published in June 2003, the High Level Group on Trans-European Networks (van Miert Group) gave a useful insight into the criteria which could be used to define these European axes:

Land and maritime links expected to have great significance in terms of inter-country trade

Links which address the accessibility needs of peripheral regions

Links with proportionally high volumes of long distance traffic

In addition to these criteria, ERF believed European axes must be evaluated according to their capacity to offer anchorage with neighboring countries, particularly in the Balkan Region and Mediterranean Basin which share clear socio-economic interests with the European Union.

These proposals have materialized into the 5 new Trans-national Axes:

Motorways of the Seas: To link the Baltic, Barents, Atlantic (including Outermost Regions of Canary Islands, Azores and Madeira), Mediterranean, Black and the Caspian Sea areas as well as the littoral countries within the sea areas and with an extension through the Suez Canal towards the Red Sea

Northern axis: To connect the northern EU with Norway to the north and with Belarus and Russia to the east. A connection to the Barents region linking Norway through Sweden and Finland with Russia is also foreseen

Central axis: To link the centre of the EU to Ukraine and the Black Sea and through an inland waterway connection to the Caspian Sea. A direct connection from Ukraine to the Trans-Siberian railway and a link from the Don/Volga inland waterway to the Baltic Sea are also included

South Eastern axis: To link the EU with the Balkans and Turkey and further with the Southern Caucasus and the Caspian Sea as well as with the Middle East up to Egypt and the Red Sea

South Western axis: To connect the south-western EU with Switzerland and Morocco, including the trans-Maghrebin link connecting Morocco, Algeria and Tunisia and its extension to Egypt

Whilst most of the Pan-European Corridors I, IV-VII are now in the territory of the EU and thus part of a priority project of the trans-European transport networks, the remaining Corridors are covered by the proposed five axes as follows:

The four Pan-European Areas (Barents, Black, Ionian and Mediterranean Seas) are incorporated into the Motorways of the Seas as far as maritime connections are concerned

Northern axis incorporates the PEC II and the northern part of PEC IX. It also includes a land connection to the Pan-European Area of Barents linking Norway through Sweden and Finland with Russia

Central axis includes the PEC III and a branch of PECs V and IX

South Eastern axis merges and extends the PECs IV and X, incorporates PECs VII and VIII as well as a branch of PEC V. The axis is further extended to the Middle East and it joins with TRACECA in Turkey, Armenia, Azerbaijan and Georgia South Western axis includes a land connection in the Pan-European Area of the Mediterranean

Therefore, the Pan-European Corridors and Areas were designed to prepare on a step by step basis, the newest and future European Union member states transportation infrastructure to correspond to the organization, quality and development level of western EU member states transportation infrastructure and policies in order to achieve a common standard within the European Union countries and neighboring countries across continent.

The objective of an EU sustainable transport policy is that EU transport systems meet society's economic, social and environmental needs. Effective transportation systems are essential to Europe's prosperity, having significant impacts on economic growth, social development and the environment.

Transport infrastructure is fundamental for the mobility of the persons and goods and for the territorial cohesion of the European Union. The EU 27 dispose of 5.000.000 km of paved roads, out of which 61.600 km are motorways, 215.400 km of rail lines, out of which 107.400 km electrified and 41.000 km of navigable inland waterways. Total investment on Transport infrastructure on the period 2000-2006 was € 738 billion.

The transport industry accounts for about 7% of European GDP and for around 5% of employment in the EU. It is an important industry in its own right and makes a major contribution to the functioning of the European economy as a whole. Mobility of goods and persons is an essential component of the competitiveness of European industry and services. Finally, mobility is also an essential citizen right. From a slow start, the European Union's transport policy has developed rapidly over the past 15 years.

The objectives of EU transport policy, from the transport White Paper of 1992 via the White Paper of 2001 to today's Communication, remain valid: to help provide Europeans with efficient, effective transportation systems that:

Offer a high level of mobility to people and businesses throughout the Union. The availability of affordable and high-quality transport solutions contributes vitally to achieving the free flow of people, goods and services, to improving social and economic cohesion and to ensuring the competitiveness of European industry

Protect the environment, ensure energy security, promote minimum labor standards for the sector and protect the passenger and the citizen. Environmental pressures have increased substantially and significant health and environmental problems will persist in the future, for example, in the field of air pollution. The promotion of a high level of protection and improvement of the quality of the environment is therefore necessary. Equally, as one of the major energy consumers, transport must contribute to ensuring energy security. In the social area, the EU policy promotes employment quality improvement and better qualifications for European transport workers. EU policy also protects European citizens as users and providers of

transport services, both as consumers and in terms of their safety and, more recently, their security

Innovate in support of the first two aims of mobility and protection by increasing the efficiency and sustainability of the growing transport sector. EU policies develop and bring to market tomorrow's innovative solutions that energy efficient or use alternative energy sources or support mature, large intelligent transport projects, such as Galileo

Connect internationally, projecting the Union's policies to reinforce sustainable mobility, protection and innovation, by participating in the international organizations. The role of the EU as a world leader in sustainable transport solutions, industries, equipment and services must even be better recognized

These objectives put the Union's transport policy at the heart of the Lisbon agenda for growth and jobs. As this Communication shows, they are also longer-term in nature, balancing the imperatives of economic growth, social welfare and environmental protection in all policy choices.

Establishing an efficient Trans-European Transport Network (TEN-T) is a key element in the re-launched Lisbon strategy for competitiveness and employment in Europe. If Europe is to fulfill its economic and social potential, it is essential to build the missing links and remove the bottlenecks in EU transport infrastructure, as well as to ensure the sustainability of EU transport networks into the future. Furthermore, it integrates environmental protection requirements with a view to promoting sustainable development.

In view of the growth in traffic between Member States, expected to double by 2020, the investment required to complete and modernize a true trans-European network in the enlarged EU amounts to some € 500 billion from 2007-2020, out of which € 270 billion for the priority axis and projects. Given the scale of the investment required, it is necessary to prioritize projects, in close collaboration with national governments and to ensure effective European coordination.

3. THE ENERGY ADVANTAGES OF INTERMODAL TRANSPORTATION

In Romania, the transportation sector is officially considered a priority for the general context of development, given the interdependence relations with other sectors of national economy, the value of services offered to population and the considerable impact on the environment.

According to the EU objectives established for Romania, a reduction of pollutant emissions by 5% must be done until 2015, and then up to 15%. The share of transportation within such pollutant emissions is considerable.

The ways of such a reduction are clearly presented by the EU. The most important measures taken involve providing an equal treatment for transportation systems regarding financing, and the modification, repair and maintenance of infrastructure and means of transportation. If these measurements will be accomplished, there might be chance for achieving essential objectives. Unfortunately, the hope for realizing a sustainable mobility is somewhat low, especially if we consider the serious mutations regarding the transportation demand. The transportation demand has recently increased, including the passenger transportation – buses – which have a higher pollution degree than the railroad transportation.

Analyzing the evolution of transportation, we arrive at the following results:

Table no.1

The distribution of the means of transportation in the EU and Romania for goods

	2000			2002			2005			2006			2007		
	%			%			%			%			%		
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Goods transportation EU	19,7	73,7	6,3	18,3	75,4	6,3	17,7	76,4	5,9	18,1	76,3	6,7	19,7	76,5	5,6
Goods transportation Romania	49,1	42,9	7,9	34,4	57,3	6,2	21,7	67,3	11	19,4	70,5	10,0	18,9	71,3	9,8

Source: Stancu Ion – EUROSTAT *Legend: 1 – railroad; 2 – by road; 3 – by river (internal)*

Table no.2

The distribution of the means of transportation in the EU and Romania for passengers

	2000			2002			2005			2006			2007		
	%			%			%			%			%		
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Passengers transportation EU	7,1	83,0	9,9	6,8	83,5	9,6	6,9	83,4	9,6	7,0	83,6	9,3	7,1	83,4	9,5
Passengers transportation Romania	18,1	69,9	12	13	76,3	10,7	10,5	73,9	15,6	10,4	74,5	15,1	9,4	75,3	16,3

Source: Stancu Ion – EUROSTAT *Legend: 1 – railroad; 2 – by road; 3 – by river (internal)*

The above charts demonstrate that road transportation holds more than 83% of the total internal transportation within the EU both for goods transportation and passenger transportation.

In the case of goods transportation, the procedure for railroad transportation, considering the total means of transportation, decreases since 2000 until 2006 by 19.7% to 18.1%. It is only in 2006 that it is able to recover to levels it had five years before. Meanwhile, road transportation has a increasing trend, starting from 73.7% and reaching 76.5% in 2007.

Passenger transportation had a curios evolution regarding the means of transportation. Thus, the transport by bus has exceeded railroad transportation without taking into consideration the transport by vehicles, which has exceeded 83% in all the years of this analysis.

Extending the research to the volume of goods transported in the European Union, the following details can be used:

In Romania, the share of railroad transportation has dramatically decreased from 49.1% in 2000 to 18.9% in 2007, the difference being absorbed by road transportation. Regarding passenger transportation, it has reached a paradox in 2007, when the share of bus transportation (10.3%) was higher than the railroad one (9.4%).

This means that the development strategies are insufficient if they do not also focus on the marketing strategies which can emphasize the profitability of the use of the

adequate means of transport for market requirements. Romania's geographical position should be exploited, since on the territory of Romania there are segments of corridors IV, VII and IX. These corridors are extremely important as they can provide connections to the West, but also to the East of Europe, and for which the European Union can provide irredeemable financing (grants) through structural funds.

4. CONCLUSIONS

Romania has major transportation problems as a consequence of its inadequate infrastructure. The influence of such an infrastructure on the sustainable development of industry – but also on commerce, agriculture and tourism – is a negative one, providing very high losses every year.

In order to solve such a negative influence on the sustainable development, the following set of necessary actions is required:

a. – the promotion of Helsinki corridors both with local funds and by using structural funds; Corridor IV – passes through the entire territory of Romania and an investment could solve both road and railroad infrastructure problems and it can also contribute as an economic boost in the area.

b. – the use of inter-modal transportation, which represents a real economic interest for those who use it:

for forwarders, it represents a reduction of intermediate costs for handling;

for carriers, it represents a reduction of parking time of the vehicle;

for the transport staff, it represents an improvement of work conditions;

for road transportation, it represents a reduction of the number of trucks per route;

it is a means of transport which takes into consideration the environmental protection and energy saving.

c. – the increased usage of container transportation.

The vitality of global commerce has demonstrated the efficiency of using the container in multimodal transportation, a transportation system in which Romania is also integrated.

d. – the use of river and maritime transportation on a large scale.

A simple calculation demonstrates that transport from the Romanian Plain can be done towards the Black Sea on the Danube waterway, with savings of at least 10% per ton, which at 100.000 tons of transported cereals could represent a saving of at least 200.000 dollars for an average price of transportation at 20 dollars/to).

e. – the rehabilitation and development of transportation infrastructure;

f. – the modernization of means of transportation;

g. – the development and modernization of the possibilities for interoperability with neighbouring countries;

Analysts can now speak about the combined transportation for goods – rail, road and air. Air transportation for goods is mostly unused: 9/10 from the necessary time is used for passenger transportation from a place to another. An important part of productivity can be accessed by using a combined transportation by airplane, railroad and road. The globalization of exchanges, the relocation of products, more and more rigid exchanges of information, are becoming classic management parameters for providers of logistics services.

All in all, the Romanian economy does not have other chance but to fit in the European and global flows imposed by the globalization criteria, which are based on

modern infrastructure, modern logistics, modern means of transport and modern policies for transportation.

REFERENCES

1. Bosgan, Ion — "Dezvoltarea durabilă a transporturilor în România în contextul aderării României la UE." http://www.agir.ro/buletine/89.pdf
2. Danciu, Doina — Sisteme inteligente de transport: ghid pentru utilizatori şi dezvoltatori, Editura Tehnică, Bucureşti, 2000
3. Bărbulescu, Iordan Gh — UE – politicile extinderii, Editura Tritonic, Bucureşti, 2006
4. Fănuşi, Florin — "Reteaua transeuropeana de transport, prioritate a Uniunii Europene largite." in Revista de drept comercial, v. 14, nr. 4, aprilie 2004, p. 103-109
5. Raicu, Ş — Sisteme de transport, Editura AGIR, Bucureşti 2007
6. *** — Strategia PND – 2007-2013. Strategia postaderare în domeniul transporturilor http://x.gov.ro/obiective/200701/strategie_post_aderare2a.pdf
7. *** — CMED (COMMISSION MONDIALE SUR L'ENVIRONNEMENT ET LE DÉVELOPPEMENT), 1987, Notre avenir à tous, s.l., Éditions du Fleuve et Les Publications du Québec.