INTRODUCTION

1. OBJECT OF ANALYSIS AND RESEARCH QUESTIONS

Scenarios of the future European Union suggest that Europe will be part of a more globalised world economy, and will build even stronger relationships with neighbouring countries. It will be populated by an ageing and multicultural society which will live in dense urban areas under a changed climate. People’s lives will have been transformed by breakthroughs in energy, transport and communication technologies. The transport sector in these forecasts will have to satisfy a greater demand for mobility. At the same time it will have to find solutions to address its negative externalities, which affect the environment, the economy and the society.

Trans European Network of Transport (TEN-T) and Pan-European Transport Corridors are defined as key instruments, for economic growth and social integration inside the EU political map and of a crucial importance in implementing EU enlargement policies toward neighbour countries. Networks of transport and communication will further develop relation with EU neighbour countries and will help them in achieving the standards of the western society.

Corridor Eight is one of the ten “Pan European Corridors of Transport”, based in the roots of an antic roman corridor, “La Via Egnatia” (Fasolo. M. 2004). Taking in consideration the to date reports of the civil works, services, and the main operating indicators of the Corridor Eight as a part of Pan European Transport Corridors, it can be easily noticed that:

Corridor Eight it is not yet operational, in all modes of transport and services along all its length and area. There are not railway links in different parts of it, while there is not high operational performance of the existing roads and high ways. Consequently it does not fulfils its mission to enhance the movement of people, goods, information and experiences in all modes of transport from Adriatic and Ion Mediterranean to Black Sea, in linking societies, natural resources and economies between two peninsulas and Euro-Asian regions.

Corridor Eight does not offer the necessary capacity and contemporary standards to afford flux of traffics for persons, horizontal and vertical signallers, emergency situations, and electricity black out situations while there are not alternative electricity resources, along its segments of roads, rails, seaports, etc. There are not clear demonstrations to be safe, secure, and healthy transport services along this transport corridor area.

Taking in consideration,

• the conclusion that corridors of transport as spatial planed parts of the territory are confirmed to be effective tools for development and social integration between countries;
• the fact that international transport infrastructure realities are demonstrating to be competitive and complementary and of high standard service;
• that up to now regional and geopolitical realities has not been in favour of the Balkans;
• that the future transport will be based in achieving goals of being, clean, safe, secure, healthy and cost effective;
• that the society of countries along Corridor are clearly defined towards EU integration, and that being part of EU means obligation and standards must be achieved;
• that in a near future Albania, Macedonia will be part of EU political map:

The following research questions are addressed in the study:
– Could countries like Albania, Macedonia and Bulgaria, develop sustainable transport along corridors of transport and their networks in order to be more competitive and complementary one among TEN–T and Pan-European Transport Corridors and areas?
– What policy, steeps to be done and strategy to be raised, in building corridors of infrastructure transport as a functional part of TEN-T and Pan-European transport corridors networks. How can those country achieve the reality where EU citizens feels comfort, safe, healthy, secure, and to have the possibility of choice the transport means, along Corridor Eight’s countries?
– What policy, steeps to be done and strategy to be raised, in making infrastructure functional part of regional, European and global network services?
– What partnerships must be raised to achieve the challenges toward sustainable corridors of transport?
– What policy, steeps to be done and strategy to be raised, making corridors of social integration and economic growth?
– Could we, and which are instruments in building wellbeing corridors of infrastructure, beyond the political, natural, ethnic, religious and cultural borders, aiming at walking local, achieving global!

The theory and conceptual approach to the transportation corridors will be presented by this study, to make evident social and economical benefits of transport activity as well as the consequences coming from this activity as regards to human activity, environment, bio natural diversities and global worming along corridors area.

Presenting the status of Transnational European Network of Transport (TEN-T) as well as that of Pan European Corridors of Transport, as regard to the future sustainable policies and guidelines of the European Commission, is one of priority objective of this study. Following
this argument the research objective is to present the realities along Corridor Eight areas, (non EU member states) in reference to sustainable indicators.

By presenting the core objective the research it will be also presents scenario partnerships along Corridors Eight. At the final, the object of the study will try finding the best examples and solutions toward sustainable developments benefiting societies along countries of Corridor Eight.

2. METHODOLOGICAL APPROACH

The study research consisted in combination of theoretical approach and empirical research.

It has consisted in:

- Literature review;
- Data collection, research, comparative study and analyses, questionnaire, etc;
- Direct and online communications with experts, policy-makers and stakeholders in the areas of transport, sustainable developments, central and local governments, etc;

➢ It has been communicated with the President of Hydrogen American Association, USA; the Director of “Fuel Cells Today”, UK; the Responsible of Hydrogen Arezzo, Italy; the Director of the “Center for PSP” at Birmingham University, UK; the Director of “CETA”, “Scientific Park of Trieste”, Italy; the Director of “Geotechnos”, SRL, Trieste, Italy and so on;

➢ It has been a direct communication with Mayer of Durres, Berat, Vlore, Kucove, Lezhe, Korce, Lushnje and other local authorities in Albania;

➢ It has been directly communicated with policy-makers, governors, professionals and experts of this area in Ministry of “Transport & Public Works”, “Energy and Economy”, “European Integration” the “General Directory of Roads”, “Port Authority of Durres” etc.

- It has been participation in conferences, as a lecturer. It has been communicated with regional and local authority as well as with different social categories in Friuli–Venezia-Giulia Region;
- It has been directly communicated with a considerable number of travellers belonging to different social and professional categories in Port of Trieste, Port of Durres, Airport of Trieste, Treviso, Venezia and Tirana;

During professional experiences, it has also been communicated with experts, policy-makers, and governors in the area of transport infrastructure and Corridor Eight, in Sofia, Skopje, Ohrid, Rome, Bari, Innsbruck, etc
An important part of research study has been participation as lecturer and researcher in the following activities linked directly with research area:

- Research study on “Cross-Border Co-operation in the Balkan-Danube Area- The case of cross-border between Albania-Greece, Albania-Macedonia (FYROM) Albania-Montenegro (An update), in collaboration with ISIG.

- Lecturer in International Conference “Logistic and New Technology to Develop the Seaports of Corridor Eight in the Relationship Between Italy and Albania” Durres 19 March, 2008
- Experience in same bilateral, and multilateral regional agreements in the area of transport, public works and social affairs, is reflected also in the study.

A considerable part of research’s study has consisted on data collecting and comparisons through graphic methods as regard to social and economical information for transport and energy for Italy, Albania, Macedonia and Bulgaria.

Literature review, comparisons, analysis, graphs, stimulations, interview is used during my work in finalising thesis.

The main focus literature review is based on European Commission, studies, directives, legislation and quantitative indicators. A broad literature from SEE countries is used, in particular those of Albania, Macedonia and Bulgaria.

Official statistics are used in every reference and studies charged by European Commission, as well as OECD, World Trade, IRT, etc.

Many other different studies, research and dates from different part of the world map are used (USA, Canada, ASIA, Australia, Africa, etc.) to come to a final conceptual definition and approach to transport corridors in national and transnational level.

In methodological terms the model steers a middle course between the complexity of a multi-regional input-output framework and aggregate econometric modelling approaches by modelling transport infrastructure investments and transport system improvements on regional production by regional production functions in which transport infrastructure is represented by spatially disaggregate accessibility indicators.

The cohesion indicators calculated during the thesis make it particularly relevant for studying the impacts of transport infrastructure investments and transport system improvements on the convergence (or divergence) of socio-economic development in the regions over time.
The dynamic character of figures enables it to appropriately deal with the range of different dynamics associated with interactions processes determining regional socio-economic development.

The methods that have been used have relatively moderate data requirements and does not require highly disaggregate classifications of industries or population or an input-output table nor road, rail and air networks coded with excessive detail. Output of the model are indicators measuring socio-economic and spatial impacts of the simulated policies. Three groups of output indicators were define gross domestic product (GDP) was chosen to represent the economic performance of each country along the Corridor. GDP per capita allows drawing conclusions on national income levels.

The unemployment rate is used to indicate the social condition of a countries and the region. This indicator, too, presents measurement problems because there are large differences in the definition of unemployment in European countries. Nevertheless unemployment remains the most widely used social indicator and is easily related to policy goals.

In addition to the above regional indicators macro indicators expressing the distribution of GDP and unemployment across regions are used as indicators of cohesion between the regions along the Corridor Eight. Cohesion indicators inform about the degree of spatial concentration or dispersion of GDP or unemployment and if applied to modelled policies show whether the implementation of a policy would contribute to the political goal of reducing socio-economic disparities or not.

Total GDP and employment are related to population and labour force by calculating total regional GDP per capita and regional unemployment. Accessibility, besides being a factor determining regional production, is also considered a policy-relevant output of the work. In addition, equity or cohesion indicators describing the distribution of accessibility, GDP per capita and unemployment across provinces in separate countries are calculated.
3. THE FRAME OF THESIS

This thesis is composed of six parts, including conclusions and recommendations. It starts with table of contents, the introduction, while the last space is occupied by bibliography, list of graphs, and abbreviations.
The introduction is made up of object of analysis and research question, methodology and the frame of the thesis.
The first chapter presents the theory and concepts on transportation corridors the historical background, world wide experiences on transportation corridors and European Policy on Transport Corridors.
Presenting European strategy toward a common transport and cohesion policy, through this part, the transportation corridors came naturally as an effective tool in connecting people, human and natural resources inside the European territory and in global level, too.
European transport network and the main transnational corridors are presented in two conceptual approaches: Trans European Networks of Transport (TEN-T) and Pan European Corridors of Transport (PECT). Both these concepts occupy the territory of Europe and enhance European values beyond the continents.
Thirty priority of transport infrastructures inside European Union level are presented in indicative details by researching the latest updated information, as well as emphasising the EU policy towards a sustainable transport, which is concluded softly by presenting the fact that nearly 80% of financial support for 30 priorities goes to clean transport modes (railways, & seaports).
Coming to the end of the part, it is presented the argument of putting people at the heart of transport activity.
Benefits and impacts of transport activity in general and of transport corridors are presented in the second part of the study.
Transport activity is presented as a crucial element for the daily life of the society in time and space, coming to the conclusion that its importance is universal, while the modernity of transport goes hand to hand with humanity development.
Dealing with transport and corridors importance the consequences and fatalities for societies and nature are presented as the result of transport activity along corridors of transport.

In the third part sustainable transport activity comes as a solution to these consequences caused as the result of transport activity by corridors of transport. The definition of sustainable development in general and of sustainable transport in particular is presented by the space of the third part. Putting people in the heart of transport activity, considering environmental issues, global warming and other negative impacts, will be a permanent challenge for policy makers and other stakeholders in local, regional, and transnational dimension, as regard to sustainable developments. This is the main objective during presentation of the third part, offering the solutions of renewable energy sources and innovations as the solution.

The fourth part deals with partnerships along transportation corridors. Focusing in financial issues as a continuous challenge for transport infrastructure. Public Private Partnerships are presented in details as the key factor on these partnerships in implementing projects of transportation corridors. International experiences and backgrounds are presented as a supportive argument for this idea, too.

Corridor Eight is presented in details in part five. Graphs about particular indicators for respective countries along Corridor Eight are presented as result of dates research on individual countries aiming to present the reality on social indicators such as employment, safety, environmental, pollutions, etc. All the work at the final objective present the reality and challenges for countries along Corridor Eight in achieving a sustainable development and touching European Union realities and perspectives. Partner countries have to walk over the stones of a famous ancient road, challenging new dimensions of global markets and freedoms of mobility.
PART ONE

I. CORRIDORS OF TRANSPORT AND EUROPEAN POLICY

I. 1 THE THEORY AND CONCEPT

Society has been moving historically in local, regional and global level. History has also demonstrated that roads have supported human beings mobility whether they were natural or modern.

A route is a single link between two nodes that are part of a larger network that can refer to tangible routes such as roads and rails, or less tangible routes such as air and sea corridors.¹ Rodrigue J-P., Comtois, C 2006) A transport network denotes either a permanent track (e.g. roads, rail and canals) or a scheduled service (e.g. airline, transit, train). It can be extended to cover various types of links between points along movements.² (Goodbody Economic Consultants, 2000)

Corridors take the form of clearly identified geographical strips that include specific network components as well as a number of access roads to towns, cities and cross countries³ (Jensen, A., Jespersen, H 1999) From corridor to region: Trans-border cooperation on infrastructure, innovation and research as participative planning in practice From corridor to region: Trans-border cooperation on infrastructure, innovation and research as participative planning in practice together with the signing of alternative routes within corridors. They are readability sufficient between the local, (regional and international levels of access.

Generally speaking, there is also no basis in scientific theory for the corridor approach as there is for networks in the fields of operational research, geography or even the occasional application in the transport sector.

Certain criteria are selected and settled to define the philosophy of Corridor Concept. The selection of projects within this policy option is done by starting from the defined priority axes/projects and applying a multi-criteria analysis in which the following criteria are used:

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¹ The Geography of Transportation Networks. Routledge
² Transport and Regional Development, Ballbridge, Dublin
³ Jensen, A. Jespersen, H. (1999), From corridor to region: Trans-border cooperation on infrastructure, innovation and research as participative planning in practice
Travel time savings per passenger [mln hours per year]. This indicator is expressed in time saved due to improved transport connections. Passenger traffic flows. This represents the estimated number of passengers per year, providing an indicator for the weight of the bottleneck […] (Ecorys Transport, 2007).

Experience suggests that there are numerous examples with the use of a corridor approach in, admittedly, widely varying contexts where in most cases the aim is to resolve a specific problem of co-operation between partners developing links along a given corridor in which they have a shared interest, a certain pragmatism always lies behind the original decision to promote a corridor. (Reynard, C. - Nestear, C. 2003)

International literature defines the development transport corridors as that area in the vicinity of a new infrastructure route “spine”. The spine may be a highway, rail, or even a pipeline or electric transmission corridor, as (Rodrigue. JP, Comotis 2006) but ideally it will comprise an integrated system of some or these entire infrastructure elements supported by a modern communication system.

Further could be brought in attention that there is an undersea channel multi road linking UK and France, there is Sues Channel linking continents and oceans, there are invisible air traffic roads linking people, while there are numerous land and sea corridors linking diverse people in local, national, regional and global level. Coming to the case of Corridor Eight, for sure gas and oil pipelines, electrical cables, water pipelines, perhaps a tunnel, will link Albania and Italy as the Western European gates of this corridor.

From this point of view I would like to define Trans National Corridors of Transport and Communication as that part of Geographical Environment enhancing movements of persons, goods, natural resources, ideas and experiences in national, regional, continental and global level.

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4 Ex ante evaluation of the TEN-T Multi annual Programme 2007-2013. Nethearland
5 Transport infrastructure development for a wider Europe, Paris
7 (my definition)
Because of its importance in the contemporary global economy, international transportation predates globalization. For as long that there has been trade, transportation activities have been present to support it. One is the prerequisite for the other; they are both mutually interdependent. What has changed is not the purpose of transportation, but its volume, capacity, speed and efficiency. As economies and societies emerged, axis of trade and circulation came into existence.

USA experience on transport corridors suggest that corridors are of three hierarchy levels: Statewide Mobility Corridors, Regional Corridors and Local Corridors. Such corridors have upper level design standards, high speeds, minimal travel delay, free-flowing conditions, and desirably no less than partial access control. Accordingly these corridors were defined[…]as part of the recognized system of highways that:
- directly facilitates interstate or national commerce and travel;
- enhances economic vitality and international competitiveness; or
- provides service to all parts of Indiana and the United States[…](US 31 Freeway, 2000).

\(8\) Upgrade from Indianapolis to South Bend, Transportation Planning History.

\(a\) The development transport corridors.
Studies looking at the impact of infrastructure on a variety of indicators such as output level or output growth, productivity, etc demonstrate that there is a clear link between economic growth, social cohesion, integration and infrastructure in local, national and trans-border level in creating or closing the gap between poor and rich regions within and across countries, as well among urban and rural areas.

Referring to international experiences inequalities between locations can often be measured by the quantity of links between nodes and the related revenues generated by traffic flows. Many locations within a network have higher accessibility, which is often related to better opportunities. However, economic integration processes tend to change inequalities between regions, mainly through a reorientation of the structure and flows within transportation networks at the trans-national level.
The outcome is that experience with a given corridor has not always proved beneficial in the development of subsequent corridors, given the degree to which the particular context, objectives and partners involved can vary from one project to another.

The concept of transportation corridors as regard to development corridors is also defined by (Bradbury, S.L. 2002):

 [...] transport infrastructure refers to “hardware”, including roads, bridges, tunnels, ports (for maritime and inland water transport), airports, urban transport infrastructure (mass transit systems), dry ports and inland container depots (intermodal infrastructure). It also includes signage and traffic management systems. It does not include mobile equipment, except for trains.

This historical background is in particular the one of the Pan-European Conferences, whose follow-up since the Helsinki Conference has been entrusted to the ECMT. In European level with the enlargement of the European area, this practical experience with corridors was developed into more formal arrangements as well as agreements between national and international institutions.

In EU level the overall aim of the infrastructure is to facilitate and stimulate freedom of people’s movement and trade between the EU and the neighbouring countries through efficient transport connections. These would in turn foster economic growth and regional development. This can be achieved through the implementation of policy measures aiming at improving the functioning of the transport systems, reducing journey times, transport costs and congestion as well as making the transport network more sustainable. A sustainable approach will realise the social dimension of corridor’s transport. (EU-27 Energy Baseline Scenario to 2030: 2007)

b) Corridors of Transport and territorial development. The economic literature has long pointed out the role of Corridors of Transport as the driving force behind the territorial success.

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More recent theoretical development on concepts of increasing returns and agglomerations gives more justification for the inclusion of corridor’s space in any theory of economic development and thus related policies. The Corridor’s space does not only provide companies with advantages of lower production and distribution costs through proximity and positive externalities, it also offers informal social, cultural, institutional, and political benefits that ultimately foster economic relations. Corridors and their urban metropolitan areas can also be utilized as an integral part of the corporate strategies to reduce the labour power and thus increase profits. (Straub, S. 2008)

Economical, geopolitical and geographic characteristics of states forming the EU and Southeast countries create several internal and external barriers ranging from economical, institutional, infrastructural, environmental and even psychological to further cohesion. Whether it is an institution or economic activity, every human activity has to be organized in space. Hence, each social, economical, political and institutional barrier has a spatial dimension that needs reconfiguration in the face of new changes brought by the EU’s integration and globalisation processes. On the other hand, the location of specific activities over the space creates a need for interaction of similar and different activities and thus infrastructure, communication and transport networks. Corridors of transport and the urban areas along these corridors are the best choicer in regard to that requirement. This discussion reveals that the economical, political and social integration has to be considered together with their spatial dimension. Spatial integration may be defined as the reduction of distance between regions or geographical areas with respect to time, monetary costs and psychological distances. Spatial integration may be achieved through establishment of dens transport and communication networks that increase fast movements of people, delivery of goods and dissemination of information.

To have a clear understanding on the mission of the trans-national corridors it’s useful to bring in attention the most important international routs linking Europe which were the Maghreb, Spain and Northern Europe, Scandinavia and Italy, and the Baltic States and countries bordering on the Aegean and the Black Sea, focusing in particular on links between Poland and Greece.

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10 Infrastructure and Growth in Developing Countries, Policy Research Working Paper. The World Bank
In this case the first trans-border European corridor linked countries with highly disparate levels of economic development and required barriers such as the straits of Gibraltar and the Pyrenees to be overcome while the associated plans were drawn as Spain and Portugal prepared for accession to the European Union. In European level the goal has been consisted in a long-term project addressing Trans-European-Motorways (TEM) extending from Poland to the Eastern border of Turkey. This initial TEM project was subsequently matched by a TER project for rail transport (Trans-European Railways).

All these above mentioned cases, illustrate the very significant deduction of corridor’s challenge in linking persons and countries, benefiting persons in different geographic areas. Referring to US reality (Lakshmanan, T.R. - Anderson W.P. 2004):

[...] physical and non-physical infrastructure of the US transport systems are key ingredients of the competitiveness of US firms in the international arena

Experiences of the human society have demonstrated those transport and communication infrastructures are crucial for social and economic development, while EU policy considers them extremely important for social cohesion and integration of EU and Neighbour Countries.

Referring to these subject international experiences inequalities between locations can often be measured by the quantity of links between nodes and the related revenues generated by traffic flows. Many locations within a network have higher accessibility, which is often related to better opportunities. Many locations within a network have higher accessibility, which is often related to better opportunities. However, economic integration processes tend to change inequalities between regions, mainly through a reorientation of the structure and flows within transportation networks at the trans-national level.

While we have to mention that he outcome is that experience with a given corridor has not always proved beneficial in the development of subsequent corridors, given the degree to which the particular context, objectives and partners involved can vary from one project to another.

11 The Case for a new Modeling Strategy, Sweden can be mentioned:
Following the reality facts we easily can distinguish that the development of transport corridors and networks in EU has been at the same attitude with the Institutional strategies of European Union. Through this chapter my aim is to present a historical background to the development of the corridor and network approaches in order to learn a number of lessons with regard to the future development of transport infrastructure in a new Pan-European area, with particular reference to relations with countries in the Mediterranean region. (Euro-Med Partnership. Regional Indicative Programme 2001)

Transport infrastructure in general and transport corridors in particular, link and integrate the society in creating or closing the gap between poor and rich regions within and across countries, as well among urban and rural areas, etc. So infrastructure developments bring an inclusive development, equals economic growth plus sharing the benefits of growth to a wellbeing society. As we shall see, infrastructure helps connect the growth to the sharing of benefits, thereby making the development more inclusive. (Commission’s Guidelines for growth and jobs (2005-2008) No 9) A good reference to be mentioned in demonstrating the role that infrastructure plays in a series of mutually reinforcing relationships that links growth and poverty reduction – a subject on which the development world has come to broad consensus.

In the first, place, infrastructure provides people with services they need and want. Water and sanitation, power for heat, cooking and light, telephones, computers and transport all make immeasurable differences in the lives of people. The absence of some of the most basic infrastructure services is an important dimension of what we often mean when we talk about poverty.

Infrastructure also impacts on the activities through which people earn their livings. It contributes to the health and education that people need to fill jobs, or create them. But infrastructure is also an intermediate input into production. Without transport power and water, all but the most basic production processes would grind to a halt. Infrastructure raises the productivity of factors of production – by generating the power that allows factories to mechanise, by allowing workers to get to work quicker, or by providing the networks through which information can pass electronically. Infrastructure connect goods to markets, workers to industry, people to services, the poor in rural areas to urban growth poles. Infrastructure lowers costs; it enlarges markets and facilitates trade.

Arguing way we can mention that infrastructure both impacts directly on poverty through services, and supports the processes of growth on which much poverty reduction depends.
And at its best, infrastructure draws poverty reduction, service provision and growth into a reinforcing cycle. (Kudat, A. 2002)\textsuperscript{12}

Infrastructures of transport and the services it provides have some rather peculiar features which shape its contribution. Infrastructure services tend to be capital intensive and exhibit economies of scale. The provision of large-scale electricity or transport services, for example, generally requires much higher capital intensity than the provision of large-scale education or health. Such infrastructure services can therefore suffer high risk, long gestation, and long payback periods - but enjoy substantial economies of scale. Including more users can greatly enhance the viability and affordability of the service. In some cases, the inclusion of more users can even enhance the value of the service to each individual user. It is often the network nature of infrastructure that brings the economies of scale. Conversely, providing infrastructure services on a small scale can be expensive. But small can also be beautiful, because it may involve low risk, limited need for coordination, or a positive environmental impact – these factors can be worth the extra unit costs.

Infrastructure tends to come in lumps, and those lumps tend to form networks. Roads connecting population centres do actually need to go all the way, and to join other roads, in order to be useful. A power plant with only ten percent of a turbine is not a power plant, and a power plant without a transmission and distribution grid doesn’t give many people power. An urban water supply system can’t function with only half a treatment plant, and a whole treatment plant needs an extensive water distribution system to justify itself.

Naturally some infrastructure can be incremental: a wind turbine, a borehole, a household boiler, a septic tank, a feeder road. Such infrastructure can be crucial in particular circumstances, such as in rural or peri-urban areas, to realize environmental benefits, or to overcome financing and risk constraints. Or incremental approaches may facilitate community participation in governance (lumpy infrastructure has a strong association with top-down institutions). Incremental infrastructure can certainly be the best available option for a particular community of end-users. But with current technology, lumpy infrastructure will usually be the cheapest way of providing for large-scale general use.

\textsuperscript{12} Working Paper on Social Analysis Guidelines for Transportation Sector Investments. WB
Transport infrastructure is long-lasting. Once we’ve built it, it’s probably going to be there a long time, even if inattention to maintenance reduces its useful life. A port, a street system, a sewerage network, mass transit, a hydropower dam, can last for decades. Once built, it can define for many years how and where people live and work. It can define which areas prosper and which stagnate, who accumulates wealth and who does not, who exercises power and who has little voice. In short, who is included in development and who is not.

Periods of rapid urbanization present massive opportunities and challenges, and can shape economies and societies profoundly. For some sectors, periods of rapid technological change can radically change what used to make sense. Because of that risks are high, and infrastructure mistakes can haunt you for a very long time. Missing windows of opportunity can cost dearly, and so can locking in the wrong solutions. Long-term vision matters enormously.

Transport infrastructure is of specific space and use. The shoe factories, schools and supermarkets can move location, or can easily be used for something different. Some harbours have become leisure centres, and power plants museums, but most infrastructures can’t go anywhere else or do something new (and their scrap value can be very low). Infrastructure therefore makes a good hostage. With high sunk costs, revenues can be driven way down and operation will continue (as long as variable costs are covered, it’s worse to stop than to carry on). At the same time, those sunk costs and space-specificity mean monopoly power is quite likely. A hostage with monopoly power can attract predators, particularly when the services it provides are politically sensitive. Consequently, infrastructure faces considerable political risk (and this is not just a private sector problem; public infrastructure can also be kidnapped by rent-seekers).

And space-specificity can bring local social and environmental impacts: dams can displace people nearby, vehicles kill people where the roads are, airports bring noise to host communities, power plants emit noxious chemicals locally, and untreated sewage is a health hazard for its neighbours. Transport infrastructure is complex: it provides inputs for multiple purposes simultaneously – and does so along with multiple non-infrastructure inputs. So it is intertwined with the fabric of our economic and social lives, and connects us together. For example, river water after being a transport medium for people and goods can simultaneously be the energy source for electricity, the provider of drinking water and sanitation to households, the source of fertility for food production, the source of steam for chemicals production, the carrier of heat for homes. But that
water helps produce chemicals, for example, only if there are skilled and healthy workers available, capital to fund the business, and a host of other services to help it operate and sell its products. Infrastructure is useless in isolation. The fact that so much of our lives depend so intricately on infrastructure services makes their provision very important both economically and politically - but also intrinsically hard to value.

A disruption to water or energy supply, a breakdown in transport or telecommunications, can have incalculable economic, environmental and social reverberations, but can be very expensive to prevent. Correspondingly, reliable provision of those services can have benefits well beyond the revenues accruing to the provider of those services, but do we know what those benefits are worth?

To have a clear definition of developing Corridors of Transport we have to calculate a forecast of gross domestic product (GDP) per capita by industrial sector (agriculture, manufacturing, services) generated in each region as a function of endowment indicators and accessibility. Endowment indicators are indicators measuring the suitability or capacity of the region for economic activity. Endowment indicators may include traditional location factors such as availability of skilled labour and business services, capital stock (i.e. production facilities) and intraregional transport infrastructure as well as 'soft' location factors such as indicators describing the spatial organisation of the region, i.e. its settlement structure and internal transport system, or institutions of higher education, cultural facilities, good housing and a pleasant climate and environment.

Accessibility indicators are derived from the Regional Accessibility. In addition to endowment and accessibility indicators, monetary transfers to regions by the European Union such as assistance by the Structural Funds or the Common Agricultural Policy or national governments are considered, as these accounts for a sizeable portion of the economic development of peripheral regions. The results of the regional GDP per capita forecasts are adjusted such that the total of all regional forecasts multiplied by regional population meets the exogenous forecast of economic development (GDP) of Europe as a whole by the European Developments at transnational, national, regional and local employment.

c) European Context of Transport Corridors

Two different contexts are used for the development of pan-European infrastructure to classify corridor and networks in European level.
- At the level of the European Union with the planning of trans-European networks, recognised in the Treaty of Maastricht as an important stage in a process designed to meet the twin objectives of integration and cohesion;

- At the pan-European level, namely a Europe opens to the East and to the South in the Mediterranean region, with the identification of the priority extra-Community corridors adopted at the Pan-European Transport Conferences in Crete and Helsinki. These two concepts are not part of an abstract approach to infrastructure development. Each one, in its own particular field of application, has given rise to legally binding documents backed by the full authority of international agreements. They have both enjoyed the benefit of funding frameworks relating to development aid or the harmonisation of national policies.

With the enlargement Europe, is now entering a new phase that poses a two-fold problem. The first is that of the revision of trans-European network policy within an enlarged Europe, which EU institutions are preparing to undertake in 2004. The second is the question of how to adjust infrastructure development to the new neighbours that enlargement of Europe further eastwards, from the Russian Federation to the countries of Central Asia, as well as to the South and the entire Mediterranean region. The two concepts should not be viewed as being mutually opposed, on the contrary, they can be mutually rewarding, given past experiences, as well as operationally effective, which has often proved to be their strength even during periods of severe conflict in the Balkans or the Middle East. The objective is always to produce the most pertinent design possible for infrastructure projects with a view to "optimising" their use, including operating modes and regulation, in a multimodal approach designed to provide better-quality transport services between countries in order to benefit consumers.

The historical background to the development of the corridor and network approaches has to be referenced in order to learn a number of lessons with regard to the future development of transport infrastructure in a new Pan-European area, with particular reference to relations with countries in the Mediterranean region. This historical background is in particular that of the Pan-European Conferences, whose follow-up since the Helsinki Conference has been entrusted to the ECMT (European Conference of Ministers of Transport)
I. 2 HISTORY AND EXPERIENCES

a) Historical overview

Helens travelled through the Mediterranean Sea to establish the colonies in the Mediterranean area, with which they would trade vital supplies as well as exchange social values of that time. The Illyrians controlled the traffic within the Adriatic and the north Ionian Sea. The Romans, after travelling to the east Adriatic Sea, communicated and exchanged the values, using the language that we are considering, in the Balkans, in the Black sea area, close on the Caspian heels and Middle East through the well-known ‘Silky Road’, the oldest and most historically important trade routes. Later on, the great explorers led to general awareness of the geographic terrenes and initiated widespread contact between the continents. Thus, following the great geographic explorations, the communication and trade were now made on a global level, and this process still continues. However, the languages and the various forms of trade and communication have changed. In Classical Roman Antiquity and in the Early Middle Ages the travel and trade were limited to the available resources, whereas today these are more advanced and developed, making the trade and communication process much more efficient.

The transport system of the Roman Empire put in place between the 3rd century BC and the 2nd century AD was a fundamental component of a circum Mediterranean system of trade with two interdependent transport systems; the road and short distance – coastal – maritime shipping. The Mediterranean Ocean provided a central role to support trade between the major cities of Empire, the majority of them being located along the coast (Rome, Constantinople, Alexandria, Cartage, etc.). These cities were serviced by a road network permitting trade within their respective hinterlands. For instance, the world's first dual carriageway, Via Portuensis, was built to link Rome and the port of Ostia at the mouth of the Tiber River. At the peak of the Roman Empire around 200 AD, its road system covered about 80,000 kilometres, but once the empire collapsed in the 5th century, the road system fell into disrepair and became fragmented. It is however with long distance maritime transportation that more globally oriented economic systems were permitted, with the creation of commercial empires. Initially, ships were propelled by rowers and sails were added around 2,500 BC as a complementary form of propulsion. China was one of the first to establish an important fluvial transport network with several artificial canals connected together to form the Grand Canal. At its peak in the 15th century, the canal system totalled 2,500 kilometres, with some parts still being used today. By Medieval times, an extensive maritime trade network, the highways of the
time, centred along the navigable rivers, canals, and coastal waters of Europe was established. Shipping was extensive and sophisticated using the English Channel, the North Sea, the Baltic and the Mediterranean where the most important cities were coastal or inland ports. Still, transportation was mainly a short distance and very risky endeavour with long distance maritime routes mainly controlled by Arab merchants linking the Middle East, South Asia and Southeast Asia. By the 14th century galleys were finally replaced by full fledged sail ships (the caravel and then the galleon) that were faster and required smaller crews. 1431 marked the beginning of the European expansion with the discovery by the Portuguese of the North Atlantic circular wind pattern, better known as the trade winds. A similar pattern was also found on the Indian and Pacific oceans with the monsoon winds (long discovered by the Arabs). The ensuing era of colonialism was mainly the era of the sail ship, linking Europe with the rest of the world. Although shipping services were rather sporadic, large colonial empires such as those of the Spanish, British, French and Dutch were the early expression of a global economy. For instance the Dutch East Asian Company, founded in 1602, can be considered as one of the first multinational corporations. By 1750, it employed around 25,000 people and did business in more than 10 countries, mainly from the Dutch colony of Indonesia. The beginning of the 19th century saw the establishment of the first regular maritime routes linking port cities worldwide, especially over the North Atlantic between Europe and North America. Sail ships became increasingly efficient, with some like the Clipper ships mainly designed for speed more than for cargo holding. They dominated long distance ocean trade until the late 1850s when they were gradually replaced by steamships. Another significant improvement resided in the elaboration of accurate navigation charts where prevailing winds and sea currents could be used to the advantaging of navigation. The improvement of steam engine technology permitted longer and safer voyages. The first regular services for transatlantic passengers transport by steamships were inaugurated in 1838 and until the mid 20th century, Liners accounted for the majority of international passenger travel. In the 1840s, it took about 12 days for a Liner to cross to Atlantic, a figure that dropped to four days in the 1930s. By the end of the 19th century additional improvements in engine propulsion technology and a gradual shift from coal to oil as a fuel increased the speed and the capacity of maritime transport. Energy consumption by maritime shipping was reduced and coal refuelling stages were bypassed. An equal size oil-powered ship could transport more freight than a coal-powered ship, reducing operation costs considerably and extending its range. Global maritime
circulation was also dramatically improved when shortcuts such as the Suez (1869) and the Panama (1914) canals, were constructed. With the Suez Canal, the far reaches of Asia and Australia became more accessible, while the Panama Canal considerably reduced the time it took to link the Atlantic to the Pacific. The capacity of maritime shipping also increased, which enabled to move low-cost bulk commodities such as minerals and grain over long distances. The size of oil tankers grew substantially, especially after World War II when global energy demands surged. Maritime routes were thus expanded to include tanker routes, notably from the Middle East, the dominant global producer of oil. The airline industry has also played a significant role in supporting the emergence of a global economy. It began with air mail services since they initially proved to be more profitable than transporting passengers. 1919 marked the first commercial air transport service between England and France, but air transport suffered from limitations in terms of capacity and range. The 1920s and 1930s saw the expansion of regional and national air transport services in Europe and the United States with successful propeller aircrafts such as the Douglas DC-3. The post World War II period was however the turning point for air transportation as the range, capacity and speed of aircrafts increased. A growing number of people were able to afford the speed and convenience of air transportation. In 1958, the first commercial jet plane, the Boeing 707, entered in service and revolutionized international movements of passengers, marking the end of passenger transoceanic ships, leaving the maritime passengers sector to the niche markets of cruises and ferries. The availability of the Boeing 747 in the early 1970s truly made air transport a global industry. Still, passengers’ transportation is a marginal, albeit visible, component of globalization.

By the second half of the 20th century, many international transportation systems were in place, forming the basis of a global transport system and reinforced by a global telecommunication network. Fundamental changes were about to take place as the role of transportation evolved. From a situation where transportation was a simple infrastructure permitting and supporting trade and mobility, transportation became a significant factor shaping global production and markets. The fragmentation of the production and an international division of labour increased the quantity of freight in circulation. Containers have been particularly important in this regard. Introduced in the late 1950s, containers became the main agents of the modern international transport system.

During this process, three factors have remained constant, independent of the time, forms and languages with which the trade and exchange of goods and social values was
established: the human, the mean of transport and the roads. Within this complex, but stable system, the human element has been the fundamental factor in this process. The human has gained the knowledge to use as means of transport horses, camels, elephants, sliding dogs etc, as well as starting from primitive means of transport to more modern ones. The human has been able to construct simple roads, and with knowledge and experience, the road transport system steadily increased, resulting on a dense web of roads with bridge building and tunnel constructions booming as well. In our days, international major roads lead in and out of countries, such as those connecting Denmark with Sweden and England with France.

One of the first projects to leave a mark on transport planning was the development of the North-Eastern corridor in the United States during the 1960s.

The North-Eastern corridor, which runs from North of Boston to South of Washington D.C. was designed to address resolve major congestion problems arising from high rates of traffic growth that were a major source of concern for the future of the United States. The aim was to adopt a long-term approach to infrastructure development, traffic allocation and modal split. This part of national territory analysed was relatively wide and provided a framework in which to simulate possible transfers and allocation of traffic between routes, particularly passenger traffic. Experience with the North-Eastern corridor in the United States had a knock-on effect on subsequent work and in particular led to development of the first multimodal models at Princeton University.

b) International Experience on Transportation Corridors

The concept of transport corridors is not a new one in Europe. The concept of "corridor" was to refer to the general alignment of international traffic flows within the European area.

The major routes selected were those linking:
- The Maghreb, Spain and Northern Europe,
- Scandinavia and Italy,
- The Baltic States and countries bordering on the Aegean and the Black Sea, focusing in particular on links between Poland and Greece which were the two major players in this corridor.

This area of corridors covered a large portion of the European territory, out of Russian influence and gave priority to links between North and South and access to Northern Europe and the Mediterranean.
The first corridor linked countries with highly disparate levels of economic development and required barriers such as the straits of Gibraltar and the Pyrenees to be overcome while the associated plans were drawn as Spain and Portugal prepared for accession to the European Union. The second corridor also required a number of natural barriers to be overcome, the main one being the Alps. The measurement of transit traffic, particularly through West Germany, was a central issue in this respect. In the third case, it needs to be recalled that Europe had yet to open up to the East and it was only later that traffic flows began to grow rapidly in an East-West direction. At the time, the objective was to take stock of existing trade flows between Northern and Southern Europe as well as through the countries of Central Europe. The study in question was a long-term project addressing Trans-European-Motorways (TEM) extending from Poland to the Eastern border of Turkey. This initial TEM project was subsequently matched by a (TER) project for rail transport. The long-term objective of these projects was indeed to help bring countries closer together, strengthen co-operation, facilitate trade and provide better co-ordination of policies and investment.

I. 3 EUROPEAN POLICY ON TRANSPORT CORRIDORS

Transportation corridors have experienced to be effective tools towards the common European cohesion and territorial policy.

The Trans-European transport network is a key element in the relaunched Lisbon strategy for competitiveness and employment in Europe for that reason alone: to unblock major transport routes and ensure sustainable transport, including through major technological projects […] (Barrot, J. 2005).  

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I.3.1 Europe towards a common transport and cohesion policy

a) Europe towards a common transport policy

Transport is one of the Community's foremost common policies. (European transport policy for 2010: time to decide). It is governed by Title V (Articles 70 to 80) of the Treaty establishing the European Community. Since the Rome Treaty's entry into force in 1958, this policy has been focused on eliminating borders between Member States and to therefore contribute to the free movement of individuals and of goods. Its principal aims are to complete the internal market, ensure sustainable development, extend transport networks throughout Europe, maximize use of space, enhance safety and promote international cooperation. The single market signaled a veritable turning point in the common policy in the area of transport. Since the 2001 White Paper, which was revised in 2006, this policy area has been oriented towards harmoniously and simultaneously developing the different modes of transport, in particular with co-modality, which is a way of making use of each means of transport, to its best effect. (EC Transport White Paper, 2001: 2006 revised)

b) Western Balkans and EU transport policy

In the reality of post 2000’s the western Balkans has offered a less homogeneous base for regional policy making than the EU27. The diversity on the status of the counties related the EU, the intra regional relations, as well as the dynamics in the relation with the EU, has letup continual polity gasmen. The past conflict let the Balkans in deep need of stability- economic, social and political, and then in even greater need of external assistance. To this extant, the regional approach towards the western Balkans had a particular added value. The EU has been averment adept to set up a common free trade and a common energy market. In 2001 the European Commission issued a strategy for regional transport system in South East Europe as a multimodal transport infrastructure network. The strategy was followed by two studies (TIRS – REBIS) which defined the CORE network and made recommendations regarding investment and financing.

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This process created the basis for setting up a Secretariat based in Belgrade, called the South East Europe Transport Observatory (SEETO). SEETO was set not only meant to support and coordinate infrastructure development, but also to function as a contact point for queries from social and economic players.

The work of the High Level Group (HLG 2) headed by Loyola de Palacio looked at the further development of trunk routes to the EU's neighbouring countries and far beyond. Four land routes and a navigable route were defined:

South-west axis: connecting south-west Europe to the centre of Europe, including Switzerland, and ‘Trans-Maghreb’ axes between Morocco and Egypt.

South-east axis: connecting the centre of Europe to the Caucasus and the Caspian Sea, as well as the Middle East and Egypt, via the Balkans and Turkey.

Central axis: connecting the centre of Europe to the Ukraine and the Black Sea, as well as Russia and Siberia.

North-east axis: connecting the EU to Norway, as well as Russia and Trans-Siberia.

Motorways of the sea: connecting the Baltic Sea, the Atlantic Ocean, the Mediterranean and the Black Sea, as well as the coastal countries. Extension to the Suez Canal is also planned.

These routes intended not only to represent the main international links but also to strengthen regional cohesion. The HLG 2 has also put forward various proposals for horizontal measures, such as speeding up border formalities, improving traffic/transport safety, and securing better interoperability in rail transport. The HLG 2 also recommends closer coordination and a more forceful approach by replacing the MoUs with binding agreements.

At the end of 2005 the Commission began preliminary work on a second expert report headed by (Loyola de Palacio. Decision 884/2004/EC) At this early stage, the permanent study group had an opportunity to make its views known on fundamental issues. The following observations were made: environmental protection should play a greater role; the requirement for intermodal should be translated more effectively into practice, this could be chosen as a separate evaluation criterion; and there should be more of a focus on links to regional transport networks. Finally, the permanent study group highlighted the importance of horizontal aspects such as harmonising legislation, safety issues, etc., and emphasised that these aspects would have to be discussed more fully and in greater detail if the intention was to push forward implementation of the EU's transport policy.
objectives. The Commission stressed that it would in future, pay closer attention to the call for links to regional transport networks in particular.

Finding ways how to make cross-border cooperation between EU Member States and third countries more binding has a very important problem. Apart from enhanced contractual relations, the EESC feels that the best way for this to happen is by concentrating available EU funds. For example, there should be a concentration on priority projects even within the priority axes, and full use should be made of possible co-financing of 20% for projects within the EU. At present, subsidies are barely at the level of 2-5%. The trans-European network also includes major technological projects for industry. Galileo, the European system for satellite radio-navigation, is a priority project offering extremely accurate navigation and positioning facilities, such as for route planning. It will also transform freight carriage by supplying continuous information on the movements of goods. Another major industrial project developed by Europe, the European rail traffic management system (ERTMS), will be deployed on key parts of the network. (Barrot, J. 2005)

There has been a permanent problem of combining infrastructure and operational issues, an area which remain to be solved, while the luck of a separate implementation procedure in this area must be adapted. The hope that transport policy in which the key role should, therefore, be played by regions, where all issues come together in practice and where it is vital to have an understanding of the pan-European context.

c) Implementation of the policy guidelines
The enlargement challenges facing the EU make it even more important to improve the efficiency and the coherence of its external policies and to deliver better strategic planning, more coherence between its various external policy instruments, and enhanced cooperation between the EU institutions, the Member states, the neighbouring countries and other relevant stakeholders. This cooperation should:

\footnote{The networks are essential for the citizens and the economy of the European Union, European Commission, Ten-T Priority and Projects 2005.}
Bring together the countries in a multilateral setting whilst at the same time enabling effective regional cooperation; promote interoperability of networks between the EU and the neighbouring countries and further approximation of legislation and policies in the neighbouring countries towards EU standards with a view of ensuring continued economic and social development and environmental sustainability.

It is stated also that development needs of infrastructure projects of mutual interest and attract and direct investments to these projects. That the removal of non-infrastructure related bottlenecks and the implementation of the horizontal measures along the axes must be a priority, and promoting sustainable development by taking into account the economic, environmental and social consequences of infrastructure plans and projects and horizontal measures has been established obligatory, too.

\[d\] Policy development process

Aiming a fruitful European Neighborhood Policy into the transport field and to find ways to better connect the EU with its neighbors, the European Commission established in 2004 the High Level Group on the Extension of the major trans-European transport axes to the neighboring countries and regions, chaired by former Commission Vice-President Loyola de Palacio. The report of the Group was submitted to the Commission in December 2005. A public consultation process was organized throughout the work of the Group to integrate the views and concerns of the stakeholders. Whilst the majority of stakeholders welcomed the Group’s recommendations; some concern was raised regarding the inclusion of environmental and social aspect. (Guidelines for transport in Europe and neighboring countries). Taking in to the consideration the proposals of the High Level Group and the opinion raised by the public consultation the Commission accepted the proposal to revise the concept of Pan-European Corridors/Areas (PEC) in the following ways to extend the geographical coverage of the concept of the PECs to take fully into account the revised trans-European network policy and the accession framework and European Neighborhood Policy objectives. To extend the relevant internal market principles and rules to the neighboring countries by taking into account sustainability and by underlining the importance of non-infrastructure measures to facilitate trade and transport flows along the main axes. To strengthen coordination and monitoring frameworks to ensure full commitment of the countries concerned, to enable pooling of resources towards sustainable development of infrastructure and enabling the projection of the Union’s policies, including the social dimension.
I.3.2 Pan European Corridors and Areas

Pan-European Corridors and Areas (PEC) were developed during three Ministerial Conferences in Prague 1991, Crete (1994) and in Helsinki (1997) with the aim of connecting the EU-15 with the then neighboring countries. Following the 2004 and 2007 enlargements, the Corridors are now mainly within the EU and thus part of the TEN network. The cooperation along the PECs is organized through non-binding Memoranda of Understanding (MoU), which also establish a Chair and Secretariat for most of them. The financing of the Secretariats, being the responsibility of one country along the Corridor, has been uneven and much depends on the particular circumstances of the PEC; in particular, the following weaknesses have been identified: Planning and prioritization of investments is in most cases done in a piecemeal fashion that follows national logic neglecting the needs of international movements along the whole axis. The focus is on infrastructure and insufficient attention is paid to removing non-infrastructure related bottlenecks, which are often the primary cause for delays, particularly at border crossings. There are no commonly agreed methodologies to assess the economic, social and environmental impacts of plans and projects that would meet the standards of best international practice. (Barrot, J.2005)\(^{16}\)

To further extent the area cooperation and integration the EU proposed a new programme to launch ‘motorways of the sea’ which could not only provide better connections for peripheral countries, but most importantly could be a viable and less costly alternative to new infrastructure on saturated overland corridors. For example, maritime connections between Spain, France and Italy would reduce traffic travelling across the Alps and the Pyrenees. The identification of core networks in some of the neighboring regions has gone someway to addressing the weaknesses of the Pan-European Corridors/Areas.

\(^{16}\) The networks are essential for the citizens and the economy of the European Union, European Commission, Ten-T Priority and Projects 2005.
These exercises, supported under the accession framework and the bilateral action plans of the European Neighborhood Policy, aim at improving the policy implementation and infrastructure of the regional transport systems. 17

In 2004 the countries in the *Western Balkans and the European Commission signed a Memorandum of Understanding for the development of a core network in 2004*. A steering Committee was set up to implement the MoU, steering Committee was set up which is supported by a Secretariat and the South East Europe Transport Observatory (SEETO)15. Since June 2005 SEETO is operational and aims to establish information systems and to formulate a five-year multi-annual plan and procedures for improving the core network. In addition, the international donors, led by *the World Bank and the EU have set up an Infrastructure Steering Group* to coordinate donor activities. *(Implementing regional transport priorities in the Western Balkans).*

In the Mediterranean region, cooperation in the transport sector was launched in 1995 under the *Barcelona Process*, which set goals designed to lead to a free trade area in the Mediterranean region by 2010. *An Euro-Mediterranean Transport Forum* was created in 1998 to co-ordinate common approaches and to develop an integrated regional transport system. The first Euro-Mediterranean Transport Ministerial Conference, which took place in 2005, identified the main priorities for the development of the transport sector and requested the Forum to adopt a regional transport action plan for the next five years. Turkey is involved in both the Pan-European Corridors and the TRACECA corridor, while is in the process of identifying a core network and a list of priority infrastructure projects as part of the accession negotiations.

Since 1993 was developed the TRACECA corridor that connects Europe with Turkey and further with Armenia, Azerbaijan and Georgia in the Southern Caucasus until Central Asia. Cooperation is organized through a basic multilateral agreement signed by the countries concerned, which set up an Inter-Governmental Commission and a permanent Secretariat.

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17 A Report by the Chair of the Infrastructure Steering Group
The Secretariat supervises the implementation of the decisions of the Commission and puts forward appropriate proposals to ensure the realization of the multilateral agreement. The Pan-European Corridors remain the reference network for Belarus, Moldova and Ukraine.

Speaking about Russia, it has to be mentioned that cooperation in transport is established under the EU-Russia dialogue that was launched in 2005. Five expert working groups have been created, covering transport strategies, infrastructure and public-private partnership; transport security; air transport; maritime, sea-river and inland waterway transport; road and rail transport.

Following up the EU-Black Sea-Caspian Basin Transport Ministerial Conference in 2004 in Baku, the Caspian and Black Sea cooperation is established and it brings together the TRACECA countries, Russia and Belarus. As part of this “Baku process”, four expert working groups have been set up in transport, covering aviation, security, road and rail transport, and infrastructure. The objective is to strengthen cooperation between the EU and the partner States and, even more importantly, among the countries of the region.

European Commission believes that these initiatives are a key step in achieving sustainable development and regional integration. Notably, the process of integrating the neighboring countries into the EU markets and society requires compatible and interconnected infrastructure and approximated regulatory environments. It also requires focusing on a limited number of key transnational connections to ensure that the inevitably scarce resources bring about a noticeable stimulus to trade and economic growth both in the EU and in the Five axes to connect the EU and the neighbors.

The Pan-European Corridor/Area concept needs to be updated to reflect the new geopolitical context following the EU enlargement and to better connect the major axes of the trans-European networks with those of the neighboring countries.

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18 Commission of the European Communities (ed.)(2007), Extension of the major trans-European transport axes to the neighbouring countries: Guidelines for transport in Europe and neighbouring regions, Brussels
The Commission therefore proposed to adopt the following five transnational axes, which were in line with those proposed by the HLG. Which are Pan-European Corridors/ Areas? According to the new concept the power of transport network will be overwhelming along the following areas:

a) Motorways of the Seas: to link the Baltic, Barents, Atlantic including Outermost Regions, 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.

b) 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 was also foreseen.

c) 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 was also included.

d) 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.

e) 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.

According the arguments made by the High Level Group, these five axes contribute most to promoting international exchanges, trade and traffic. They also include some branches in regions, where traffic volumes are relatively low due to current political problems, aiming thus at strengthening regional cooperation and integration in the longer term. In this context, the Commission underlines that open and secure borders between the EU and the neighboring countries and between the neighboring countries themselves are of fundamental importance for stimulating trade and strengthening regional cooperation. (EC Report on Ten-T axes and projects)

19(High Level Group Policy Guidelines of the white Paper)
The Commission proposes to consider at this stage only the connections linking the EU with the neighboring countries and not those links from the neighboring countries to third countries.

It also underlines that these five axes do not amend the priorities set for the trans-European transport networks for the EU. (Commission of the European Communities (ed.) 2007)

**I.3.3 Trans European Networks of Transport (TEN-T)**

As a result of new experiences in transport at European level, three different regions have been identified towards a more successful transport policy: the European Union in its future shape of 27 Member States, the Western Balkans and the remaining countries and regions bordering the EU 27. In each of the three cases high level groups were commissioned by the European Commission to recommend priority projects or axes, implementation measures and monitoring mechanisms. Under the 27 EU High Level Group coordinated by (Karel Van Miert (2002-2003) three quarters (3/4) of the pan-European corridors fell under scrutiny and the Group came up with 30 transport infrastructure projects, to cover both the ‘old’ and ‘new’ Member States, that represented the priorities for the EU 27 Trans-European Transport Networks (TEN-T). Apart from this, the Group recommended *inter alia* new financial and legislative provisions to support the implementation of the TEN-T, new project-based coordination mechanisms.

Here down I am presenting summary indicators for 30 Priority Projects of TEN-T.

Data research includes the most significant elements for each priority:

The -total length in km – total cost in M/Euro- operational status in km-estimated completion date

<table>
<thead>
<tr>
<th>PP 1 - Railway axis Berlin-Verona/Milano-Bologna-Napoli-Messina-Palermo</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Length in km</strong></td>
</tr>
<tr>
<td><strong>Total cost in M/Euro</strong></td>
</tr>
<tr>
<td><strong>Completed</strong></td>
</tr>
<tr>
<td><strong>Estimated completion date</strong></td>
</tr>
</tbody>
</table>

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20 Extension of the major trans-European transport axes to the neighbouring countries: Guidelines for transport in Europe and neighbouring regions, Brussels. Extension
**PP 2 - High-speed railway axis Paris-Bruxelles/Brussel-Köln-Amsterdam-London**

<table>
<thead>
<tr>
<th>Total Length in km</th>
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<tr>
<td>Total cost in M/Euro</td>
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<tr>
<td>Completed</td>
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**PP 3 - High-speed railway axis of south-west Europe**

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<tr>
<td>Completed</td>
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**PP 4 - High-speed railway axis east**

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<td>Total cost in M/Euro</td>
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<tr>
<td>Completed</td>
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<td>Estimated completion date</td>
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**PP 6 - Railway axis Lyon-Trieste-Divača/Koper-Divača-Ljubljana-Budapest-Ukrainian border.**

<table>
<thead>
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<tr>
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<tr>
<td>Completed</td>
<td>190 km</td>
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**PP 7 - Motorway axis Igoumenitsa/Patra-Athina-Sofia-Budapest**

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<tbody>
<tr>
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**PP 8 - Multimodal axis Portugal/Spain-rest of Europe**

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<td>PP12</td>
<td>Nordic Triangle railway/road axis</td>
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<tr>
<td>PP13</td>
<td>Road axis United Kingdom/Ireland/Benelux</td>
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<td>PP14</td>
<td>West coast main line</td>
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<tr>
<td>PP16</td>
<td>Freight railway axis Sines/Algeciras-Madrid-Paris</td>
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<td>PP17</td>
<td>Railway axis Paris-Strasbourg-Stuttgart-Wien-Bratislava</td>
</tr>
<tr>
<td>PP18</td>
<td>Waterway axis Rhine/Meuse-Main-Danube</td>
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<tr>
<td>PP19</td>
<td>High-speed rail interoperability in Iberian Peninsula</td>
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<td>PP20 - Railway axis Fehmarn belt</td>
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<tbody>
<tr>
<td>Total Length in km</td>
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<tr>
<td>Total cost in M/Euro</td>
</tr>
<tr>
<td>Completed</td>
</tr>
<tr>
<td>Estimated completion date</td>
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<table>
<thead>
<tr>
<th>PP23 - Railway axis Gdansk-Warszawa-Brno/Bratislava-Wien</th>
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<tr>
<td>Total cost in M/Euro</td>
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<tr>
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<table>
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<tr>
<td>Total cost in M/Euro</td>
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<table>
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<td>Total cost in M/Euro</td>
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<tr>
<td>Completed</td>
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<tr>
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<table>
<thead>
<tr>
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<tr>
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PP28 - ‘Eurocaprail’ on the Brussels–Luxembourg–Strasbourg railway axis

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<tr>
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PP29 - Railway axis of the Ionian/Adriatic intermodal corridor

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</tr>
</thead>
<tbody>
<tr>
<td>Total cost in M/Euro</td>
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</tr>
<tr>
<td>Completed</td>
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</tr>
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PP30 - Inland waterway Seine–Scheldt

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TEN-T budget

Based on the official statistics of EC- DG Transport and Energy the TEN-T budget has been designed to facilitate preparation and triggering investment in TEN-T projects. EUR 4.43 billion was allocated to the development of the TEN-T for the 2000-2006 programming period (1.7% of the total investment in TEN-T in that period). Grants awarded permitted co-funding of projects up to a maximum of 10% on national and a maximum of 20% on cross border sections. Under the financial framework 2007-2013 the TEN-T budget available for projects has increased to EUR 8.013 billion. The new TEN financing regulation provides for Community co-funding rates of 50% for studies and maximum rates of 10 to 30% depending on the type of project 10. The following charts provide an analysis of the Community funds contribution to the TEN financing in each Member State for the period 2007-2013 as well as the financial effort that has to be undertaken in the mentioned period in terms of the investment on TEN-T projects and the part that it represents in the GDP. Charts 1 and 2 provide an analysis of the time evolution of the financial sources. The 2007 call for proposals proved that the needs of
project promoters highly exceed TEN-T budget capacity. For the priority projects alone, the proposals received represented a total investment of more than EUR 55 billion, and a total requested Community contribution of EUR 11.5 billion. Consequently, the Community support for the 2007-2013 programming period had to be targeted very selectively and is focused on cross-border sections and bottlenecks only.

On 19 February 2008, the Commission adopted the Decision on the selection of projects for the TEN-T multiannual programme, following the consultation of the Member States in the TEN financing Committee, which unanimously endorsed the draft proposal, and the European Parliament which also welcomed the Commission proposal. The proposed project selection in the field of priority projects contributes to the Commission's objective in terms of sustainable development. Three quarters (74.2%) of the funding goes to railway projects and another 11.5% are reserved for inland waterways. The support for road and air transport is more limited. The goal of concentrating support on critical cross-border sections has been met: 56% of the available budget has been concentrated on works and studies concerning cross-border sections. The Community and the Member States have committed themselves to those projects that generate a significant network effect beyond the borders of the Member States directly concerned and will thus be of great benefit to the trans-European transport network. The non cross-border projects are also of undisputed European added value since they aim at removing bottlenecks on the TEN-T network. However, the support requested (more than € 11.5 billion) largely exceeded the available Community budget of € 5.1 billion.

It is estimated (Ecorys Transport, 2007) that in total € 21.3 billion is needed for works in the period 2007-2013 for all priority projects to be financed from the MAP. This is clearly much higher than the actual allocated amount of € 4.9 billion.

The estimated other sources of finance (national budgets, Cohesion Fund, loans and PPPs) would need to be at least € 86.7 billion for the priority projects to complement the estimated MAP TEN-T budget. The total financial requirement in 2007-2013 is thus € 108.0 billion.

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21 Ex ante evaluation of the TEN-T Multi Annual Programme 2007-2013. Netheerland I.3.3 dhe V.2.2 (p 122)
I.3.4 Putting people at the heart of transport activity

Developing the transport infrastructure in Europe is seen as one of the key factors in stimulating economic development and integrating countries in the European Union.

Taking into account importance of transport as a daily life activity that generate wealthy and prospective (Barroso, J. 2005) considered that modern economies cannot generate wealth and employment without highly efficient transport networks.

As transport links natural borders and societies, it integrates peoples of different cultures and entices beyond the social borders. As Prof. Gasparini brings in to attention:

> It is a border which changes from a no-man’s land into a land of two rigidly juxtaposed states, being configured as an “all-man’s land”: of all the new Europe which is seeking models for the integration of peoples, cultures and the regions and states which compose them[...].  

(Gasparini, A 2004).

Transport generate added value, for the society. This context referees particularly to cross border projects and collaboration. Added value is considered as additional benefit arising from action that could not be achieved by one individual country alone. In the context of the PEC this refers specifically to cross-border projects. Ecorys Trransport, (2007)

We have to emphasise that this principle does not take in to account two main elements of the European transport and regional policy. First of all the aspect of sustainability through e.g. promoting multi-modality, as laid down in the Common Transport Policy, is not addressed. Clearly, if priority rail and road corridors are connected to sea ports, added value could be created though the Motorways of the Sea concept. Secondly, the social cohesion policy of the Commission also reflects European added value and should be taken into consideration.

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22 Presentation in “Coopareation and Euroregions-for Borders to Become Centres”, ISIG, Trimestrale di Sociologia Internazonale, Gorizia, Italy.


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Taking into account importance of transport as an daily life activity that generate wealthy and prospective (Barrot, J. 2005) considered modern economies cannot generate wealth and employment without highly efficient transport networks.

a) Integration of the Pan-European Corridors/Areas

EU enlargement with new member states creates new situations, in regard to the map of TEN-T and Pan-European Corridor’s status. In line with the views of the Pan-European Corridor Chairs, the Commission proposes to fully integrate the PECs into the new structures and to build on their expertise. Whilst most of the Pan-European Corridors I, IV, V, VI and 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. *(2001 transport white paper, revised June 2006)*

**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.

b) Connecting EU countries

Many EU countries already boast some of the best infrastructure in the world, but connections between countries can still be improved. The member-states are responsible
for the bulk of investment in roads, airports and railways. But the EU is giving a helping hand by adding missing cross-border links, especially in places where such connections are likely to make a difference to local economic development. In 1996, the EU agreed on 14 priority trans-European networks in the transport sector (TEN-Ts) to better connect its member-states. Since then, the EU’s membership has risen and the number of priority EU projects has been extended to more than 30. Most of these are at risk of falling behind schedule. Progress on some of the initial ‘priority axes’ is being hampered by procedural and technical problems, but the main cause of delays is the difficulty of raising finance. The cost of completing the EU’s 30 priority axes will total an estimated S250 billion by 2020 – or S600 billion if non-priority projects are added. The EU’s budget for TEN-Ts projects for the period from 2007 to 2013 amounts to S8 billion, of which S5.1 billion is reserved for the 30 priority projects – an average of just over S1.1 billion per year. The EU is only allowed to fund 10 to 30 per cent of the costs of construction. So even if loans from the European Investment Bank (EIB) are added, much of the onus for funding TEN-Ts still rests with the member-states. One downside to the boom in air transport has been the resulting increase in carbon emissions. Although emissions from aviation account for only 3 per cent of total EU greenhouse gas emissions, they have risen by around 90 per cent since 1990. This rise contrasts with the reductions achieved by many other sectors in recent years. On current trends, the growth in emissions from flights departing EU airports would cancel out about a quarter of the emissions reductions that the EU has to achieve to meet its Kyoto targets.

Sensibly, in late 2006, the Commission put forward a proposal for a directive to bring aviation within the scope of the EU’s emissions trading scheme. According that, Member-states should make every effort to adopt the directive in time for it to come into force by 2011. Improvements in air traffic management could also help to curb aviation emissions by reducing the incidence of planes flying in holding patterns over crowded airports. But the air traffic control modernisation programme that aims to do just this will not be operational until the middle of the next decade.

\[c)\] Cooperation with other organizations

The Commission considers essential that the development of the five axes is closely coordinated with organizations developing international transport corridors in other regions. These include in particular the TRACECA corridor in Central Asia, the trans-African networks as well as networks linking Europe with Asia, developed by the United Nations Economic Commission for Europe, the United Nations Economic and Social
Commission for Asia and the Pacific and the European Conference of Ministers of Transport.

The High Level Group put forward a number of infrastructure projects, which it classified into two categories depending on the maturity. The public consultation raised concerns that the further development of some of the transnational axes could have negative impacts on the surrounding environment and particularly on biodiversity. The Commission therefore proposes to consider the project lists as indicative and underlines the importance of developing master plans for the axes. These master plans should be subject to strategic economic, environmental and social impact assessment in line with best international practice and when relevant with EU legislation.

*d) EU cooperation to implement horizontal measures*

Actions undertaken in partnership to achieve common goals provide a basis for legitimate, shared decision-making and are therefore a fundamental part of the process of collective appropriation of scenarios and future projects. Concrete plans under EU cooperation frameworks are one of the key instruments for the implementation of the horizontal measures. These action plans are jointly agreed with partner countries with the following aims. For candidate and potential candidate countries, the aim is gradual alignment with the acquis communitarian in all sectors. Regarding the countries under the ENP, bilateral action plans and strategy papers identify priorities in a broad range of areas, including transport and customs as well as in cross-cutting fields like environment and social issues.

Multilateral cooperation, in particular in the context of the implementation of the TRACECA strategy until 2015 and the Baku process, as well as the plans for a Mediterranean regional transport action plan complement the bilateral action plans.

Cross-border cooperation between adjacent regions in the EU and in the neighboring countries will play a growing role including actions to improve transport as well as to increase cooperation in legal and administrative areas. Whilst the EU cooperation frameworks already address most of the horizontal measures, the Commission believes that there is a need to look at them in conjunction with infrastructure development along the major trans-national axes. This is to ensure that the most important bottlenecks along an axis are addressed in a synchronized and timely manner and that the different procedures and standards are compatible along the whole axis used by international transport to and from the Union.
e) Financing of the measures

In the actions of policy implementation of the ambitious plan requires pooling together all the relevant financing sources, both public and private as well as nationally and internationally. Whilst the public budgets will remain important, the role of the international financing institutions (IFIs) such as the European Investment Bank (EIB), the European Bank for Reconstruction and Development (EBRD) and the World Bank is crucial in funding the balanced development of the major transnational axes and the overall transport system. The Commission recommends to build on the successful cooperation with the IFIs in the Western Balkans Infrastructure Steering Group and to extend the concept to other regions. EU Member states and other donor should be integrated in such cooperation when relevant. From 2007 onwards the European Neighbourhood and Partnership Instrument (ENPI) will provide financial assistance to neighbouring countries. This will include support for Financial Institutions lending in the priority sectors through a proposed Neighbourhood Investment Facility as well as support for the implementation of the horizontal measures. In addition EU assistance could help countries to prepare for investments by supporting studies on the definition of master plans, feasibility of projects and on public-private partnerships.

In addition the Commission proposal for the new EIB external lending mandates for 2007-2013 foresees a considerable increase in the lending ceilings for the neighbouring countries. A specific Memorandum of Understanding has been signed between the Commission, the EIB and the EBRD to facilitate co-operation in Eastern Europe and Southern Caucasus, in Russia and Central Asia.

The Pre-Accession Instrument (IPA) will provide financial assistance to the candidate countries and the potential candidate countries such as Albania and Macedonia. Depending on the status of the country, the range of support varies. The candidate countries will be offered the full range of pre-accession assistance, including support to fulfil the accession criteria and to prepare for cohesion policy, including investments in infrastructure, whereas the potential candidates will benefit from a more limited range of measures.

f) Institutional setting

Following the analysis presented in the preceding chapters and the strong support received from the different stakeholders through the public consultation, the Commission was of the opinion that a strong binding coordination framework is essential. This would
ensure strong commitment and joint ownership of the countries concerned to implement the necessary measures in a timely and synchronised manner along the axes. To speed up the overall process and to ensure that the format and content of the cooperation structure meets the needs and expectations of the parties concerned, the Commission has taken some steps to implement the policy:

In the first phase, exploratory talks have been launched with all the neighbouring countries. These talks aimed at assessing the interest and commitment of the countries to strengthen the multilateral coordination frameworks, where these exist, or to put such a framework in place, where these do not exist today. In this phase, eventual interim solutions would also be sought to allow for uninterrupted development of the axes. The second step, following the outcome of the exploratory talks, the Commission has been made concrete recommendations and proposal to implement.

The beginnings of the pan-European transport policy in 1991, laid the foundations for planning the major corridor links at cross level, aiming to create of a common pan-European transport infrastructure with the pursuit of a policy for a sustainable, efficient transport system and with cohesion targets, right from the outset and not limited by the EU’s borders. In doing so, social, economic, operational, environmental, security policy and regional issues were to be taken into consideration, and the corresponding interest groups involved.

Steps forward are made after 2000 to adapt European infrastructure planning to the new political circumstances, new priority projects have been launched, new central trunk routes with neighbouring states identified, an initiative with the Western Balkans further developed, and the task of establishing links with neighbouring states has been taken seriously while the focus was virtually exclusively on the planning of transport routes, with little or no attention paid to questions of intermodal and environmental impact, or to local economic and social interests. The reasons for revising infrastructure planning at European level was that only very slow progress was being made with implementation; this was often due to lack of funds. One of the main crucial issues in regard to Pan-European corridors has been in finding more common ground between the cross-border bodies set up by national transport ministries in the Member States (such as the steering committees for the corridors) and those set up by the Commission in this field. Coordination alone will not suffice, or will mean losing out on important opportunities to make progress with practical policies. It was becoming increasingly difficult to ascertain who has what responsibilities for achieving overall transport policy aims. The first three
pan-European transport conferences in 1991, 1994 and 1997 provided important guidelines. The 1997 Declaration of Helsinki still provided an excellent basis for cooperation thanks to its comprehensive nature. At the time the intention was to regularly assess progress made. Progress made in construction works is the main preoccupation for the way ahead of PEC, was addressed during the institutional meetings of EU.

The important developments have taken place in Europe after the ten new Member States joined the European Union. Europe has renewed and strengthened its commitment towards the Western Balkan countries and it has developed a new Neighbourhood Policy. The Commission's initiative to recast trans-European networks and press ahead with the development of the corridors was, on the one hand, directed inwards, as it reflected the 2004 enlargement and also brought some of the experience gained with the corridors to bear in the TEN-T policy within the EU. On the other hand, it was also a matter of extending the key transport routes in line with — and indeed also going beyond the scope of - the new European neighbourhood policy. (Karel van Miert, which submitted its report in June 2003). Starting with 2002 the EU reviewed the state of implementation of the TEN-T network and Pan-European Corridors. The findings generally pointed towards serious delays in the upgrading of the major axes. A new approach was taken, with more clearly identified priorities and fuller commitment in relation to the countries concerned. As a result, three different regions have been identified: the European Union in its future shape of 27 Member States, the Western Balkans and the remaining countries and regions bordering the EU 27. In each of the three cases high level groups were commissioned by the European Commission to recommend priority projects or axes, implementation measures and monitoring mechanisms.

Under the 27 EU High Level Group coordinated by (Karel Van Miert 2002-2003):24 three quarters (3/4) of the pan-European corridors fell under scrutiny and the Group came up with 30 transport infrastructure projects, to cover both the ‘old’ and ‘new’ Member States, that represented the priorities for the EU 27 Trans-European Transport Networks (TEN-T). Apart from this, the Group recommended *inter alia* new financial and legislative provisions to support the implementation of the TEN-T, new project-based coordination mechanisms.

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I.3.5 Cross borders and Corridors of transport

Cross-borders are the important spatial parts of corridors where people, goods, freights and experiences passed from one country to another, from one nation to another one. Usually cross-borders areas are the demarcation of motilities for people, goods and information exchanges. The fluency of mobility varies from legislation of each status, infrastructure status, as well as of technological level of equipment, which support movements of different subjects. EU has experienced the highest freedoms in transnational level for movement of people, goods and formations. Countries along corridor eight want to follow the same standards. To achieve this goal, further cross-border issues, has to overpass, in achieving EU, border mobility standards.

For that reason a curtain measures in different levels must be undertaken, such as: - legislation and administrative improvements - technical and physical modernisation - custom regime improvement, etc.

The strange destiny of the border is to be a separation through which the meeting of diversities becomes central, a line of people in movement but also of settled and indigenous people, a place of profound segregation but at the same time one of communicating interests, cultures and the wish to know those who are different. […] Human history, the history of communities, societies, states-and abuses of power- has been manifested through the wish to explore what is on the border and beyond it, to know it, to feel the thrill of experiencing the unknown and to dominate it […] (Gasparini, A.2004) 25

Focussing funds in cross border sections has been a priority policy of EC as regard to infrastructure projects.

25 Presentation in “Cooparation and Euroregions-for Borders to Become Centres”, ISIG, Trimestrale di Sociologia Internazionale, Gorizia, Italy.
[...] The potential profits from investments on an axis are contingent on the completion of the cross-border sections [...] 
Barrot,J.(2005)  

In a analysing cross-border projects in TEN-T, (Ecorys Tran transport, 2007) brings in to account that European funds mainly will solely dedicated to sections which involve at least two Member States. While the specific problem consists that missing cross-border links do in general not have priority from the perspective of the Member State on whose territory the missing link is located. Without the support from the MAP these projects will face serious delays or might even not be put forward by the respecting Member States because there is no shared interest.

The Motorways of the Sea projects do also belong to the group of cross-border projects. These projects are separately assessed within this policy option, since the impact of these projects can not be modelled.

The Commission also proposed that a larger share of this budget be devoted to cross-border sections. [...] The potential profits from investments on an axis are contingent on the completion of the cross-border sections. (Barrot,J.2005)  

Bilateral and multilateral agreements usually enter in force to promote cross border cooperation among countries with different political and administrative regime. If we refer to Canada-USA / Free trade Agreement (FTA) and the 1994 North American Free Trade Agreement (NAFTA) we can notice that significant improvements in transportation and communication technology have made these changes possible, they have also involved deliberate and somewhat controversial policy choices.

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If we refer to Canada-USA / Free trade Agreement (FTA) and the 1994 North American Free Trade Agreement (NAFTA) we can notice that significant improvements in transportation and communication technology have made these changes possible, they have also involved deliberate and somewhat controversial policy choices. Bradbury, S.L. (2002)

The primary purpose of these agreements was to foster trade and investment among the three countries through the elimination of both tariff and nontariff barriers.

[...]

Not surprisingly, this enhanced trade has resulted increased traffic on North American highways, as well as at seaports and airports. The inevitable result has been massive delays and congestion. [...]

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II. BENEFITS AND IMPACTS OF TRANSPORT

II.1 WALKING LOCAL ACHIEVING GLOBAL

II.1.1 Mobility daily life transport

I have been fortunate to travel throughout Albania during my university studies. I visited, studied and followed the tracks that nature and man kind had left in my country. My colleagues and I would have not been able to do so, if it wasn’t for an old bus “Shkodra”. My first international travel was in Nicosia, where I took part in an international conference on peace and environment in the Mediterranean area. After I had travelled by bus from Tirana to Athens, including a small ferry trip in Patra, I arrived in Larnaca by air-travel. I visited London, Glasgow, Madrid, Innsbruck, Berlin etc using several transportation means, such as airplanes, boats, trains, cars, buses etc. These included both holiday and professional trips. Last year, during my holidays I travelled with my family throughout Italy, Slovenia, Croatia, Bosnia and Herzegovina, Montenegro to finally arrive in Albania where we would meet relatives and friends. We drove into international roads, which in my opinion and experience, were as capacious as those I had seen in Austria, Germany, England or France. However, the roads were quite comfortable; there were many lanes in the two directions, with lots of easily visible direction signs, green, parking and resting spaces, tunnels and broad and high bridges. We travelled by car, which is a mean of transport that we use in our everyday life. Transport makes me possible to move and meet my professional, social and economical of daily life interests. Therefore we may say that, through the transport means and the roads in which these means travel, is done the exchange of the society values and natural resources. This process, taken in its entirety and in its content is mobility, movement. It is not static and does not function without the above mentioned elements, which creates a contained system because the process of mobility does not work without the human resources. In other words, the mobility, the movement intended to pursue and exchange the values and the social and natural resources is carried out through the transport process which is as the symbiosis of the individual man, of means and roads.

The questions that I want to raise are the following:
What moves and what is exchanged in this process; in which environment and through which mean is it done?

What does this process bring for society, now and in the future?

Which are the traces that this process leaves for the social environment and the natural one?

Trying to categorize the resources and social values, I will classify the mobility's and the social movement as follows:

a) move the members of society which bring with them professional values - governmental, policy-making, scientific, artistic, sporty, businessmen, military and many other special or mixed professional values brought from different social categories.

Let’s take in consideration the case in which politicians and managers does not take part in a global-level summit due to the lack of transport. Scientists does not attend a conference, artists an exhibition, sport-players a sport event, businessmen a fair and so on. All of them do not arrive to their destinations due to the lack of the transport service.

b) move the members of society which bring with them values and human habitats, i.e. human one, move the parents, children, grandparents, grandchildren, relatives, people in love, individuals and social groups;

Let’s imagine for a moment the case in which for the only reason that the road is lacking and the transport mean, parents and children don’t see each other, grandchildren don’t see grandparents, uncles or aunts, people in love cannot see each other, friends cannot go to a place where they want to, the case in which all these members of society don’t attend a wedding ceremony or other family celebrations. All of them do not realize a human activity due to the lack of the transport service.

c) move material and social values of society, the strength of which is as a result of the movement is so high as it changes the environment, the face of the earth, its depth and penetrates the interplanetary spaces.

I mentioned all these issues to point out the idea that the society values specified above, move, communicate and are exchanged through the transport system, thus, in roads and with transport means. Even the professional, human and material values become evident and exist, thus, as we perceive them and touch them in the daily life since they move, they move in the roads and with the transport means. This complex of social mobility has a universal character, since such is human life, as result, even the phenomenon becomes
universal and touches all the above mentioned categories of society, touches its human and professional values as well as its brain and physical resources. Speaking in concrete terms, a scientist, politician, manager is both parent and child, both grandfather and grandson, both loved and happy and accompanied, carries both physical and brain strength. He is such since he moves in time and space; we keep in mind that we are talking about contemporary society where the movements for which we are discussing for are of local, national, regional, continental and global character. Are all these processes of communication of values and the above mentioned indicators possible without the transport process? We can draw the conclusion that transport is vital for human society. The man as a social being becomes part of social activities in space dimensions: family, local, national, regional, continental and global, which cannot be carried out without the transport system. Speaking in concrete terms, it becomes an active part of family events: birthdays, engagement celebrations, wedding ceremonies, educations etc. So children go to see the parents and vice versa, take part in the celebrations of its relatives etc. If we think that in the time of the movement and freedoms of global dimension the members of the family are in different places of the global space, we can draw the logical conclusion that without the transport system the man does not enjoy the status of its existence as part of his family or as a social human being.

At local level are carried out activities which associate the community of a given locality such as celebrations, memorial celebrations, thanksgiving and sport and cultural activities with local character. For example, in various parts of Friuli-Venezia-Giulia Region is organized the Celebration of Grape; in Elbasan (Albania) there is the tradition of celebrating the Summer’s Say⁴, in Venice the carnivals; in Rome other celebrations and so on.

– Events of a national character: in Germany there’s the tradition of the Beer’s celebrations; in Italy of the Wine one; in Albania of the Summer Day; moreover there are the days of National Independence which all countries celebrate.
– Events of regional character which unite the members of society of several countries such as the “People Celebrations”, the “Gastronomy”, the “Art” and “Culture” etc.

⁴ The Summer Day is a national celebration day, symbolising the beginning of the summer time;
Event of continental dimensions: in Europe it is celebrated the victory over the fascism; in the USA the Thanksgiving Day; religious celebrations at the continental level etc.

Events of global level: the celebrations of the First of May Day; of 8 March; of the Easter; of Christmas; Carnivals, different global movements for the protection of environment, peace, etc.

The question I raise is the following: could we have all these social events without transport system, even the life would not have the savour in the daily life, if the system of transport, the means and the road would lack? Of course not! This is its importance: it is vital.

For the moment I remember the logo of the International Transport Association of the year 1909: “Transport is life”.

Otherwise, for sure, in the rows of the biological adaptation of Darwin’s Theory it will be read even for men with wings flying far way to touch the social dimensions of life. In achieving this it would take long time- no days, years, decades, centuries or millennia…!!!!.

At the final we drew the conclusion that the transport is vital because it is at the service of life itself.

I brought in memory all these indicators to argue that the transport system, society, means and road, are universal in time and space. Next, remembering the arguments of this universal character for the economy (market, business, tourism, etc), I get more convinced that the importance of transport for human society is critical.

I pointed out above the fact that move the professional values, are exchanged the physical and mental resources. Not only in the time in which we live, but also in the past with movement it was not possible to talk about the professionalism, or at most we would talk of a professionalism which would not go beyond the horseshoes, and the sword of a knight fighter of the Meddle Ages. With this example I would like to exclude from the discussion the case of the closed natural economy in which it is produced for the consumption within a given territorial unity. Closed natural economy belongs to the feudalism social economic period of time.

We are talking about the period of time when together with the textile industry in the England came into being roads and the means of transport which will serve the trade-off and the circulation of the products of the man and nature. Thus, I have in mind the moment when the closed natural economy was broken and the elements came into being first and next the economy and the market and capital economy after the bourgeois revolutions of
England, France, at the XVII-XVIII centuries and later on in all Europe. I take into account that after this moment were born even the nations and the independent states. The whole process of creation and the development of the new socio-economic relationships thus, the capital and the market economy and the society organized in states and nations had at its center the system transport and society. I started to discuss the problem in this way to point out the importance of the transport system in the economic aspect and I will give references in actual terms. One of my Master Programs colleagues, years ago, brought action against a prestigious Flight society of one of the Member states of the EU, because the flight was in delay for one hour, which caused him as a barrister the non-participation in the negotiations for a given business. He won the case since the delay of the flight caused him considerable financial losses from the non conclusion of the contract, and all this due to the delay of the flight for 60 minutes.

Let’s think for a moment of the situation in which in the Universities of Milano, in a normal teaching day are not present neither the professor nor the students because the system of transport is blocked. This situation lasts not only one day but several weeks or months.

I bring in attention the same analogy for the workers and the technical-administrative staff who does not go to work since the transport system is blocked.

The leaders of the most powerful states of the world cannot participate in global summit for peace in the Middle East due to the same situation.

I evaluated these situations starting with the local, national, regional, continental and global dimensions and these situations in such territorial and special dimensions stand into time dimensions, thus, for one hour, one day, one week, months or years. This is the system of transport. I also point out that we aren’t talking about a situation of “black-out” of natural origin, which would be the case when there wouldn’t be air or water because the sources have run off, but we are talking of a product, of a situation which is outcome of the human activity through the inaction and put it in ace of the case where it is acted. Thus, when one acts, the movement of means in the service of society is done and the constructed mechanism works.

I point out all these examples in order to stress and underline the fact of how important is the system of transport. In the following and for analogy I remember this situation for products and goods.
A natural resource does not value if does not act in it the man hand to process it into a product or good. To be such, the man should go where natural resource is in order to make use of it. To go there, as well as to tale the natural resource and to process it in factory or industrial constructions, the man should use the transport means and the road. In order make the system work, the man, the means and the road are required. The same system symbioses of the transport go on to function even after it is transformed into a product. A good to reach the consumer need to be distributed through this system. The same for the trade and the circulation at local, national, transnational and transcontinental level.

Thus, even men consider them as a resource, workforce, the natural resources and products in order to move their mission and the move is carried out again though this system.

Thus, taking in their entirety all the arguments that used, we come to the conclusion that without the functioning of the transport system, an economic and social “black-out” would be created. Therefore, I conclude that the importance of transport for society is of vital dimensions: without transport there couldn’t be a human society with its true values.

But in the relationship transport roads system in the service of man’s daily life, come naturally the consequences for the man and nature life (global worming) at the same time which cannot be considered detached. In the center of the European and Global polices to eliminate and minimize these consequences, is the sustainable development of transport which intends that of transport to put the intervention of human society using natural l and human resources to use the means and the roads in such a way that they do not damage until the threat and fatality the human and natural life which on the other hand are also in symbiosis. Such a development is considered sustainable. It aims that the man uses the roads in which the transport means will move, in such a way that this system road doesn’t mean to kill the man physically, to mutilate him, to offer him polluting and poisoning gazes in stead of oxygen, to construct the roads damaging the cultural heritage, the environmental originalities, water, under-earth, over-earth resources, to cause landslides of the of the land masses etc, but to be developed in programmed and rational way; to be developed in such a way that can serve the present and the prospective of the society generations without denying and impairing the values and the experiences of the near and far past.

To sustain of this aim it is developed the policy and the technology to achieve sustainable development. For example new technologies which reduce the emission of empoisoning
and polluting gas of nature and human life for the means of transport which are in circulation as well as for their promoting and supporting policies.

b) Mobility benefits are measured in terms of travel time and operating cost savings for road users. These include time and cost savings for personal travel, business travel, and freight movement. Cost savings include vehicle operating costs (gasoline, wear-and-tear, etc.) as well as any tolls or other fees collected. Accounting of mobility benefits should include benefits to new users who are "induced" to use the road as a result of the improvement, as well as time and cost savings to existing users.

The tendency of mobility goes hand to hand with progressivity of society. Referring to European Commission studies (European Commission, 2008)² the volume of transportation of passengers is projected to increase at a rate of 1.4% per year, between 2005 and 2030, whereas the volume of freight transport is projected to increase by 1.7% per year during the same period of time.

Here down is presented the case of UK experience how does transport links interest on employment, national and international links and times of travel, costs, and community initiative. Commuting CAN, mean major stress for today's employees. For many people, the expense and time required to travel to work has become a major barrier to employment. Little wonder that more and more regional development agencies are taking action. “After all,” says Anthony Payne, a director at the East Midlands Development Agency (EMDA), “our responsibility is to create sustainable economic growth and development. The provision of adequate and appropriate transport is a fundamental foundation for this.”

He provides an example of a joint initiative between EMDA, Nottingham City Council and Nottingham East Midlands Airport. “We realised that if we were going to encourage people, especially in the lower income bracket, to travel to the airport to work, we’d have to make the commute more attractive,” he says. Enter the subsidised skyline bus. Connecting Nottingham with the airport, the bus not only provides public transport access opportunities for those flying in and out of the airport, but also for airport-based employees. Although a pilot scheme, early indications point to a success and it is hoped that the concept can be expanded.

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A similarly innovative transport scheme has been funded by Advantage West Midlands (AWM), Centro and Jobcentre Plus, to help connect unemployed people from two disadvantaged areas of the West Midlands with new job opportunities. "The scheme, which operated from June 2003 to June 2004, provided unemployed people with the means to travel to jobs, interviews and training placements," says Sue Manns, planning and transport team leader at AWM.

Mann’s points out that transport’s contribution to economic prosperity reaches much further than providing transport to potential and existing employees. Goods need to be able to get to market, people need to be able to travel to buy them and employees often need to be able to travel to develop new skills. “That’s why, if we are going to create a modern, open and competitive economy in today's global market, it’s going to rely heavily not only on intra-regional links but also international links. It’s the only way we can exploit the competitive advantages of European Commission, (2008)³

Still referring to EC source more specifically,

[...] energy related transport activity per capita is projected to reach 17908 km per annum in 2030 up from 12769 km per annum in 2005. This considerable increase of transportation of passengers (42% higher in 25 years) is accompanied by changes in transport modes towards using faster means. [...] Transport suggest also a daily life tendency

[...]Aviation activity is projected to grow at a rate of 3.1% per year in 2005 – 2030.

Rail transport activity, which exhibited a decline between 1990 and 2005, is projected to display acceleration of growth from 2014 onwards (+1.6% pa in 2005-2030) as a result of new and upgraded infrastructure projects facilitating networks of high train speeds

[...] In 2030 passengers rail activity is projected to account for 7.5% of total activity (+0.4 percentage points up from its level 2005, +0.6 percentage points up from 2015 level)[...] (European Commission, 2008)³

This, she says, is why all RDAs are not only focusing on regional issues when it comes to transport, but also on shared national issues. “Led by Advantage West Midlands, the nine RDAs have been increasingly working together to influence the national transport agenda and have found that by speaking with a single united voice, they have a more powerful voice within government.” Sir Graham Hall, the industrialist leading the Northern Way, which aims to boost the economic performance of the North of England, is particularly excited about what RDAs are doing when it comes to transport. “Transport is a major issue for every region.” -he says- “In fact, three of the ten key drivers for change that we have identified as part of the Northern Way, focus on transport. The first is improving rail access to Manchester Airport. When you travel somewhere by air, you don’t want to have to travel another few hours to get to your destination. The second is improving access to the North's sea ports, which could do so much better if they had improved links. Finally, creating premier transport systems within the eight city regions where the most trade takes place clearly, designing regional strategies that make the most of regional opportunities is a complicated task, and one that can perhaps seem a step removed from day-to-day life. But with transport, everyone has personal experience to draw on. Making the economic case in such an emotive debate is a major challenge for governors and stakeholder in the society.

Research behind transport, urban and regional development shows that:

− higher densities benefit the individual and the economy;
− transport infrastructure shape can stimulate these benefits; and that higher urban density leads to:
  − higher productivity and incomes;
  − better access to employment;
  − higher land value per ha;
  − lower land value per resident better access to low-cost transport modes.
II.1.2 Social behaviour and transport

Important as they are, the corridors of transport are not mere routes for the passage of people and goods. They are also bridges of communication among members of diverse societies: a multitude of ethnicities, languages, cultures, economical and social standards, levels of education etc. Diversities meet in this great and inevitable process of exchange of culture and wealth resulting into a general improvement of the quality of life for the people who live in the territories it crosses, producing therefore a general benefit.

When viewed in a small scale such as the single communities, this benefit is easily spotted for a process of interaction of diverse social categories of people and therefore, a modification of social behavior is one of the visible effects of the transport corridors.

This process develops in time and space, encompassing different levels of human activity in the areas along the transport corridors in a local, national, regional, continental and global scale.

Thus, different social categories communicate in the process of building routes. Representatives of the community will interact in order to develop a decision-making process that was requested by the local governors. They will review matters, such as environmental and social impact of the corridors, feasibility studies, economical impact etc.

While initiating in small communities such as villages, this process of communication will begin to involve several villages, municipalities and then groups of municipalities, counties and groups of counties until it will cross the borders and become of an international level.

Thus, as the corridor shall physically lengthen, so shall the communication between the actors: makers and sub-sequentially, beneficiaries. The length of a corridor will be in straight proportion with the number of the actors in a social area. This area includes members of a neighborhood, a village, a community, a municipality, a county and crosses over to the neighboring state. The communication phenomena therefore, as well as cooperation, harmony, integration and social cohesion will progressively increase.

Moreover, communication will increase further by means of broadcasting networks, exceeding thus the actual size of the corridors.

A Municipal or County administrative unit connected to a territorial concept will cross border limits and become more open along the corridors. Such chain of communication will be transported by the corridor along, from county to county, from state to state channeling it through the various routes of transport and transforming it thus in a more global model of communication. South Eastern, Central and Northern European routes will
transfer this model into a continental level. Likewise continents are also connected. Europe is connected to Africa through Gibraltar and Suez Canal. North and South America as well as Asia also partake in this great process. Local communication therefore, will become continental and consequently global. Thus, local paths and corridors achieve global influence: walking local, achieving global!

This chain that initiates locally and influences globally, bears and transmits the social elements. It begins in small communities and crosses countries by means of a network of corridors of transport.

I have discussed above the concept of geographic communication, that is, communication along the transport corridors that I have defined as a geographic environment upon which flow the activities of the human societies.

By means of the corridors of transport happens the mobility of human societies. The mobility initiates from the elementary unit of the territorial and social organization to further grow into a global level. Within these processes, members of human societies move, communicate, cooperate, interact, and integrate. Through the corridors of transport social and territorial integration happens in a global scale.

How does this happen? It happens as simple, day to day life proceeds. Let’s begin with the building of a road. The simple process of planning it and later on drawing the project will bring together different professional ties which will communicate with one another. I shall take the case of Albania in the 90s. The professionals that would project roads would usually come to Albania from Western Europe. However, their technical experience ought to have been supported by the local community. Such support would be given not only by the experience of local professionals, but would also involve a series of figures the foreign professional would come in contact with during their permanence. We would therefore have a process of social communication in a plentitude of levels.

The same phenomenon would also be evident as the roads were being built among engineers, projectors, technicians, workers, drivers etc.

The study itself has been done on the basis of several drafts until it is completed. For each and every step of the project, community's feedback and approval is needed for matters of the territory, climate, preservation of biodiversity, of archeological, historical and cultural heritage etc. The building of a road serves the interests of the whole society; however such kind of communication is natural and necessary in order to create a project that will best serve these interests. (Certainly there may be minor issues for which some individuals may
not agree to such project as private property, certain business activities etc. however we shall not concern ourselves with this topic in this essay).

The avalanche of communication, cooperation and decision making interests will lead to trends of integration, inclusiveness and social cohesion that initiate in small social groups and tend to evolve into a global level.

Social cohesion may be explained in the following example related once again to Albania: Often in a neighborhood or a village conflict situations are inherited. These may regard private property, neighbor relations, in laws' relations, competition, inherited enemicity etc. that may also lead to a well known phenomenon in the North of Albania such as blood feuds. When the community is called to express an opinion or decide upon such matters as building a road or a highway, a matter that serves the interests of all parties, all parties would then meet and communicate with each other independently from their problems. If a problem should arise for which they are, as a matter of example, to protect their own land from a builder that would wish to cut costs and therefore extract building material from nearby places endangering therefore the biodiversity, they are all to stand against it. In this very moment the elements of communication, cooperation, support, social integration in decision-making and social affinity would strengthen even more.

Therefore with the first step towards building a road a new social behavior shall initiate that will travel globally. I have described the way corridors of transport influence locally and globally social behaviors.

I shall now review how in this element of transportation move people of diverse origins, ages, skills, ideas, experiences etc. which are bearers of an infinity of values and individualities. As humans move along the corridors, products and values will also flow from a local to a global level and vice-versa.

Which are the actors of the society that communicate, cooperate, decide, integrate, to be involved and reach cohesion along the geographical space of Corridor VIII?
II.1.3 Life style and sustainable transport

a) New technology for sustainable new life style

New technology and investments to improve sustainability will bring new potential for economic growth. To achieve the target society toward in reducing global warming are needed new technologies, research and development, new investment and a new order of international relations. Managing climate change can be a stimulus to growth. New technologies and investments have always been a condition for economic development. Climate change it is a global social issue. Same target are settled by the Commission on Oil Independence’s targets which results as it follows:

The road transport sector must reduce oil use by 40-50 per cent by means of efficiency enhancement and new fuels. Homes and business premises must be heated without oil. Industry must reduce its oil use of 25-40 per cent. This experience brought home the constraints on how far one country can act alone. (Sahlin M. 2006, Swedish Expert on Sustainable Export) concluded by proposing to draw upon European institutions, upon the common market and common environmental policies to break dependence on oil, by establishing a European Post-Carbon Commission. It would identify where existing regulation conflicts with the post-carbon society and propose new policies to support its introduction. Many studies have been made of how society might change over the very long-term to provide an acceptable economic future and to meet legitimate aspirations without unmanageable damage to the environment. Recently, the Very Long-term Energy Environment Model has examined sustainable development up to 2100 and the World Energy technology Outlook-Hydrogen has proposed scenarios up to 2050 that drastically reduce emissions of carbon dioxide. These studies show that current life styles of industrialised countries are neither sustainable nor achievable on a global scale. Sustainability has to become a social priority if individual behaviour is to change. It is not sufficient to rely on spontaneous adaptation. At the heart of the problem is the question of how society can organise itself to achieve long-term behavioural change. “How can life-styles in industrialised countries change?”; “To what extent will developing countries and industrialised countries converge through globalisation?”

Technological innovation and implementation is essential, but the interaction with life-styles needs to be better understood. Behaviour often exhibits interesting trade-offs between time and energy. At low levels of income, the time spent in collecting food is considerable, but falls as income increases without a great incremental expenditure on energy because practice is more efficient. At a certain point, when reliance develops on
energy for processing, preserving, storage, transport and kitchen appliances, the time budget is very low and the energy budget is high. Technology has a similar determinant effect in mobility. It appears that throughout the industrial world, urban citizens spend roughly one hour a day in travel. The time budget is remarkably similar, but the distances travelled, the energy used and the Environmental impacts differ widely. The average distance travelled in this time is 3 km in China, 35 km in Europe and 74 km in the US. The energy use increases rapidly because it is affected by both the increase in speed and the increase in distance. Energy use is not only a function of available technologies, but also of individual decisions based on individual values determined by cultural heritage and social context. They can therefore be changed, but not necessarily easily. The question arises as to the role of economic incentives in stimulating change. Behavioural change is not primarily an economic question; it is a function of values. But behind that, there is a robust economic behaviour that must also be affected. What is needed is change parallel to affect social behaviour by education and economic behaviour by prices. The challenge is to maintain coherence between these.

The momentum of demographic change is not conducive to rapid behavioural change, certainly in industrialised countries. Lifestyle changes generally occur between generations; it is a slow process that starts in schools; change within a generation is rare. In industrialised countries with aging populations and low birth rates, values are likely to be determined by those of older people. A trend that affects developed and developing countries is the shift to smaller families. In developing countries, it is mainly the movement away from large extended families and in industrialised countries.

\( b) \) Households.

Smaller households tend to mean more space per unit area, higher equipment levels, and lower utilisation. Better understanding of what could comprise the daily life of people living in post-carbon societies as enabled by appropriate technologies.

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5 Long-term behavioural changes, Bertrand Chateau, Director, Enerdata
Better understanding of the infrastructures, organisation and production modes consistent with these life-styles, transition to these post-carbon societies, the roles of social actors and the risks and quantitative scenarios of post-carbon societies and how they linked to energy and resource use.

Social change, like any other sort of change, will impose costs and benefits and their allocation will not be even afforded. There will surely be differentiated allocation in many ways, but one principal divergence is likely to be between capital and labour. As noted earlier, globalisation leads to insecurity in the labour markets, but there can be opportunities for job creation if policies are right. There are also unresolved and major social choices between work and leisure that will inevitably be disturbed by radical social change and actors can be expected to fight to defend acquired benefits and obtain new ones. There will be very unequal distribution of costs even from a 2-degree temperature rise that would be very serious for southern Europe and possibly less for the north. These social struggles and the need to organise social dialogue can make the search for solutions more difficult. A central element of EU policies towards social change is the Lisbon strategy. This is intended to stimulate economic, social and environmental renewal and to increase European competitiveness by investing in a knowledge-based and highly productive society. Unions tend to see the strategy as an opportunity to reinforce the European social model and are concerned by what they see as a tendency to adopt a narrow agenda of structural reform and competitiveness, which could be seen as an attack on workers’ rights and protection. Assessments of how to make the transition to these post-carbon societies, the roles of social actors and the risks, quantitative scenarios of post-carbon societies and how they linked to energy and resource use, remain the challenges of nowadays society.

Social change, like any other sort of change will impose costs and benefits and their allocation will not be even. There will surely be differentiated allocation in many ways, but one principal divergence is likely to be between capital and labour. As noted earlier, globalisation leads to insecurity in the labour markets, but there can be opportunities for job creation if policies are right. There are also unresolved and major social choices between work and leisure that will inevitably be disturbed by radical social change and actors can be expected to fight to defend acquired benefits and obtain new ones. There will be very unequal distribution of costs even from a 2-degree temperature rise that would be very serious for southern Europe and possibly less for the north. These social struggles and the need to organise social dialogue can make the search for solutions more difficult.
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Most of the world, on present trends will live in cities in the near future. A great deal of energy is used to service urban buildings and to provide mobility within and between cities. Cities have great inertia and her form and function will be a strong determinant of the capacity to implement the policies and regulations designed to combat climate change. Mobility is perhaps the most demanding of social preferences. The International Institute for Applied Systems Analysis notes that from 1800 to 2000, population across the world had increased twelve-fold faster than population, but energy use increased only six fold. Emissions of CO2 increased only three times as fast. Mobility increased 1000 times absolutely and more than 300 times as fast as population. People like to move about. The environmental impacts of mobility can be reduced by restricting mobility or by reducing its emissions. Hydrogen fuelled vehicles are the eventual goal, but the financial source required to complete the R&D and especially to demonstrate viable systems are immense and certainly greater than those available to the recently agreed Joint Technology Initiative of the EU and the hydrogen industry. Technology for mobility is one thing; primary energy supply is another. Important questions need to be addressed about how to stimulate production of renewable energy in a manner that is sufficient and cost-effective. (Paolo Frankl, Chair: Paolo Frankl, Head, Renewable Energy Unit, IEA), examined the effectiveness of subsidies to the production of renewable Energy.6

Mobility is the key to city design and sustainability. Mass transit technologies can affect development, but they need to be supplemented and to draw upon, advanced propulsion systems with hydrogen as the eventual long-term goal.

6 (Energy and environment as a global challenge, Nebojsa Nakicenovic) Professor of Energy Economics at Vienna University of Technology and Leader of the Transitions to New Technologies Project at the International Institute for Applied Systems Analysis (IIASA). He is also an Associate Editor of the International Journal on Technological Forecasting and Social Change, Editor of International Journal on Energy, and Climate Policy, a Member of the Advancing Energy Technology & Efficiency Study Group, World Energy Council (WEC)
A great deal of social science research is needed to understand the interaction between city design, social preferences, the costs and performance of vehicles and infrastructure and policy incentives. If renewable energies are to form a significant part of the supply to cities then citizens need to be better informed and better involved. Business also needs to be engaged to catalyse the relationship between politician and customer.

II.1.4 Transport and social integration

Corridors of transport are of a great interest in supporting the mobility of people in emergency situations. Referring to the Balkan situation, it can be brought in attention that corridors of transport has been supported all the humanitarian support for the people in ex Yugoslavia countries of Balkans, through Corridors of transport has been moving all migration flux from Balkans country of origin toward western Europe. Further more, through corridors of Transport migration processes are used to happen, such as the return to the country of origin, remittances flow, investments relations in country of origin, cultural and interethnic exchange, etc.

Corridors of transport support mobility of transnational movements in global level, such as environmentalism, green peace, human right movements, military actions, global cultural, sport, arts, musical, etc.

Transport activity makes possible linking peoples and territories. Social and cohesion impacts come as a result, beyond the borders of different countries as regards of transnational cooperation.

Prof. Puscas emphasises also the importance of transport in integration processes for the society,

[...] economic actors would have more opportunities to interact and develop cooperation; also, strengthened cooperation between customs offices would lead to increased efficiency in countering transnational-threats (organised crimes, illegal migration, illegal trafficking in arms, drugs and people)[…]
In this respect, intensified communication campaigns would increase awareness in local communities of the benefits resulting from regional cooperation, with an impact on regional development[...]


The impact of the policy scenarios on the cohesion between the regions in the European Union can be measured by the Gini coefficient. The Gini coefficient is a measure of the deviation of a distribution of values from a completely equal distribution. Ecorys Transport, (2007)

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II.2 SOCIAL IMPACTS

II.2.1 Safety impacts

A highway improvement can reduce the number of accidents on a facility by reducing congestion, eliminating dangerous intersections and at-grade crossings, and improving roadway geometry. Highway user benefits associated with the anticipated reduction in accidents attributable to the project were estimated by comparing the probable number and type of accidents that would occur with the highway improvement to those experienced with the existing system of roadway design or safety measures. Safety benefits can be estimated based on the projected reduction in crashes (based, for example, on crash rates by roadway design type), in conjunction with data on the costs of crashes by crash severity. Crash costs include both direct economic costs such as medical expenses and property damage, and indirect costs such as pain and suffering. Crash costs vary significantly by level of severity and it is important to distinguish, at a minimum, the number of crashes resulting in fatalities, injuries, or property damage only.

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Safety benefits of transport activity include reductions in crashes as a result of improved roadway design or safety measures. Safety benefits can be estimated based on the projected reduction in crashes (based, for example, on crash rates by roadway design type), in conjunction with data on the costs of crashes by crash severity. Crash costs include both direct economic costs such as medical expenses and property damage, and indirect costs such as pain and suffering. Crash costs vary significantly by level of severity and it is important to distinguish, at a minimum, the number of crashes resulting in fatalities, injuries, or property damage only.

Transport security has become an increasing political concern following terrorist attacks on Spanish and British transport systems in 2004 and 2005. The European Commission therefore launched several initiatives aimed at increasing the security level of transport and infrastructure. These initiatives originated in different Directorate-Generals of the European Commission, but were all mainly driven by a political concern to improve antiterrorism measures, for example: security amendments to the Community Customs Code which require traders to provide customs authorities with information on goods before import to or export from the European Union. 9 Ecorys Transport, (2007)

II.2.2 Environmental impacts

Transport activity also cause consequences for the society and nature. This is result of environmental causalities as result of transport activity. It could include air quality, water quality, habitat destruction and fragmentation, noise, and greenhouse gas emissions. The impacts of a road or highway project on water quality and habitat are frequently negative but can be mitigated to some extent through appropriate design and construction techniques. Air quality, greenhouse gas, and noise impacts, which result from vehicle operations, also may be negative as a result of increased traffic on the roadway.

These can be mitigated most effectively through regulation of vehicle technology, including emissions controls, fuel efficiency standards, and noise standards. They can also be mitigated through provision of high-quality service by alternative, less environmentally damaging modes of transport such as public transportation, railroad, and non-motorized transport.

The change in emissions results for the greatest part from a shift of kilometres travelled from road to rail. The technological progress in case of freight road transport is however far more advanced than in case of inland waterways, where the ships’ engines have a high rate of emissions. This can be explained by the long life span of ships, leading to a slower impact of technological improvements, compared to road transport.\textsuperscript{10}

\section*{II.2.3 Social fragmentally and inequity development}

The impact of the policy scenarios on the cohesion between the regions in the European Union can be measured by the Gini coefficient. The Gini coefficient is a measure of the deviation of a distribution of values from a completely equal distribution.

Other impacts coming as result of transport activity may include factors such as the social impacts on a community of a new road or highway project. For example, construction of a highway may improve the delivery of services to a rural village but may also bring about community changes due to increased traffic. Where a project will significantly impact a community, a qualitative assessment of the nature of these impacts should be considered in assessing the benefits and costs of the project. In addition to examining total impacts it is also important to examine the distribution of impacts (for example, who benefits and who is negatively impacted). Assuring an equitable distribution of benefits may be important from a local or national policy standpoint. Geographic equity is one aspect, e.g., ensuring that all regions of a country benefit from road and highway investments, and that rural as well as urban areas benefit.

Equity among social classes may also be important, e.g., it may be important to ensure that economic opportunities reach those for whom existing conditions are poor. Mechanisms for funding roads should also be fair in the sense that those who are financing the project are also those who are benefiting from the road improvements. Human exposure to lead represents a serious environmental health problem in many urban areas.

Based on a review of health and technical issues, this report points out that the phase-out of lead from gasoline is a desirable policy measure which can yield significant social benefits. Country experiences worldwide, however, indicates that political commitment, supporting policies, coordination among various sectors and stakeholders, public understanding and support are necessary elements of successful lead phase-out. The World Bank has played a catalytic role in building government commitment, adopting appropriate policies, and facilitating the implementation of lead phase-out. The role of cross national and regional collaboration has been spoken also by Prof Puşcaş (Puşcaş, V. 2006)\(^\text{11}\)

### II.2.4 Spatial planning and land use

Spatial planning, land use and congestion, have direct impact on transport activity in general and on transportation corridors particular.

[…]

Space planning is no minor issue. It is a major problem both for Europe’s competitive position and for the quality of life of Europeans. That is what motivates me to meet the challenge of achieving the trans-European transport network. Barrot, J (2005)\(^\text{12}\)


On international road federation commentary for “The European Commission White Paper on European Transport Policy” is evaluated that:

[…]. The commission interprets certain factors, for example, congestion as an entirely negative economic phenomenon carrying heavy costs. Yet the private sector generally interprets congestion as a sign of heightened economic activity and responds by investing in new infrastructure […] International Road Federation.

Spatial planning means less congestion, less CO22 emission, less accident, less time spent. Consequently it brings competitiveness in the global market, while no doubt it is of a great importance for society. European Commission has viewed the development of spatial policies as a vital component of his efforts in order to effectively achieve the socio-economic cohesion and capability to compete in an increasingly global market. (Marin., M.C. 2005)

II.3 ECONOMIC BENEFITS

II.3.1 Global economy and transport

It would be likely to consider the social and economical benefits/impacts of Transportation Corridors in local level, national level, cross-national, regional, continental and global level. The socio-economic benefits and impacts of transportation corridors travel together with their steeps in the territories in above mentioned levels. Experience of highway, rail, sea and inland ports, airports improvements can produce many types of economic impacts, as follows:

13 Spatial Development and its Polities as Cohesion Means in the EU and Turkey, Ankara Universitesi SBF Dergisi 61-2.
Transportation is one of the least visible, but critical components of the global economy by supporting a wide array of movements of passengers and freight between nations. The substantial diversity, availability and affordability of goods in the global economy thus depend much on the capacity to transport them. (Rodrigue, J-P 2006)\(^\text{14}\)

Transport matters for the human environment. Its performance characteristics shape settlement patterns. Its infrastructure transforms the land escape. It consumes about one-third of all energy in a country such as the USA. Ant transport emissions strongly influence air quality. Thus people naturally wonder whether we have a chance for “green mobility” transport system embitter in the environment so as to impose minimal disturbance. (Gilbert, C, Jesse. A 2006)\(^\text{15}\)

Today, mobility is not well diffused among noble prices, great writers and art directors, but it’s a practice for crowds of young (and not so young) people from many domains, from art to information technology, from desire to engineering, from music to economy. Today, more and more people worldwide have developed the cultural, political and economic freedom to choose the place where they want to live and to work so they are simply exercising this freedom of choice on a global scale (Gilbert, R. 2005)\(^\text{15}\)

They are simply exercising this freedom of choice on a global scale. This phenomenon is overtrumping the rules of competition and in this new scenario no position is consolidated. Even the United States, once the undisputed leader in attracting talents from all over the world, is now in a delicate position.

\(^{14}\) *Transportation and Globalization.* Department of Economics & Geography. Hofstra University, Hempstead, New York, USA.

\(^{15}\) The Centre for Sustainable Transportation Defining Sustainable Transportation 2, Canada
Even the early Marxist leaders emphasises the necessity for mobility to new areas in the globe. For sure the need for a constantly expanding market for its products chases the bourgeoisie over the whole surface of the Globe.

It must nestle every where settle and every where establish connections. Through its exploitation of the world market the bourgeoisie has given a cosmopolitan character to production and consumption in every country.

a) The importance of transport in the contemporary economy

Transportation has stood always in the forefront steps in linking people, nations, and economies. Historically, it has made possible linking natural and human resources for the benefits of the society. Even it is not much of direct visible it is a crucial components of the global economy by supporting a wide array of movements of passengers and freight between nations. Infrastructure is a requirement of development. It is the foundational framework for adding value to the resources of a country, state, region, city, or organization. Without modern infrastructure, localities and regions are disadvantaged in the highly competitive global environment of the contemporary and rapidly evolving knowledge economy and knowledge society. The movement of information and knowledge through our economic and social institutions drive what today is widely called the new economy. The infrastructure that supports the movement of information and knowledge is multidimensional and is converging; at its core, it consists of information technologies and communications technologies.

Freight transportation is particularly unnoticed even if globalization depends on the trade of natural materials, or products. The substantial diversity, availability and affordability of goods in the global economy thus depend much on the capacity to transport them. Actually, we live the moment where people, goods and natural resources, move from one to another corner of the world. The global dimension of multi direction mobility is made possible, only because of transportation. These flows of goods are also complemented by movements of people between borders for a wide array of activities such as business, tourism and even migration. The circulation of goods and people within the global economy thus must be supported by transportation. So it can be concluded saying that the importance of transportation has a global dimension for the society. It makes society use the power as a whole, exchange values as a whole and use the nature for global and profound resources. Today societies can not function without transport. "Boarding a train or plane, or dispatching freight to the other side of the world are, for hundreds of millions of people, for
hundreds of thousands of businesses, everyday acts which are both unremarkable and vital”. An efficient system of transport is essential for a modern society with a competitive economy. Referring to (European Commission Transport website) information every day, within the fifteen countries of the European Union, transport systems:

– carry 150 million people to work and home again;
– enable 100 million business trips to be made;
– enable 90 million people to go shopping;
– carry 50 million tonnes of freight and;
– handle 15 million postal items.

In addition: Commercial and private transport services account for 7% of the European Union's GDP. This is more than either the agriculture or steel sectors. 6 million people (4.2% of the total working population) are employed in transport. These increases to 14 million if those employed in the transport equipment industry and all those working in transport-related businesses are added. €70 billion are invested in transport infrastructure every year. This is equivalent to 1% of the EU’s GDP. Each household spends an average of 14% of their annual income on transport. Each individual travels an average of 35 km each day using one means of transport or another.

II.3.2 Direct users benefits

Users travel in time and they want to be safe. These include the benefits realized by travellers in terms of travel time, safety, and vehicle operating costs. Users of a highway enjoy both tangible and intangible benefits from the upgrading of a highway or construction of a new highway. Improved roadway design can enhance both convenience and safety for users, and capacity improvements can relieve congestion, making travel times shorter and more predictable. User benefits accrue directly to individuals using the road, and to businesses whose employees use the road for business Purposes. Standard techniques have been developed and refined in recent decades for measuring user benefits. There are three types of user benefits are quantity in monetary terms: 

*Travel Time Savings*

Travel time savings result from increased speeds that are made possible by reduced congestion, the absence of signals, improved roadway geometry, and the absence of at-
grade crossings. Translating travel time savings into dollar benefits requires assigning a value to the time saved by drivers and passengers. Time, of course, is valued differently based on the trip purpose, time of day, and destination. To adjust for the varying value of time, usually an average value is calculated, and weighted by the proportion of different types of motorists using the highway as well as the average number of occupants per vehicle.

II.3.3 Direct economic benefit. Business and tourism

a) The role of transport infrastructure in booming trade process
As we know trade and regional integration have helped share the benefits of growth. The role of infrastructure in sustaining this process, in particular that of logistics so infrastructure can help make the process of economic growth and poverty-reducing. This is at the core of inclusive development. Getting the goods to market has been the key to East Asia’s prosperity for example if we referers to this region. Trade has been a crucial ingredient in the rapid growth of much of the region, and is likely to remain so. Sharing in the region’s growth, particularly for the poorest in the region, will depend heavily on countries’ ability to carry out infrastructure investments, and improve the efficiency of delivery of infrastructure services, in support of regional trade opportunities. Asian region is taken as an example because of the well-known economic mobility booming in these countries. The user benefits, in turn, lead to economic benefits in terms of business growth for both users and non-users within a geographic area. Existing businesses may experience benefits from changes in business costs and productivity associated with the direct user benefits. In addition, the changes in labour market access, customer market size, and linkages to other markets and transportation facilities may attract new businesses to the area. Finally, these same changes may attract new tourists to the region. These three categories of direct business benefits – expansion of existing businesses, attraction of new businesses, and tourist impacts – are used throughout this analysis.

The economic impact of the proposed highway extends beyond these direct user benefits. Direct economic impacts can be classified into three categories: expansion of existing businesses, attraction of new businesses, and tourism impacts. Reducing transportation costs can increase existing business growth. Existing businesses in a region may experience a reduction in production costs associated with the highway user benefits. This reduction in costs improves the competitive position of the firms, making
them better able to expand. Furthermore, highway improvements can extend the customer base that businesses can serve and the area from which they can access supplies. The direct user benefits that accrue to businesses fall into two categories:

Trucking Benefits – Businesses that own or operate trucks are the major direct beneficiary of these user benefits. The dollar value of direct user benefits that accrue to commercial vehicle operators is expressed as a reduction in production costs in the trucking industry in the study area and the rest of the state.

Business Auto Benefits – Businesses whose employees drive on the clock for business purposes also experience a direct benefit from reduced travel times and costs.

b) Business Attraction

The business attraction analysis focuses on how enhancing strategic connections between specific locations and activities can attract outside business activity into a region. A highway investment may make a region more attractive to businesses by improving access to suppliers, customer markets, labour markets, or intermodal transportation facilities. This attractiveness may result in the formation of new businesses in the region, the relocation of outside businesses to the region, or the decision to expand activity at an existing local business rather than locating at a competing outside location. Highway investments are only one factor in the complex nexus of business location decisions, but it is possible to make broad estimates about the types and sizes of businesses that may be attracted to a region as a result of a major highway project. Depending on the relative attractiveness of the region compared to surrounding regions.

c) Tourism

Improved highway access may strengthen and support the expansion of a region’s tourism industry. Tourism is a form of business attraction, in that it is affected by market access and market area expansion. However, it is examined separately because tourism activities do not fit within the standard SICs, and because tourism development requires that the customer travel to the destination area rather than having a business ship its product. Tourism is defined as the set of business activities associated with serving visitors. It includes visitor destinations such as parks, museums, and other attractions, and an array of supporting businesses that provide products and services to the direct impacts on tourism are measured in terms of visitors and dollars of business sales, which ultimately affect jobs and income. Depending on the relative attractiveness of the region compared to surrounding regions, the highway investment could facilitate a net migration of tourists out of the region. Construction, maintenance, and operating costs must be weighed against the
benefits and other impacts of the project. These may take the following forms and may be measured in the following ways.

Economic impacts are a result of reductions in travel time and cost, improvements in safety, and other benefits of the road project that affect the cost of doing business. Economic impacts can result from two sources: cost savings to existing businesses through reductions in travel time and cost; and business expansion through the growth of existing businesses or the attraction of new businesses to an area. Highway advances studies in economic forecasting and modelling techniques, considers not only the direct benefits of the highway on its users, but also the broader impacts on the regional economy. Economic benefits are defined as benefits to the economy such as the generation of additional jobs, business sales, or disposable income. The most common measure of economic benefit is change in disposable income, which reflects the change in wage income earned in the region. Economic benefits are the product of the project’s user benefits. User benefits that accrue to businesses such as trucking companies can lead to a reduction in business costs and an increase in productivity and competitiveness, making these existing businesses more able to expand in the region. In addition, highway improvements can enhance access to labour, customer, and supplier markets, as well as intermodal transportation facilities, making the overall region more attractive to highway-dependent industries. The magnitude of economic benefits of highway improvements typically differs from the travel efficiency value of user benefits. The differences are as follows: Geographic Coverage – User benefits traditionally cover all travellers on the affected highway segment, including pass-through travellers whose trips both originate and terminate outside of the state. Economic benefits are narrower in that they are counted only for persons and businesses based in certain concrete area, and exclude out-of-state users of the highway. User benefits cover all safety, time savings, and cost savings benefits, regardless of the trip purpose. Economic benefits count only those benefits that lead to increases in the flow of money (or number of jobs). For example, business-related travel time savings can affect dollars costs for business operations. However, travel time and safety cost savings for many types of personal travel, while they are clearly benefits to users, typically do not translate into direct impacts on dollars flowing in the economy. Particular road user’s user benefits accrue only to those individuals and businesses that actually use the highway corridor. Economic benefits are broader in that they may accrue to anyone deriving additional income from business growth attributable to the highway improvement, even if they do not use the highway. These can include multiplier effects.
II.3.4  Indirect economic benefits. Remittances

a) Remittances

Corridors of transport are of a great interest in supporting the mobility of people in emergency situations. Referring to the Balkan situation, it can be brought in attention that corridors of transport make possible all the humanitarian support for the people in ex Yugoslavia countries of Balkans, through Corridors of transport has been moving all migration flux from Balkans country of origin toward western Europe.

Further more, through corridors of Transport migration processes are used to happening, such as the return to the country of origin, remittances flaw, investments relations with country of origin, cultural and interethnic exchange, etc.

Corridors of transport support mobility of transnational movements in global level, such as environmentalism, green peace, human right movements, military actions, global cultural, sport, arts, musical, etc.

The impact on employment comprises the creation of permanent and temporary jobs. The temporary effects cover the jobs related to constructing the infrastructure. These temporary effects are however of minor importance compared to the permanent creation of jobs since after completion of the infrastructure project these jobs will disappear. To evaluate an infrastructure project the creation of temporary jobs is therefore not a recommended criterion. Permanent jobs arise from operating the infrastructure project. These jobs can be seen as a direct effect of the infrastructure project. However if the regional work force is not subject to skills-upgrading the longer-term effects will be very limited.16 (Ecorys Transport, 2007)

b) Secondary Economic Benefits

The direct impacts to businesses may have secondary impacts. Indirect benefits refer to businesses that experience increased intermediate purchases by the direct beneficiaries of the investment. Induced impacts refer to businesses that experience increased consumer spending by employees at the direct and indirect beneficiaries. In this manner, when a transportation project benefits a major employer in a region (e.g., a motor vehicle manufacturer),

its impacts ripple throughout the economy, affecting first suppliers to this business (e.g., parts manufacturers, banks), and then businesses that provide food, clothing, shelter, and other services to the workers that hold these jobs. Secondary impacts refer to the sum of the direct and indirect impacts. Other secondary impacts may include changes in population and business location patterns, land use and land value patterns, and government costs and revenues.

II.4 ECONOMIC COSTS

II.4.1 Cost of construction, rehabilitation, travel and vehicle operating

Building a road means it is spent to make it ready for the users. A benefit/cost assessment of a proposed highway improvement involves comparing the entire stream of benefits resulting from the project over a specific period of years with the entire stream of costs over the same period. These costs and benefits include the following:

There are two elements in considering the cost in a highway. To construct and maintain during and after is been ready for the users. Capital costs for construction of the highway, including roadway, bridge construction or removal, grade separations, interchanges, maintenance of traffic during construction, and right of way acquisition; and operations and maintenance costs once the highway is completed.

a) Construction Impact

The one-time impacts of highway construction can be substantial in the short-term, but generally are removed when the project is completed. Excluding the construction impact from the analysis reflects the viewpoint that highway investment should be pursued as a strategy for addressing transportation or long-term economic development needs, and not as a tactic for short-term job creation.

Impacts of Partial Operation – Any user benefits derived from the operation of segments of the highway prior to completion of the entire project were excluded in this analysis. Conversely, any temporary increase in user costs resulting from motorist inconvenience or traffic detours during construction were excluded from the analysis.

Maintenance and Operation Impact – Maintaining and operating a highway can have a modest economic impact because of the need to hire additional public sector staff or purchase goods and services. This impact generally is minor. Financing Impact – Financing the highway improvements can have economic costs. Generally, it can be assumed that
major corridor improvements would be financed largely through federal-aid funding, which taps into an existing pool of funds.

b) Vehicle Operating Cost Changes

Vehicle operating costs include fuel, tires, lubricants, maintenance, and depreciation. Every automobile or truck has an operating speed at which the cost of operation is optimal. At speeds higher than this optimal speed, operating efficiency declines and operating costs rise. Increases in highway speeds therefore can result in increased costs to a region due to the higher operating costs incurred by both automobiles and trucks. Vehicle operating characteristics have changed dramatically over the past few decades due to improvements in vehicle technology and design. Increases in operating efficiency and optimal speeds for vehicle in future decades could reduce the magnitude of operating costs.

II.5 NATURAL CONSEQUENCES

II.5.1 Global warming

Transport is the worst performing sector under ‘Kyoto’ protocol. Transport CO2 emissions in the EU grew by 32% between 1990 and 2005. Other sectors reduced their emissions by 9.5% on average over the same period. The share of transport in CO2 emissions was 21% in 1990, but by 2005 this had grown to 27%. Emissions from so-called ‘light duty vehicles’ (passenger cars and vans) are responsible for approximately half of this. In any case, the population of personal vehicles will remain very large. In the United States it will likely grow from about 200 to about 300 million during the 21st century, as the number of Americans heads for 400 million. Environmentally, the one-license one-car equation means that each car on average must be very clean. Incremental efficiency gains to internal combustion engines will not suffice.

[…] The link between energy and transport issues will remain a central concern for the section […]17 (European Economic and Social Committee. 2007)

[…]As a consequence, CO2 emissions from transport are expected to grow less than energy use (20% versus 28% from 2005 to 2030).

17 (European Economic and Social Committee. 2007) Section Ten-Transport – Presentation.
These results reflect ongoing climate change policies but also the accession of new Member-States […] (European Commission, 2008)

The alternative of three hundred million large batteries made with poisonous metals such as lead or cadmium also poses materials recycling and disposal problems. The obvious answer is the zero-emission fuel cell, where compressed hydrogen gas mixes with oxygen from the air to give off electric current in a low-temperature chemical reaction that also makes water. If refining is directed to the making of hydrogen, its cost should resemble that of gasoline. Moreover, the electrochemical process of the fuel cell is potentially 20%-30% more efficient than the thermodynamic process of today's engines, efficiency in line to be attained by the middle of the next century (Gilbert, R., Perl, A. 2007).

[…] What these diverse transport modes have in common is their use of one form or another or processed crude oil: the bunker oil used in ships, petrol (gasoline), diesel fuel, jet kerosene and others. Oil products fuel more than 95 percent of the entire world’s transport. Without a steady flow of this energy source, all the motorized mobility visible in, around and above Burrard Inlet would come to a halt. […] Gilbert, R., Perl, A. (2007).

Referring to the EC statistics the demand of inland energy request will be dominated by transport sector. Increasing consumption for transportation purposes went up by 0.41% per year between 1990 and 2005. The increasing specialisation in transport and petrochemicals plus the increasing activity in these sectors is projected to drive further increase of oil requirements, albeit at a slower pace than in the past 0.25% per year between 2005 and 2030. The Baseline scenario shows that oil will continue to be the largest source of energy, maintaining a share above 35% in Inland.

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![Inland Energy consumption graph](image)

Total CO2 emissions by the transport sector in the EU+27 measured around 1,062 million tonnes in 2005. Total CO2 emissions by the transport sector are believed to arrive at approximately 1,104 million tonnes in 2010 and 1,157 million tonnes in 2025. The European Added Value concept is believed to produce the largest decrease of CO2 which corresponds to 15% of the total expected growth of CO2 emissions by the transport sector in the same period. (Ecorys Transport, 2007)

Transport consumes about one-third of all energy in a country such as the United States. And transport emissions strongly influence air quality. Kudat, A. (2002)

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20 Ex ante evaluation of the TEN-T Multi Annual Programme 2007-2013. Nethearland
PART THREE

III. SUSTAINABLE DEVELOPMENT AND TRANSPORT

III.1 SUSTAINABLE DEVELOPMENT CONCEPT

Sustainability is running to be the most ambitions word articulated in vocabulary of political and governmental elites, as well as among the society. Even Europe hasn’t been in vanguard of this process, has declared that at the present and future perspective the overall strategy of EC will focus in achieving the definition of Sustainable Transport, in approaching a safe, efficient and affordable transportation system that meets society’s need for environmentally sustainable transportation. (*European Transport Policy for 2010-time to decide*)

The definition of Canadian Centre for Sustainable Transportation, which has formulated a common accepted concept on sustainable transport, is brought as an example as regard to sustainable transport concept.

Although there is no single commonly held definition of sustainable transportation, for the most scientific thoughts the concept means that the transportation system, and transportation activity in general, must be sustainable on three counts: economic, environmental and social.¹ (Gilbert, R. 2005)

*a)The definition*

According to scientific arguments there are three principles to be considered in defining a sustainable development

- social principles (safety and health, access and choice, quality of life)
- economic principles (efficiency, cost internalization, affordability)
- environmental principles (pollution prevention, protection and conservation, and environmental stewardship)

There are also some management principles such as leadership and integration, precautionary principle, consultation and public participation, accountability, etc. (Salin .M 2005)

¹ Centre for Sustainable Transportation Defining Sustainable Transportation, Canada
b) The principles

The world’s best examples vision of a sustainable transportation system is guided by the following principles:

– highest practicable safety and security of life and property;
– efficient movement of people and goods to support economic prosperity and a sustainable quality of life;
– respect for the environmental legacy of future citizens generations;
– user pricing that better reflects the full costs of transportation activity and transportation infrastructure decisions that meet user needs;
– reasonable access to the national transportation system by EU’s remote regions;
– accessibility in the national network without undue obstacles for persons with disabilities;
– coordinated and harmonized actions across all modes of transport; and, partnerships and collaboration among governments and with the private sector for an integrated, coherent transportation policy framework.

III.2 SUSTAINABLE TRANSPORT

Experience suggests that an environmentally sustainable transport system is one that allows generally accepted objectives for health and environmental quality to be meet.

Some criteria as regard to this are defined by the World Health Organization (WHO):

According to these criteria a sustainable transport must be consistent with ecosystem integrity, for example, it does not contribute to ascendances of critical loads and levels as defined by (WHO) for acidification, and ground-level ozone and does not result in worsening of adverse global phenomena such as climate change and stratospheric ozone depletion.

A sustainable transport system, allows the basic access and development needs of individuals, companies and societies to be met safely and in a manner consistent with human and ecosystem health, and promotes equity within and between successive generations, is affordable, operates fairly and efficiently, offers choice of transport mode, and supports a competitive economy, as well as balanced regional development.

The sustainable development of transport activity limits emissions and waste within the planet's ability to absorb them, uses renewable resources at or below their rates of generation, and, uses non-renewable resources at or below the rates of development of
renewable substitutes while minimising the impact on the use of land and the generation of noise.

The above mentioned definitions and concepts are broadly accepted in global level. The advanced literature, in USA, Canada, Europe, Japan, Australia, etc use to define nearly the same definition for sustainable transport and sustainable developments, too.

The question addressed, is whether transport along Corridor Eight might receive greater benefit from embracing a formal definition of sustainable transportation than from relying on the above vision and principles?

\textit{a) Green Corridors}

Following the definition on sustainable transport the “green corridors” are concrete action of society in implementing sustainable transport. What are “green corridors”? A number of recreational plans and studies produced in recent years would suggest that the green corridors or green way concept has been widely adapted by landscape designers and planners. They can be considered as traffic free recreational route ways and as local open spaces. Another approach has been to plan open space as part of wider systems of green corridors which link open space by means of footpaths, cycleway and bridle paths.

There are considerable current interests in the green corridor as a planning concept even though there are a number of problems of definition. Several terms are used to convey the idea of open space in a linear front. Terms such as green way”, “recreational corridor or “parkway” have also been used to describe landscape features.

Arguments advanced for the creation if “green corridors”

Green corridors are considered as linear route ways comprise environmental open space where people can be free to move without aggravation from noise, pollution, danger or other harmful side-effects. In other words corridors routes can offer an escape from the harshness of the urban environment. Turner records that “\textit{even if an individual uses only a small part of the network, he gains access to a system and knows that he can use of all its parts}” (Turner 1987)\(^2\)

Green corridors have been identified, also, for their function in helping to shape particular forms of urban design (Heckscher, 1977)\(^3\)

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In the planning and development of urban growth in cities in western and central Europe “green corridors” has been proposed as a means of reducing or dispersing air pollution. (Hough, 1984)

It has been argued that green corridors can help serve a wide range of recreational facilities, of ring road access at convenient points with car, parks and toilet facilities from which walk ways lead to other objectives such as picnic sites, public open space and woods (Appleton, 1970) Appleton notes that designers can incorporate public transport provisions and allow walkers to walk along a route without having to retrace their steps.

Fourth, a further function of corridors routes identified in studies has been their value in providing a frame work with in which to plan programmes for industrial and environmental improvement in urban areas (Greater Manchester Council, 1983):. In rural areas, linear route ways have again been seen as foci for achieving conservation objectives and guiding planning activities. (Carlson Et Al., 1989)

Fifth, studies of disused railways lines and canals have also placed considerable value on the ways in which these linear routes afford easy access between town and countryside (Dower, 1963)

Linear rotes can be value in particular, for users for whom movement itself is an important part of the leisure experience notably walking, cycling riding and jogging (Turner, 1987). It is of interest that these are activities which are experiencing increases in participation at the present time (Office of population Censuses and Surveys, 1989)

This spatial planed area can also be considered I relation to the notion of “edge”, a measure used by recreational designers to alter the perimeter of a site and thus increase or decrease the capacity of recreational cities. (Beazley, 1969; Heytze, 1975) Linear open space provide long edges and offer a close relationship between build up areas and open space (Whyte, 1968).

Green corridors can be expensive to maintain with more conventionally shaped parks of similar area (Cooper and Hull, 1978). Wirral linear country park in “Cheshire in Northwest England has an area of 72 hectares, equivalent perhaps to a large urban park. However, its extensive perimeter of over 38 km, gives rise to quite clear liabilities in respects of maintenance particularly fencing.

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5 Greater Manchester Council (1983), Medlock Valley Local Plan. The Council, Manchester
7 Heytze, J. (1975), The field experiment in open air recreation research. State Forest Service, Netherlands: pp 7
Corridor routes can be vulnerable to land use changes and their continuity can easily be broken by development for roads housing, industry or light rapid transit schemes (Cooper and Hull, 1979).

Examinations of the history of parkway systems in American cities record how the original vision of such routes was lost to highway and commercial developments (Heckscher, 1977).

*b) Spatial planning along Corridors Area*

Spatial planning along Corridor areas is one of the most important challenges to be achieved by the stakeholder implementers both in trans-border, cross-border and national level.

Due to a clear conceptual spatial planning project along Corridors, there can be an effective implementation of social and economical infrastructure in the area. Two sides of corridor areas are the most cost effective places to develop industrial factories and other economic activities. As a consequence new towns quarters, schools, business construction, hospitals, and services will be build, also along corridor areas.

Because of various reasons including, historical, cultural, economical, political and administrative, states where corridors passes are divided into regions, sub-regions and even smaller urbanized areas to conduct everyday activities easier.

As the political and economic integration of the EU’s member states have deepen up since 1960s, the EU has increasingly been faced with the dilemma of spatial constraints that prevent successful implementation of various socioeconomic policies.

Thus, the enlargement of the EU can have dramatics impact on the fibber of the European territory, especially at the internal and external border regions: There are reasons to emphasise that conclusion:

The most ex- national and regional borders corresponding to previous administrative, economic and political realities of specific nations have lost their meanings in the face of new territorial and political requirements of the union. A new political and economic system, namely the EU, which has been increasing in territorial terms, necessitates the elimination of many previous national and regional boundaries at least in psychological and institutional terms in order to apply and spatially harmonize various policy instruments to a common European space.

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For example, custom duties, taxes, and exchange rates could not vary based on some national or regional territories, as it would lead to differences in spatial advantages or disadvantages. The Corridor area requires some common political and administrative intuitions to organize on the geographical basis of the whole territory.

The integration, and thus the creation of a common market, also needs harmonization and reconfiguration of the Corridor territory in order to reduce spatial interaction costs and achieve a balanced sustainable economic growth all over the common space.

The reduction and elimination of spatial barriers in the union’s territory was also perceived as a primary objective toward development of a competitive European Economic Space in an increasingly globalizing world market.

In the case of a spatial planning along side corridors of transport passing through EU and non-EU territory countries, like Corridor Eight for example, specific actions must be undertaken: There is a different legislative frame in order to implement projects in spatial areas.

There are different fiscal and other financial obligations, also, while there are different levels of freedoms for peoples and goods, as well as.

Spatial planning along Corridors of transport generate effectiveness toward economic growth and benefits social outputs, while a rational strategic planning in trans-border level is required to achieve this challenge labour, capital, and money that make up basic units of market economy move through space.

The spatial organization along corridor areas is not merely a reflection of human and financial capital accumulation as shown by different organization. Space varies from place to place and from time to time. This implies that the space is also socially produced. In short, reconfiguration of space should be viewed as an active moment within temporal dynamics of accumulation and social reproduction.

The explosion of knowledge and its impacts on reduction and human relations has given a new meaning to space and cities as invention, production, and play fields.

There is a dialectical interaction process that arises between space and place-embedded social relations. Once determined by place embedded social relations, however, the space can no longer be reduced to these social relations. As a result, the space affects the future development of the social relations. The human resources, or the society in a broader point of view, concentrated, settled along habitat centres along corridors of transport create a new profile a mixture, a social interaction between different groups, the traditional and the new comes.
A particular evident case in an Albanian area is about to be referred. There is very particular social behaviour there, the Kanun. 9 The Corridors expected to be built in that area will create very new social relations.

Since 1960s a new form of space accompanied by a new kind of urbanism has been created at a global scale. This new space relies on modern transport and telecommunication technologies such as motorways and airplanes and creation and destruction of suburbs, peripheries and historic centres over time.

At times, however, it may also become an impediment because a built-environment is fixed, it is a vast humanly created resource system, comprising use values embedded in the physical landscape, which can be utilized for production, Exchange and consumption from this perspective, the built environment does not only allow the acceleration of the resources, offer places to invest and reproduce labour force, but also “it provides the capital with a spatial fix to both deal with crisis of cycles very common in the capitalism and issues of surplus and underinvestment”

As the capital circulates through the land uses along Corridor areas, it fashion the spatial organization that inevitably creates contradictions.

From this point of view, urban corridor areas can be viewed as a creature of the spatial concentration of social surplus product that the mode of economic integration has to produce and concentrate. It is the output created by social productivity and spatial organisation of the society.

Corridors of transport in trans-national level will afford the current flexible production system led by hyper mobile capital requires removal of the previous nation-state’s political boundaries in order to combine different place-embedded socioeconomic forms in a most profitable way.

The space of the production has undergone significant changes in last decades. The most noticeable of these is the shift of the auto assembling activities from developed regions of the EU to the periphery regions in new members, or from the metropolitan areas of Tirana to peripheries of Tirana and Durres if we bring in account the Albanian reality. Corridors of transport bring relocations of investments and services in spatial point of view. Through this relocation the investors can reduce the power of the labour, as they move more freely across space and thus force local communities to compete with each other for investment.

9 The Kanun or formally the Kanuni i Lekë Dukagjinit (The Code of Lekë Dukagjini) is a set of laws developed by Lekë Dukagjini and used mostly in northern Albania and Kosovo from the 15th century until the 20th century and revived recently after the fall of the communist regime in the early 1990s.
Through advanced technologies and mobility of the capital give companies the ability to develop spatial strategies simultaneously utilized to reduce the power of the labour against the capital and to foster conflict between labours in different places.

In sum, a spatial approach provides new insights in many contexts and thus can help us to better understand spatial factors affecting the EU’s integration and social cohesion for several reasons:

Corridors of transport in the context of a whole spatial territory through GIS technology as a location can determine conditions, context, and causes of activities, analyse spatial proximity indicates similarity of conditions, context, and causes may also act as a surrogate for interaction.

### III.3 TRANSPORT ENERGY AND CLIMATE CHANGE

#### III.3.1 Energy consumption

*Transport and Climate change*

Society, environment and economy, are the most significant reasons, to think for better strategies in achieving energy demand for our present and the future.

Activity on transport sector matters for the human environment. (Marchetti, C 1981) Its performance characteristics shape settlement patterns. Its infrastructures transform the landscape. It consumes about one-third of all energy in a country such as the United States. And transport emissions strongly influence air quality. Reasonably, people wonder whether we have a chance for 'green mobility', transport systems embedded in the environment so as to impose minimal disturbance. (Marchetti, C 1981) Climate change is one of the biggest challenges facing mankind in the coming years. Rising temperatures, melting glaciers and increasingly frequent droughts and flooding are all evidence that climate change is really happening. The risks for the whole planet and for future generations are colossal and we need to take urgent action, to prevent an uncontrolled mass flow of people from warmest part of the globe, and a biological turbulence on their survive.

---

10 “Society as a learning system: Discovery, Invention, and innovation cycles revisited” Pr. 81-29 Lanexburg Austria
Emissions caused by energy consumptions dictates our daily life and effects of air pollution range from minor irritation of eyes and upper respiratory system to chronic respiratory disease, heart disease and, lung cancer. For example, air pollution has been shown to aggravate the frequency and severity of asthma attacks. Both short-term and long-term exposures have also been linked with premature mortality and reduced life span. 

We have to bring in attention also that indicators for the future global warming as result of transport are tremendous. Official source of EU suggests as it follows:

The Baseline CO2 emission increase of 206 million tons CO2 between 1990 and 2000 is mainly due to transport (+403 million tons) and power generation (+84 million tons). CO2 from industry plummeted in the 1990s (-164 million tons) and are expected to stay at this low level up to 2030. Emissions are forecast to remain below the 1990 level in the other sectors (e.g. services, households) due to fuel switching to gas especially electricity, for which the CO2 emissions are accounted under power generation(…]) (European Commission, 2008)\textsuperscript{11}

III.3.2 Transport a big energy consumer

Official source suggest transport as a big energy consumer:

Final energy consumption for transport and stationary purposes (e.g. in industry and households) increases by 20.5% from 2005 to 2030(…] (European Commission, 2008)\textsuperscript{11}

To afford the threatening it has been argued for a long time that it is necessary to exploit the potential of each transport mode in order to develop an efficient and environmentally sustainable transport system, including urban transport.

\textsuperscript{11} European Energy and Transport, Trends to 2030. Official Publication of the EC. Luxemburg: pp 12-15, 23
Sustainable development means a coherent and unified approach with regard to each transport sector. That is why, for example, the examination of the Green Paper on Maritime Policy has been taken place in close cooperation with issues of Agriculture, Rural Development and Environment (NAT).12

On the following lines through Gilbert description we can read the Canadian society perception towards the sustainable developments:
Most of the buses un sight are trolley buses, which have electric motors powered through overhead wires rather than the internal combustion engines that propel the world’s much more numerous fleet of diesel-fuelled buses. The trolley buses move almost silently through Vancouver’s streets, responsible for essentially no pollution in the city and little elsewhere because most of Vancouver’s electricity is generated from falling water[…].

Many of these trolley buses are old, in service for 25 years or more, and for the most part rely on technology developed in the century before last. Nevertheless, and for the most part rely on technology developed in the century before last. Nevertheless, they are popular, and TransLink, the regional transport authority, is upgrading the fleet with 228 state-of-the-art trolley buses purchased from a Winnipeg manufacturer and powered by German propulsion technology[…].Gilbert,R.,Perl,A, (2007)13

Tirana and Durres in a near future will promise strong feasible reality, to any of investors aiming at friendly environmental technology.

---

12 European Economic and Social Committee. (2007). Section Ten-Transport
Population and Energy consumption

Policy makers and scientist has defined two of the most significant technological revolutions of the recent century: electrification of energy economy and the rise of automotive transportation exemplifying the massive change in lifestyle due to the growth in fossil energy supplies. Completing the energy transformation that began a century ago requires shifting from fossil fuels to sustainable energy systems. This transformation demands the development of energy systems capable of manufacturing energy carriers directly from renewable energy resources, avoiding the detour through fossil fuels. Since 1950 there has been more than a doubling of the world's population, but the global economy has increased 6-fold from $6 trillion to $37 trillion. The population growth has been responsible for roughly half of the growth in global demand for goods and services since 1950. The other half has been raising affluence of the major nations. (Lester R. Brown 1999)

Reality suggests that the global economy, as now structured, is outgrowing the Earth's ecosystem. While the end sees the signs of this stress on the ecosystem due to our large fossil energy consumption. Human activity is collapsing fisheries, rising temperatures, more destructive storms, eroding soils, shrinking forests, disappearing species and falling water tables. One can go on down the list. These are all manifestations of increasing stress from a global economy that does not control eco-system equilibrium. The U.S. has 8% of the world's population, yet consumes over 25% of the world's energy supply to maintain its life style.

III.3.3 Climate change as result of transport energy consumption

Transport Sector and Environment

The transport sector is one of the most important sectors of energy consumption and environmental emissions. The transport sector is the largest consumer of oil products in the EU energy system, consuming almost 60% of total oil product deliveries to final consumers, including feedstock to petrochemicals. This share was 52.7% in 1990 and is projected to attain 64.4% in 2030.

The nearly complete dependence of the sector on oil products generates two sorts of concerns: security of oil supply with rising needs for transportation; and worries about climate change combined with longer standing problems of congestion, noise and urban pollution. The transport sector is the largest consumer of oil products in the EU energy system, consuming almost 60% of total oil product deliveries to final consumers, including feedstock to petrochemicals. This share was 52.7% in 1990 and is projected to attain 64.4% in 2030.

The urgency of the energy predicament of industrialised and other countries is well established (Bentley, 2002, Hirsch, 2005). Indeed without wanting to discount the concern about potential climate change, it should be suggested that imminent energy constraints could present more immediate challenges to the survival of all global civilisations.

Fuel combustion from automobiles and power plants is the primary source of large numbers of the health and crop-damaging and global warming air pollutants. Oil alone is responsible for smog, nitrogen oxides, sulphur oxides, and harmful Volatile Organic Compounds (VOCs). That kind of urban air pollution is indirectly responsible for killing an estimated 310,000 Europeans and 50,000 Americans each year. (Air Pollution-Deaths” (2005), “Wikipedia”) It must be added to this the regional and global destruction of forests, crops and fish by acid rain. For example, over 50% of the Black Forest in Germany is denuded and the soil pH is so acidic from the acid rain and VOCs that it will not support new saplings. (V, Mishra 2003) Further more, green-house gases and their global warming consequence are causing harsh droughts, devastating floods and decline in crop yield.

To be more concrete on health effects of air pollution range from minor irritation of eyes and upper respiratory system to chronic respiratory disease, heart disease and, lung cancer. For example, air pollution has been shown to aggravate the frequency and severity of asthma attacks. Both short-term and long-term exposures have also been linked with premature mortality and reduced life span. (V, Mishra 2003) A survey has shown that 60% of the tourists in Costa Rica (San Jose) have no desire to return due to high levels of air pollution. The "San Jose flu" is the nickname given for a sore throat due to air pollution. There is a major international effort being initiated to assist Costa Rica in making a rapid transition to the Solar-Hydrogen Economy. (V, Mishra 2003)
III.4 EU POLICY ON REDUCTING GAS EMISSIONS

III.4.1 Legislation and regulations to reduce transport gas emission

A lot of arguments demonstrate that society has to afford the global oil use in growing. Assuming a modest 2% annual growth for global oil consumption, half the actual growth rate experienced during the 20th century, the world will consume more oil during the next twenty years than it has consumed throughout history. Moreover, should countries with minimal automotive infrastructure expand their use of gasoline-burning automobiles; international competition for oil will become intense. In China, for example, there is one car for every 652 people; in the United States, there is one car for every 1.5 people. Viewed another way, the United States has 19 million more vehicles than registered drivers. If China or other developing nations seriously enter the competition for oil, global oil demand would soon far exceed production capacity.  *(World Motor Vehicle Data: 1996)*

According to the International Energy Agency, oil consumption, is projected to increase by 41 % between 2004 and 2030*(IEA, 2005)*, from 82.1 to 115.4 million barrels/day *(mb/d)* shows how most of the supply required to meet such increased demand -and replace currently depleting resources -is expected to come from OPEC countries in the Middle -East, where production would have to increase by 93% between 2004-2030. Of these increase by far the largest part (77%) is to come from Iraq, Iran, and Saudi Arabia.

Dependence on transportation on oil is moderated by the penetration of bio fuels in road transport. The share of bio fuels in liquid fuels consumed for road transportation accounted for only 0.2% in 2000 , but increased to 1.1% in 2005 and is projected to attain 9.5% in 2030 (7.4% in 2020).

![Chart showing road freight and passenger transport trends](chart.png)
a) Regulating CO2 emissions of transport activity

As the figures point out, the final energy consumption for transport and stationary purposes (e.g. in industry and households) increases by 20.5% from 2005 to 2030 and that while Final energy demand grows most in transport, followed by the services sector with robust growth also in industry (European Energy and Transport –Trends to 2030–update 2007).

It is very curiosity if we value the tendency in energy use and percentage of energy consumption because of the transport activity. After 2005-2010 there is a slow down of renewable energy source for transport activity.

The graphs illustrating here down:

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</thead>
<tbody>
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<td>Gasoline</td>
<td>-0.3</td>
<td>-2.8</td>
<td>-0.4</td>
<td>-0.2</td>
<td>-0.3</td>
</tr>
<tr>
<td>Diesel</td>
<td>4.0</td>
<td>4.2</td>
<td>1.4</td>
<td>1.0</td>
<td>0.4</td>
</tr>
<tr>
<td>LPG</td>
<td>3.0</td>
<td>4.5</td>
<td>4.6</td>
<td>1.9</td>
<td>0.8</td>
</tr>
<tr>
<td>Biofuels</td>
<td>38.7</td>
<td>30.9</td>
<td>7.7</td>
<td>2.8</td>
<td></td>
</tr>
<tr>
<td>Gas</td>
<td>5.3</td>
<td>7.1</td>
<td>5.0</td>
<td>3.2</td>
<td>2.0</td>
</tr>
<tr>
<td>Electricity</td>
<td></td>
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<td>12.8</td>
<td>5.1</td>
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</table>

| Total Road        | 1.8       | 1.3       | 1.3       | 1.0       | 0.4       |

<table>
<thead>
<tr>
<th>shares in %</th>
<th>1990</th>
<th>2005</th>
<th>2010</th>
<th>2020</th>
<th>2030</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gasoline</td>
<td>57.7</td>
<td>38.4</td>
<td>35.2</td>
<td>31.4</td>
<td>29.3</td>
</tr>
<tr>
<td>Diesel</td>
<td>41.1</td>
<td>58.8</td>
<td>58.9</td>
<td>58.9</td>
<td>58.9</td>
</tr>
<tr>
<td>LPG</td>
<td>1.2</td>
<td>1.5</td>
<td>1.8</td>
<td>2.0</td>
<td>2.1</td>
</tr>
<tr>
<td>Biofuels</td>
<td>0.0</td>
<td>1.1</td>
<td>3.9</td>
<td>7.4</td>
<td>9.4</td>
</tr>
<tr>
<td>Gas</td>
<td>0.1</td>
<td>0.2</td>
<td>0.2</td>
<td>0.3</td>
<td>0.3</td>
</tr>
<tr>
<td>Electricity</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
</tbody>
</table>

Still under the same source transport energy demand in 2030 is projected to be 28% higher than in 2005. After having seen very high growth rates in the 1990s, the increase of energy use for transportation decelerates. In the perspective period, transport energy demand growth rates decline over time. This reflects the decreasing growth rates over time of both passenger and freight transport activity. In addition, there are fuel efficiency improvements in particular in passenger transport (e.g. private cars). Therefore, energy demand in transport grows less than transport activity (in passenger- and tone/km). However, the assumption that the car industry would deliver on the CO2 targets for new cars by 2008/09 had to be dropped and therefore fuel efficiency. There will be good signals for reducing
CO2 emission somewhat less than expected a few years ago. The bio-fuels share in 2010 rises strongly to almost 4% - however, falling somewhat short of the indicative target of 5.75%. Nevertheless, this target would be met in 2015 and the share continues increasing up to 2030 to reach 9.5%. As a consequence, CO2 emissions from transport are expected to grow less than energy use 20% versus 28% from 2005 to 2030. (European Energy and Transport -Trends to 2030-update 2007)

For several years the European Union has been committed to tackling climate change both internally and internationally and has placed it high on the EU agenda, as reflected in European climate change policy. Indeed, the EU is taking action to curb greenhouse gas emissions in all its areas of activity in a bid to achieve the following objectives: consuming less-polluting energy more efficiently, creating cleaner and more balanced transport options, making companies more environmentally responsible without compromising their competitiveness, ensuring environmentally friendly land-use planning and agriculture and creating conditions conducive to research and innovation.

The White Paper revised will make a significant contribution towards reducing the impact of transport on climate change. Achieving this objective will require, in particular, better management of freight transport and the harnessing of technology.

Here is the forecasted Energy Demand by Sector till 2030

In February 2007 the European Commission published a review of the EU strategy on reducing carbon dioxide emissions (CO2) from new cars. The European Union is committed under the Kyoto Protocol to reduce greenhouse gas emissions by 8% per cent by 2008-2012 compared to the 1990 level. In March 2007 EU leaders committed to a 20-30% reduction in greenhouse gas emissions overall by 2020.

What countries in integration process like Albania and Macedonia will proceed to touch EU standards, as regard to climate change policy?

Renewable energy and new technologies reducing gas emission will bring significant improvements in the area.

The mainly renewable energy resource to produce energy consists on:

Water, (turbine or electrolyse), solar and solar water combination, wind offshore (on/off shore) biomass, thermal, waste treatment, etc.

According to the EC statistical data the electricity production results as it is presented here down:

\[ \text{Source: Capacity of renewable energy in GW Source} \]

\[ b) \text{ What is EU Policy on CO2 emission?} \]

All the countries along Corridor Eight want to be institutional part of EU. Italy, Greece, Bulgaria are already part of EU. Other countries such as Albania, Macedonia, and Turkey are looking forward to be part of Europe. EU policy aims to ensure a balanced and sustainable development for both the EU and its neighbors. Regional and intraregional cooperation is an important component of this policy framework.

The need to better connect the transport networks of the EU with its neighboring countries, is set as a clear priority in the process of integrating the neighboring countries into the EU markets and society. This requires compatible and interconnected infrastructure networks
as well as harmonized regulatory environments. The EU policy clearly states that trans-European networks and policy makers in governments along corridors should draw up strategies towards reaching this objective.

EU Policy also sets out concretely how the EU proposes to work with the neighboring countries and in the development on transport sector and especially on transport infrastructure, the existing exercises such as the Pan-European Corridors or the Euro-Mediterranean transport network form the basis from which to move forward.

It lies on the own responsibilities of governments and policy makers in the countries along the Pan European corridors of transports and communications to follow the standards of EU in these areas. The EU target to reduce average new car emissions to 120 g/km was first proposed by Germany at a meeting of European environment ministers in October 1994. The 120g/km target was formally announced in a European Commission communication in 1995. The target has now been postponed three times. Originally the target date was set for 2005. The 1996 Council Conclusions introduced the term ‘by 2005, or 2010 at the latest.

At the spring meeting of the European Council in 2007 undertook a fundamental consolidation of its aims in governance and policy for climate change, covering international cooperation, domestic objectives and energy policy.

At this meeting, the European Council recognised the vital importance of limit worldwide greenhouse gas emissions to an amount that would restrict global temperature increase to 2°C compared to pre-industrial levels (The Council affirmed that developed countries should take the lead by committing to collectively reducing their emissions of greenhouse gases in the order of 30% by 2020 compared to 1990, with intent to reduce emissions by 60% to 80% by 2050 (The way ahead for 2020 and beyond, COM(2007)2, 10.1.2007 )

It was recognised that the EU should have a leading role in seeking workable forms of international governance for climate protection. It rightly saw a need for a global and comprehensive post-2012 agreement, to build upon the Kyoto Protocol. It specified the essential elements of such agreement as: Sensibility of the citizens, regulation, functioning of the market, etc. The Council recognised that the EU should have a leading role in seeking workable forms of international governance for climate protection. It rightly saw a need for a global and comprehensive post-2012 agreement, to build upon the Kyoto Protocol. It specified the essential elements of such agreement as: The Council endorsed an EU objective of a 30% reduction by 2020 if other developed countries to commit themselves to comparable emission reductions and economically more advanced
developing countries contribute adequately according to their responsibilities and capabilities. It invited proposals from these countries for their contributions to the post-2012 agreement. In any case, it set a firm independent goal to cut greenhouse gas emissions within the EU by 20 percent by 2020 in relation to 1990 levels. In 2007 accounts for 80% of all greenhouse gas (GHG) emission in the EU, reducing energy use is fundamental to managing climate change. Current energy and transport policies would mean that CO2 emissions in the EU would increase by around 5% by 2030 and global emissions would rise by 55%.

The 120 g/km target represents a 35% reduction over 1995 levels. As CO2 is directly linked to fuel consumption, we can say that the 120 g/km target corresponds to a fuel consumption of 5 litres per 100 km for petrol cars and 4.5 litres per 100 km for diesel cars. In 1998 the European Automobile Manufacturers Association (ACEA) committed to the EU to reduce the average CO2 emissions from new cars sold in the EU to 140 g/km by 2008. This is a reduction of 25% over 1995 levels, and equivalent to a fuel consumption of 6.0 litres per 100 km for petrol cars and 5.3 litres for diesel cars.

Regulating the fuel consumption and CO2 emissions of new cars is the single most effective policy measure the EU can take to simultaneously tackle climate change, reduce dependence on oil, and to spur investment in low carbon car technologies in Europe and elsewhere 120g by 2012. The deadline for reaching 120g has already been postponed twice, first to 2010, then to 2012. Recent research shows that if all cars on the market were equivalent to today’s ‘state of the art’, CO2 emissions would already be 20-25% lower than today even without car engine downsizing, or a move to hybrid technology.

Long-term targets for 2020 and 2025 are necessary to give the industry a long-term perspective for the development of more fuel efficient cars. 80g CO2 /km is needed by 2020 and 60g by 2025 in order to be consistent with scenarios to reduce CO2 emissions by 30% by 2020 and 60-80% by 2050. EU policy makers believe that Europe should have a fleet average standard for all cars sold in a given year, without distinction between classes of car. If however some differentiation on utility parameter should be allowed then the parameter should be a car’s footprint (track width multiplied by wheelbase), not its weight. The use of vehicle weight as parameter would lead to more fatal accidents, to higher emissions, higher costs and reduce the incentive to reduce weight, which is one of the most important ways of cutting CO2. The expert of areas define CO2 standards on the basis of footprint, as used in the definition of new US light truck fuel economy standards, is the best available alternative.
A robust compliance regime is essential for the functioning of legislation on CO2 and cars. Penalties should be high enough to ensure that carmakers really comply with the targets instead of just paying the penalty. Sales of low emitting cars could offset those of high emitters but any excess CO2 over the target for the average car should be charged at €150 per g/km, per vehicle sold.

Sales of flex-fuel cars should not count towards energy-efficiency target investments in low carbon technology research and manufacturing will create employment in Europe. Additional costs to car buyers will be offset by savings on fuel and the resulting lower fuel prices. Overall, society and the economy will benefit considerably from legislation to reach 120g/km by 2012.

In order to have a further advancement to transport networks approach five major transnational axes were adopted by the High Level Group that contribute most to promoting international exchanges and traffic as well as to enabling regional cooperation and integration. The identification of these axes facilitates also the ordering of priorities and the establishment of consistency between national plans. All of the five axes comprise one or more branches reflecting the volumes of international traffic today and the forecast for 2020 and ensuring connectivity between the neighbouring regions and the trans-European networks of the EU.

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<td>1 Portugal</td>
<td>204</td>
<td>143</td>
<td>144</td>
<td>-0.5%</td>
</tr>
<tr>
<td>2 Italy</td>
<td>2,493</td>
<td>146</td>
<td>148</td>
<td>-1.8%</td>
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<tr>
<td>3 France</td>
<td>2,050</td>
<td>148</td>
<td>149</td>
<td>-0.3%</td>
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<td>4 Belgium</td>
<td>525</td>
<td>152</td>
<td>153</td>
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<tr>
<td>5 Spain</td>
<td>1,356</td>
<td>152</td>
<td>155</td>
<td>-1.5%</td>
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<td>6 Hungary</td>
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<td>9 Ireland</td>
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<td>12 Netherlands</td>
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<td>13 Greece</td>
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<tr>
<td>16 Lithuania</td>
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<td>17 Finland</td>
<td>123</td>
<td>176</td>
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</tr>
<tr>
<td>18 Sweden</td>
<td>300</td>
<td>180</td>
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</tr>
<tr>
<td>Average</td>
<td>14,213</td>
<td>158</td>
<td>160</td>
<td>-1.7%</td>
</tr>
</tbody>
</table>

CO2 figures of new cars sold in the 18 Member States, the percentage improvement made over the year 2007 (source: environment transport organisation)

Technical measures combined with financial support or restrictions are used as a precaution measurements aiming in co2 emission reduction. The weight of the cars, the
sped limits, and the contact surface of wheels, the length and other indicators are used in
considering this combined actions. (www.transportenvironment.org)

In EU level the overall aim of the infrastructure is to facilitate and stimulate freedom of
people’s movement and trade between the EU and the neighbouring countries through
efficient transport connections. These would in turn foster economic growth and regional
development. This can be achieved through the implementation of policy measures aiming
at improving the functioning of the transport systems, reducing journey times, transport
costs and congestion as well as making the transport network more sustainable. A
sustainable approach will realise the social dimension of corridor’s transport.

One downside to the boom in air transport has been the resulting increase in carbon
emissions. Although emissions from aviation account for only 3 per cent of total EU
greenhouse gas emissions, they have risen by around 90 per cent since 1990. This rise
contrasts with the reductions achieved by many other sectors in recent years. (EU in a
future world context, Gordon Adam) On current trends, the growth in emissions from
flights departing EU airports would cancel out about a quarter of the emissions reductions
that the EU has to achieve to meet its Kyoto targets.

By the late 2006, the Commission put forward a proposal for a directive to bring aviation
within the scope of the EU’s emissions trading scheme. Member-states should make every
effort to adopt the directive in time for it to come into force by 2011. Improvements in air
traffic management could also help to curb aviation emissions by reducing the incidence of
planes flying in holding patterns over crowded airports. But the air traffic control
modernisation programme that aims to do just this will not be operational until the middle
of the next decade. The plan recognizes the importance of changing transportation
behaviour. It also addresses education and training and emphasises the need for energy
efficiency issues to be treated globally through international partnerships. The Commission
will establish a Covenant of Mayors of the 20-30 most pioneering cities in Europe and will
propose an international agreement on energy efficiency.

Policy makers and governors in advanced societies clearly define sustainable transport
priorities in the governmental programs. German case is taken as a model. Here it is what
German society aims in achieving global target through transport policy programmes.
(Official source) Climate change is a global challenge and requires a global solution.
Greenhouse gas emissions have the same impact on the atmosphere whether they originate
in Washington, London or Beijing. To avoid dangerous climate change, emissions
ultimately must be reduced worldwide. An effective global strategy requires leadership by
the United States, and commitments and action by all the world’s major economies. Greenhouse gas (GHG) emissions, largely carbon dioxide (CO2) from the combustion of fossil fuels, have risen dramatically since the start of the industrial revolution. Globally, energy related CO2 emissions have risen 130-fold since 1850—from 200 million tons to 27 billion tons a year—and are projected to rise another 60 percent by 2030.

![Global Carbon CO2 Emissions 1850-2030](image)

Most of the world’s emissions come from a relatively small number of countries. The seven largest emitters—the United States, the European Union (EU), China, Russia, Japan, India and Canada—accounted for more than 70 percent of energy-related CO2 emissions in 2004. The United States, with 5 percent of the world’s population, is responsible for 20 percent of energy-related global emissions and 30 percent of cumulative emissions since 1850. (Cumulative emissions are an important measure because of the long-lasting nature of greenhouse gases in the atmosphere.)

![Tons of CO2 per person](image)

Among members of the Organization for Economic Cooperation and Development (OECD), the United States, the EU, and Japan are the three largest emitters (see figure).
absolute terms, the United States is by far the largest. On an intensity basis (emissions per gross domestic product or GDP), U.S. emissions are significantly higher than the EU’s and Japan’s. On a per capita basis, U.S. Emissions are rising fastest in developing countries. China’s emissions are projected to nearly double, and India’s increase an estimated 80 percent, by 2025.

All developing countries are projected to surpass those of developed countries between 2013 and 2018. However, the cumulative emissions of developing countries will not reach those of developed countries until several decades later. At the same time that overall emissions from developing countries are rising, their per capita emissions will remain much lower than those of developed countries. While China’s per capita emissions are expected to more than double by 2025, too slightly above the world average, they will still be just one-quarter those of the United States. Over the same period, India’s per capita emissions are expected to rise slightly, to about half the world average, and one-fourteenth.

### III.4.2 International actions on climate change

1992 United Nations Framework Convention on Climate Change negotiated and ratified by the United States 1995 and Berlin Mandate calls for emission targets for developed countries; 1997 Kyoto Protocol negotiated; 2001 U.S. rejects Kyoto Protocol, 2004, Russia ratifies Kyoto Protocol, meeting threshold for entry into force; 2005 Kyoto Protocol enters into force; Convention and Protocol parties open new talks on next steps those of the United States. International efforts to reduce global warming: Mature steeps are made to prevent carbon emission in trans-national and global level. In 1992 was held the United Nations Framework Convention on Climate Change, with long-term objective: stabilization
to “prevent dangerous anthropogenic interference with the climate system”, with the principle of “common but differentiated responsibilities” and voluntary target for industrialized countries, 1990 emission levels by 2000. Other steps were passed in Montreal 2005 open-ended negotiations under Kyoto to set post-2012 targets for developed countries two-year dialogue under Framework Convention on long-term cooperative action Nairobi 2006 -Review of Kyoto Protocol set for 2008 -Talk of a new negotiating “mandate” in 2007 EU ETS mandatory CO2 limits for 12,000 installation in six sectors across EU.

At the root of the best European initiative is the recognition that there are some issues that countries cannot take on independently. Inter-city infrastructure and movement, environmental pollution, ecological structures and open spaces, even urban development patterns are issues that can often be tackled more successfully (and perhaps sustainable) with some measure of international co-operation. (Hanle, R.2003 )

China Intensity goals: reduce energy intensity 20% by 2010 and 50% by 2020 – renewable target: 15% of primary energy and 20% of electricity by 2020 – Auto standards: 19-38 mpg in 2005; 21-43 mpg in 2008 India – Renewable goal: 10% of new generation by 2010 – Rural power goal: electrify 18,000 villages from biomass, small, wind, small hydro, etc. by 2012 national CO2 targets of 20% below 1990 by 2010, 60% below by 2050 Japan voluntary” agreements to reduce industrial GHGsto 1990 levels, electricity emissions 20% below, by 2010.

Climate Dialogue at Pocantico policy makers and stakeholders from 15 countries Argentina, Australia, Brazil, Canada, China, Germany, Japan, Malta, Mexico, Tuvalu, UK, US (Senate) - Stakeholders: Alcoa, BP, DuPont, Eskom, Exelon, Rio Tinto, Toyota; Pew Centre, TERI (India), World Economic Forum - Group’s report, released in November 2005 with Senators Lugar and Biden, recommends ideas and approaches for consideration by the broader policy community. It must stressed that climate change is inherently a global challenge; should be met with a global response UN Framework Convention establishes a foundation, and fundamental guiding principles, for a global approach.

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A post-2012 framework must, engage major economies -provide flexibility for different national strategies and circumstances -Integrate climate and development couple near-term action, long-term focus address adaptation needs -be viewed as fair. Advanced experiences in area of sustainable development governmental programs include also actions such as: Acceptability of an integrated transport system as regards economic, ecological and social sustainability, also in terms of the development, reconstruction and maintenance of transport infrastructure. Important integration effects resulting from the consolidation of transport infrastructure, regional planning, regulatory planning and technology. These particularly include low-traffic regional development, reduction of infrastructure requirements and the best possible usage of infrastructure capacities. Convergence of political areas such as regional planning and transport, with which integration effects can be enhanced, e.g. promotion of settlement development on important transport arteries, traffic-reducing settlement and location decisions, greater regional orientation, e.g. in the case of production and procurement requiring less traffic.

Creation of multi-modal networks and an improved interface infrastructure with which, e.g. inter-modal transport chains, market placement of inter-modal products such as "Rail and Fly" and the market establishment of modern logistical services can be created more efficient capacity utilisation throughout the entire transport infrastructure and the related optimisation of traffic flow thanks to integration effects.

The popular alternatives provided by Vancouver’s trolley but fleet and Skytrain system beg questions as to the roles electric traction could play in maintaining the mobility of the world challenged by declining oil production. (Gilbert,R.,Perl,A.2007)\textsuperscript{15}

Macroeconomic and social integration effects due to growth and employment stimuli from the transport sector; national economic effects arising from the reduction in environmental pressures and the consequences of accidents. Efficient information and control system is necessary to make the evaluation and a concrete steps by different institutional bodies in realising the road safety. (Gudmundsson 2003) Advanced practices in executive agencies have demonstrated to be effective in realising a traffic quality, touching this critical of sustainable transport.

\textsuperscript{15} Gilbert,R.,Perl,A.(2007) \textit{Transport Revolutions}. Toronto and Vancouver.
III. 5 RENEWABLE ENERGIES

III.5.1 Energy alternative and options

a) Energy options production

In 2005, the world produced 425 quad BTU ($10^{15}$ BTU) from petroleum (primary level), coal, natural gas, nuclear fission, and renewable sources (hydroelectric, biomass, geothermal, solar, and wind). This breaks down as follows: Petroleum 36.8%, Coal 25.2%, Natural gas 26%, Nuclear 7.5%, Renewable 3.6% (made up of hydroelectric 2.4%, biomass 0.17%, solar 0.60%, wind 0.03%, geothermal 0.43%). Source: (Energy Consumption by Source-2005", report International Energy Association)

Although biomass is a “renewable” it is also a carbon-based fuel that can be burned directly or converted into other carbon-based fuels such as ethanol to generate carbon dioxide, a greenhouse gas. One might argue that since the carbon dioxide came from a biomass that it would return to grow plants making it a zero balance on carbon dioxide. However, the atmospheric half-life of carbon dioxide is greater than two years yielding an impact on the total reservoir of atmospheric carbon dioxide. This leaves nuclear and the remaining renewable (hydroelectric, solar, wind, geothermal and tidal) as our only non-carbon energy options “Energy for a Sustainable Future”, Chemical a Nuclear Power In 1970s, there was almost universal agreement on the notion that nuclear power was the energy source of the future. Thousands of nuclear reactors, with generating capacities as high as 4,000 gig watts ($10^9$ watts) were projected worldwide by the year 2000 according to the International Atomic Energy Agency. (Christopher Flavin 1999). The 1980s witnessed a virtual worldwide collapse of orders for new nuclear power plants. During 10 years (1970-80) had been marked by frequent technical mishaps, serious accidents, huge cost escalations, and a rapid decline in public acceptance of nuclear power. Since 1987, many European countries have abandoned the use of nuclear energy. Austria (1978), Sweden (1980) and Italy (1987) voted to oppose or phase out nuclear while Ireland prevented a nuclear program there. Poland stopped the construction of a nuclear plant. Belgium, Germany, Netherlands, Spain, and Sweden decided not to build new plants and intend to phase out nuclear power. Germany has agreed to shut down all nuclear power plants by 2020.16

Switzerland has had a moratorium on construction of nuclear power plants for 10 years. Electricity planners were beginning to favour faster and cheaper efficiency improvements over commitments to massive centralized nuclear power stations.\(^\text{17}\) (*Green Pace International .A Farewell to Nuclear Power", 1990*)

Just 343 gig watts of nuclear power are actually in use, which is less than 1/10th of the amount expected. Currently, nuclear power provides about 7% of the world's electrical demand. Over the past 25 years in the U.S., no nuclear power plants have been built while a growing number of aging reactors are retired. The reasons for the collapse of nuclear power systems include: safety problems, inability to dispose of nuclear waste, and the potential uncontrolled proliferation of fissile materials in the hands of terrorists. In the late '80s and early '90s, The Three-Mile Island, Chernobyl and the Monju breeder (Sea of Japan) nuclear incidents led the death knell of the nuclear industry. Green Pace International .("A Farewell to Nuclear Power", 1990) As serious as these problems are, there is a secondary and more fundamental failure of nuclear energy to establish itself as an economically competitive means of generating electricity. By taking into account the cost of uranium mining, processing, isotope enrichment, and conversion to nuclear power rods, there is only a net 3% margin over cost at the current electric rate. (*GE report, classified*)

### III.5.2 Renewable energy and transport

**a) Renewable energy**

*Since global warming reduction remain a global priority, society is trying to find other energy solution with less emissions. Renewable energy is going to replace oil fuel transport.*

There are different ways to produce electricity and energy for transport. Electricity can be produced sustainably from renewable resources. In European level the primary energy consumption increase of some 200 Mtoe between 2005 and 2030, will be overwhelmingly met by renewable and natural gas, which are the only energy sources that increase their market shares.

\(^\text{17}\) (*Green Pace International .A Farewell to Nuclear Power", 1990*)
Oil remains the most important fuel, although its consumption in 2030 exceeds the current level by only 6%. (Com European Commission, 2008)  

Experiences of today had been demonstrated that commercial power plants can convert solar, wind, biomass, and geothermal energy directly into electricity. Taken together, in USA these renewable resources in 1994 supplied over 15,000 megawatts to the nation’s electrical grid. (Annual Energy Review 1994) Once generated, electricity can be moved through transmission lines and used in a wide variety of energy applications without producing pollution. In 2004, global investment in renewable energy set a new record of $30 billion. A major transition to renewable energy is already in motion in Europe and Japan with the U.S. lagging far behind. It is estimated that at the current rate of growth of the Solar-Hydrogen Economy,( 2005) in 15 years we will see 30% of the world's energy as renewable energy for electric power production, heating, cooking and transportation. The key to a reliable, diversified solar energy system based on renewable resources will be the use of hydrogen as a major energy carrier and storage medium. In the short term, deriving hydrogen from natural gas for the initial generation of fuel cells would allow the easy transition to the Solar-Hydrogen economy. In 2004 the U.S. was safely using 9 billion of cubic feet per day of hydrogen for all sorts of petrochemical and food processes and rocket propulsion. In European level official sources offer such indicators:

The renewables share in primary energy consumption rises throughout the projection period from less than 7% in 2005 to 8% in 2020 and 12% in 2030. Nevertheless, under baseline conditions the EU target on renewables for 2010 will not be achieved. The renewables share in final energy demand rises by 4 percentage points between 2005 and 2020 reaching 12.7% in 2020. Achieving the 20% renewables target for 2020 will require a substantial effort. […]

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b) Longer –term Options: Electricity, Bio fuels and Hydrogen.

Reducing greenhouse gas emissions from cars and trucks to a level where they pose a minimal risk to the climate will require a shift away from petroleum-based fuels. Among the most promising alternatives there are: running cars and trucks on electricity, next-generation bio fuels or hydrogen. Bio-fuels: agricultural sources can be used to produce transportation fuel. While ethanol currently produced in the United States comes from corn, the technology exists to make bio-fuels “cellulose” sources (or the woody and leafy parts of plants). While corn-based ethanol can reduce emissions by as much as 30 percent for every gallon or traditional fuel replaced, cellulose ethanol and sugar/cane-based ethanol may enable reductions of up to 100 percent.

Bio-fuels have the potential to offset 10 to 24 percent of current U.S. greenhouse gas emissions, depending on what fossil fuels are replaced on how the agricultural product is converted into fuels. Another bio-fuel option is bio-diesel, which can be produced from a wide range of oilseed crops (such as soybeans or palm and cotton seeds) and can be used to replace diesel fuel. With ethanol from sugar cane providing almost half of its domestic passenger fuel, Brazil has shown that an aggressive policy push can help bio-fuels become a mainstream fuel choice.

c) Renewable transport

We brought in attention renewable energy sources coming to conclusion that transport oil fuel can be removed by energy that does not destroy society and nature. This is the concept of renewable transport. Electric cars can replace oil fuel cars, even in time terms.

Historically, electric cars have been viewed as a “niche” product, but advances in battery storage are needed. Another option is the “plug-in” hybrid, a gas- electric vehicle that can be charged at home overnight. In 1900, electric cars outnumbered gasoline vehicles by a factor of two to one; an electric race car held the world land speed record. Their quiet, smooth ride and the absence of difficult and dangerous hand-crank starters made electric vehicles the car of choice, especially among the urban social elite. Early in this century there were more than one hundred electric vehicle manufacturers. Some difficulties were presented during these first steps: the weight, space requirements, long recharging time, and poor durability of electric batteries undercut the ability of electric cars to compete with much more energy-dense gasoline, an energy carrier manufactured from crude oil. One pound of gasoline contained as much chemical energy as the electricity held in one hundred
pounds of the lead acid batteries then in use. Refuelling a car with gasoline was measured in minutes, on-board storage was a snap, supplies appeared to be limitless, and long-distance fuel delivery was relatively cheap and easy. With these attributes, gasoline dominated the fuel marketplace. By 1920, electric cars had virtually disappeared. As environmental and resource depletion issues take their toll on the oil-dominated transportation system nearly a century later, electric cars are a reality. In December 1996, General Motors began selling the EV-1, the first electric car to be produced by a major automotive manufacturer in more than 70 years. Hundreds of other companies worldwide have spent the last decade in frenetic electric vehicle research, development, and commercialization. The critical issues of battery weight, volume, and recharging, however, continue to present major obstacles to the commercial success of vehicles recharged with electricity from a grid. These impediments thwart attempts to bring renewable energy resources into the transportation marketplace through a connection to centralized power. BMW-7 and other electrical car are very often in the car exhibition worldwide nowadays.

**d) Fuel Cells**

Fuel Cells are technologies that will transform and drive the solar-hydrogen energy system is the fuel cell. Fuel cells use an electrochemical process that combines hydrogen and oxygen producing water and electricity. Avoiding the inefficiency of combustion, current fuel cells are theoretically twice as efficient as conventional heat engines (83% vs. 32-40%), have no moving parts, require little maintenance, and emit only water vapour. However, current low temperature fuel cell practical efficiency for autos is 30-35% and is being improved. In 2006, Fuel Cell Energy, Inc. achieved a new performance of 56% combined efficiency in a fuel cell/turbine system for a stationary system utilizing fuel cell's waste heat. The fuel cell is not limited by the Carnot heat engine cycle. More information could be find at: (www.visonengineer.com/env/fuelcells)

Fuel cells can be used in factories, offices and homes to generate electricity. In 2005, there were over 60 fuel cell companies that manufacture components or total systems. Up through 2005, Plug Power Company has installed over 191 stationary fuel cell systems in factories and offices in 17 countries. However, fuel cells are more expensive up-front but require much less maintenance costs over time the batteries. VRLA batteries must be maintained and serviced fairly frequently and are considered hazardous material at the end of their life cycle which must be included in their original cost. How can countries deliver
energy to a fuel cell auto without the total hydrogen delivery infrastructure in place before 2025? Expert areas consider that a solution would be by installing small “stand alone” solar-hydrogen generation and storage units having a single pump outlet at each commercial gasoline station. They can be turned on or off as the need arises. Re-plumbing this unit into multiple pump outlets can occur as demand increases. Could it happen? It could be done by a consortium of all major oil companies agreeing on implementing the solar-hydrogen generation units at all their gasoline stations and a milestone table for phasing out all gasoline service. Experts suggest that all produced hydrogen would be the same quality with no “brand” differences, e.g. Shell, Exxon, etc. The competition would be simply based on cost and service. All of this is dependent on the major auto makers moving forward with the fuel cell auto. Economic and commercial considerations are at least as important as technical. In the interim, many customers will be paying a premium for environmentally clean products. Politically driven technology choices may occur. Targets should be set and then industry should be allowed to get on with developing the technologies and infrastructure. That is the way to make rapid progress and to introduce hydrogen technologies through a broad market focus, guided, but not controlled, by government regulations.

Could these experiences be present in Corridor’s area in countries like Albania and Macedonia?

- there is enough sun shine, and other renewable energy sources;
- there has been spending so much money to procure imported energy;
- there are so many days in black out;
- there are law oil fuel standards emissions ;
- people pay so much money to buy oil fuel ;

At the final there will be a positive answer for those which drive society ahead!

Global oil use is growing. Even assuming a modest 2% annual growth for global oil consumption, half the actual growth rate experienced during the 20th century, the world will consume more oil during the next twenty years than it has consumed throughout history. Moreover, should countries with minimal automotive infrastructure expand their
use of gasoline-burning automobiles; international competition for oil will become intense. In China, for example, there is one car for every 652 people; in the United States, there is one car for every 1.5 people. Viewed another way, the United States has 19 million more vehicles than registered drivers. If China or other developing nations seriously enter the competition for oil, global oil demand would soon far exceed production capacity. (World Motor Vehicle Data: 1996)

Indisputably, adequate reserves of coal exist in the United States to support electrical generation markets; the constraint on coal use always has been its environmental effects, not resource availability. Natural gas supply has performed a dramatic about-face since the shortages of 1979. It now appears that supplies are adequate to meet projected electric generation markets for at least several decades. (Silver Spring, 1994)

According to the International Energy Agency, oil consumption, is projected to increase by 41% between 2004 and 2030 (IEA, 2005). FROM 82.1 TO 115.4 million barrels/day (mb/d) shows how most of the supply required to meet such increased demand -and replace currently depleting resources - is expected to come from OPEC countries in the Middle East, where production would have to increase by 93% between 2004-2030. Of these increase by far the largest part (77%) is to come from Iraq, Iran, and Saudi Arabia. (IEA, 2005)

Dependence on transportation on oil is moderated by the penetration of bio fuels in road transport. The share of bio fuels in liquid fuels consumed for road transportation accounted for only 0.2% in 2000, but increased to 1.1% in 2005 and is projected to attain 9.5% in 2030 (7.4% in 2020).

![Energy Efficiency Indicators for road transportation](source: European Energy and Transport –Trends to 2030-update 2007)
III.5.3 Hydrogen, solar photovoltaic, biomass, geothermal

a) Hydrogen

Hydrogen is another carrier of energy that, like electricity, can be produced from various renewable and non-renewable resources. It offers an alternative to electricity generated at centralized power plants. About 93% of the known universe consists of hydrogen atoms, but most of the hydrogen on Earth appears in combination with other elements. Just as electricity is generated from the energy in other resources, molecular hydrogen is produced by extracting hydrogen atoms from compounds that contain other elements. Whether the energy in hydrogen is released as heat through combustion or converted into electricity in a fuel cell, little or no pollution is produced when the chemical energy in hydrogen is tapped. The sole by product of the chemical combination of hydrogen and oxygen is water. No carbon dioxide, hydrocarbons, carbon monoxide, sulphur compounds or toxic air pollutants are released. Because they operate at low temperatures, fuel cells also produce no nitrogen oxides. Hydrogen combustion produces some nitrogen oxide air pollution because of the high temperatures involved. Tests to date indicate that nitrogen oxide concentrations from hydrogen-burning engines can be kept very low, meeting the proposed California equivalent zero emission vehicle standard. Pollution from hydrogen production is potentially very small as well. If fossil fuels are used in the hydrogen production process, as they are in the steam reforming of natural gas (discussed below), then some environmental impacts could be associated with the production, processing, distribution of these fossil fuels. The major environmental problems associated with hydrogen produced from renewable resources are due to the materials used in technologies to produce hydrogen, or in the fuel cells that use these materials.

b) Solar Photovoltaic Energy to Hydrogen:

Combined technical solution can offer enough energy for the society if there is a good political will. Naturally it could not happen immediately. Since sustainable developments require thinking for the present and the future society had to think ahead.

What solar hydrogen practice shoes regarding these issues?
Photochemical systems, sunlight strikes an electrolytic solution in which photosensitive semiconductors and catalysts are suspended. The solar energy is absorbed by the catalysts, creating localized electrical fields that trigger the electrolytic splitting of water into hydrogen and oxygen. Photo biological conversion: Various bacteria and algae have been isolated that can produce hydrogen either from organic materials through digestion or directly from water and sunlight through photosynthesis. Both methods rely entirely on renewable resources, such as sunlight, biomass, and biological organisms, to produce hydrogen. Thermal decomposition: Concentrated solar thermal energy can achieve temperatures exceeding 5,000 degrees Fahrenheit. Under these conditions, water thermally decomposes into hydrogen and oxygen. Separation of the gases before they spontaneously recombine is one problem facing this technology.

Each day is equal to 6,000 times the total commercial energy use solar energy alone falling on the earth's surface. The limiting factor is that the sun does not shine at night. The electricity must be stored in some fashion, whether from wind generation or photovoltaic generation. Conversion to hydrogen generated by the electrolysis of water is the best energy storage media. Hydrogen is nearly the friendliest environmentalist’s energy source. It emits no carbon dioxide, carbon monoxide, no volatile organic compounds, no fine particles and no sulphur dioxides. The main by-product of hydrogen combustion is water vapour, while fuel cell exhaust is also water vapour the easiest form of hydrogen transmission, although the gas can be compressed or liquefied and transported in tanks as well. Unlike centrally generated electricity, hydrogen can be easily, quickly, and compactly stored and retrieved when needed. Like natural gas, hydrogen can be compressed and held in pressurized storage tanks. Advanced high pressure tanks capable of containing pressures up to 10,000 pounds per square inch have been produced and used in space applications, although most hydrogen is now stored at pressures around the standard of 3,600 pounds per square inch now common in natural gas and other compressed industrial gas storage systems. Alternatively, hydrogen can be liquefied, although the liquefaction temperature—more than 400 degrees Fahrenheit below zero and less than 40 degrees above absolute zero—makes this process difficult. Another set of technologies for storing hydrogen involves reversible adsorption onto the surface of activated carbons.

The easiest forms of hydrogen transmission are pipelines, although the gas can be compressed or liquefied and transported in tanks as well. (Arezzo reality, Italy.) Unlike centrally generated electricity, hydrogen can be easily, quickly, and compactly stored and
retrieved when needed. Like natural gas, hydrogen can be compressed and held in pressurized storage tanks. Advanced high pressure tanks capable of containing pressures up to 10,000 pounds per square inch have been produced and used in space applications, although most hydrogen is now stored at pressures around the standard of 3,600 pounds per square inch now common in natural gas and other compressed industrial gas storage systems. Alternatively, hydrogen can be liquefied, although the liquefaction temperature—more than 400 degrees Fahrenheit below zero and less than 40 degrees above absolute zero—makes this process difficult. Another set of technologies for storing hydrogen involves reversible adsorption onto the surface of activated carbons. The U.S. development of solar photovoltaic (PV) power started in the mid 1950s, and was accelerated in the 1960s by the U.S. space program. As a commercial industry in 1972, it cost $500/watt. By 1980, the installed cost was around $100/watt and by 2005 the installed price was between $6-8/watt while self-installed was $2/watt (J. Johnson 2000)

It took the PV industry 27 years to reach its first gig watt ($10^9$ watts) of global PV capacity. Then, 4 years later, it reached 2 gig watts. From 1994 to 1997, shipments of solar cells doubled. During the period 1997-2000, PV cell production has tripled which is a 44.3% per year compound growth. (J. Johnson 2000) Residential applications make up about 25% of the total sales. In 2006, the new Federal tax credits for consumers that include PV cells will help to accelerate this rate of growth in the Solar-Hydrogen Economy. (Federal Tax Credits for Energy Efficiency”–Energy Policy Act of 2005) The most efficient commercially available PV cells (Sanyo) operate at around 17% efficiency. However, two separate research advances in 1999 promise to increase that to 30%. This efficiency has already been achieved with reflected solar power to PV cells. Solar PV cells generated electricity can be converted into hydrogen using a water electrolyser. Newer advances indicate that water electrolysers now are nearly double the efficiency of converting solar energy into hydrogen.

III.5.4 Renewable energy and market economy

a) Hydrogen market presence

The first question to be raised speaking for Hydrogen and renewable economy consist on feasibility, it means the money to be invested.
Bound le finance other questions could be part of the discussion as regard to renewable energy and oil replacement in the market. I would like to address attention to experts answer for these issues:

[…] What is now a nearly invisible feature of the world’s transport could become the dominant form, much as early mammals, scurrying inconspicuously ate the feet of dinosaurs, adapted better to imperatives of Cosmo geology and climate some 65 million years ago[…](Gilbert,R.,Perl,A.2007)

Only in the last few years has hydrogen begun to be taken seriously as a transportation fuel. Much recent activity in the field has focused on fuel cell applications in buses. In 1993, according to an International Energy Agency study, significant hydrogen energy programs are underway in at least eleven countries. Throughout the 1980s, Germany conducted the world’s largest government-sponsored hydrogen program, involving more than $300 million in total investment. In 1993, Japan eclipsed Germany with a $2.8 billion World Energy Network (WE-NET) program to develop and commercialize a global hydrogen production, distribution and use system. In the United States, the National Hydrogen Program is one of the few programs in DOE’s Office of Renewable Energy and Energy Efficiency whose budget grows steadily. Annual expenditures for this program have increased from $1.8 in fiscal year 1992 to $15 million in fiscal year 1997.

The Hydrogen Future Act became law in October 1996. The Act mandates that government-sponsored hydrogen research, development, and demonstration project expenditures totalling over $100 million will be conducted over the next five years. Beyond the National Hydrogen Program, annual expenditures on hydrogen of over $20 million are part of the National Fuel Cells in Transportation Program. Hydrogen fuel cells are also being studied as part of the Partnership for a New Generation of Vehicles, initiated by President Clinton in 1993 as collaboration between the federal government and the major U.S. automotive manufacturers.

b) Could Hydrogen be a Renewable Transportation Fuel?

Hydrogen that is manufactured from renewable resources and used in fuel cells can provide sustainable energy to power electric vehicles. The total system, including distribution, refuelling and on-board storage of hydrogen may prove superior to batteries recharged with
grid power. A hydrogen-powered electric vehicle may offer a market entry for hydrogen and renewable resources in transportation. Attractive transitional applications of hydrogen include use in combustion engine vehicles and production from natural gas. In either case, the environmental or energy policy consequences are significantly less than continued use of oil-derived fuels in conventional combustion engine vehicles. The logic of pursuing a market entry opportunity for renewable-based hydrogen in transportation is based on the six considerations discussed below. To provide a context for the sustainable hydrogen transportation strategy, comparisons are offered to market entry opportunities in centralized power generation that have received considerable support from the present renewable energy.

c) Using clean energy for transportation sector

In the 1970s, the USA faced a series of energy crises. The 1973 oil embargo severely disrupted petroleum supplies and substantially raised the price of all fuels. A second oil crisis in 1979 led to further price hikes and sporadic fuel supply shortages. The electrical generation sector reduced oil use and diversified and expanded its use of domestic energy resources. The utility industry successfully weaned itself from its thirst for oil, reducing the fraction of generation fuelled by oil from 17% in 1973 to 3% today (Edison Electric Institute, *Statistical Yearbook – 1992* Washington, DC, 1993). In annual report energy, was considered the transportation sector remains almost entirely dependent on oil. Domestic oil production has dropped 24% since 1970 due to depleting low-cost reserves; total oil use, propelled mainly by increased use in transportation, has risen 20%. Imports, which accounted for just 21% of total U.S. oil consumption in 1970, now approach 50%. The bill for imported was exceeds $55 billion per year. The United States spends an additional $50 billion annually to maintain a military presence in the Middle East partly to secure the continued flow of oil. (*Annual Energy Review 1994*)

d) Could clean energy be present in the auto transportation market?

The price of hydrogen-based transportation options, although still higher than conventional fuels and technologies, is dropping. The use of hydrogen in fuel cell vehicles offers a key economic advantage over gasoline used in conventional vehicles. In transportation, hydrogen competes head-to-head with gasoline in terms of fuel. In transportation, hydrogen competes head-to-head with gasoline in terms of fuel cost per mile driven. Because electric propulsion systems are between 1.5 and 3.0 times more efficient than internal combustion
engine systems, less fuel is needed per mile driven. *(Annual Energy Review 1994)* Even hydrogen can cost more than gasoline, yet still be the cheaper fuel per mile of driving. This leverage factor greatly reduces the economic barrier facing renewable resource use in transportation. In reality the cost of hydrogen produced today from biomass or wind farms is competitive with the cost of gasoline on a per mile driven basis. Hydrogen produced from natural gas an since the late 1980s. The Clean Air Act (CAA) of 1990 and the Energy Policy Act of 1992 in USA energy policy promotion in Europe Union countries, Japan, Australia, Israel, etc, contains mandates and incentives for alternative transportation fuel use in specific automotive fleets. Several of these fleets are required to use an increasing amount of alternative fuels beginning in 1997. Furthermore, many local government units world wide have acted independently on their own to establish alternative transportation fuel use mandates and incentives that are often more vigorous than states efforts. Due to these efforts, a substantial alternative transportation fuel industry has formed in the 1990s. Use of natural gas, propane, and alcohol fuels in transportation, although used in a fuel cell vehicle is considerably cheaper than gasoline per mile driven. Minuscule compared to oil use, has increased dramatically, paving the way for the zero-emission electric vehicle technologies now entering the marketplace.

Obviously, opponents need to be faced by oil companies, that missing market dominance because of clean energy application in transportation. In affording this reality during the transition, use of natural gas vehicles would provide important environmental and energy security benefits compared to continued reliance on oil. Several natural gas vehicles have been certified to meet the California ultra-low emission vehicle standard. To date, no gasoline-powered vehicles have been certified to meet the ultra-low or proposed equivalent zero-emission standards. Fuel cycle analyses performed by the International Energy Agency and others conclude that total emissions from natural gas vehicles, including natural gas leaks from pipelines, are less than emissions from the petroleum fuel cycle. Synergy also exists between today’s electric vehicles, which are powered largely by electricity stored in batteries, and hydrogen fuel cell electric vehicles of the future. A kilowatt-hour of electricity generated by a fuel cell is identical to a kilowatt-hour drawn from a battery. Hence, most of the electric vehicle system that is designed to serve battery-equipped vehicles-including the motor, controllers, and regenerative brakes-will apply directly to fuel cell vehicles. The natural gas and electric battery vehicle industries hardly view their roles as limited to promoting transitional technologies; ultimately, hydrogen will have to compete on its own to win consumer acceptance. Development of enabling
technologies and compatible infrastructures where none now exist will speed the transition to hydrogen. Life style of citizens includes the choice of car colour, seats, speed, marks, etc. The perceived importance of the automobile has reached stratospheric levels in Western culture, not only as a transportation medium, but as a reflection of psychologically complex consumer preferences about unrelated characteristics, such as colour, comfort, and horsepower far exceeding the requirements for legally permissible driving. A transportation market entry approach for advanced technologies based on renewable energy, therefore, may find a receptive audience among some consumers. They may appeal, for example, to “innovators” and “early adopters” who wish to be among the first to own and test new technologies. They may appeal to environmentally-concerned, “green” consumers who wish to reduce their personal responsibility for creating tailpipe pollution. Such consumers can directly verify that their actions make a difference because their vehicles have no tailpipes, yet alone tailpipe emissions. Because of the risks involved in purchasing advanced technologies for such an expensive product, these early market participants may be limited to the risk averse; however, the initial buyers may prove crucial to generating wider consumer such a choice.

III.6 TRAFFIC CONTROL AND REGULATION SYSTEMS

III.6.1 Traffic quality and monitoring systems

a) What is Traffic Quality?

According to one of the definitions, quality is the adequacy of a product or of a service for a certain purpose. This means that quality is always related to a specific goal. The best description of traffic quality requires the overall coverage of impacts and quality indicators. The most important criteria for road users are the speed, comfort, safety and price (related to the financial situation). It is recommended to use the above factors as main criteria for the overall evaluation. Travel speed as the most important quality indicator can be used for purposes of a simplified assessment.

Public Transport Vehicles Monitoring

The aforementioned systems can be applied to the whole vehicular mass moving in an urban context to ease its movements. Considering more specifically public transport vehicles, it is very useful to be able to determine in real time their position to control their regularity, speed and number, so to optimise their use. An advanced system of public
transport localisation (Automatic Vehicle Monitoring) is produced by installing on the vehicle itself a unit which can collect automatically all necessary data to localise the vehicle and allow a dialogue between the driver and the operators in the operational centre. The localisation technique is based upon the use of several instruments: a Global Positioning System (GPS) satellite receiver (to measure continually the position of the vehicle), an odometer (which counts the wheels' rotations) and gyroscopes (to measure the vehicle's angular speed); all of these are combined by special programs to pinpoint the vehicle even when the satellite signal is obscured. 62% of the sampled cities possess techniques for public transport monitoring. Among these, 28% has means for vehicle speed monitoring, 59% has positioning systems and 45% has delay detection systems.

b) Environment Monitoring
Road traffic contributes heavily to city air pollution, in particular through emission of carbon monoxide, nitrogen oxides, hydrocarbons and particulate matter. To estimate the extent of air pollution, and thus to keep within statute regulated limits, many cities (59%) have an air pollution monitoring network. The latter consists of many terminals, placed in relevant points of the urban area, equipped with analysers which monitor the concentrations of various pollutants. The gathered information is then sent to a control centre and elaborated to give a clear picture of the current state of pollution, and of the foreseeable future situation in the monitored area. Connecting the pollution control centre with the traffic control centre, mobility strategies can be devised: for example, access to the urban centre can be limited or stopped altogether when one or more pollutants reach a dangerous concentration. Vehicle traffic is the main cause of acoustic pollution in urban areas, where it represents 60% of environmental noise. Noise causes many problems, as it disturbs vocal communications, learning, and sleep and working; it causes tension and may seriously injure people's hearing as well as their behaviour. It is therefore important to monitor urban acoustic pollution to be ready to intervene when dangerous threshold values are reached. About a third of the sampled cities (31%) are equipped with noise measuring systems.

c) Traffic Control and Regulation Systems
Information theory technology is increasingly rapidly producing advanced traffic control and regulation systems. These systems are also concerned with planning paths, dealing with emergency situations, etc. They can be divided in: limited traffic zone management systems; information dispensing systems, including equipment on the vehicles themselves
and on the road (variable message panels); monitoring and control systems dealing with special kinds of vehicles, such as public transport and emergency vehicles; centralised systems at traffic lights. A useful integration of these systems leads to an optimised private traffic control and a better public transport administration.

d) Traffic Light Co-Ordination Dynamic Systems

A fair number of the sampled cities (83%) have traffic light co-ordination dynamic type systems. Of these cities, 72% use them to manage town traffic, 17% use them to regulate access to motorways, and 24% for other uses. The remote control of traffic lights network, together with traffic state monitoring, allows the definition of traffic light plans, the most convenient ones with respect to recorded situation. The system of traffic light management and control needs “on-line” dates about road conditions, vehicle flow and about the state of all observed traffic lights, in order to ensure an optimised regulation of the mobility. These systems can be divided in three groups, depending at which level they work:
- Control and data elaboration centre,
- Traffic detectors and regulators in local areas,
- Traffic sensors.

Control is achieved by automatic continuous interaction between the control centre and the peripheral units. The sensors, their size and location depending on the kind of traffic measurement to take, record the required data and send it to the local terminals, where local traffic is adjusted automatically. The system, through the central unit management, can also calibrate and co-ordinate a dynamic system of traffic lights, on the basis of traffic recorded by the peripheral units. Ramp metering, a highway traffic regulation system used mainly in the United States and The Netherlands, uses a particular traffic light system which allows access to the highway only when there is enough space between the vehicles that are travelling on it to permit admission to other vehicles entering the highway. The “Road pricing” method consists of expecting a kind of toll from private vehicles entering special urban areas. Road pricing, carried out in the outskirts, in the town centre and in strategic roads, was found only in 7% of the analysed cities. However, other cities are experimenting on it. The toll can be paid with credit cards or purpose made cards. Identification systems are built for habitual users, so they can pass the access gates without having to stop. In a small proportion of the examined cities (3%) the payment depends on the intensity of traffic congestion, so the more the road is packed, the higher the toll is. 62% of the examined cities have some kind of users' information system. Intelligent signals are found
in 59% of the cities, in 10% there are access control, electronic toll payment and in-vehicle information delivery; in 7% of the cities there is electronic speed control. Information systems about traffic are at least potentially one of the most useful traffic jam prevention tools, as they allow users to choose alternate routes if there are any available.

e) Intelligent signals

Intelligent signals include all means of information and forecast concerning anomalous traffic situations, such as jams, accidents and road works, provided by means of radio broadcasting or variable message signs. The latter produce short messages, which describe particular traffic situations. There are different kinds of panels aiding route planning, showing compulsory detours, and influencing driving. Information broadcast generally refers to: traffic situation (such as jams, detours, closed roads, traffic limitation), suggestions concerning alternate routes in connection with anomalous traffic situations, parking directions, information concerning provisions for any form of payment and public transport. This information is handled by automatic data collecting terminals connected with the elaboration centres.

Limited traffic access control, limited traffic access control systems identify moving vehicles to distinguish the authorised from the unauthorised ones. The system generally consists of a high sensitivity camera, a receiver and a black light beam which can "see" and record pictures in any kind of weather. However, this kind of measures induces sociological-type problems, that concern user’s difficulty of accepting parking exemption and co-ordination problems, as it has been recorded in Bologna city, in terms of automatic access control to limited traffic areas.

In-vehicle automatic driving, technology is producing devices to ameliorate driving ease and security, giving precise and timely information. A Global Positioning System (GPS) receiver, connected with a control centre and mounted on the vehicle, places this in the road information network. The driver can therefore obtain information from the centre concerning the most favourable route in relation with the traffic conditions. The route is displayed on a screen in the car. This system seems to be in progress, also on common use vehicles.

All above systems can be mostly necessary in the roads of metropolitan areas and corridor areas along Corridor Eight. EU policy aims to put people in the heart of transport activity. A sustainable transport can make candidate countries potentially near EU standards. Such a
transport could be possible enhancing safe, healthy and secure European freedoms in the Balkan area.
PART FOUR

IV. THE POWER OF PARTNERSHIP ALONG TRANSNATIONAL CORRIDORS

IV. 1 Why Partnerships?
Transportation European Corridors are defined as routes which link territories of different countries. They link different territories, different nations, and different groups in the society.

Transnational corridors in European level are the most concrete, visible and touchable concepts than any other institutional actions in transnational level. We walk, we touch, we serve concretely in a road that walks on the ground.

An agreement, a Euro region, a movement in cross and transnational European level is less touchable than a corridor of transport, which meet and links directly on the ground peoples, goods, experiences, information, etc. Establishment of collaborative partnerships among subjects on corridors area is a necessity in the period of open market economy in the enlargement EU processes.

I want to focus in partnership actions as regard to Corridor Eight, aiming to conclude my argument that a sustainable developments will transform corridor eight a lively one, by replacing the long lasting lethargy and that the key point to achieve that is establishment of effective and long term partnerships.

There are different possibilities in constructing partnerships along Corridor Eight area. It could be in local, national, cross national, regional and transnational level.

Let’s focus on possible regional partnerships which might build in regional framework.
As it is known in cross national and neighborhood frame, Albania is part of the Western Balkans. In a wider regional context Albania is part of South East Europe (SEE)

[…] confident that we can now work together to develop the transport infrastructure of the region and contribute through this to the growth of mutual trust and understanding and the economic development of the region [...] ¹ (Loyola de Palacio 2004)

¹ de Palacio, L. (2004) Transnational Co-operation Programme for a European area in transition on the way to integration
Many arguments support establishment of partnerships in the frame of SEE, EU integration is the fully definition of the political and governmental willing of the Western Balkans where Albania and Macedonia take part, while Turkey, Croatia, Montenegro and Serbia are candidate and potential candidate countries for members of the EU. There is no other choice or chance to happen for Kosovo, too.

Italy, Bulgaria and Greece are part of EU political map, which make possible raising necessary partnerships.

Being part of part of the direct territorial bordering the corridor area, the above mentioned countries are taken in consideration during the arguments.

Why partnerships?

It will be a partnership of integration between EU member states and countries with different status in reference with EU.

- There are member states inside this partnership maps;
- There are potential financial resources and fundraising through “Transnational Co-operation Programme for European area in transition on the way to integration” it means for countries in SEE map, and in particular for Albania, Macedonia, Italy and Bulgaria as the direct member area of the Corridor Eight;
- There are enough know how and experience in countries like Italy, Greece and Bulgaria;
- There are potential social, economic and natural factors, in supporting and raising partnerships among these countries in regional level (ethnicity, religious, common near and early history, natural and climatic conditions, etc).

Italy must be the main Western European partner as regard the area of Corridor Eight.

IV.2 PARTNERSHIP COUNTRIES

According to impacts which reflect on the corridors development, partner countries might be classified in some kind of partner countries as regard to Corridor areas:

a) the direct partner countries in the Corridor area
b) the linked and regional partner countries
c) Geostrategic partner countries

IV.2.1 Direct partner countries

Potential partnership countries along Corridor Eight

Regional partners:

Regional: Italy, Macedonia, Kosovo, Bulgaria and other partners.
There are direct partner countries and indirect partner countries.

Italy should be considered as a destination for the Balkans. While western Balkans generally speaking, are of a great decisive importance to western gates of Corridor Eight. In that sense Italy must be considered in two reference points:

- as an individual country, where great potential human and natural resources exists and a considerable migrants of Balkans origin live and work regular;
- as the country enhancing Western European resources and capacities to Albania as the gate of Corridor Eight.

a) *Macedonia (FYROM)*

- as the part of (CE) bordering and direct linked with Albania;
- as a neighbour country, in which (officially) 26% of population are of Albanian ethnicity and officially use Albanian language.

b) *Bulgaria*

- as an EU member country part of (CE), bordered and linked with Macedonia (FYROM);
- as the country who links (CE) with Black Sea area, Caspian area and TRACEA corridor area.

c) *Kosovo*

- as a natural part of social and geographic area linked with Albania. Even politically and administratively, Kosovo belongs to another state; there is not a border line in reference with social, territorial, cultural, historical, language bordering the societies. Beyond this fact Albanian geographical position with sea ports of Durres and particularly of Saint Gin (Shengjin), is the best choice for Kosovo trade via sea.

EU integration is the fully definition of the political and governmental willing of the Western Balkans where Albania and Macedonia take part, while Turkey, Croatia, Montenegro and Serbia are candidate and potential candidate countries for members of the EU. There is no other choice for Kosovo, too.

Italy, Bulgaria and Greece are part of EU political map, which make possible raising necessary partnerships. Being part of part of the direct territorial bordering the corridor area, the above mentioned countries are taken in consideration during the arguments.

### IV.2.2 Indirect partners

a) *Montenegro*
It is the bordering country with Albania in the North and what’s the most important, it’s the territory that links Dalmatic–Ionian Corridor. In this way, it links Albania with Croatia, Slovenia, Italian part of Nord Adriatic and further more with Mitt Europe. There is around 10% of Albanians ethnicity living in Montenegro (when ethnicity term is used it means a positive factor fostering collaboration in border areas).

b) Greece

With Greece relations have demonstrated a bad output in regard to CE. It has considered CE as a potential concurrent axe of traffic and flows in the Mediterranean sense and for the Balkans, too.

c) Croatia

Considering its Adriatic maritime coast, being part of Dalmatian-Ionian Corridor and a good performance in stat relations, it could be considered a potential partner country as regard to Albania as the western gate of (CE).

d) Serbia

In a perspective moment, it will be the linking country with other SEE transport network, even for the moment it is not a partner country.

Being an Albanian neighbour country Greece has experienced to use its status as regard to EU, blocking the mobility flows of Albanians to their country of origin (bring in memory the periodical PC black out in custom offices, etc). It is to be proven why the North–South Balkan axe of infrastructure has been operating while the Balkan was in crises, in war status and conflicts.

Has Greece used its presence in EU in favour of good neighbour policy? This is a question to be answered during the history. Any advanced step in regard to these issues does not contribute in favour of neighbourhood policy and regional development.

Another point of view in respect to Greece as a partner country is that of considering Greece as a complementary country in the network of regional policy and in particular of Dalmatic Ionian Corridor.

IV.2.3 Geostrategic partner countries

EU member states and the United States of America have proven to be strategic and long term partners with Balkans, as regard to stability, democracy, and good governance and humanity values. A new political map is created after overthrowing the communist regime in the region with the support of the biggest EU states.
Beyond these arguments, Corridor Eight is considered as the shortest and alternative road transporting gas and pipeline from Caspian and Middle East to Western Europe, in competitive way with Russia. AMBO project speaks clearly for that issue. All above mentioned countries are directly linked with (CE) area. Beyond this fact these countries are part of a regional frame, part of South East Europe, in reference with European Territorial framework.

Turkey

It’s considered the second potential country in trade relations with European Union, after Russia. (see transport and trade forecast in Europe )

Through Turkey, can also be established communication in Aegean, Red Sea, and many parts of Asia. More over, it is a country with its own great potential, natural and human resources.

IV.3 PRIVATE PUBLIC PARTNERSHIPS

IV.3.1 Promoting alternative financial for transport

a) Promoting Alternative Financial to the Road Infrastructures

Up to now the experience of Corridor Eight has demonstrated luck of funds to make Corridor operational in all its mode of transport. The EU resources as it is mentioned in previous part (see I.3.3) are designated for TEN-T priorities. In these situations respective countries have to find financial sources form the state budget.

Among these sources international experience suggest effective “financial technologies” as sources for infrastructure maintains, construction, planning and projects.

Partner countries in Corridor area have to find the best practices and experiences across Europe and the World in achieving the final destination-making Corridor Eight effective than latter competitive and complementary, one.

If we refereee to Giddens he brings in attention UK experience:

[The private Finance Initiative (PFI) has been the main form of public-private partnership deployed in the UK[…]]² (Giddens, 2007)

The Trans-European transport network comprises infrastructure (roads, railways, waterways, ports, airports, navigation aids, intermodal freight terminals and product pipelines) and the services necessary for its operation. The priority measures for Trans-European transport infrastructure are:

Completion of the connections needed to facilitate transport; optimal efficiency of the existing infrastructure; achievement of the interoperability of network components; integration of the environmental dimension in the network.

According to the Decision no. 1346/2001/EC amending the guidelines adopted in 1996 for seaports, inland ports and intermodal terminals was adopted by the European Parliament and Council on 22 May 2001.” expenditure on Trans-European Transport Networks has still to be determined by the European Parliament, but it is likely to be between 4 and 4.2 billion Euros. At least 55% of funds for TEN-Ts will be given to railway projects and not more than 25% to roads.

The text included, the TEN-T combined transport network, intermodal terminals equipped with installations permitting trans-shipment between railways, inland waterways, shipping routes and roads (European Commission – DG TREN: Trans-European Transport Network – Implementation of the guidelines 1998 – 2001, 2004). Ill bring in attention the rules and priorities of EC for TEN-T, aiming to demonstrate that there are limited financial resources even for transport infrastructure inside EU territory, and the second argument consists in rules and principles of financing transport projects.

The funding possibilities of the European Union are limited to the TEN-T network and the following main rules apply:

the European Union may only fund projects identified in the guidelines (and shown on the maps);

• the European Union will fund not more than 50% of the cost of preliminary studies (feasibility studies) and 20% of the cost of projects;
• the balance must be met out of public or private sector funds;
• the project must offer guaranteed financial viability and have an adequate degree of maturity;
• the project must be consistent with the Union’s other policies, notably as regards the environment, competition and rules on the awarding of public contracts;
• the Commission may cancel its financing decisions if the project is not under way within 2 years.
For sea ports, European funding rules take into account contributions to modal shift, quality, viability and credibility and effects on competition. Some elements are considered:

- quality of the port services (one-stop administrative services, service to the ship, cost-based prices);
- quality of the hinterland connection and services – good intermodal hinterland connections between the selected ports and the rest of the TEN-T guidelines network;
- overall information systems and monitoring in the transport chain;
- characteristics of the shipping services involved (e.g. frequency and regularity, safety and security);

-TEN dimension: integration of a project within overall network development.

Financing projects it will be essential to obtain the best mix of the three existing sources of funding, i.e. national budgets, the Community budget and resources generated by direct contributions from users.

Co-funding with the private sector is also important (e.g. PPP).³

From this analyze and facts, it can be distinguished the trend financing for the TEN-T priorities:

*The first one* - rail ways are the future trend for EU budget finance;

*Secondly* - other ways of finance must be found outside public budgets;

The last one- there are not enough perspective finance from Community funds for countries outside EU, to implement priority projects as the case of CE is.

Contemporary International experience brings many excellent effective partnerships in achieving successful transport infrastructure.

**b) Private financing in the delivery of TEN-T projects**

Achieving European long-term growth in general and investment in the TENs and the R&D activities in particular obviously requires a sustained, appropriately resourced and comprehensive approach. The Commission intents to launch, in cooperation with the EIB, an initiative to support growth and integration by increasing overall investment and private sector involvement in TENs and major R&D projects”.

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Financing infrastructure transport is a permanent challenge for EU policy makers. The up to date experience classify financial partnerships with public and non public subjects as the “golden key” to support the processes in transport infrastructure. The following questions should be solved in regard to financial and private engagement in infrastructure of the transport:

What can be done at regional level to foster private sector involvement in infrastructure investment, notably through a better and more widespread use of Public-Private Partnerships ("PPPs")?

How can respective states develop solid competencies in order to better deal with PPPs?

What could be the role of the EU in that matter?

Why has the percentage of GDP dedicated to the infrastructure investment gone down?

Can respective states confirm their financial commitments for project works which have been confirmed for this period? Is the state financial intervention providing sufficient leverage for realising the main cross-border sections and bottlenecks on the corridors network?

How can other public financing schemes, like cross-financing, be developed?

In view of the budgetary difficulties and the constraints on public borrowing, the public sector agencies are increasingly exploring options for alternative models for infrastructure delivery, often based on a stronger involvement of private sector in both financing and management of infrastructure. Such models bring a number of benefits, in terms of access to new sources of financing for infrastructure limiting impact of infrastructure investment on public debt and deficit (through transfer of risk to the private partner) or efficiency improvements in providing transport infrastructure. Private sector involvement often brings in not only financing but also know-how, expertise, innovation capability, new methods of management, better access to benchmarking data, etc. In infrastructure projects, the degree of private sector involvement varies widely, from traditional works or service contracts to full privatization. Public Private Partnerships (PPP) lie between these two extremes, and can take different forms, notably as regards the risk-sharing between the private sector and public authority.

c) How can private financing complement public funding?

There are cases in the transport sector where private financing has completely taken over from public financing, in the sense that a private company or consortium takes care of the financing, the design, the construction and the operating of a large public infrastructure at
the developers' own risk. As regards PPP, they have been used more often, but have mainly concerned engineering structures such as tunnels or bridges, or motorway concessions. Private sectors' appetite to finance and operate transport infrastructure is naturally dependent on the likelihood of such investment to be economically profitable. The combined financing and operation of transport infrastructure offers a number of advantages in this respect. The durability of the structure (once constructed it will last for decades), makes it possible, if the partnership is properly structured notably in terms of overall duration, to envisage a long-term return with relatively limited risks of default. This can be attractive for example for pension and sovereign funds, which are looking for stable, long-term returns and there is indeed an increasing interest in attracting such investment vehicles into infrastructures projects.

Speaking on that issue Giddens says:

[…] A study of more than forty state projects in transport, carried out in Denmark, showed that in more than 75 per cent of them construction costs exceeded estimates by at least 10 per cent. In half of the cases the figure was more than 50 per cent. In PPPs, the difference between costs and estimates on average is much lower. Moreover, a crucial difference in that PPPs risk is spelled out ahead of time, since it is borne by the investor. In state projects, when there are big cost over-runs, the rest of the state sector has to absorb the shortfall.] (Giddens, 2007: p77)

Promising as it may be, the use of PPPs in bridging the infrastructure gap may still not have been used to its full potential. It is necessary to look into ways how this can be achieved. The key challenge is probably for public authorities to develop the necessary skills and know-how to deal with these new financing models. This requires sometimes a cultural change for public authorities which have to move from the logic of traditional public procurement to a new logic of partnership with the private sector. To achieve this, a strong political commitment may be necessary. Risk sharing is at the essence of PPP and is one of the aspects of the model that needs to be carefully considered. Risks may be of different types: political risk, construction risk and revenue risk. In a full private financing scheme, all these risks fall to the private sector and this can be a serious barrier to its involvement. The major area of difficulty in formulating PPP arrangements is usually the revenue risk. This is sometimes difficult to assess at the outset, since it may be influenced by many
different aspects such as, for example, the quality and the extent of the existing network (and further investments) that links to the infrastructure, notably catering for other transport modes, and the overall evolution of prices in the economy. Moreover, since the infrastructure has to last for decades, its design should take into account an average maximum traffic to be in use, even though this maximum is unlikely to be reached in the early years of the operating period. This means not only that the overall timeframe of the PPP must take into account the need for a return on the initial investment that will build up only over the longer term, but also that the uncertainty surrounding the return in the first years of the project may be critical to its success. This is why the European Commission and the European Investment Bank (EIB) have launched the “Loan Guarantee instrument for TEN Transport projects (LGTT)”, to support privately financed projects in the early stage of operation. The aim of the instrument is to mitigate the revenue risk of the early years of operation, enhance the overall credit quality of the project and thereby encourage a reduction of risk margins charged by financial institutions. LGTT is financed with a capital contribution of €1 billion (€500 million each from the Commission under the TEN-T budget and the EIB) which is intended to support up to €20 billion of senior loans.

The Commission has devised a new system, which should be operational by 2007, it grant loan guarantees which will make public-private partnerships (PPPS) more attractive to private companies. Barrot,J.(2005)

Construction cost based grant in the framework of availability payment schemes is another instrument developed by the European Commission, to be used to contribute to availability payments during the operational phase. It allows for TEN-T budget support to privately financed projects based on a significant risk transfer. Such availability payments schemes provide a possible way to involve private financing, where the public sector would pay according to the “availability” of the facility, with penalties e.g. for closures and disruptions to traffic. It is clear that these initiatives can be usefully complemented and that further reflection is needed in this area. The Commission wishes to engage in a dialogue with Member States and stakeholders on this subject matter, in particular on how to make a better and more widespread use of Public-Private Partnerships.

d) Where does the public budged raise the road funds?

Financial Procurement Strategies shoes that public budgets are mainly funded from general taxes, taxes or levies charged to the transport infrastructure users, loans, revenues of other external services combination of these sources.

The most important taxes are taxes of imposed on transport, fuel and vehicles which comprise a significant proportion of public sector tax revenues. Taxes and levies usually cover the costs of transport routes but may not cover indirect costs, such as accident response and environmental protection. Many countries are now moving away from funding models that rely exclusively on public budgets for a number of different reasons. Generally nowadays governments are not oriented to allocate any more public funding to roads, as the pressure to allocate funds to other sectors is even greater. On the other hand, governments are unwilling to raise transport taxes, as they are in most countries already considered high enough.

Long term strategies are introduced to find new funding solutions for the governments’ transport policies which involve separating the funding and execution of individual investments from political decision-making. A number of countries have developed different kinds of off-budget/off- balance sheet financing for funding roads. Off-budget/off- balance sheet financing is frequently seen as a way of bringing “new money”.

Dedicated taxes are the source of funding for many road management funds. These taxes include automobile-related revenues from fuel taxes, vehicle registrations, driver licenses, insurance premiums or value added taxes paid by road users in accordance with the beneficiary-pay principle. It is important that the dedicated tax system is clearly instituted by a law and supported by a consensus of the people in order to be effective.

The use of dedicated tax in road management funds does not appear to be a growing trend in the more developed countries. In developing countries, however, dedicated tax has the potential to offer a speedy solution to funding much needed road investments. In the longer term the increasing use of user charges and technological developments are likely to lessen the need for dedicated tax. On the other hand, the second generation road funds (as defined by the World Bank) present an opportunity for coordinating other transport levies as well.

When country’s fiscal circumstance becomes harsh, the government tends to discard the reason for establishing the dedicated tax, and may divert the tax revenue in order to cover the fiscal deficit. Such cases can exist in developed as well as developing countries. If so, road funds remarkably decrease, the situation of the road network badly deteriorates, which adversely influences the national economy.
User charges are the most extensively used and most rapidly growing model of funding and budgeting for road management. Justifications for imposing user charges include the ability to promote transparency, customer-orientation and drive demand. One point of view is that user charges might become more stable than a system of dedicated fuel tax, thereby achieving more secure revenues.

The toll road system is an effective way to levy user charges. Toll fees are collected from users of the roads, and its income is used to finance the maintenance costs and/or repayment of loans and/or improvement of road networks. Toll road systems can be introduced in regular non-toll roads utilizing sophisticated technologies. Recent developments in electronic toll collection (ETC), global positioning system (GPS) and image processing techniques have improved ways of collecting toll fees.

Toll fees are based on the amount of necessary expenses like construction and maintenance costs, traffic volumes, payable level of users, costs of alternative traffic means, socio-economic conditions, etc. Profitability of toll roads is different from road to road. Therefore official foreign assistance is generally extended to the toll road projects in developing countries to secure the same level of profitability among different toll roads with an appropriate level of toll fees.

If a toll road network is managed in a large area by a single agency, a toll pooling system based on fee receipts can be adopted to pay off the loans incurred for the construction of the entire network. In this case, the basic toll rates are adjusted from the viewpoint of fairness and total profitability of whole network. This system can be effective if it acts to spread out traffic throughout the road network.

In the countries which started developing the toll road network earlier there are not many remaining toll road sections which can make repayment for initial construction costs by only toll revenue. This is because the level of toll fees is strictly restricted socially and politically. Even when traffic are high on these new roads sections, expected toll revenues still are inadequate to cover costs. For most road sections where the construction cost is relatively low, the expected traffic volume is not enough to generate sufficient toll revenues.

The use of toll systems is increasing the fastest in countries where economic growth is backed by sizable transport and infrastructure investments. Toll systems have been introduced in Denmark, Switzerland and South Africa. In the cities of London, Stockholm and Singapore various levying systems on vehicles entering a particular area have been implemented. Some cities adopt toll systems for the main purpose of reducing traffic
volume and addressing problems associated with traffic congestion and environmental degradation, other cities utilize the revenues to raise road development funds

In many countries, inadequate road maintenance and the development of new funding models led to the introduction of public private partnerships (PPPs) and the use of private sector resources as early as the 1970s. Many governments have opened road management to competitive tendering and outsourced public sector duties to private service providers. Private funding should be considered only because it provides an alternative source of funding, but also because of the other benefits that access to private sector resources offers. Relying on private sector resources alone often presents a more efficient and innovative way to execute projects as well as enabling fairer risk sharing.

In the 1980s many developing countries tried to establish special road funds by increasing fuel and automobile taxes with assistance extended by the World Bank and others, but these efforts resulted in failure. The increased taxes were diverted to the general revenue, and were used for purposes other than roads due to political decisions. The World Bank has devised a second generation road fund. The mechanism of the fund is to divide the road-related tax revenue into two parts, one is to be incorporated into general tax revenue, and the other is to be dedicated to the road fund.

International experience has shown that countries will have to determine which financial procurement strategies for road funding will best meet their socio economic needs to maintain economic growth and sustainability for the future.

Among the funding allocation methods used by countries are: political influence; asset management systems and - valuation or accounting of assets. Road management activities that are funded out of public sector budgets are usually guided by political motives. Political influence often leads to short-term budgeting and to favouring new investments and neglecting maintenance. Road funding, in particular, is considered a means of implementing regional policies or serving other economic goals. Other principles or tools for short term and long term allocations of funding are: demography; road network and traffic; management systems, and stakeholder needs.

Traditionally, road management has been the responsibility of public road authorities. In most countries, the road authority is either controlled by the state or a regional government. Some of the most developed countries have adopted a purchaser-provider model or set up state-owned enterprises. Governments have increasingly opened up a public production to competitive tendering usually beginning with construction and planning.
New kinds of road management systems include a number of different public-private collaboration models that make use of private sector providers’ ability to innovate and to control risks. As public sector procurement develops, the road management market and products are also likely to evolve. For example, major investment projects can be complemented by adding more extensive responsibilities that cover the project’s entire life cycle. The most advanced example of this is a design-build contract, which also covers maintenance and operating costs.

Several factors influence the need for effective cost management for long term road system investments. One issue is the lack of adequate maintenance on roads in most countries. Second, in some countries, such as countries in transition, there is a high rate of investment in the road system. Third, traffic operations are increasing in developed countries and in core network organizations. It is noted that allocation methods are still quite traditional. The use of management systems and asset management is increasing. Allocation is more often based on outsourcing, longer procurement contracts, PPPs or concessions. The framework of the road administration and the government play a significant role in deciding how funds are allocated.

IV.3.2 Public Private Partnerships

a) Public Private Partnerships

As the best international experiences demonstrate the very great socio-economic impacts of PPP investments in infrastructure, it is useful speaking for the basic requirements of a successful public private partnership investment. Among the best examples the political will is the basic requirement to be established in a partnership.

So the basic requirements for the successful application of PPPs are political will, political acceptance and an ideal balance and adequacy of resources. Countries can also benefit from exposure to international best practices in PPPs. Among best practices of these financial partnership investments are those which:

• allow sufficient time to assess and consider objectives and aims of proposed/intended PPP developments;
• conduct thorough and reliable socio-economic and financial viability studies, and use reliable information in financial modelling;
• develop practicable and achievable specifications and contractual requirements;
• use reliable optimization methods to select the best investment opportunities; and
• make sure that PPPs provide good value for money.

The Commission has devised a new system, which should be operational by 2007, to grant loan guarantees which will make public-private partnerships (PPPs) more attractive to private companies. 


PPPs can not only be used for the delivery of major new roads, but as a tool, can be applied to a broad range of road assets and activities including routine road maintenance of rural roads. The levels and types of financing of PPP road projects vary with the content of each PPP project, the length of the contract, the project economics and financial health of the country – as measured by ratings agencies and the convertibility of its currency. For capital intensive PPP road projects, sources of private finance include companies, private banks, public sector banks, multi-lateral banks, pension funds, etc. Payment mechanisms involve different levels of contribution by the road users and the government. These can include direct user tolls; direct user tolls plus government operation payments, vignette plus road fund and shadow tolls, and availability payments. The types of projects and the source of revenue that can be pursued by a road agency are dependent on the ability and willingness of users to pay and on the financial resources of the agency. Performance-measure payments are becoming the norm. These payments concentrate the government and PPP partner energies on improving efficiency and effectiveness.

Different countries with different operating environments will demand different conditions and relationships between the public and the private sector.

The environment within which a PPP is developed and maintained has the biggest impact on the sustainability of the PPP. Areas of risk identified are country specific risk; pre-agreement regulatory risk and contract specific risk. Country risk falls outside the control of both the public and private party and can best be influenced by both parties over the medium and long term. Pre-agreement regulatory risks include the regulatory process and approvals which are suppressive conditions to the effectiveness of the PPP agreement. Contract specific risk is risk associated with the financial, revenue and performance aspects in the delivery of road infrastructure and services.

The degree (extent and intensity) of risk assumed by the private sector will be reflected in the financial internal rate of return (IRR) of the project. The IRR reflects the final cost as a result of the specific allocation in the project. The more the roads authority mitigates the risk, the less the required IRR will be for the private sector.

Future trends in PPPs show emphasis shifting from locatives budget driven procurement of infrastructure (where government assumes most of the risk) to investment driven procurement where the private sector assumes the role and most of the risk of the public sector. PPPs are being developed for much longer terms in order to take advantage of whole life cycle innovation. PPPs will use a mix of performance payments and direct user charging to both balance the project viability and to manage community outcomes over the longer term.

For capital intensive PPP road projects, the sources of private finance include:
• private companies (construction, specialist infrastructure and private equity companies);
• private banks;
• public sector banks;
• multi-lateral banks;
• pension funds;
• insurance funds;
• infrastructure funds, etc.

The private sector will need to be recompensed for financing and delivering the road services. In this instance, there is a mixture of payment mechanisms involving different levels of contribution by the road users and the government.

Road management usually encompasses building new roads, repairing existing ones, as well as operating and administering the entire road network. In some countries, road authorities are also responsible for vehicle registration and driver’s licence administration as well as road and traffic safety issues. The relationship between the cost of building and maintaining road networks is usually linked to the financial development and economic growth of a country or region. Maintenance is an easy area to make savings in without the consequences of this underinvestment being visible too soon. On busy road networks, where funding is based on sources other than public budgets, maintenance and operating costs are considerably higher. In more developed economies, road networks are well established and maintenance usually accounts for between 25 and 65 % of costs. In developing countries where the road network is still under construction, new investment is much higher and maintenance only accounts for between 10 and 25 % of the costs. The
difficulties in comparing costs arise from the different classification systems of annual road management costs and investments. The grounds for recording investments on the state’s balance sheet should always be their long-term effects on the service life of the road network.

b) Good experience on Public Private Partnerships

Traditionally funding for roads and motorways has been provided through public financing with some private sector resources that have been defined by the structure and challenges of individual countries. The experience of today has demonstrated that countries are facing difficulties in allocating their financial resources among critically needed maintenance, and the desire to secure new infrastructure to increase network capacity and to preserve existing roadways.

At the same time industry and communities are placing increasing expectations on the providers of road infrastructure to deliver a safe, state-of-the-art system. Finding appropriate and viable financing mechanisms can be daunting to the public sector. There are many challenges in trying to develop a framework to view financing road system investment from a multi-country perspective. The daily challenge of the policy governors is how to explore financial procurement strategies, consider cost management for long-term road system investments and redefine the role of public-private partnerships (PPPs).

A modern infrastructure is vital to the quality of life, sustainable development and global competitiveness for all countries. Road transport contributes to the attainment of these goals. A critical issue is financing that infrastructure. Traditionally funding for roads and motorways has been provided through public financing with some private sector resources that have been defined by the structure and challenges of individual countries. The experience of today has demonstrated that countries are facing difficulties in allocating their financial resources among critically needed maintenance, and the desire to secure new infrastructure to increase network capacity and to preserve existing roadways.

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Funding new transport infrastructure has always been among the greatest challenges for government officials and planners. In today's urban economy, costs appear as high both in absolute terms and as a portion of regional GDP, that even the most well-designed and beneficial projects face daunting hurdles to gain approvals and funding. To compound this burden, the risks of delays and cost overruns can be

“A report for the UK Treasury on fifty major construction projects found average optimism bias, or resulting costs over projected costs, of 24 percent for standard buildings, 44 percent for standard infrastructure, and up to 200 percent for equipment development (HM Treasury 2002)” exceptionally large. Traditional planning, procurement, and project management techniques are often blamed for this lack of control. In the past decade, integrated procurement strategies combining private-sector management and financing have formed the core of hundreds of deals, which are now delivering, or will soon deliver, public projects in the United Kingdom. According to these transactions, which are referred to as "PFIs" (Private Finance Initiatives) or "PPPs" (Public Private Partnerships), have rapidly gone from the status of pilot projects to a large, even dominant market in Britain.

PPP have more of a performance focus and a more overtly explicit role for public participation than do PFIs. However, this distinction is not relevant for most discussions.] (Thomas L. Amenta 2007)

Instead of procuring capital assets and paying for them up-front, the PPP structure creates a stand-alone business that develops, finances, and operates an asset in return for a payment generally over a period of twenty to thirty years. Some technical specifics stand beyond these “financial technologies” The component parts of these deals-long-term concession contracts encompassing design-and-build agreements, long-term performance regimes, off-balance sheet financing arrangements, and regulatory and audit frameworks-have become so pervasive and evolved within this market that they may now be considered transport financing "technologies" in their own right. Like other technologies, they have their strengths and limitations and will be more appropriate to some circumstances than others. It is becoming increasingly accepted that PFIs and PPPs offer a general, workable solution to the perennial challenge to governments who face the procurement and funding of large-scale, essential infrastructure. PPPs and PFIs merge design-and-build contracts, long-term operating agreements, and financing within a single, competitively tendered, long-term deal
to private providers. In this way, these contractually limited privatizations promote private investors bring more effectiveness. The questions behind this new financial technologies according (Tizard.J is:

[does the business sector improve productivity, reduce costs, and enhance quality when public services are contracted to it, compared with directly, publicly managed services ? [...]

Different applications of the traditional PPP model are a result of different drivers and objectives for PPPs, different funding mechanisms (source of revenue and finance) and different regulatory frameworks.

d) Advanced international private finance infrastructure experience

Private financing of infrastructure is not new, in a historic perspective in recent times, however, there have been significant new developments. In post-war Europe in particular, most of the infrastructure was owned and controlled by state institutions. The same situations were present also in Albania, Macedonia and Bulgaria till 90ies, where total state properties were present in the above mentioned countries. Since the 1980s, the trend has reversed as many pieces of infrastructure have been (partly or fully) privatised in the face of stretched public finances. If we refer to OECD countries, estimates for privatized assets run over US$ 1trilion. At the same time, several industries were (more or less) deregulated. In this first wave, many investors benefited from investing in shares and bonds of, e.g., privatized utility companies. (Journal, Institutional Investing in Infrastructure)

e) How does it started

Full privatisation is not always needed, or possible, or politically wanted. Therefore, governments increasingly propose new forms of —public private partnerships, e.g. by subcontracting public services to private companies. The state changes its role from owner and provider of public services to purchaser and regulator of them. The private sector comes in as financier and manager of infrastructure, obviously expecting an attractive return.

Different countries have taken different routes at different speed. Australia has been gaining substantial experience in terms of private investing in infrastructure over more than 10 years. In Europe, the UK’s —Private Finance Initiative(PFI) and Public Private Partnerships (PPP) shows a list of over 900 projects for £ 53bn signed from the mid-1990’s
to the end of 2007, with a capital value of £60bn. —Overall, PFI/PPP has accounted for about 10-15% of public sector capital investment since that period of time (IFSL 2008).

If we refer to Europe experience the PPP outside UK has also been developing in the 2000s. The value of 193 signed projects totalled €32bn from 2001 to 2007. The pipeline is still growing. A further €68bn of projects is currently being procured, with Italy being the most active. Many in the infrastructure industry see the USA as — the next gold rush. The involvement of private investors in infrastructure is rising fast in Asia and in many emerging markets.

What about the future? The requirement for better infrastructure seems obvious everywhere in the world. Infrastructure investment will need a huge amount of capital in the coming decades, whether public or private. Estimates made by supranational institutions for global infrastructure needs run into the dozens of trillions. Through to 2030, according to the OECD, the annual infrastructure requirements for electricity transmission and distribution, road and rail transport, telecommunication and water is likely to average 3.5% of world GDP, This amounts to a sum of over US$50tr until 2030. The figures get even higher if other infrastructure sectors are added.

The infrastructure needs are especially high in developing countries. (ADB 2006 for East Asia) The Economist magazine reports that —over half of the world’s infrastructure investment is now taking place in emerging economies. The US$ spent is equivalent of 6% of their combined GDPs.

IV.3.3 Pension investment funds and transport

Pensions funding investment schemes should be referred for the very argument related to countries along Corridor Eight area. Albania and Macedonia (FYROM) has considerable migrants abroad their countries. The same situation is with Kosovo and Montenegro. There is an urgent need to act in trying emigrants money in believe and fruitful mode. Instead of bank deposits there are more active, attractive and productive ways of using migrant remittances. Because of historical reasons of the post communist period, a considerable mass of Albanian and Macedonian people has migrated abroad. There are more than 1 (one) million of Albanian migrants, mostly young and active age. What is their practice in using their moneys? The pyramid scheme was a great defeat scheme for Albanian governance. While the best way to attract migrant remittances in a believable and fruitfulness mode is infrastructure partnerships between: governmental public funds-
migrant’s remittances- landowners. Such a combination will attract a huge amount of moneys to invest in infrastructure. It lays on the governmental and other stakeholders to build up the formula. Bilateral agreements must urgently achieve to transfer the pension money from Greece, Italy, GB, Germany, USA, Sweden, and other countries where Albanians live and work. Otherwise, a big social problem will need to be solved when the pension age will come for the present active age migrants living abroad. According to the Albanian law 35 working and contributively years are needed to profit retired pension. 

That’s why an investment mode of migrant remittances and pension fund transfer from hosted countries will be a good choice in raising Public Private Partnership.

According to the OECD calculations, the funded pensions market (both occupational and work related) has a size of US$ 24.6tr worldwide. Of this, US$ 16.2tr is held by pension funds. On a simple calculation, an allocation of 3% of pension fund assets would make roughly US$ 500bn available for infrastructure investments. A considerable amount of remittances could be invested in Albania, if the state stakeholders improve legislation and administration.

a) How much money have pension funds invested in infrastructure?

There are no hard data available. However, one can make a simple approximation. Following earlier calculations, infrastructure stocks (including utilities) account for around 5% of the stock market. (Watson Wyatt) estimates that 56.4% of global pension assets were invested in equity in 2007. This gives a total equity investment by pension funds of over US$ 8tr. Assuming that pension funds have, overall, no sector bias for or against infrastructure stocks; a proportion of 5% implies they are invested with US$ 400bn in listed infrastructure stocks. However, if only 15% of those are infrastructure in a narrow sense (ex utilities), as indicated by the indices, than the approximation figure comes down to US$ 60bn.

It is becoming accepted practice to name infrastructure as an alternative asset classes. In the alternative space, this typically means investment in infrastructure funds and direct investments in infrastructure companies. There is hardly any independent and reliable data available on the investment of pension funds in infrastructure as alternative asset class. Data providers normally still classify infrastructure under the —other or —alternative asset classes, without breaking that up further. They may also fall into the private equity or real estate categories. Watson Wyatt, a consultancy, undertakes an annual survey of managers of alternative asset classes, where infrastructure was included for the first time in 2008. 17
managers had US$ 45.8bn pension fund assets under management. This is about 5% of alternative investments. 53% of that was invested in Europe, 21% in North America, 22% in Asia Pacific and 4% elsewhere. In comparison to other alternative asset classes, North America comes out much lower while Europe and Asia Pacific comes out much higher.

According to this survey, the Australian Macquarie Group is by far the biggest manager, managing assets of over US$ 20bn for pension funds, and a market share of 44%. (Article Infrastructure funds lose out in a scramble to divest their assets, Financial Times, 25.08.2008) Macquarie is a pioneer and leader in the Australian finance model. Organizing infrastructure acquisition, funding and management, the Macquarie Bank Group has grown to include 900 professionals working solely in the infrastructure sector, managing approximately US $45 billion in infrastructure equity invested in more than 100 assets across 25 countries. What is the percentage of pension funds assets allocated to infrastructure? In Australia, the Superannuation funds have been a key driving force behind the private capital flow into infrastructure. An average of approximately 5% of their assets is invested there, with some funds being in the double digits.

Globally, following the (Watson Wyatt survey) the figure of US$ 45.8bn given by fund managers would make about 2.8% of the US$ 16.2tr global pension funds assets. However, other surveys do not confirm an allocation of such size. Outside Australia, the weightings of unlisted infrastructure appear much lower. In the client survey of the consultant firm Mercer, only 0.7% of UK pension plans are shown to invest in infrastructure. The average allocation to infrastructure by those plans is 2.3% on weighted basis and 0.8% on a weighted basis.28 For Continental Europe, only 1.1% of pension plans are said to be invested in infrastructure, with an average allocation of 2.0% to the asset class by those plans.

Overall, the allocation of pension funds to new-style infrastructure funds has been growing in the last 3 years although from an almost nil base (outside Australia). Asset allocation weightings are still low on average, but there are a number of prominent examples of single big pension funds that have made substantial allocations (but not necessarily yet commitments or investments)

b) Experience on pension fund investments

In Canada, the Ontario Municipal Employees Retirement System (OMERS) has several billions Can$ invested in infrastructure through its subsidiary Borealis Infrastructure, set up in 1998. The Ontario Teachers Pension Plan (OTPP) is another example. The big US
pension fund, CalPERS, adopted a new investment policy in 2008 with a target 3% allocation of assets, or US$ 7.2bn in infrastructure. The target returns is a net 5% above inflation over 5 years. Other US pension funds with infrastructure allocations or intentions include CalSTERS, the Washington State Pension Plan, Alaska Permanent Fund Corporation, Oregon PERD and the World Bank.

The major Dutch pension fund APG has a target of 2% for infrastructure in its Strategic Investment Plan 2007-2009. Given the size of the fund of € 300bn, these amounts to a volume of about € 6bn.Currently, the actual investment level is still well below that target. Other big pension investors in Continental Europe include the Danish ATP and PKA, Dutch PGGM, Finnish VER. In the UK, a number of big pension funds have announced going into infrastructure in recent years: USS, BT, RailPen. In addition, several local authority schemes have already started the process, e.g. LPFA. A number of smaller and medium-sized pension funds, private and public are currently joining in.

The most significant part of pension fund investments is through infrastructure funds. However, some bigger Canadian and Dutch pension plans have started to invest directly. They are often co-investors with specialist funds, and thereby hope to build up the internal expertise in-house over time.

Many other countries have established public pension reserve plans to fund the state pension promises. Some reserve funds have made a start in the infrastructure space, e.g., the Swedish buffer fund AP3, the Canadian Pension Plan (CPP). In 2008, the Irish National Pension Reserve Fund (NPRF) announced the desire to invest Euro 200m, i.e. 1% of its assets, in domestic public sector infrastructure projects. The overall target allocation to infrastructure for 2009 is 2%. The French FFR has also added infrastructure to its strategic asset allocation.

There are particular governance and investment issues to consider for them. There is potential pressure, or desire, to invest in domestic infrastructure in order to help the development of the national or regional infrastructure, the local capital markets and the economic development in general.

Sovereign wealth funds (SWF) offer another potential major source of infrastructure funding. There has been an increase in investments of private equity and hedge funds by SWRs in recent times. So far, however, direct involvement in global infrastructure seems to have been small. Nonetheless, there has been controversy about the possibility of —political investing in some places already.
c) What returns can pension fund expect from infrastructure investments?

Based on what literature suggests since the beginning it could be concluded that even it is a long term expectation, there is no doubt it is a profitable one. There are many figures flowing around in the financial and pensions industry but it is less clear what their substance is. History can offer little guidance to that question. What is the theoretical risk-reward profile? Early marketing brochures used charts showing — equity type returns with bond-type risk to describe the profile of infrastructure investment. Even if such a combination existed on the market, it would be unlikely to persevere for a very long time. Pension funds are presented all sorts of graphics with stylized risk-return profiles: sometimes showing infrastructure with risk and return both higher than equities, sometimes both lower, and sometimes at higher returns and lower risk. Other charts plot different dots on the chart for early-stage and mature assets, or many more dots for different sectors.

A theoretical analysis could start with the Capital-Asset-Pricing-Model and establish risk premium for infrastructure assets. For primary infrastructure investments, e.g. they could include a credit premium, an illiquidity premium, a small cap premium, and perhaps others. This would speak for a return and risk expectation somewhere between public and private equity. On the other side, mature infrastructure services with high and stable dividends may have a risk-return profile closer to utility stocks with a low stock market beta, or corporate bonds.

For pension funds, these questions are not academic. How should they benchmark infrastructure investments? What could be considered success or failure? How should infrastructure be modelled in asset liability-studies? How should they integrate it in their strategic asset allocation and risk budgeting exercises? When the global infrastructure boom started, return expectations were often given as 15% plus pa by some providers. In their 2005 analysis of the Australian market, Mercer say that —most managers’ products fall into the category of diversified infrastructure funds that have an objective to deliver returns of 9 – 12% net of fees.

The analysts’ projections also vary across infrastructure sectors. “JP. Morgan Asset Management”, e.g., expects the lowest expected internal rates of returns for toll roads (8-2%) and PFI/PPP (9–14%), and the highest for airports (15-18%) and broadcast network (15-20%), this against an infrastructure average of 10- 15% . Return expectations have been reduced more recently (even before the credit crunch 2007) from double digits to single digits, as more players crowded into the market and pushed bidding prices up. The first-mover-advantage, typical for new asset classes, has run out: “assets have been
mispriced in the past and, despite their low-risk characteristics which would normally mean low returns, infrastructure returns have historically ranged anywhere between 10% and 35%. With demand and knowledge rising however, returns are predicted to stabilise around 5-6% in the long term and in equilibrium”.

How do these return expectations compare to other asset classes? According to a recent survey, return expectations for the asset class infrastructure over 10 years are an annualized 9.5%, putting it in second place behind private equity (11.3%). In comparison, stocks are expected to return 9.0%, bonds 5.1% and cash 3.7% . What is the expected risk profile of infrastructure? Expectations for volatility are typically set somewhere between equities and bonds. The asset-liability model used by “Morgan Stanley Investment Management”, e.g., compares five main asset classes. It puts infrastructure (volatility 7.9%, return 9.3%) second only to bonds (4.4%) in terms of expected volatility and second only to private equity (10.0%) in terms of expected return. As an example for pension funds, the (Dutch APG, expects a 10% return from infrastructure with a 7% risk). In comparison, the corresponding figures are 6% / 9% for property and 15% / 25% for private equity.

IV.3.4 International experience in PPP

Discussing for private investments in infrastructure, it must be taken in consideration the fact that we could not consider them separately from the other part of services included in the transport infrastructures, not only in conceptual approach but in the financial context of the initial investitures. Even technically we can’t consider them separately. In the final conclusion, should be mentioned that financial, administrative and technical correlation make possible a joint treatment of the private and public partnerships in investment. From this point of view the different concepts there comes out for infrastructure. It is defined as the basic facilities, services, and installations needed for the functioning of a community or society, such as transportation and communications systems, water and power lines, and public institutions including schools, post offices, and prisons. (American Heritage Dictionary)

We can classify infrastructure of transport as:

- Economic infrastructure

-transport (e.g. toll roads, airports and seaport, tunnels, bridges, metro, and rail systems);
-utilities (e.g. water supply, sewage system, energy distribution networks, power plants, pipelines, gas storage);
- communication (e.g. TV/ telephone transmitters, towers, satellites, cable networks);
- renewable energy;

- Social infrastructure

- education facilities;
- health (hospitals and health care centres);
- security (e.g. prisons, police, military stations);
- others (e.g. parks).

There are a lot of varieties within infrastructure if it is defined by its physical nature and people disagree what exactly should or should not count as infrastructure asset. For example, do utility companies count as infrastructure? When their activities span production, distribution and networks, where is the dividing line?

Where does public infrastructure and private infrastructure start?

Financial industry analysts therefore tend to take a different route. They see certain commonalities, or common economic and financial characteristics of infrastructure. In particular, they emphasize the existence of limited competition, resulting from different sources.

Economic: natural monopolies (e.g. energy distribution networks), public goods (e.g. broadcasting);

Regulation: controlled charges and fee increases (e.g. toll roads), regulated utilities;

Concessions from public authorities: long-dating contracts (e.g. hospitals).

Infrastructure assets typically show one or more of the following stylized economic characteristics, including:

- high barriers to entry;
- economies of scale (e.g. high fixed, low variable costs);
- inelastic demand for services (giving pricing power);
- low operating cost and high target operating margins;
- long duration (e.g. concessions of 25 years, leases up to 99 years).

From this, the investment industry deduces a number of favourable investment characteristics of infrastructure assets:

Stable and predictable cash flows-long term income streams - often inflation-linked (helping with liability-matching)-in some countries, tax-effective - returns insensitive to the
fluctuations in business, interest rates, stock markets - relatively low default rates - low correlations with other assets classes (offering diversification potential) - socially responsible investing (SRI) (providing public goods essential to society).

The definition of infrastructure investment by its financial rather than physical characteristics creates new controversies. For example, what does the cash flow from a toll bridge have in common with the one from a school building project? Is the risk of an airport comparable to the risk of a gas distribution network? It is therefore important to look deeper into the investment process and vehicles.

\[ a) \] \textit{Croatian Case of PPI}

The case of Croatian motorway must be introduced for many reasons:

- It is a very good example for constructing roads in PPP model, the roads are of high standards, and that Croatia was an ex-communist country.

- In Croatia, motorways are operated by 4 companies, i.e. by Hrvatske autosense d.o.o. (operates all toll motorways except for those in concession) and by three concession companies BINA-ISTRA d.d. Pula (operates the so-called Istrian Upsilon - A8 and A9), Autocesta Rijeka-Zagreb d.d. (A6 and A7) and Autocesta Zagreb-Macelj d.o.o. (A2).

In 2007, the investments in new motorway construction amounted to the total of 5,207.08 millions of kunas (€ 694.27 million), while 716.88 millions of kunas (€ 95.58 million) were invested in the upgrade of existing sections.

In 2007, the construction of motorways was mostly financed through loans and toll revenues, and the company Hrvatske autoceste d.o.o. also finances motorway construction through fuel tax revenues 0.60 kn per litre (€ 0.08). In 2006, the network increased by 43 km, i.e. by 4.7 percent comparing to the previous year. In 2007, the size of network increased by 80 km, i.e. by 8.9 percent in comparison with the year 2006. The total motor vehicle traffic operated on motorways increased in 2007 by 5.9 percent, when compared to the previous year.

In 2006 the GDP increase was 4.8%, the traffic increase 5.6%, while in 2007 the GDP increase was 5.5%, as traffic increase 5.9%.

The motorway network in Croatia is still under construction. Both the closed and open system of toll collection are used at the moment, however, once the network is completed all motorways with multiple entry and exit points will operate a closed toll collection system.
According to the Transport Development Strategy devised for the Republic of Croatia and adopted by Croatian Parliament, Croatia is expected to have 1,365 km of motorways by the year 2013.

Technical properties of motorways and other toll facilities, and specific features of financial operations in this sector, made it necessary to put in place a specific organizational structure for the operation of these facilities. In addition to ensuring continuity of maintenance and further construction of sections and facilities on which work has already started, an intensive activity must be promoted in the next planning period in order to improve organization of routine maintenance, to further automates toll collection, and to enhance quality of roadside service facilities on motorways.

b) Contemporary transport Partnerships

The Korean firm Chungsuk Engineering is seeking to take part in a new double-track rail line project linking HCMC with the central coast city of Nha Trang, and proposed to develop the track under the public-private partnership, said a source of the Ministry of Transport. The new line, measuring 1.435 meters in width, is projected to cost US$7.8 billion, and is part of a larger plan by the railway administration for developing a cross-country express railway replacing the current 1.0-meter-wide track. Transport experts said the new line, stretching 369 kilometres, would allow trains to travel at a speed of 200km per hour while it will still be much safer than the existing aging line, which allows for a maximum speed of 60km per hour. If the train runs at 200km per hour, it will take more than two hours to travel between HCMC and Nha Trang while the existing trains need more than eight hours to cover the same distance Chungsuk’s chairman also said that he himself had worked with big financial organizations and banks in Korea on financing the railway project in Vietnam and all of them had shown interest in the project. The Korean consultancy firm advised it could mobilize capital from both the government and private sources, and therefore proposed a change to the investment form. The new investment form likely has backing from local authorities.

Head of the railway administration of Vietnam said that funds for the project should be raised from many sources, including foreign countries. It would be most suitable if the Government contributed 30% of the total capital, and private sources the balance. Other experts from the transport ministry said some Korean investors had expressed interest in the project and would be willing to get involved under the form of:
“land in exchange for infrastructure.” Once the railway project is completed, the investors will transfer the project to the Government and in return, they will be awarded property projects in the country. (Source: Vietnam Net Bridge) Is it still available land to use for such a model in Albania?

c) Indian Highways, Ports Projects, example.

The Public Private Partnership Approval Committee or PPPAC, in its 23rd meeting on Tuesday, approved Rs. 5,220.15 crore highways and port projects under public-private partnership in five states. Of the seven projects, two were from port sector and five were highways under NHDP phase III and III-A, the release said.

The projects include four-laning of Talegaon-Amravati section of NH 6 and Pune-Sholapur section of NH 9 in Maharashtra. Three remaining projects are four-laning of Dindigul-Theni section of NH 45 and Mumili-Theni section of NH 220 and four-laning of Tindivanam-Krishnagiri section of NH 66 in Tamil Nadu. Also, four-laning of Muzaffarpur-Sonbarsa section of NH 77 in Bihar was approved.

The port projects included development of multipurpose cargo berths at Kandla Port, Kutch and setting up of iron ore handling facility at New Mangalore Port at a cost of Rs.1,209 crore.

PPPAC, since its inception in January 2006, approved 101 projects, with an estimated cost of Rs.1,00,383.89 crore. (Source- (RTTNews) what does the new urban port planning offer to such a reality in Albania?

Ports in USA, The tenant are a terminal operator - owned in a partnership between Ports America Group, the largest American terminal operator, and Terminal Investments Limited. The concessionaire will operate berths 20 through 24 at the port, replacing A.P. Moller. The plan is to build a container terminal in the outer harbour and bring four additional huge cranes to the port's outer harbour.

The group, called Ports America Oakland is paying a $60 million up-front fee to the port and annual rent of at least $19.5 million, with the figure rising some each year.

Economic consultants to Ports America Oakland estimate the long-term agreement will yield 6,000 jobs and more than $100 million in direct personal income.
"You could call it the stimulus package at the Port of Oakland," said port Executive Director Omar Benjamin. "This is the right thing to do to keep the port as a major economic force for our region and competitive for the future."

Benjamin added, "In the midst of an extraordinary downturn, this is an indication that we do have value and do have a role. It's important to see that kind of affirmation and note that in all of the economic turmoil something has been stable, and there is continuation in the stability of Oakland and the region." The deal was approved by port commissioners and is effective Jan. 1, 2010.

The agreement represents a turning point in the way the port does business. Its practice for years was to design and build facilities, but this is a public-private partnership with the private partner assuming the greater share of risk. Leases of 10 to 15 years were typical, but in accords like this the concessionaire benefits because it gets a much longer-term agreement and the landlord port gets a commitment of a very long-term revenue stream.

Ports America Group, from Iselin, N.J., operates at 50 ports and 97 terminals in the United States, Mexico and Chile. It is controlled by Highstar Capital, an infrastructure investor, founded in 2000 by Christopher Lee with some seed money from American International Group. The now-troubled insurer has an 8 percent share in Highstar Capital but is not involved in the Oakland investment, said Lee, whose company has invested some $15 billion in infrastructure projects, largely in the United States.

It was Highstar that purchased the port management businesses in six major East Coast ports following the congressional brouhaha over the fact that a company based in the United Arab Emirates, Dubai Ports World, assumed control of them by taking over the ports' previous owner, Peninsular and Oriental Steam Navigation Company of Great Britain.

With Oakland, Lee and Ports America Oakland are making a major investment while the recession has yet to bottom out, business at the port is down 15 percent from a year ago and some analysts believe West Coast ports have seen their peak and future cargo business will largely favour the Gulf Coast and East Coast ports in part because of the widening of the Panama Canal and more accessible rail service for inland destinations.
d) A long-term horizon

"Infrastructure takes a long-term perspective," said Lee. "I'm 56 and have lived through a number of financial crises. This is deeper and worse, but we are a resourceful country and will get through this financial crisis like we have the other ones I have lived through. It may take a little longer. That's fine. We have a long-term horizon here."

He discounted projections of a West Coast ports slowdown. "Our major trading partner by a long shot is going to be Asia," said Lee, and, he believes, that business will return with economic recovery Reducing emissions.

Perhaps the most ambitious element of the concessionaire's proposal is 90 percent reduction in emissions per container when build out is completed. Jared Parker, a principal at High star Capital, said the company intends to use green technologies in its facilities, make truck movement more efficient, use electrical rather than diesel power and otherwise lower dangerous emissions.

At the National Resources Defense Council in San Francisco, Diane Bailey, a staff scientist who monitors the port, said "We hope they will make good on their environmental claims. The port does not have a good track record on environmental programs, but I think lately they have been moving in a better direction. I'm optimistic."

*Colombia's Medellin-based multi-utility EPM*, will present a US$30mn basic sanitation public-private partnership project for Antioquia department during the city's Expo Desarrollo meeting from March 27-31, an official from the local municipal planning department told BNameiras.

The event will be held in the city at the same time as IDB's annual meeting.

The project consists of having one service provider build the infrastructure and then carry out potable water, sewerage and waste collection services in a number of small municipalities, thereby ensuring economy of scale.

Company officials will try to attract support from international financial entities such as IDB and the Andean Development Corporation (CAF) to help finance the initiative, whose cost will be partly covered by the rates charged to users, and by national and local governments.
The initiative is part of the Antioquia department's water and sanitation plan, which includes potable water, sewerage and waste collection services.

The date to launch the tender has to be decided yet, and the project is expected to take eight years to complete, the official said. Cost, fixed-rate financing with flexible repayment terms to the private partner and reduces costs to FDOT. "This is just the latest example of this Administration's commitment to getting Americans back to work," Secretary LaHood added.

*The Port of Oakland is adding a major tenant that has signed a 50-year agreement* that could bring up to a $2.5 billion investment to the docks and preserve thousands of jobs in the process.

*Florida’s plans for congestion relief in Broward County* just received help from the U.S. Department of Transportation through its approval of a $607 million loan to build *new express lanes on I-595*, U.S. Transportation Secretary Ray LaHood announced today. Construction is now expected to begin this summer.

"*The new express lanes will bring congestion relief and give drivers more choices for a better commute on this important highway in south Florida,*" said Secretary LaHood. "*This project is part of the Obama Administration's commitment to reviving the economy and putting Americans back to work.*" The loan will help build three reversible "*high-occupancy toll*" (HOT) lanes in the median along 10.5 miles of I-595 running east-west and linking two key interchanges on I-75 and I-95. Because the tolls will vary according to traffic volume throughout the day, drivers using the new lanes will enjoy less traffic congestion.

The lanes will be built as part of a public-private partnership between the Florida Department of Transportation and ACS Infrastructure Development that will make the improvements possible 15 years sooner than under conventional means. The agreement calls for ACS to finance, build, operate and maintain the project for a 35-year term. The Florida Department of Transportation (FDOT) will set and collect the tolls on the facility and make payments to ACS annually based on its successful operation of the road. Secretary LaHood said the loan, made possible by the Transportation Infrastructure Finance and Innovation Act (TIFIA), helped to leverage well over $750 million in private bank debt and over $200 million in private equity for the project's projected cost of $1.8
billion. The loan provides low-cost, fixed-rate financing with flexible repayment terms to the private partner and reduces costs to FDOT. "This is just the latest example of this Administration's commitment to getting Americans back to work," Secretary LaHood added.

The Port of Oakland is adding a major tenant that has signed a 50-year agreement that could bring up to a $2.5 billion investment to the docks and preserve thousands of jobs in the process.
PART FIVE

V. PANEUROPEAN TRANSPORT CORRIDOR EIGHT

V. I HISTORICAL INTRODUCTION

By considering the past history of the countries along corridor areas it would be of great value bringing in attention what history offers in joining people of these countries, than what history bring in memory about quarrels among each other. Inside these two phenomena’s I start analysing and constructing the social behaviour of the society in regard to collaborative actions of the society until the present days. For sure, the routes going through territories and nature of peninsula in a deep historical background and social developments were of particular importance in linking and picturing the profile of societies in the Early Balkans. There has been an ancient western gate to profound the Balkan and further more in Asia, across cultural point of the most famous cultures of that time, too. It was Illyria, with port cities of Durrazo and Apollonian. Durrazo was the cross cultural diffusion point of western and southern part of the Western Balkans. Beyond the early history of Balkan Peninsula inside the countries remain the individual and the cross diffusion routes cultures of that time. “Bordering on Epirus to the south, and having intercourse with the Hellenes, the Illyrians were, on the north neighbours of the Kelts. K. G. Brandis. “Peoples of the Main Balkan Peninsula” From the very different historic and scientific sources I came in conclusion (in alphabetic order) that Illyrians, Helens, Kelts and Thrace, were the main actors in shaping cultural pictures for the society of Balkan Peninsula at the early history of that society. “The ethnographic divisions correspond in general to the orthographic; the Illyrians dwelt on the west, the Thracians on the east, and a later period the Macedonians thrust in their way between the two to the south. Bordering on Epirus to the south, and having intercourse with the Hellenes, the Illyrians were, on the north neighbours of the Kelts. (People of the Main Balkan Peninsula. K. G. Brandis. 1904) A part from Italy where Adriatic and Ionian waters bordered with Balkans, it could not be written a clear natural border line between Illyrians, Hellenes, Traces and Kelts. As a consequence a social diffusion among societies of that time was present in intervals through decade and centuries. Beyond the quarrels and wars the only means to establish the
power between them, elements of social behaviour for co-surviving was present among peoples in the region.

In fact I have never found any literature speaking or mentioning Slavic presence in Balkan area during the early history. While there has been a permanence and presence of society and life in the peninsula. Surprisingly time after time I use to hear for particular territory in Balkans as the heart of a different social group, what Romans use to call “barbarian”. To this kind of social groups I have never heard mentioned by fathers of the history. Whether there was a battle history, a antic town, an educational academy or a long road linking two peninsulas, seas, and continents, a military alliance, a religious event, a wine traditional day, or a social clashes, I never found any different social groups living in the Balkans of that time, different from Illyrians, Helens, Thrakes, and Kelts.

Whether there were Illyrians, Helens or Romans, those who constructed the antic cities of Durres, Apollonius, Athens, and the route links of Egnazia, one thing is very clear. These were actions and demonstrations of common efforts of that society in diffusing and exchanging values in the language of that period of time. By these common social actions the routes of the society in the Balkans were “cemented”. Obvious the Romans, Slavic and late in the history Turkish have diffused and exchanged values with home social groups.

Taken in consideration what elements joined the society of Balkans for that period of time, whether the means were horses, elephants, or sea ships, I can conclude that transport routes were the corner stones of exchanging natural and human values for society of that time. No doubt “Via Egnatia” was the heart of communication among society of Apennine and Balkans deeply in Asiatic continent. By the reality we have to consider the power of Roman Empire in economical. Military and culture dimension, quite different from Slavic and Turkish in the Balkan. Why, which are arguments support my thesis:

The roman presence and social exchange with western Balkans social groups was a permanent communication, since Eight Century BC.

“Illyrian tribe to settle upon the soil of ancient Italy; and it appears that the different clans wandered in to the peninsula independently of one another and at different times. The earliest of the Illyrian migrations seems to have taken the direction towards Central Italy, where we find their traces in Latium( Venetuli, Ardea, Praeneste, Laurentum, Tribus, Lemonya), in Picenum ( truentum) and in Umbria ( the iapuzkum numen of the (Eugubian tablets ). The second emigration appears more
clear and distinct in the light of history. It was that of the Iapygi, of who single tribes-that is, the Messappi or Sallentinni and the Daunni-occupied the West coast as far so as Mont Garganus; in other wards; the Calabrian peninsula and Apulia. These tribes also appear to have travelled to Italy over the sea; their latest journeys occurred during the eight century P.C. (“The people of the Italian Peninsula Pauli. C. 1907”)

The third Illyrian migration in Italy, was that the Veneti. It can be proved from traces let behind them that these were fixed. In their latter settlements about the needle of the seventh century B.C. Beyond doubt they entered Italy by the overland route through Aquilia. We have but little knowledge of the civilisation of the Illyrians who first migrated in to Central Italy.

– The Romans culture and social values were of the most advanced in continent for that period of time. Due to this fact the society had a lot of chances to profit from this inter social exchange. Beyond that Illyrians were mostly unorganised groups is government and administrative sense.

There has not proven to be a “Civilisation Clashes” because of religious, between Illyrians and Romans, quite different from Helens’, Slavic and Turkish inter social intercommunications with society of the “home” country.

Surprisingly this effect can be distinguished even in the modern history of twentieth history and so on. Helens desenders permanently have been in vanguard of religious social confrontation with their north neighbours, Alabamians. Even in the present days a great mass of Albanian migrants in Greece are obliged by different financial and administrative means to change their status of origin and religious. Different social groups and persons of Albanian citizens which lives and work in Albanian territory also, are attracted (administrative permits in Hellenic land, job possibilities, studies, etc) to change their status of origin and religious, and so on. In contrast Albanian government has offered advanced and privileged opportunities for Greek minorities in Albania. I bring in attention the “Land Law, 1991” according that law all Greek minorities groups were declared owner of the land, where ever they live in Albanian territory.

Historically it is very well known social comport of Slavic invasion in Balkans. Such as social, cultural and religious experiences we share even in the modern history.

Speaking for Turkish invasion during 5 centuries in Balkans and Albania, too, I have to bring in attention that as regard to social, cultural and religious we clearly distinguishes a
Cultural, religious and social occupation were forced to home social groups. Albanians have to change their culture, language, names, religious, life styles and social behaviour. Different from their historically West orientation, they had to turn their look to the East, suffering through history social consequences.

It has to bring a moment in historical memory, a very vital one for the Albanian society, as regard to the Turkish relation. The end of 19 (ninetieth) and the beginning of 20(twentieth) centuries were very decisive for the future of Albanian existence. The new European balances of that period, risked disappearing Albanian existence as a nation. The Northern and southern Albanian neighbours with support of particular internationals (for sure not Italians) were protagonists of these undertakings, without any considerations of ethnical, cultural, religious, and social arguments.

During the period between Congress of Berlin and London Ambassadors Conference Albania was threatened to disappear from the political map of Balkans and of the Europe, too. Even Turkey was a considered as the “Sick of Bosfore” for that period of time diplomatically it used to be a defender for Albanian territorial unity and integrity. The Albanian people uprisings and diplomatic actions combined with Turkish protection interventions in international arena, make possible the nation and territorial survival, even some territorial part were torn of from its body, with the force language. That’s why I mentioned the role of Turkey as a “Veil Cover” just for that moment of time.

I’ll turn my discussion to the Conference of London Ambassadors, 1913. No arguments were presented for decisions came from the Conference. The pre first World War were the arguments, beyond ethnical, social, cultural, linguistic, religious, territorial, historical, and other national individualities. The use of force instead of arguments, obvious bring a positive outputs for the present analyse, in historical point of view as regard to social groups relations in the Balkan area. See .ex (Aref, M. 2008).Mikenet=Pellazget, Greqia ose zgjedhja e nje enigma,Plejad,Tirane.

No one writes for that moment that Kosovo territory belongs to Serbia, or Cameria belongs to Greece, because it was not useful. The deformations of history started when diplomatic language began instead of the use of force as legitimate actions to establish the social borders.

Coming at the end of this issue, two conclusions come form the historic reality:

– Balkan society has experienced and still continuous to suffer the social confrontation because of historical identities
Social fragmentary originated from the past is of negative outputs for the future cohesion and collaborative scenarios in the region.

Transport infrastructure is of a great positive impact breaking social fragmentary social comports.

Italy remains the potential partnership country, with a advanced comparative historical background for the Western Balkans in general and for Albania as the Western Gate of CE in particularly.

Through different elements of society communication in geographical terms could be find the social intercommunication. In referring to the roman and Illyrian communication, through via Egnazia I can bring the elements of life culture and society interaction. In the present Albania of today Via Egnazia started in Durres and Apollonius. From the different archaeological findings I can picture the interrelations between Illyrians and Romans in different point of views, economical, social, cultural, administrative, education, etc. The transport element was crucial in that sense. The early backward developments and communications could be supported only by competitive means of transport for that period of time. All elements of findings bring in itself part of experience of the society, culture, and knowledge’s. The topno mastic, on mastic, the graves, the arms, the artistic findings along corridors speaks for the social interactions between communities of that period. They bring today social interaction and profile for that period of time. It could be read the historical permanence of the society, religious culture, arts, skills.¹

As the gate of Egnatia in Balkans in Durres, I can read e cultural diffusion in Balkan terms. The name is very permanent Dyrrahum, it is very original one.

The roman consequence over Illyria had a common names in its confront. Teuta, Bardhyl and Agron. The most very common names in the present Albania. The findings along via Egnatia along the present Corridor Eight spoken by the famous historian roman authors, bring in our attention facts about Bardhyl, Agron, the grave cults, the soldiers army, and other life style for that period of time. This fact means that corridors had been walking lively in the society. They were corridor of the life with all its elements of the society.

¹ (Akademia e Shkencave te Shqiperise. (2002). Historia e Popullit Shqiptar I.lliiret, Mesjeta, Shqiperia nen Perandorine Osmane gjate shek.XVI- Vitet 20 te shek.XIX. Akademia e Shkencave te Shqiperise, Istituti i Historise, Toena, Tirane.)
“The Illyrians continuously encroached upon the Hellenes on the south, and some bands of them even advanced into Greece; but the great mass of wanders, who left their old home on account of over-population and the consequent deficiency in food, or the pressure of neighbouring” \(\text{(Br. K. G. Brandis 1904)}\)

In regard to Italian – Albanian relation I would like to say that, the ancient social intercommunication and cultural exchange remains a positive factor for the future developments. When historical background is made present this does not mean nostalgia or other presumption. Early and continuity social communication is a benefit for the society in many sense. The most important is the common social behaviour affinity, of which I would like to emphasise language and religious social comport, arts and skills, and other life style communications that influence social groups and individual behaviour.

When is mentioned the fact that an Roman Emperor was educated in Durazno this is attractive to the present Italian society, because it brings the roman life style through early realities. As the Italians are curious for Egypt pyramids, of curse the same social affinity will be present with Albanian case.

Further more when it is mentioned that Silky Road passed through Durrazo, obvious it is very attractive and impressive as Colossae, too, not just as a curiosity.

Social comports and experiences, neither come nor disappears in a day, decade or in a century. Considerable period of time is required “cementing” it.

\[\text{V.1.1 Corridor eight and early Balkans}\]

\textit{Corridor Eight and Early Balkan Geophysics}

Corridor VIII links the Albanian ports of Durres and Vlora with Bulgraian Black Sea Ports of Burgas and Varna. This corridor will be the main East-West connection through Albania and will become an important link for transportation between the Balkan and Mediterranean countries.

The geographical relives offer a chance to Albanian West-East valleys to deeply enter in the mountains territory of the peninsula.

“Seamed by high mountains which run in various directions and enclose sharply isolated valleys, the mass of south-easternmost peninsula of Europe resembles in its physical characteristics the peninsula of Greece, which joins it to the south, but differs from
it in being far less accessible by sea. The east coast is but little intended and is deficient in good harbours. The west coast is more irregular in outline and possesses numerous islands and harbours; softly and precipitous mountains, however, run down to the shore and prevent brisk trade with the interior”. (Dr. K. G. Brandis 1907)

While speaking for the tendency of and shapes of the territory he said that:
“The vast area may be divided orthographically into two regions-the western part, shut in by the Dinaric Mountains, which stretch from north to south, and the eastern part, which abounds in mountain ranges, running almost at right angles with the Dinaric chain.” (Dr. K. G. Brandis 1907)

It is found most interest the fact about ethnographic divisions, which correspond to the orthographic.

“The ethnographic divisions correspond in general to the orthographic; the Illyrians dwelt on the west, the Thracians on the east, and a later period the Macedonians thrust in their way between the two, to the south”. (Dr. K. G. Brandis 1907)

V.1.2 The ancient “Via Egnatia”

*The ancient “Via Egnatia”*

“Via Egnatia” was an ancient road linking Apennine with Balkans, and two continents Europe and Asia. It was of a particular strategic importance since in ancient times and today, as it linked resources of Europe and Asia in the shortest and more functional way. Even today in the routes of “Via Egnatia””, other transnational road lei down, Pan – European Corridor Eight. Through its area rail, road, telecommunication cables, oil and gas pipe lines, are foreseen to pass through two continents.

There are two different territorial positions dealing today with “Via Egnatia” name: the first one Pan EuropeanCorridor VIII, a connection project aimed at linking Bulgaria, Macedonia and Albania from the Black Sea through the bench marks of Varna, Burgas, Sofia, Skopje, Durazzo, with the exclusion of the modern Greece and the Thessalonica harbour. The second one, in alternative, more southwards, by keeping its name and following, in its final section, another ancient route which, from Larissa junction, led to the Ionian Sea (the Nea Egnatia, with its harbour at Igoumenitsa) in its.

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“Nel I sec.a.C. torviamo citato a proposito di un percorso tra la costa adriatica e la Macedonia il nome di via della Candavia. Probabilmente ma non è certo, questa denominazione a proposito perduto di Polibio, conosciuto come Polib .XXXIV, 12 , 2a-8, di qui Strabone riprende ed interpreta alcune notizie. L’uso del nome Via della Candavia risulta ancora vivo in età tardo antica (Malch 18,p.418; FHG IV, p.129 segg.) . Secondo gli studiosi albanesi Ceka e Papajani, la sua etimologia va riconnessa al nome antico degli Iliiri. ” (Fasolo. M. 2004)

The first volume specifically aims at recovering, re-examining and updating the knowledge of Via Egnatia and the ancient path that preceded it, known in the Roman age as a road of Candavia, in the Albanian central region, running from the Adriatic coast to the area of Ochrida lake and, more eastwards, until the ancient town of Herakleia Lynkestidos in Macedonia.

Writing for these issues particularly for Corridor eight is of a great impression, too. It is very impressive writing for sustainable developments along this corridor area at the moment when security, safety, horizontal and vertical singlestick are missing in a great part of different corridors area, a challenge to be afforded by societies contributing in approximating countries along this corridor with EU standards.

V.1.3 Social interactions in early Balkans

a)Social interactions in early Balkan history

The main actors of the early Balkan History seemed to be Illyrians, Helens, Celts and Thracians. There were no clear boundaries among them, while a diffusion of social groups took part over the borders.

Beyond the conquest social behaviour for each of the groups the economical argument forced them to conquer the neighbour groups.

“Bordering on Epirus to the south, and having intercourse with the Hellenes, the Illyrians were, on the north neighbours of the Kelts, with whom they came into contact in what is now Croatia. But exact boundaries can be as little specified on the north as on the side of the Thracians on the east; the frontiers were often uncertain and in the course of time were frequently altered.
Prevented from extending northward by the Kelts, who, since an early period, pressed down on them, and hemmed in by the mountain on the east, the Illyrians continuously encroached upon the Hellenes on the south, and some bands of them even advanced into Greece; but the great mass of wanders, who left their old home on account of over-population and the consequent deficiency in food, or the pressure of neighbouring” (Dr. K. G. Brandis 1904)

Dr. Brandis bring in our memory moments of interactions between social groups of the two peninsulas coasts, Balkans and Apennine.

“Nations of the desire for conquest, crossed the Adriatic and settled on the opposite Italian coast. Even in ancient times the Daunians, the Sallentinians, the Peligrians, Iapygians, Messapians, and other tribes of Italy, were held to be Illyrians; and the correctness of this assumption has recently been confirmed by the close relationship of the present Albanian-a dialect spoken practically in the same district as that once occupied by the Illyrians, and considered to be the latest variety of one of the old Illyrian dialects- with the Messapia, preserved on inscriptions in Lower Italy.” (Dr. K. G. Brandis 1904)

The Illyrians are defined as a savage piratical race of the eastern Adriatic SEA-BORD, WHO WERE CONQUERED BY THE Romans, and were the last of the Balkan peoples to be civilised. Probably the modern Albanian are descendent from them, and they were among the first Aryan immigrants to Europe.

b)When did the Romans conquest Illyria?

Helens were the pretext for Romans intervention to Illyrian affairs. After three Illyrian Romans war, Rome occupied Illyria and the first infrastructure works started. This is the right moment presenting Illyrian territory as the transit for business and commerce by Romans

“ This nation governed by such princes as Pleuratus and Agron, ruled the sea with their pirate fleet and menaced the Greek colonies on the fertile islands which fringe the coast as well as Greek towns on the mainland. All the Greeks on the
Adriatic, with the exception of those of Issa, lost their independenc. Issa invoked the help of Rome; and in the year 230 B.C. Rome first interfered in Illyrian affairs by liberating the Greek towns. Rome was forced to wage war repeatedly in Illyria before that country could be made a province. Than for the first time it became, more accessible roads were built and the beginning of progress made, while the Roman legions maintained peace and paved the way for trade and commerce.”

( Dr. K. G. Brandis 1904 )

c) Why presentation of Harmsworth History of the World?
It is of the great pleasure presenting for the first time this research made in UK on this book, with the main aim demonstrating the early social interaction of social groups between Apennine and Balkans, during the long early history.
Making present the authors of this book it is a contribution in reference to the social communication during the antic and modern roads of Corridor Eight)

According to the alphabet of the world’s races the Illyrians are defined as: a savage piratical race of the eastern Adriatic Sea board who were conquered by the Roman, and were the last of the Balkan peoples to be civilised. Probably the modern Albanian are descendent from them, and they were among the first Aryan immigrants to Europe. Brandis, K.G. (2006).

Because of that early long social diffusion there is a continuous communication and collaboration among the society. And finally it has been present the routes of the road infrastructure constructed in Illyrian territory, right in the same territory of the actual town of Durres, and Apollonian, and that the social communications of that period of time brings in our memory common names of the social groups, names whom are very present in both coast of the Adriatic. A historical permanence communication is an added value toward a sustainable future development for the societies.

² “Peoples of the Main Balkan Peninsula”, in Harmsworth History of the World, London: pp 331, 2544, 2399
V. 2 CORRIDOR EIGHT AFTER PRAGUE CONFERENCE OF MINISTERS OF TRANSPORT

The Prague Conference (1991), together with Crete Conference (1994) and Helsinki Conference (1997) appointed Pan-European Corridor Eight together with the other nine corridors in Pan European level. Corridor VIII will bring further stabilisation by supporting industrial and commercial co-operation, cultural and social communication. This corridor links the Adriatic-Ionian region with the Balkan region and the Black Sea.

The Memorandum of Understanding (MoU) for the Pan-European Transport Corridor VIII has been signed in Bari on September 9, 2002 by Albania, Bulgaria, FYR Macedonia, Greece, Italy and Turkey. The task of coordinating and promoting the initiatives for the realization of Corridor VIII are carried out by the steering committee (SC), comprised of Member States’ representatives and chaired by Italy. Since the signing of the MoU, there have been annual steering committee meetings which discuss different issues as regard to the Corridor.

The first meeting of the steering committee was held in Rome in June 2003 together with representatives of DG TREN and CEI. A standing technical secretariat, funded by the Italian government, was established on this occasion. The secretariat, after the official inauguration in the presence of Member States’ Transport Ministers, has been located in Bari at the “Fiera del Levante headquarters”. A second steering committee meeting was held in Bari a on December 6, 2004 in the presence of the representatives of Albania, Bulgaria, FYR Macedonia, Greece and Turkey. The third steering committee was held at the Tirana Palace of Congress on May 27, 2005. Support activities to the steering committee are handled by the technical secretariat, assisting member countries in defining projects geared towards completing the major axis of Corridor VIII, as well as running required activities for raising relevant funds.

Based on the working report of the Secretariat it is be known that; at the second steering committee meeting, the technical secretariat introduced the 2005-2006 Plan of Action: Among the main future activities, RFI (Italian National Railway Agency) submitted a tender for a feasibility study relevant to the entire Corridor VIII railway system. ANAS (Italian National Road Agency) confirmed its availability to participate in Corridor VIII projects.
Representatives of member countries submitted a status report reporting on civil engineering activities within each country’s borders, with particular emphasis to cross-border areas.

The steering committee finally approved the 2005-2006 Plan of Action as submitted by chairman Fontana. Immediate activities include the “Railways Cross Borders pre feasibility Study for Corridor VIII”, granted to RFI and co-financed by CEI-Central European Initiative (www.ceinet.org). The study, funded by Italian law 84/2001 for the stabilisation, reconstruction and development process in the Balkans, will focus on cross-border rail connections along the main Corridor VIII axis (Albania-FYR Macedonia-Bulgaria), which is currently the most critical issue regarding Corridor VIII main route.

According to the Member States of Corridor VIII there is a wish to extend the alignment from Burgas and Varna across the Black Sea to Poti and Batumi as well as to the Motorways of the Sea (Southern and Western Mediterranean) and the main Italian ports, Taranto, Gioia, Tauro and Naples. The connection with TRACECA towards the Caspian Sea and the Caucasus region is to be supported by adequate and compatible intermodal infrastructures and logistic systems on both sides of the Black Sea.

The revision of the TEN-T guidelines has identified 30 priority projects and axes like Motorways of the Sea. The connection of Corridor VIII to the MoS could be improved from the ports of Bari and Brindisi to Taranto as well as to the ports of Gioia, Tauro and Naples via railway, road and intermodal infrastructure, used to say by secretariat corridor.

In Durres, 2008 during the Conference I strongly emphasised the idea that not only Bari, Brindisi and other south Appeninean parts of Italy must be considered as the gate of Corridor Eight. It couldn’t be an effective corridor without

During last month I had opportunity to directly speak with Mr. Grimaldi, The Head of Corridor Eight Secretariat in Bari. A road Feasibility study will be published during this month, told me Mr. Grimaldi. (Secretariat Chair) It is foreseen this publication will bring enough information that actually hardly can find anywhere.

Albania and EU

Economic growth for 2007 is estimated to have been approximately 6%. Business is encouraged through mitigating, fiscal and administrative policies. The constant and ongoing improvements of infrastructure, renovation of technology in various sectors and strengthening capacity building have evidently increased the efficiency of economy. As in the recent years, the economic growth is largely ensured by the progress in the industry,
transport, telecommunication and services sectors. Meanwhile, based on the recent estimates, the construction sector is characterized by different problems which led to a fall in the level of investment and production in this sector, whereas in the first Quarter of 2008, the number of construction licenses issued increased. 2007 recorded a relatively high increase in foreign direct investments, which accounted for 6 percent of GDP, thereby giving the foreign investors the confidence needed to invest in the Albanian economy.

Another crucial factor from the perspective of economic development is the positive progress of exports, which in 2007 accounted for 28% higher than in 2006, where the exports of minerals, textiles and footwear comprised the greatest contribution. (Government of Albania)

Annual volume 2007, in the transport sector were 44% more during the first 9 months of 2007 compared to the same period in 2006. The communications sector recorded positive annual growth of sales during January-September 2007. Number of newly employed and salary rate continued to increase progressively in the first three quarters compared to the same period last year. Total trade exchange volume in 2007 was 3.8 billion euro or 26% more than the previous year. Trade of goods continues to contribute significantly to current account by round 44% of all annual current transactions. Trade activity intensification was also due to other factors such as general increase in prices, fluctuations of exchange rates and progressive reduction of customs duties, as part of the trade liberalisation processes.

External trade transactions indicate stronger trend towards intermediate goods which during 2007 represented the bulk of imports (53%), whereas consumer goods fell by 7% representing 30% of the total imports. Capital goods increased rapidly by 36% and contribute 14% to the total imports of 2007. Obviously it is transportation activity along transport infrastructure enhancing the trade market both inside the country and internationally.

**V.2.1 E.U enlargement and Corridor Eight**

*European Commission evaluation for Albanian Transport policy*

As it is mentioned before, transport policies in non EU Countries goes steep by steep with their EU enlargement. Because of that fact the Commission evaluates annually the progress made in candidate countries in its “Regular Reports on countries’ progress towards accession”. In the transport sector the candidate countries for accession are in the process of establishing and implementing programme of approximation to the EU transport acquests.
The acquits supporting the Common Transport Policy represents about 10% of the total EU Acquits. Apart from the development and upgrading of the transport infrastructure networks, which upon accession will form part of the enlarged Trans-European transport network, the transport issues which needed to be addressed as a matter of priority in beginning of 2000’es were as follows:

– in road transport, issues relating to the technology, safety and environment legislation, as well as market access, fiscal matters and social legislation;
– in rail transport, the integration of services between EU and CEEC railway companies, as well as improving the latter's organisation and financial situation to operate in market conditions;
– in inland waterway transport, issues concerning fleet capacity in air transport, issues relating to market access and safety and infrastructure organisation; and in maritime transport, the enforcement of the maritime safety legislation

V.3. ALBANIA THE WESTERN GATE OF CORRIDOR

V.3.1 A favorable geo-historic position

Historical cross and translational relation with other social groups has influenced social reality of people has been lived permanently in the eagle’s country, Albania. The relations with Helens, Romans, Slaves, Turkish, and the two world wars situation late in the 20 century, have been shaped the social profile during the centuries. Another more cross occupation has occurred in Albania, the ideological occupation, which isolated fiscally and ideologically the country in the modern history. All together these cross and transnational inter relations in social level has influenced in the present history of Albania.

It has been a continuous element in reference to the above mentioned arguments: geostrategic position of the country, as a marvellous territorial point to dominate to enter both west and east, by sea and roads. Very near from Eastern territory of Apennine, and very advantaged to go deep in the Balkan territory favour by many west-east river’s valley. On this geo territorial reality an ancient road linked Apennine with Western Balkan, a modern one is pictured over the Balkan territory and routes in the ancient history. It is Pan European Corridor Eight.

Scenarios of the future European Union shoes that Europe will be part of a more globalize world economy, and will build even stronger relationships with neighbouring countries.
The transport sector in these forecasts will have to satisfy a greater demand for mobility. At the same time it will have to find solutions to address its negative externalities, which affect the environment (pollution, CO2 emissions, and noise), the economy (congestion) and the society (health, safety and security).

Countries along side Corridor Eight actually experience an unprivileged status in reference with other PECT. This country has to afford two challenges:

- the un-balanced status of standards in reference with other countries of Pan European Corridors of Transport
- the med–long term forecasting challenges, in reference with Communities

• Which will be the policy initiatives and actions to shape a future sustainable transport for Corridor Eight
• Which interactions must undertaken between political, economical, social, environmental and financial aspects to the transport activity along Corridor Eight

Those challenges require profound innovations in the world of transport and convey the feeling that we are living in a period of transition and transformation. Policy initiative is needed to shape a sustainable future for transport, but this requires an understanding of the complex interaction between the political, economic, social, environmental and technical aspects of the transport activity.

A combination of policies aiming at technological development, behavioural change and infrastructure provision can assist Balkans in reaching the desirable future of an inclusive society connected by an integrated and sustainable transport system

– Why a foreigner will pass through Albania where the risks for its life because of transport activity is the highest in the region
– Why a business men must pass through Albania as the Corridor Gate where the freedom of mobility is the lowest, the corruption grade is the highest in the Balkans
– Why an vehicle driver must pass through Corridor Eight, where the road congestions and consumption is among the highest in Europe, even the distance is the shortest, in the region?

Western normal experience speaks for great efforts of the society to protect the bio diversity, of flora and fauna along corridors of transport areas. What protective measurements and programme must build up the society of CE, to protect peoples and bio diversity, too?

I have red many facts arguing that the geopolitical situation in the region was the bad chance for ongoing works in the corridor area. I do agree with them, but while we use
trying to find the causalities outside the countries, we must ask some questions: What we have done to construct an active, ambiguous and progressive policy, in order to achieve a lifeless corridor Eight full of live, persons, freights, a multimodal transport and services, safe, clean, healthy, cost effective, and so on.

What long term perspective partnerships are constructed to achieve the goal? Could we build up sustainable partnerships, which are the stakeholders?

Every country profile began with geographical position, and other socio economic indicators. The Pan-European Transport Corridors include cross-border road and rail traffic routes between the EU and the Central and Eastern European countries as well as airport, sea and river ports along the routes serving as inter-modal nodes. Since the beginning, many projects and initiatives along the Pan-European Transport Corridors and areas have been undertaken in order to maintain and improve the quality and capacity of the transport infrastructure, while European Union experienced the largest extension ever in 2004, encompassing ten new member countries. In this context, the role of the respective transport Corridors and Areas as important transit and trade routes and for freight and passenger traffic has grown significantly.

Its location at the centre of a natural crossroads, a network of major transit corridors in Europe, places Albania in a strategic geographic position. Albania links the western Mediterranean countries with the Balkans and Asia. Its biggest valleys where the Drin, Shkumbin and Vjose rivers are located also facilitate connection between the Balkans and the Adriatic Sea.

Corridor VIII links the Albanian ports of Durres and Vlora with Bulgarian Black Sea Ports of Burgas and Varna. This corridor will be the main East-West connection through Albania and will become an important link for transportation between the Balkan and Mediterranean countries. The development along corridor areas are strongly affected by general political and economical circumstances of each country. Following there are some indicators as regard to Albanian macro-economic growth.

The questions to be raised consist on: what society has done to use effectively the advantages of geographic position of the most ancient corridor. The advantage of passing through Albania–Macedonia Bulgaria straight ahead to the Black Seas port of Burgas and Varna is a natural advantage. e.g. ³

³ (Barbaja, K., Gasparini, A. (ed.) 2001), Rruga shqiptare e modernizimit, Ngjarje, Klasa Politike, Njerez dhe Marredhënie Nërkombetare, Futuribilit, J.S.I.G., Gorizia
Natural advantages are symbolic of primitive scale of societies, for the moment when capacity of the society to exploit and use natural are of law performance. The present status of humanity, is distinguishes by the capacity to use the power of society over the nature, and the best resultant is the rational relations between society and a certain part of the territory. In our case the society along corridor area. In that point of view the society has not been respond to the natural resources as Corridor Eight.

V.3.2 Present situation of the transport modes and infrastructures

Albania’s primary modes of transportation are air, roads, railways and waterways, pipe gas and oil lines.

a) Air transportation

Albania has one civil international airport, the “Mother Teresa” Airport, located near the capital city, Tirana. The airport is being upgraded under a concession agreement which is the biggest project and most important investment currently being implemented in this sector.

There is a gradually increase of goods in transport activity with a maximum of tonnes in 2004. The same indications can be seen also in air transport. Traffic results for 2007 at Tirana International Airport (TIA) announced a total of just over one million passengers, around 18,000 aircraft movements and just under 3,500 tons of cargo transported through TIA; the data correspond to a 22%, 15% and an impressive 65% increase, respectively, compared to the figures for 2006. In June 2007 alone, its most active month so far, TIA handled 88,046 passengers and recorded 782 air traffic flow (compared to 73,051 and 674 respectively for the same period in 2006).
The graphic presentation of passengers’ number argue a gradual increase of passengers traffic from 2001-2007.

As it is presented the passenger’s flight number is increased from 2001 to 2007. In the final conclusion can be said that air transport activity, reflect the international mobility tendency for Albania, which is in progress.

b) Road transportation

Albania has a total of 18,000 km of roadways. Some of government’s priorities regarding road networks are the pan European Corridor VIII, the Durrës – Kukës – Morinë road linked to corridor VII, and the North – Central road (Hani Hotit – Shkodër – Gjirokastër – Kakavijë). The construction of a new road Tirana – Elbasan was approved in May 2006.
The building of the highway Durres-Morine, will connect Albania and Kosovo is the project that the Albanian government has taken into deep consideration along with the support of the whole nation. This highway is important not only because it will connect Albania with Kosovo, but it could also become a connection with the PanEuropean Corridor No. 10 in Nish or potentially further into Romania, Bulgaria, etc. As of now, the time it takes to travel in the distance between Durres and Morave is between 5-7 hours. After the construction, the time will be reduced to approximately 2 hours 30 minutes. This highway will be 170 km long and will connect the cities of Durres, Vore, F.Kruje, Milot, Rreshen, Reps, Thirre, Kalimash, Kukes, and Morine. (Berger, L. 2005).

Compared to the existing roads, this new highway will substantially reduce driving time between these destinations. The Albanian Government will finance the biggest portion of project design while the EIB and EBRD will enable its construction.

"Road vehicle numbers 1995-2004 suggest a gradual increase after 1997, which correspond with post political unrest of that period of time"

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4 Plani Kombëtar i Transportit. Ministria e Transportit dhe Telekomunikacionit, Republika e Shqiperise Tirana.
c) Railway transportation

The railway network in Albania is composed of 447 km of primary railway tracks and 230 km of secondary ones. The railway network in Albania is linked to the international railway network through the Bajza – Podgorica (Montenegro) railway section.

The main priority is the realization of the railway connection with the Former Yugoslav Republic of Macedonia, part of Trans-European Corridor VIII.

The Albanian railway is experiencing a drastic organizational, juridical, as well as economic change. Special attention will be focused towards the composition of a steady business plan and the implementation of the investments.

The modernization of the infrastructure will gain some advantage during this process, while a more rigorous signal system will be installed to guarantee the safety of train travelling.

In 2006, freight volume transported via railways increased by 11% compared to 2005.

Railway transport of goods

The main Italian Ports linked with Albanian port of Durres, Vlora, Shengjin and Saranda, are: Bari, Brindisi, Pescara, Ancon, and Trieste

d) Waterway transportation

The main Italian Ports linked with Albanian port of Durres, Vlora, Shengjin and Saranda, are: Bari, Brindisi, Pescara, Ancon, and Trieste

Albania is the European country which is on the coast of Adriatic and Ionion sea. The ports and terminals are located in Shëngjin, Durrës, Vlora, and Saranda. The largest of these is the Durrës Port, where 80% of all freight volume is exchanged. In 2006 freight volume exchanged in all Albanian seaports increased by 7% compared to 2005.

Source “Ministry of Public Works and Transport”

Economic growth rate in Albania is considered to be high compared other countries in the region and also compared with other economies in transition. The objected economic growth for the fiscal year 2006 has been at a level of 6 percent. By the end of the year economic growth has resulted at 5.6 percent, which is slightly lower than the projected level and the average of the 3-year period.

e) The present situation

It is evaluated that there is a strong commitment of Albanian as well as Western Balkans stakeholders and societies towards EU integration. Consequently the steeps assessment in regard to EU standards must be the leading criteria for the realities in the ground in transport area, too. Through the institutional instruments and collaborations the authorised structures of European Commission offer the most realistic view of transport sector in
Balkans and in Albania, too. According the EC report to which reference has been made there has been some progress in the area of trans-European transport networks. Albania continued to participate actively in the implementation of the Memorandum of Understanding signed in 2004 for the development of the Core Regional Transport Network, and in the South East Europe Transport Observatory (SEETO) by updating and implementing the multi annual plan 2008-2012. Work has continued on corridor VIII projects as well as on the north-south axis roads. The Durres-Kukes-Morine road remains one of Albania's priorities.

The government has set up the Institute of Transport as a service unit to the Ministry of Public Works, Transport and Telecommunications. The Institute will be responsible for maintaining and updating the Albanian National Transport Plan (ANTP) and establishing and maintaining a central Transport Data Base for all modes of transport in Albania. The National Transport Strategy was adopted in August 2008. There has been some progress as regards road transport. The admission to the occupation of road passenger and goods transport operator and the recognition of documents required for the activity was regulated by new legislation. Albania is granting unrestricted access through its territory to Community transit traffic in line with the Interim Agreement. However, further simplification of freight transport traffic by road is still required, for both international and transit traffic.

The reorganisation of the General Roads Directorate (GRD) into an agency contracting out road construction and maintenance to private firms is underway. The Reform Implementation Team was established in May 2008 and the Management Unit was established in July 2008.

Work is in progress on the review of necessary legislation, and on the financial and organisational requirements. The GRD has started work on the establishment of the Road Asset Management System and has introduced performance-based maintenance contracts in a number of Regional Roads Directorates. The budget for road signalling was increased.

It is evaluated that, sustained efforts are still needed in order to improve the quality of road maintenance. Poor condition of roads, together with defective signalling, illegal constructions along new roads and limited level of education of drivers, continue to pose a serious problem to road safety. Preparations in the field of road transport are advancing slowly.

Progress has been very limited in the rail transport sector. In December 2007, Albania signed the "Addendum to the Memorandum of Understanding on the Development of the
South East Europe Core Regional Transport Network for a South East European Railway Transport Area", aimed at the gradual market opening of the rail transport market. From January 2008 the reorganization of Albanian railways became effective. The aim of the reorganization is to separate passenger, freight, infrastructure and services branches into individual business units. However, the business plan for the Albanian railways has not yet been adopted. Preparations in the rail transport sector are lagging behind. Progress in the area of maritime transport has been limited. The parliament adopted legislation on the accession to the International Convention for the control and management of ballast water of vessels. Legislation aimed towards membership to the Paris Memorandum of Understanding on Port State Control was also approved.

The updating of the Master Plan for the Port of Durres was finalised in July. Work has begun on the establishment of a new Maritime Administration. However, substantial efforts are still required in order to improve maritime safety. Albania's very high rate of detention for vessels that are considered substandard, pursuant to the Paris Memorandum of Understanding, remains critical. The June 2008 black list of the Paris MoU still rates the Albanian flag as very high risk and the performance of the Albanian Register of shipping is assessed as low. Preparations in the field of maritime transport are at a very early stage. No progress can be reported on combined transport.

There has been further progress in the field of air transport. The draft new Air Code was completed. Its alignment with the *acquis*, in line with Albania's commitments under the European Common Aviation Agreement (ECAA), has not yet been confirmed. Work is in progress on the implementation of the first transitional phase of the ECAA. However, there have been delays in implementing the corrective action plan approved in August 2007 to address the deficiencies identified within Albania's Civil Aviation Authority (CAA) as regards safety oversight of the country's airlines. Efforts are still required to strengthen the administrative capacity of the CAA, as its new organisational structure has not yet been finalised. Preparations in the field of air transport are advancing moderately.

Activities to improve the security of energy supply have continued. Construction of the Vlora thermal power plant is in progress. Albania has signed 25 concession agreements for construction of small hydro-power plants, and a further 87 proposals are under evaluation. Work started on the interconnection line Elbasan– Podgorica and on the National Dispatch centre. However, Albania has continued to be unable to ensure security of electricity supply. The country is overly dependent on hydro-electric plants, and its own generation
resources are not sufficient to meet domestic demand. Limited interconnection capacity continues to hinder Albania's capacity to import electricity.

The infrastructure transport network of road, rails, sea, air, must be seen as a whole in the regional framework. As the consequence the good neighbour policy and concrete god performance relations indicate and reflect directly the general social economic profile of the individual countries in Balkan region and along particular countries along Corridor Eight also. Let’s bring in attention Ex-Yugoslavian collapse which postponed Eight’s agenda in the today reality.” In contrary, in the same reality Corridor Eight has made significant progressive steeps! ”

According EC experts in the area regional cooperation and good neighbourly relations form an essential part of the process of moving towards the European Union.

*As it can be seen there is a great immense of trade export relations with Bulgaria. This fact argue a perspective with Bulgaria as the Eastern gate of Corridor .Eight*

![Exports with Bulgaria (in millions leks)](chart1)

![Exports with Greece (in millions leks)](chart2)

There is a gradual trade relation with Greece, as the southern linked country with Corridor Eight
Albania has continued to participate in a number of regional political and economic flora and initiatives, including in a transition from the Stability Pact to a more regionally owned framework with the South East European Cooperation Process (SEECP) and the Regional Cooperation Council (RCC)

![Exports with Macedonia (in millions leks)](chart1)

*Trade relations with Macedonia argue the reality of stable relations between two neighbour partner country of Corridor Eight.*

![Exports with Turkey (in millions leks)](chart2)

*Turkey will remain a key partner country for Albania as the Western Gate of Corridor Eight. Based on the EU trade scenarios Turkey will be one of the two main trade partner in the next years*
Imports with Bulgaria and Greece are of stable indications. When we compare export import trade orientation of the fluxes, we notice that West East direction is of higher value. That demonstrate that there is an increase of market orientation from EU to Black Sea region. This argues also the future of Corridor Eight in EU sense and in particular for Albania as the Western Gate of the Corridor.

Albania has been satisfactorily implementing the Central European Free Trade Agreement (CEFTA) and is progressing on the first transitional phase of the European Common Aviation Area (ECAA) agreement. Albania is party to the Energy Community Treaty and is making headway towards meeting its obligations under the Treaty.
Business indicators are far from touristic visitors in Albania. That requires strengthen policies in touristic sector and policy strategies in general terms with business sector.


Albania's bilateral relations with other enlargement countries and neighbouring Member States have remained intensive, with frequent bilateral contacts and visits. Relations with the Former Yugoslav Republic of Macedonia have remained good with reciprocal high-level visits and the conclusion of agreements on a visa free regime, local border traffic and cooperation in border control.

Relations with Montenegro have developed further. Work started on construction of the joint border crossing point at Muriqan/Sokobine. Relations with Bosnia and Herzegovina have intensified. The country has decided to open an embassy in Tirana. Albania continues
to have good relations with Croatia. Relations have remained stable with Serbia. Relations with Turkey have remained good. The Free Trade Agreement with Turkey has entered into force.

Albania has continued to maintain a constructive position regarding Kosovo. Albania welcomed the decision on the establishment of the EU mission in Kosovo. Albania has recognised Kosovo's declaration of independence and established diplomatic relations. Italy remains Albania's main political and economic partner and its largest EU trade partner, followed by Greece, which is also considered an important strategic partner. A bilateral agreement with Italy in line with the European Convention for judicial assistance in criminal cases has been signed.

Satellite Map of Corridor VIII Durres

V.3.3 Population and demography

Population:
The population of the Albanian prefectures where corridor eight passes is in total: 2,245,635
Distribution in each prefecture is as follows:
Durres:
Population 304,592 with a surface of 766 km² and a density of population of 398/km².

Elbasan:
Population 344,912 with a surface of 3,199 km² and a density of population of 198/km².

Fier:
Population 374,948 with a surface of 1,890 km² and a density of population of 198/km².

Korce:
Prefectures: Population 258,100 with a surface of 3,711 km² and a density of population of 70/km².

Tirana:
Prefecture: Population 781,087 with a surface of 1,652 km² and a density of 473/km².

Vlora:
Prefecture: Population 181,996 with a surface of 2,706 km² and a density of population of 67/km².

In total: 2,245,635

Economically active population

<table>
<thead>
<tr>
<th>Prefectures</th>
<th>Year 2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>Durres</td>
<td>71,155</td>
</tr>
<tr>
<td>Elbasan</td>
<td>131,276</td>
</tr>
<tr>
<td>Fier</td>
<td>142,509</td>
</tr>
<tr>
<td>Korce</td>
<td>85,132</td>
</tr>
<tr>
<td>Tirane</td>
<td>256,594</td>
</tr>
<tr>
<td>Vlora</td>
<td>49,987</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>736,653</strong></td>
</tr>
</tbody>
</table>
Road accidents and causalities

<table>
<thead>
<tr>
<th>Prefectures:</th>
<th>Road incidents</th>
<th>Causalities</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2005</td>
<td>2006</td>
</tr>
<tr>
<td>Durres</td>
<td>79</td>
<td>147</td>
</tr>
<tr>
<td>Elbasan</td>
<td>134</td>
<td>147</td>
</tr>
<tr>
<td>Fier</td>
<td>74</td>
<td>104</td>
</tr>
<tr>
<td>Korce</td>
<td>36</td>
<td>36</td>
</tr>
<tr>
<td>Tirana</td>
<td>306</td>
<td>298</td>
</tr>
<tr>
<td>Vlore</td>
<td>25</td>
<td>54</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>654</strong></td>
<td><strong>786</strong></td>
</tr>
</tbody>
</table>

Land use 2006 (in %)

- Durres: 25% Forest; 53% Agro-Area; 2% Grassland Posture; 20% Other Lands.
- Elbasan: 41% Forest; 22% Agro-Area; 12% Grassland Posture; 25% Other Lands.
- Fier: 11% Forest; 65% Agro-Area; 2% Grassland Posture; 22% Other Lands.
- Korce: 36% Forest; 25% Agro-Area; 14% Grassland Posture; 25% Other Lands.
- Tirane: 32% Forest; 35% Agro-Area; 5% Grassland Posture; 28% Other Lands.
- Vlore: 22% Forest; 23% Agro-Area; 26% Grassland Posture; 29% Other Lands

V.3.4 Employment

The Albanian labour market after the 90s has been characterized by low employment level, typical for countries in transition. The reduction of employment level during the 90s is a result of the employment decrease in state sector. The number of employees in the state sector decreased from 850 000 in 1991 to 189 000 in 2001 and to 176 000 in 2004. This employment decrease in this sector came as a consequence of massive privatization of the state owned enterprises. The prices liberalization, the end of socialist state, the lack of capital and the foreign competition – measures undertaken to transform the national economy to a long-term competitive one, highly weakened the new privatized enterprises and made them go bankrupt. The industrial sector - mineral extraction, metallurgy, equipment and spare parts fabrication, chemical industry, paper and textile production – were the most seriously hit. The decrease of the yearly income caused the decrease of the job places in state structure.
Official data presents in the first quarter 2007 the number of registered employment is increasing. By the end of September, 936 000 people were employed. Annual average employment was considerably higher in the private sector (4 700 persons). Unemployment rate stood at 13.18% in the end of third quarter 2007 and fell by 0.6 percentage points at annual rate, marking the highest decrease of unemployment since 2004.

During the first quarter 2007, the share of labour force decreased with 6 000 individuals in annual terms. This phenomenon could result from the informal nature of the labour market relations, migration and incompatibility between supply and demand for labour.

Data on employment by economic activity suggests an unemployment increase from 1994-1999. This might be argued with two logic Pyramids financial system stimulated parasitism, and the other arguments stand behind conflictual situations of 1997 period.
Many of the aspects related to the vocational training and employment of potential emigrants and the returned migrants are addressed by the National Strategy on Migration, one of the most adequate policy documents having European standards related to the emigration management. The following analysis follows two main subdivisions: potential emigrants and returned emigrants. This division is made to take into consideration the differences of the needs/requirements for these two groups.

The distribution of businesses according to the sectors of economy, where the private business is more active, are trade (49%), services (24%), industry (11%) and transport (10%)

*Safety*

*Data analysis suggest that the great accident numbers in Albanian roads has happen in the area of Corridor Eight, in Durres, Elbasan, Tirane, Fier, Vlore.*
Accidents causing casualties in Tirana, Durres, Elbasan, Fier suggest an increase of accidents causalities. By this analyse it is given an answer to the questions: Why a passenger has to pass through Albania??
V.4. MACEDONIA (FYROM) AN EU CANDIDATE COUNTRY

V.4.1 Country profile

The Republic of Macedonia is landlocked in the middle of the southern Balkan Peninsula. With a surface area of 25,713 km², the country is one of the smallest in Europe. The total length of the border is 849 km, of which the western border is 191 km, the southern, 262 km, the eastern, 165 km and the northern, 231 km in length.

According to the Nomenclature of Territorial Units for Statistics (NUTS) classification in the country there are eight NUTS III regions and 84 municipalities: The main cities and
towns are widely distributed, with Skopje the national capital city, being located in the north-west of the country. According previously mentioned classification 33 municipalities are city municipalities, 41 are village (rural) municipalities, while city of Skopje, covers 10 municipalities. Macedonia has a diversified topography, with high hills and deep valleys, surrounded by mountains, picturesque rivers, large and small natural lakes. The country also is widely known with its rich biodiversity. The relief of Macedonia, as part of the Balkan Peninsula, is characterized by complex geotectonic features, which produce developed relief, complex geology and, hence, a diversity of soil types.

V.4.2 Socio-economic profile of the country

It has a small economy with a gross domestic product (GDP) of about $6.2 billion, representing about 0.01% of the total world output. It also is an open economy, highly integrated into international trade with a total trade-to-GDP ratio of 99.2%. Agriculture and industry have been the two most important sectors of the economy, but the services sector has gained prominence in the past few years. Economic problems persist, even as Macedonia undertakes structural reforms to finish the transition to a market-oriented economy. The estimated GDP per capita at purchasing power parity in Macedonia in 2005 was around EUR 6,000, which is only 26 per cent of the EU 25 average, slightly behind Romania, Turkey and Bulgaria.

A considerable obsolete industrial infrastructure has not seen much investment during the transition period. Consequentially, the structure of economic activities changed during the transition period. The share of industry dropped considerably, from around 45% in the early 1990s to around 25% in 2005. With a share of about 60%, the services are now dominant in the structure of the GDP, with major contributions coming from trade, transport, and telecommunications. Agriculture still contributes with 12% to the GDP. (State Statistical Office of 2006) have shown a real growth of 3.1% in the first three quarters of the year, after growing by 4.1% and 4% respectively in 2004 and 2005. The growth was mainly the result of the growth in the service sector, where trade has increased up to 5.5%, while transport and communications up to 7.5%. The growth was broad-based as value added increased in all sectors, except in health and social protection. Mining and quarrying led the growth with a 26.8% annual increase, capitalizing on favourable world prices for various metals. Services grew by 3.6% on average, and trade was higher by 5%. Industrial output in 2006 was 3.6% higher than in 2005. The annualized consumer price index (CPI) rose by 3.2%. Compared to 2004, when industrial production had a negative
growth, in 2005 it was the major driving force behind intensifying economic activity. The forecasts for industrial growth in that year were for 5% while actual figure was much higher (7%). Although most of the industrial activities were growing, still the highest growth rates were registered in the traditional export oriented branches: basic metals (with a growth rate of 33.4%), construction materials industry (21.4%), food industry, petrol industry, production of electronic machines, etc.

Even there is a considerable informality as regard to employment statistics, the official unemployment rate came down a bit to 36.0% in 2006. A conservative and poorly structured fiscal policy has kept the budget in a negligible deficit of 0.2% of GDP, well below the revised 0.8% annual target. In such circumstances, monetary policy provided for credit to households and enterprises to expand by 30.5% in 2006, and interest rates have continued to come down. Although export growth topped import growth by one percentage point in 2006, the trade deficit remained high at 21.9% of GDP. In spite of that, the current account deficit was only 0.4% of GDP, primarily due to large private transfer inflow. External debt remained stable at 39.3% of GDP.

**V.4.3 Present situation of the road transport**

*a) Transport and road infrastructure*

Geostrategic position of Macedonia (FYROM) at the cross land roads of pan European Corridors, make imperative a qualitative road system performance. The relatively poor quality of the road network contrasts sharply with the high relative importance of the road transport in Macedonia. This is because road transport accounts for by far the largest share of total carriage of goods and passengers in the country. As indicated in the table below, the share of transport in the national GDP over the past few years is stable and is within the range of 7.8% and 8.4%.

**Transport share in GDP**  *(source: State Statistical office 2007)*

<table>
<thead>
<tr>
<th>Year</th>
<th>GDP in million denars</th>
<th>Transport share in GDP in million denars</th>
<th>Transport share in %</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002</td>
<td>243.970</td>
<td>20.493</td>
<td>8.4</td>
</tr>
<tr>
<td>2003</td>
<td>253.454</td>
<td>21.037</td>
<td>8.3</td>
</tr>
<tr>
<td>2004</td>
<td>265.257</td>
<td>22.282</td>
<td>8.4</td>
</tr>
<tr>
<td>2005</td>
<td>284.226</td>
<td>23.307</td>
<td>8.2</td>
</tr>
<tr>
<td>2006</td>
<td>303.305</td>
<td>23.658</td>
<td>7.8</td>
</tr>
</tbody>
</table>
In general terms the physical infrastructure with regard to public roads consists of about 13.186 km, out of which 909 km are national roads, 3.781 km are regional and 8.496 km are local roads.

**b) Road Network of the Republic of Macedonia**

(Source: Operational Programme Regional Development 2007 – 2009 (Draft), 2007)

<table>
<thead>
<tr>
<th>Type of Road</th>
<th>km</th>
</tr>
</thead>
<tbody>
<tr>
<td>National roads</td>
<td>909</td>
</tr>
<tr>
<td>Regional roads</td>
<td>3.781</td>
</tr>
<tr>
<td>Local Roads</td>
<td>8.496</td>
</tr>
<tr>
<td>Total</td>
<td>13.186</td>
</tr>
</tbody>
</table>

The national road network consists of six (6) roads (M-1 to M-6). Most national roads consist of two traffic lane carriageways. Two of the national roads are in concordance with the Pan-European Corridors as well as European road network M-1 (E-75) and M-2 (E-872) are in concordance with Corridors X and VIII respectively. Other national roads form part of important international links, for example, M-3 (E-65), M-4 (E-65), M-5 and M-6. The two Trans National Axes (*Corridors VIII and X*) that cross the country are important because they support the easy movement of people and goods within the country and also provide connections to regional neighbours’ and further to all other European Countries.

Intra-Macedonian transport dominates the road freight sector while the remaining is distributed between international transport and transit transport. As far as passenger transportation is concerned, road transportation is even more dominant, as only negligible passenger trips are made by rail. Note that in 2003, the transport related energy consumption- 21.2% of total final national consumption in the country was 96.4% consumed by the road transport sector, 2.5% by the air transport sector and 1.0% by the rail transport sector. This is a higher rate of dominance than typical of EU countries (for example, the EU-15 group of established members has 81.9% attributed consumption in the road transport sector.

This is because road transport accounts for by far the largest share of total carriage of goods and passengers in the country. As indicated in the table below, the share of transport in the national GDP over the past few years is stable and is within the range of 7.8% and 8.4% (Table 8).
Table: Transport share in GDP

<table>
<thead>
<tr>
<th>Year</th>
<th>GDP in million denars</th>
<th>Transport share in GDP in million denars</th>
<th>Transport share in %</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002</td>
<td>243,970</td>
<td>20,493</td>
<td>8.4</td>
</tr>
<tr>
<td>2003</td>
<td>253,454</td>
<td>21,037</td>
<td>8.3</td>
</tr>
<tr>
<td>2004</td>
<td>265,257</td>
<td>22,282</td>
<td>8.4</td>
</tr>
<tr>
<td>2005</td>
<td>284,226</td>
<td>23,307</td>
<td>8.2</td>
</tr>
<tr>
<td>2006</td>
<td>303,305</td>
<td>23,658</td>
<td>7.8</td>
</tr>
</tbody>
</table>

In general terms the physical infrastructure with regard to public roads consists of about 13.186 km, out of which 909 km are national roads, 3.781 km are regional and 8.496 km are local roads.

Table: Road Network of the Republic of Macedonia

<table>
<thead>
<tr>
<th>Type of Road</th>
<th>km</th>
</tr>
</thead>
<tbody>
<tr>
<td>National roads</td>
<td>909</td>
</tr>
<tr>
<td>Regional roads</td>
<td>3.781</td>
</tr>
<tr>
<td>Local Roads</td>
<td>8.496</td>
</tr>
<tr>
<td>Total</td>
<td>13.186</td>
</tr>
</tbody>
</table>

The national road network consists of six (6) roads (M-1 to M-6). Most national roads consist of two traffic lane carriageways. Two of the national roads are in concordance with the Pan-European Corridors as well as European road network M-1 (E-75) and M-2 (E-872) are in concordance with Corridors X and VIII respectively. Other national roads form part of important international links, for example, M-3 (E-65), M-4 (E-65), M-5 and M-6. The two Trans National Axes (Corridors VIII and X) that cross the country are important because they support the easy movement of people and goods within the country and also provide connections to regional neighbours and further to all other European Countries.

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**c) Conditions of the road infrastructure along corridor VIII**

Referring to the official reports Corridor 8 represents a strategically economic priority that will help to the Republic of Macedonia to grow from a geographical in a real traffic crossroad of the Balkans. Together with Corridor X, that will contribute for a faster and safer common communication and transport of passengers and goods that leads to economic security and stability. The Corridor 10 in total length of 172 km in the Republic of Macedonia starts at the border crossing Tabanovce, the border with the Republic of Serbia, and runs till the border crossing Bogorodica, the border with Republic of Greece.

Also part of the Corridor X is the motorway section Veles-Megitlija, that runs and connects Veles, Prilep and Bitola with the Republic of Greece in total length of 127,1 km. The condition of the motorway E-75 Tabanovce-Gevgelija is:

- 132 km are constructed as a motorway
- The section Kumanovo-Milanovci, Milanovci-Petrovec, Petrovec-Katlanovo, Katlanovo-Veles and the bypass at Veles are completely constructed as a motorway. For these sections there are projects for their rehabilitation.
- The section Negotino-Demir Kapija in total length of 15,4 km was divided in 3 phases, first and second phase are implemented through the PHARE Program for cross-border cooperation and the third phase is financed through the European Commission, the CARDS program. These sections are constructed. (The first phase was completed in 2003, the second in 2004 and the third in 2005).
- The construction of the section Smokvica-Gevgelija in total length of 11, 22 km financed through EBRD was completed in January 2006.
- The section from Gevgelija to the border with Republic of Greece in total length of 4,6 km is completely constructed as a motorway in the period 1998-2000, with what we have increased flow on the border crossing and better cooperation on the both sides of the border. With the construction of the previously mentioned sections the capacity and the overall efficacy of the motorway E-75 north-south is improved enabling a secure and faster transport, reduction of the noise and the pollution, better conditions for the transit transport, support and stimulation of the economic development, increase of the capacity and better cooperation with the neighbor countries. With the construction of the sections Demir Kapija-Udovo-Smokvica as well as the part of the motorway from (Tabanovce to Kumanovo) Kumanovo to the border crossing Tabanovce, that are part of the
Transeuropean Corridor X, will be provided modern and fast motorway, and with that improvement of the road transport (regarding the reduction of the travelling time and expenses). Connecting the principal urban, industrial and commerce centres will contribute to the economic exchange and cooperation between these centres and maintenance of the entire economic development.

While the construction of the road infrastructure along the Corridor VIII consist on: the total length that runs through the Republic of Macedonia is 304 km from which 84 km or 27.6% are constructed as motorway, 8.7% as a motorway are in phase of construction (Skopje Bypass Motorway in total length of 26.5 km) There are other 14 sections that have to be constructed along the Corridor Eight Macedonian section.

Deve Bair – Kriva Palanka, 13.47 km; - Kriva Palanka – Dlabocica, 10.34 km ; Dlabocica – Stracin , 14.11 km; - Stracin–Strezovce, 18.30 km ; Strezovce-Romanovce,16.6km ; - Gostivar– Gorna Gonovica, 17.3 km ; Pesocani – Trebaniste, 12.7 km ; - Trebaniste – Ohrid, 10.26 km ; Podmolje – Struga, 7.5 km ; - Struga- Kafasan, 14.40 km ;

Through a profound research on the technical data on length, operational status, passengers traffics, the nodes of the roads, border points, code sections, etc, it is presented the physical status of modality, operationally capacities, of the segments of Corridor Eight in Macedonia

d) National Transport Legislation
The country commenced the process of harmonization of its national transport legislation with the EU acquis.
The Law on Road Transport (Official Gazette N0.68/04;127/06) regulates the conditions and the manner in which the transport of passengers and goods is carried out, both in the domestic and international road transport.
The Law on Public Roads (Official Gazette No.26/96; 40/99; 96/00; 29/02 and 68/04) regulates the conditions and the manner of construction, reconstruction, maintenance, protection, use, management, and funding of public roads
The Law on Road Transport Safety (Official Gazette No.88/05) determines the conditions which have to be met by the vehicles engaged in road transport, as well as the devices and equipment which have to be provided in the vehicles, dimensions, overall mass and axle
weight of vehicles; the conditions for obtaining a driving permit and the form and application form for the driving permit, verification and technical control of the vehicles, registration of the vehicle and the application form for the traffic permit etc.

*Law on Carriage of Dangerous Goods* (Official Journal of the Socialist Federal Republic of Yugoslavia No.27/90 and no.45/90 and Official Gazette of RM No 12/93 and 31/93) regulates the carriage of dangerous goods both by road and railway.

*The Law on Mandatory Transport Insurance* governs the mandatory insurance for all types of transport based on the previously outlined Laws.

Since 2002 the country started the process of harmonization of the environmental legislation with the EU and new laws on Environment, Nature, Air Quality and Waste Management have been passed by the Parliament.

*The Law on Environment* (Official Gazette no. 53/05, 81/05, 24/07) as a framework law in the area of environment has transposed the segment of the *acquis communitarian* known as horizontal legislation. The Framework Law on Environment incorporates the basic principles of environmental protection, on the basis of which the relevant environmental management procedures are regulated. The Law places specific emphasis on integrated environmental permits, with regard to which it introduces the system of gradual adjustment to the required standards for integrated pollution prevention and control;

The area of nature protection is regulated by the *Law on Nature Protection* (Official Gazette No. 67/2004, 14/2006), which has been harmonized with the *acquis communitarian* and incorporates the obligations deriving from the ratified multilateral agreements in this area.

The air quality management is regulated by the *Law on Ambient Air Quality* (Official Gazette of the Republic of Macedonia No. 67/04), which is harmonised with the *acquis communitarian* and incorporates the obligations deriving from the ratified multilateral agreements in this area.

It is foreseen that approximation with the *acquis communitarian*, will bring a significant outputs of the transport activity for the Macedonia and partner countries.

**V.4.4 Population and demography**

Referring to the official data of the 2002 Census, Republic of Macedonia has 2 022 547 inhabitants and by 2005 it had increased to 2.036 millions, and by 2006 2.043 millions. The
The 2002 census showed 564,296 households, with an annual average growth of 9,577 inhabitants in the period 1994 – 2002, or average annual growth rate of 0.6%. In long term, the intensity of population growth has decreased significantly at national level, compared to demographic trends in former decades, when the average annual growth rate was around 1.6%. This indicates slower demographic growth in the country, especially during the last decade. In terms of regional distribution, demographic trends manifest different intensity and directions. Natural population growth in the Republic of Macedonia notes an average annual growth of 22,630 people.

Among the total 1,795 registered populated places, 29 settlements (1.6%) form the category of urban and 1,766 settlements (98.4%) rural settlements. Development of urban settlements in the former period was accompanied by significant expansion of the influence zone over areas in suburban zones, where coverage scope and intensity of influence corresponds with population size and functional status of the city.

The country has a monocentric regional structure based on the dominance of the capital city, Skopje with approximately 580,000 inhabitants (with 29% of the national population) that attracts about 40% of the urban population. The other cities are less economically attractive to compete successfully with the capital city and attract sufficient industry and commerce.

The country is characterized with significant variations of the average population density - (75 inhabitants per km²) - above (State Statistical Office of Republic Macedonia) 500 people on km² settled 2% of the territory of the country and on the 14% of the territory the density is 1-10 inhabitants per km². Generally, the population is increasing in the western and south-western parts and decreasing in the Eastern parts of the country as the result of the rate of the natural population growth and migrations too. 87% of the population is concentrated in major cities.

It is visible that the density of population and industrial activity is oriented in the corridors area. It is the same phenomena as in Albania, too.

**Ethnicity**

Is considered as richness by the Macedonians. In 2002 the country had a population of 2,022 million and by 2005 it had increased to 2,036 millions. The 2002 census showed that Macedonians constitute 64% (64.18%) of the population and Albanians 25% (25.17%), and then Turks 3.85%, Roma 2.66%, Serbs 1.78% and other sub-groups constitute 10% of the population. The cultural fabric of the country had been developing over a long period as a result of a number of factors including ethnic heterogeneity (Turks, Albanians, Serbs and
V.4.5 Environmental issues

a) Climate
Due to specific natural and geographic characteristics, there are two main types of climate in the Republic of Macedonia: Mediterranean and continental. Thus, two prominent seasons occur: cold, wet winters and dry, hot summers. By the end of the XX century, starting with the 80s an extreme dry period has been registered. It had a character of an extended dry period lasting more than 7 years (till 1995/96). In addition to these, in the high, mountainous areas there is also a mountainous climate characterized by short, cool summers and considerably cold and moderately wet winters, where precipitation is mainly in the form of snow. In spite of the fact that Macedonia lies relatively close to the Aegean and Adriatic Seas, the influence of the Mediterranean climate does not reach very deeply into the country, except within a few valleys.

b) Surface waters
The Republic of Macedonia contains a considerable number of water resources, both underground and surface. The total water resources reserves of Macedonia are estimated at: 18.8 x 10^9 m^3 from rainfall (with a 733 mm average rainfall); 6.37 x 10^9 m^3 discharged from the river basin areas; 0.52 x 10^9 m^3 groundwater; and 0.42 x 10^9 m^3 from the largest springs. The annual resources per capita are about 3.150 m^3/year.

The rivers of Macedonia are divided into three primary watersheds: one flowing to the Adriatic Sea and two to the Aegean Sea. Another very small watershed flows to the Black Sea. The Vardar River (Aegean watershed) is the largest river, and bisects the whole country. Of its total length of 388 km, 301 km are inside the country, passing through the capital Skopje before crossing to Greece and finally flowing to the Aegean Sea near Thessalonica. There are several large natural lakes in the Macedonia. Of the natural ones, the most attractive are the tectonic lakes: Ohrid, Prespa and Doyran.

Lake Ohrid is the largest, occupying an area of 348.8 km^2, of which 229.9 are in the Republic of Macedonia and the remainder in Albania. It is 30.5 km long, 15 km wide. The
lake is situated at 699m above sea level. In addition to flow from the Crni Drim River, the lake receives water from 80 surface and underground springs and from Prespa Lake, which is located at a higher altitude. Ohrid Lake, with its relict and endemic organisms, represents the most significant lake ecosystem in Europe (under the protection of the United Nations Educational, Scientific and Cultural Organization [UNESCO]).

*Prespa Lake*, with an area of 274 km², is the second largest in the country, 176.8 km² of which belong to Macedonia, 47.8 km² to Greece and 49.4 km² to Albania. Its length is 28.6 km and its width is 16.9 km. Prespa Lake is situated at 853 m msl.

*Doyran Lake*, unlike the other two lakes which are located in western Macedonia, is situated in the south of the country, occupying an area of 42.74 km², 27.1 km² of the area belong to the Macedonia and the rest to neighbouring Greece. It is characterised by high floristic and faunal diversity and low endemism.

The network of small internal river-courses and relevant floodplains are also important consideration for the road sector as it is required protection of surface water and safety measures to prevent floods as well as to protect road infrastructure.

c) Air Quality

Pollution from energy sector and industrial production, the burning of fossil fuels and transport activities constitute a main threat to air quality, in particular in cities and areas with intensive industry, and consequentially cause a potential impact on a large part of the population. During 90s, air emissions decreased, mainly due to the overall transition which had greatest impact on industry. Since then, however, the trend is slowly reversing with modest, but steady, increases in the level of industrial activity, leading to mild increase in the emissions of SO2, NOx and dust. Air quality problems are particularly pronounced around the areas of major cities, thus potentially affecting 60% of the total population. The road traffic is the major source of CO emissions.

The level of air emissions from mobile sources depends not only on the level of activity, but there is also a direct relation to the quality of the fuel that is used, and to age structure of the vehicle fleet. During the last years (1999-2005) the share of gasoline fuel is increased due to the fact that, 77,7% of total number of vehicles derive from vehicles which use gasoline as fuel, while percentage share of vehicles which use diesel as fuel is 17,9%. *(Statistical Year Book of Macedonia, 2005)* Vehicle fleet in 2005 was 483.738, increased from around 250,000 units in 1990 and the trend is still upward. The technical condition of the cars has a significant influence on emissions. It should be noted that in Macedonia, within all classes of motor vehicles, over 80% of the vehicles are over 10 years
old, while the number of new cars is relatively small. Contribution of transport emission to the total annual emission of the country for the period of 2004 and 2005. (Air Emission Inventory of the Republic of Macedonia 2004 and 2005)

\textit{d)Biodiversity}

Macedonia is a rich country as regards to biodiversity. The diversity of species and ecosystems are the basic features of the biodiversity in the country and is illustrated by the outstanding number of over 16,000 floral, faunal and fungal species, out of which more than 850 are endemics and through the large variety of ecosystems hosting more than 260 plant communities (Spatial plan of the Republic of Macedonia, Spatial planning strategy, 2004)

Forests cover approximately 37\% of the state territory (997,374 ha or 38.8\% of the total territory or 0.49 ha/inhabitant) and broadleaf forests are dominating. (State Statistical Office of Republic of Macedonia)

Understanding of biodiversity importance for the country’s ecological stability is one of the key factors to be considered in the road sector. The special attention should be paid to conservation of such natural habitats as forests, meadows and steppe during road construction, maintenance and traffic. In particular, it relates to migratory ways which have to be considered while developing the road sector.

\textbf{V.5 BULGARIA}

\textbf{V.1 Bulgaria an EU member state}

Bulgaria is the Eastern gate of Corridor Eight. As it is mentioned before the presence of Bulgaria in EU as a full member state, increase possibilities toward sustainable developments in two sense; sustainable developments in the road sector and sector of the corridor.

Sustainable developments along corridors area

There is an agreement between CE and Bulgaria as a member state as regard to transport area. This agreement (Article 82 Transport) offer possibilities to Bulgaria restructure and modernize transport, improve the movement of passengers and goods and the access to the transport market by removing administrative, technical and other obstacles, facilitate Community transit through Bulgaria by road, rail, inland waterway and combined transport and to achieve operating standards comparable to those in the Community.
The agreement contain could be an example for other partner countries along Corridor Eight. So, could take the model of economic, legal and technical training programmes

The priority areas of cooperation shall include areas of: road transport, including the gradual easing of transit conditions, -the management of railways and airports, including cooperation between the appropriate national authorities - the development of a road network and the modernization, on major routes of common interest and trans-European links, of road, inland waterway, railway, combined transport port and airport infrastructure, -land-use planning including construction and urban planning, -the upgrading of technical equipment to meet Community standards, particularly in the fields of road and rail transport, multimodal transport and transhipment, - the setting up of consistent transport policies compatible with those applicable in the Community, etc.

Partnership collaborative programmes among countries including Italy, Albania, Macedonia (FYROM) and Bulgaria, could be possible in undertaking joint activities in helping non EU members in approximating acquires communitarian in transport area.

**V.2 Bulgaria the Eastern Gate of Corridor Eight**

Bulgaria is situated in the centre of undergoing of a dynamic transition region in the crossroad of five out of ten Pan Crossroad Pan-European Transport Corridors, the Corridors - IV, VII, VIII, IX, X. It is an EU member state since 2007. The total population is 7.6 million living in 111,910 km². Founded in 681, Bulgaria is one of the oldest states in Europe. Its history is marked by its location near Europe’s frontier with Asia. Some 85% of the population are Orthodox Christians and 13% Muslims. Around 10% of the population are of Turkish origin while 3% are Roma.

Priorities in the Port infrastructure Development Policy aims at updating the ports’ master plans creating conditions for better utilisation of the existing ports through development of the main ports’ infrastructures, creating conditions for specialisation of port terminals, enhancing the efficiency of the port operations and creating conditions for adjustment to the EU protection of the environment requirements of the Bulgarian ports.

The priority in the transport infrastructure for Bulgarian inland rivers consists on:

a) Enhancing the safety and security level of the ports planned Priority Investment Projects of National Importance Planned, improvement of the navigation in the Bulgarian1
Bulgarian–Romanian section of the river Danube from km 530 to km 520 — Batin–Batin and from km 576 to km 560 and Belene–Belene

b) Establishment of a river information system in the 2 Bulgarian part of the river Danube—Improving the vessel traffic conditions—Removing the bottlenecks—Setting up and developing navigation information systems.

[...]

Currently, certain elements are considered of special interest for Romania and Bulgaria infrastructure, economic development business infrastructure business information, SME marketing actions, tourism activities, environmental protection and management (nature protection, flood management and erosion control. [...]) (Puscas, V. 2004)

Employment indicators of Bulgaria

In the third quarter of 2008 the number of employees was 3,417.3 thousand and reached 51.6% from the population on 15 years of age and over. During the period third quarter of 2007 - third quarter of 2008 the number of employees rose by 101.8 thousand and the employment rate - by 1.7 percentage points.

The unemployed persons were 185.1 thousand in the third quarter of 2008, or 5.1% from labour force. In comparison with the same quarter of the previous year the unemployment rate dropped by 1.5 percentage points and the number of the unemployed persons was 50.0 thousands less. According to the NSI business inquiries in December 2008 12.1% of the industrial enterprises pointed out the labour shortage as a factor limiting their activity. In September 2008 the average wage and salary was BGN 538 (by preliminary data) or by 4.7% above compared to the previous month. Towards September 2007 the growth was BGN 102 or 23.4%.

1 Cross-Border Cooperation and the Enlargement of the European Union. The case of Romania in “Cooperation and Euroregions-for Borders to Become Centres”, ISIG, Trimestrale di Sociologia Internazonale, Gorizia, Italy.
Mobility of goods from Bulgaria to other countries along Corridor Eight is presented by graphs composed on bases of dates analyse available in NSI (National Statistical Institute).

- **Export FOB with Albania (1999-2008)** (in millions)
- **Export FOB with Macedonia (1999-2008)** (in millions)
- **Export FOB with Turkey (1999-2008)** (in millions)
Corridor VIII links the Adriatic-Ionian regions with the Balkan regions and Black Sea countries. From an economy point of view, with the trans-European networks the European Commission aims at realising an enhanced territorial access to EU countries, and thus develop an increased mobility of people/goods following the Single Market objectives and the principles of sustainable mobility. From a transportation point of view, Corridor VIII is a multi-modal transport system along the East-West axis comprising of sea and river ports, airports, multi-modal ports, roads and railways, for a total extension of ca. 1270 kilometres.
of railways and 960 kilometres of roads. Its main route follows the Bari – Brindisi – Durres - Tirana – Skopje – Burgas – Varna axis. There also are branches leading to Greece and, through Corridor IV, to Turkey.

Pan European Corridor VIII spans over a South Eastern European area were transportation infrastructure is traditionally weak. Road connections are inadequate both in Albania and in FYR Macedonia, especially along Qafe Thane (Albania-FYR Macedonia border) and Deve Bujir passages (Fyr Macedonia-Bulgaria border). As regards railways, some crucial links are still missing, while the existing ones are insufficient in FYROM (Macedonia) and Bulgaria, and scarce in Albania. Pan European Corridor VII is thus a challenging project, requiring additional resources and more international cooperation to disclose its very potential. Corridor VIII is bound to open new, crucial connections between Fyr Macedonia and Albania, and of similar importance for the Italian regions facing the Southern Central Mediterranean basin. Thanks to the sea links between the Apulian ports and Durres in Albania, and the road-rail connections towards the Black Sea, Corridor VIII will allow a further extension to the East, so as to increasingly extend industrial and commercial cooperation the two shores. A better integration with South Eastern Europe is a fundamental need for North Eastern and South Central Italy. What is more, fostered relationships with South Eastern European countries are of the utmost importance for South Central Italy. In particular, Apulia will benefit from a legacy of historical, strong relationships with Mediterranean neighbouring countries.

Albania is the western Gate of Corridor Eight. Following the graph analyse demonstrate the tendency of what enter and what goes out from the country in two directions West and East Italy is confirmed to be the main partner in import - export with Albania while Greece has lost its power. So, there is a tendency in the future, it passes from West to East , just the same as the Corridor.

Structure of imports by main partner in % in Albania

- Italy: 36%
- Greece: 28%
- Turkey: 6%
- Germany: 6%
- China: 8%
- Other: 16%
Structure of exports by main partners in % in Albania

V.6 THE NETWORK OF PANEUROPEAN CORRIDORS AND AREAS

a) The Corridors

**Corridor I:** Helsinki – Tallinn – Riga – Kaunas – Warsaw with the components
a) Road Corridor (Via Baltica) from Tallinn – Riga – Warsaw
b) Rail Corridor (Rail Baltica) from Tallinn – Riga – Warsaw
c) Branch (road/rail) from Riga – Kaliningrad – Gdansk

**Corridor II:** Road and rail link connecting Berlin – Warsaw – Minsk – Moscow – Nizhny Novgorod

**Corridor III:** Road and rail connection between Dresden – Wroclaw – L’viv – Kiev

**Corridor IV:** Road and rail connection between Dresden – Prague – Vienna – Bratislava – Budapest Branches to Nuremberg, Bucarest – Constanta and Sofia – Thessaloniki / Istanbul

**Corridor V:** Road and rail connection between Venice – Trieste – Koper – Ljubljana – Budapest – Uzgorod – L’viv
Branch a: Bratislava – Kosice – (Uzhgorod) – L’viv
Branch b: (road): Rijeka – Zagreb – Cakovec
Branch b: (railway): Rijeka – Zagreb – Koprivnica – Dombovar
Branch c: Ploce – Mostar – Sarajevo – Osijek – Budapest

**Corridor VI:** Road and rail connection between Gdansk – Grudziadz/Warsaw – Katowice – Zilina Branch to Brno

**Corridor VII:** The Danube waterway with the components
a) Danube inland waterway
b) Black Sea-Danube Canal
c) Danube branches Kilia and Sulina
d) Danube-Sava canal
e) Danube-Thissa canal
f) Relevant port infrastructures situated on these inland waterways

**Corridor VIII:** Road and rail connection between Bari and Brindisi – Durres and Vlore – Tirana – Skopje – Sofiya – Varna and Burgas
Branch 1: Cafasan – Kaphstice/Kristallopigi
Branch 2: Sofia – Pleven – Byala (road)/Gorna Oriaiovica (rail)
Branch 3: Burgas – Svilengrad – Ormenion

**Corridor IX:** Road and rail connection between Helsinki – St. Petersburg – Pskov/Moscow – Kiev – Ljubasevka – Chisinau – Bucarest – Dimitrovgrad – Alexandroupolis

**Corridor X:** Road and rail connection between Salzburg – Ljubljana – Zagreb – Beograd – Nis – Skopje – Veles – Thessaloniki
Branches to Graz, Budapest, Sofiya and Florina

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**b) Pan-European Areas**

**Barents Euro-Artic Area:** Multimodal transport area covering the northern provinces of Sweden, Finland and Norway as well as the Oblasts Murmansk and Arkhangelsk and the Republics of Karelia and Komi of the Russian Federation.

**Black Sea Transport Area:** Littoral countries of the Black Sea (Turkey, Georgia, Russia, the Ukraine, Romania, Bulgaria) as well as Greece and Moldova (observer status for Armenia and Azerbaijan)

**Adriatic-Ionian Sea Transport Area:** Littoral countries of the Adriatic and Ionian Seas (Albania, Bosnia and Herzegovina, Croatia, Greece, Italy Slovenia, Serbia and Montenegro)

**Mediterranean Transport Area (MEDA countries):** Algeria, Cyprus, Egypt, Israel, Jordan, Lebanon, Malta, Morocco, Palestinian Territories, Syria, Tunisia and Turkey
V.7 DATES ANALYSE

Analyse dates belong to Albania. Source. INSTAT 2005

Basic indicators of size and economic activity in the SEE region 2005


GDP/cap of size and economic activity in the SEE region, 2005


Population growth in 2002

Health expenditure % GDP in 2001


Labour statistics


GDP per capita in euros in 2005

Total exports as a share of GDP in 2003
Economic freedom in 2006

Corruption perception Index (CPI)

Emissions of organic water pollutants (kilograms per day)


Length of road/sq. km in 2000

Length of railway/sq km in 2000

Users of internet per 1000 people in 2002

VI. CONCLUSIONS AND RECOMMENDATIONS

VI.I Conclusions and Recommendations

Experience has demonstrated that transport activity is vital for society. It has been developed in time and space.

Three elements have been proved to be key factor in transport activity:

- the man;
- transport means;
- and the geographical environment;

Geographical environment is that part of nature, in which human activity operates.

Experience has demonstrated that among the different routes of transport, Corridors of Transport are the most effective geographical part of territory for transport activity.

Transport Corridors are roads, rails, waters-ways, air ways, underway, pipe line, cables, etc.

All modes of transport are part of the transportation system of the corridors.

Transportation Corridors are developed in accordance with the experience and the knowledge of human activity.

Modern Corridors of Transportation are characterized by high levels of technology, communication, services, etc.

Corridors of Transportation generate:

- economic growth and productivity;
- social benefits;

They link and integrate:

- people of different nations, origins and social groups in local, national, regional and transnational level;
- natural resources and economies in local, national, regional and transnational, continental and global level;

They change social behaviour e and create new life styles.
Transportation activity brings also consequences for society and nature:

- It brings environmental consequences, global warming and other natural causalities;
- Social consequences consist on healthy, security and safety consequences.

A sustainable transportation activity is recommended to avoid consequences of its activity. Renewable energy resources and new technology that reduce fuel emissions by transport activities are recommended to prevent environmental causalities.

Transport traffic management system, spatial planning for reducing combustions, road improvements etc, are recommended to combat human causalities by transportation activities.

EU policy aims to put people at the heart of transportation activity by developing sustainable strategies.

Finance of infrastructure transport is a permanent challenge of policy-makers and governors. The State budget can’t support big amount of money required for transport activities. Beyond these activities they want to orient budget funds on other directions. Public Private Partnerships is recommended to solve the lack of financial resources.

Corridor Eight is one of the ten Pan European Corridors of Transport. It links Adriatic Sea and Black Sea, connecting Europe with Asian continent.

The present status indicates low level of technical operational status, bad indicators as regard to safety, healthy, security, cultural heritage, natural diversity, etc.

Sustainable strategy developments could make Corridor Eight competitive and complementary among the other transportation networks in European level.

Public Private Partnerships is recommended as the key-solution to solve questions by Corridor Eight.

Considering the whole Italy as the western gate of Corridor Eight, it can be concluded that it’s of a great importance, as it enhances European Freedoms to the Balkans.

VI.2 ANALYSE OF POSITIVE AND NEGATIVE FACTORS

- **Positive:**
  - There is a good political will of the stake holders the respective countries along Corridor Eight.
  - There is a stabilized Balkan Region with a clear political map, and a common European-Atlantic Integration willingness.
- Geographical position suggests sustainable perspective developments to the Corridor. The Corridor is a linking bridge between two continents - The are common social comports of social groups along historical and cultural routs of the Corridor, being under the same rulers during the centuries.
- The social and geographical area is of a very rich diversity as regard to human and natural diversity.
- It is a rich natural territory on water, bio, geo, sun radiation, resources, which support sustainable perspective developments.
- It is a multi resource corridor (water, road, air, underwater, telecommunication cables, gas and pipe line). Consequently it is under the global stakeholders’ attention.
- Corridor Eight is part of Regional and European core network of transport.
- The total length is relatively a short one in comparison with other (PECT). This fact make more easy harmonization of common actions and policies.
- The two extreme points starts in EU countries, making possible to use or exploit the great possibilities coming from this argument.
- Considering Italy as the Western gate of Corridor is an opportunity that generates multi dimension value.
- Public-Private Partnerships are of great importance and possibility in filling the financial gap in transport infrastructure.
- Global worming challenges offer also financial possibilities in driving sustainable development along corridor areas.

b) Negative:
- The actual operational technical status as well as the safeness, safety, security, healthy, are considered weak indicators in competitiveness reference.
- Even Balkan is considered a stabilized region, the history and social diversity, including fragmentary territorial part of Kosovo, Macedonian (FYROM)-Greece question, suggest a week point as regard to future sustainable developments.
- Even geographical position is considered an opportunity toward sustainable development, the geopolitical position including the gas/oil pipe lines running along the Corridor, may cause threatens in the region.
- Social diversity in the region has demonstrated to generate clashes, periodically in the region.
- Regional transportation corridors use to be considered as complementary, while experiences suggests extreme competitiveness case.
- Different status in regard to EU relation, make difficulty common actions for harmonization of standards
- The bureaucracy and centralization of the power make difficult new form of financial partnerships
- Legislation in same case is far from EU standards
- Some law standards as regard to freedom of movement, transparency, community participation, role of civil society make difficult sustainable developments in particular case.
- Law on Land Property, in special case create difficulty in infrastructure foreign investments
- The actual global financial crisis has create more difficulties as regard to financial sources for infrastructure transport.
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ABBREVIATIONS

ACEA: Automobile Manufacturers Association
ANTP: Albanian National Transport Plan
AWM: Advantage West Midlands
CAA: The Clean Air Act
CEFTA: Central European Free Trade Agreement
CMD: Clean Development Mechanisms
CPI: Costumer Price Index
DG TRE: Directory for transport and energy
EBRD: European Bank for Reconstruction and Development
EC: European Community
ECAA: European Common Aviation Agreement
ECMT: European Conference of Minister of Transport
EIB: European Investment Bank
EMDA: East Midlands Development Agency
ENP: European Neighborhood Policy
ENPI: European Neighbourhood and Partnership Instrument
ETC: Electronic Toll Collection
ETS: Emission Trading Scheme
ETUC: European Union Trade Union Confederation
EU: European Union
EUROSTAT: European Statistics
FDOT: Florida Department of Transportation
FP: Framework Programme
FVG: Friuli Venezia Giulia
FYROM: Former Yugoslav Republic of Macedonia
GDP: Gross Domestic Product
GHG: Greenhouse gas
GPS: Global Positioning System
GRD: General Roads Directorate
GtC: Gigaton of Carbon
GtCO2: Gigaton of Carbon dioxide
HLG: High level group
HOT: High Occupancy Toll
IAEA: International Atomic Energy Agency
IEA: International Energy Agency
IFIs: International financing institutions
IPA: Pre-Accession Instrument
IPCC: Intergovernmental Panel on Climate Change
IRR: Internal Rate of Return
IUIES: International University Institute for European Studies
KfW: Kreditanstalt für Wiederaufbau
Km: Kilometer
KWh: Kilowatt-hour
LGTT: Loan Guarantee instrument for TEN Transport projects
MDG: Millennium Development Goals
MJ: Megajoule
MoU: Memoranda of Understanding
Mt CO2: Million tonnes of carbon dioxide
Mtoe: Million tonnes of oil equivalent
MW: Megawatt
NGO: Non Governmental Organisation
NPRF: Irish National Pension Reserve Fund
NUT: Nomenclature of Territorial Units for Statistics
OECD: Organization for Economic Cooperation and Development
OJ: Official Journal
OMERS: Ontario Municipal Employees Retirement System
OPEC: Organization of the Petroleum Exporting Countries
OTPP: Ontario Teachers Pension Plan
PEC: Pan-European Corridors and Areas
PECA: Pan-European Corridors/Areas
PFIs: Private Finance Initiatives
PPP: Public Private Partnership
PPPAC: Public Private Partnership Approval Committee
PV: photovoltaic
R&D: Research and Development
RCC: Regional Cooperation Council
RE: Renewable Energy
RFI: Italian National Railway Agency
RSA: Renewable Energy Resource
SC: Steering Committee
SEE: South East Europe
SEECP: South East European Cooperation Process
SEETO: South East Europe Transport Observatory
SRI: Social Responsible Investing
SWF: Sovereign Wealth Funds
TAP: Trans-Adriatic Pilepine
TEM: Trans-European-Motorways
TEN: Trans-European Network
TEN-T: Trans European Network of Transport
TER: Trans-European Railways
TIA: Tirana International Airport
TIFIA: Transportation Infrastructure Finance and Innovation
TNCPSEE: Transnational Cooperation Programme for South East Europe
Toe: Ton of oil equivalent
TRACECA: Transport Corridor Europe-Caucasus-Asia
UNESCO: United Nations Educational, Scientific and Cultural Organization
UNFCCC: United Nations Framework Convention on Climate Change
US: United States
VOCS: Volatile Organic Compounds
WB: World Bank
WE-NET: World Energy Network
WHO: World Health Organization
WTO: World Trade Organisation
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