The sustainable development strategy impact on maritime transport in the EU

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Abstract The effects of globalisation, geography and history make maritime transport the most important transport mode in developing EU trade for the foreseeable future. The Commission, the Member States and the European maritime industry should be working together towards the long-term objective of "zero-waste, zero-emissions". The common transport policy favours the development of the maritime transport as one of the environmental friendly modes of transport in compliance with the idea of sustainable development (Lisbon and Goeteborg Strategies). The EU, through a set of political actions, legal and financial instruments, promotes intermodal transport and creation of motorways of the seas. The paper presents the impact of the sustainable development concept on the EU transport policy that is to enhance the development of an overall maritime policy which combines an integrated, cross-sector approach with effective policy co-ordination and common action. One of the most important issues is the so-called Greener Maritime Transport, i.e. promotion of green solutions in maritime transport.

Keyword: *Sustainable development strategy, EU, maritime transport*

1. Introduction

The EU is one of the most active promoters of the idea of sustainable development all over the world. The goals of the EU transport policy stem from the guidelines for development strategies set out at the level of the European Community. The most significant EU strategic documents include the Lisbon Strategy and the Goeteborg Strategy. The former emphasises the necessity to increase the competitiveness of the European area, whereas the latter draws attention to ensuring sustainable development of this area [1]. The implementation of the sectoral transport policy (as well as of other Community policies) is supported by the EU horizontal cohesion policy, especially through structural funds and the Cohesion Fund. In its transport policy the EU aims at changing the demand pattern through shifting potential demand from the road transport sector towards the rail, inland waterway and sea transport – short-distance shipping as well as promoting combined transport and public transport. Such solutions are more environmentally friendly, thus helping pursue sustainable development.

2. The vision of Sustainable Development

The most frequently quoted definition of sustainable development is from *Our Common Future*, also known as the Brundtland Report: [2]
"Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It contains within it two key concepts:
- *the concept of **needs**, in particular the essential needs of the world's poor, to which overriding priority should be given; and*
- *the idea of **limitations** imposed by the state of technology and social organization on the environment's ability to meet present and future needs."*

Following Dourojeanni (1993) it is possible to graphically represent (Fig. 1) the achievement of sustainable development by the simultaneous attainment of three objectives: environmental and natural resource sustainability, economic growth and social equity.
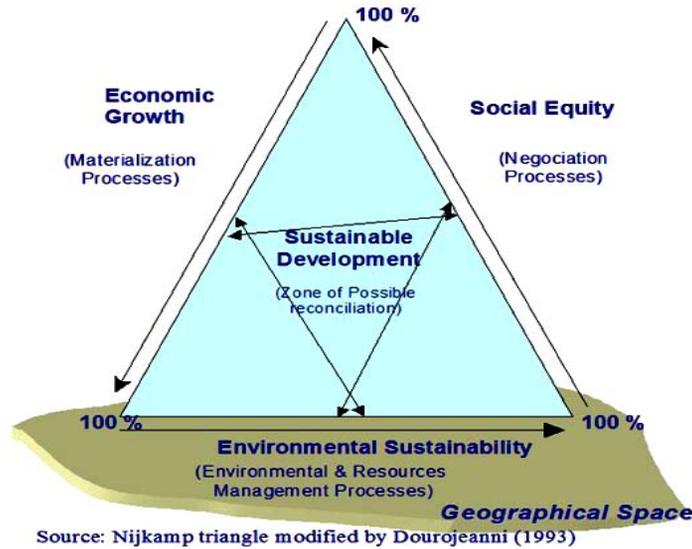
Fig. 1 Sustainable Development triangle [3,4].

The attainment of environmental sustainability refers to the balance between the human rate of use of the environment and its resources, with natural resources rates of growth and environmental resilience [2]. In similar terms, the attainment of economic growth is related, among other things, to the generation of employment, food, income and wealth (net economic benefits). Social equity refers to the need to give due consideration to the need to generate equal opportunities among people (generational, gender, cultures) to have access to the natural resources base for its use and to the wealth generated. Therefore, the attainment of sustainable development implies the balance between these three objectives or, in other words, to their simultaneous achievement.

According to the Division for Sustainable Development from the United Nations' Department of Economic and Social Affairs, transportation is expected to be the major driving force behind a growing world demand for energy [5]. It is the largest end-use of energy in developed countries and the fastest growing one in most developing countries. Furthermore, adequate, efficient, and effective transport systems are important for access to markets, employment, education and basic services critical to poverty alleviation. Current patterns of transportation development are not sustainable and may compound both environmental and health problems.

Therefore, there is a need for urgent action, ranging, inter alia, from the promotion of integrated transport policies and plans, the accelerated phase-out of leaded gasoline, the promotion of voluntary guidelines and the development of partnerships at the national level for strengthening transport infrastructure, promoting and supporting the use of non-motorised transport and developing innovative mass transit schemes. The international co-operation is required in order to ensure transport systems support sustainable development. The efficient and affordable transport systems are necessary for poverty alleviation and the need to mitigate adverse externalities to health and the environment. Countries all over the world should support greater use of public and non-motorized transport and promote an integrated approach to policy making including policies and planning for land use, infrastructure, public transport systems and goods delivery networks, with a view to providing safe, affordable and efficient transportation, increasing energy efficiency, reducing pollution, reducing congestion, reducing adverse health effects and limiting urban sprawl [5].

Climate change is the most pressing global environmental challenge, and one that calls for major efforts and active steps on the part of industrialised countries, in line with their common and differentiated responsibilities, as well as working in conjunction with transition and developing

countries. Any such action must be taken within the framework of the UN Framework Convention on Climate Change (UNFCCC). There is a need of the full integration of the commitments made by the EU Member States with regard to the Kyoto Protocol and, beyond that, the definition of quantified objectives for reducing greenhouse gas emissions in accordance with the decisions taken by the European Council and the Environment Council in March 2005 - namely to reduce such emissions by between 15 and 30% by 2020 and by between 60 and 80% by 2050, compared with the levels measured in 1990.

From an environmental and social point of view, the failure to unhitch growth in transport from growth in GDP is an extremely worrying tendency, which the Sustainable Development Strategy neglected to redress. The development of road traffic, prompted by new strategic choices by companies geared towards flexibility, just-in-time production and ease of operation by employing a cheap, flexible workforce, poses serious threats in several respects (including congestion, emissions of CO_2 and micro-particles, and safety). The new guidelines on trans-European networks adopted by the Council in December 2003 go some way towards meeting the crucial objective of switching traffic from road to rail and maritime transport networks. However, according to The European Trade Union Confederation (ETUC), the marked improvements are needed with respect to studies investigating the impact of such projects on jobs and on the environment [6].

3. EU transport policy

3.1. Goals of the EU transport policy

The updated transport policy goals are based on two assumptions:
- mobility is the key to Europe's prosperity and the free movement of its citizens;
- the negative effects of this mobility, i.e. energy consumption and the impact on health and the environment, must be reduced.

The functioning of common transport policy instruments brought about many positive EU-wide changes, for instance: [7]

- improvement of the quality of services provided and a wider offer of the form and mode of transport,
- reduced costs of transport and a decrease in prices of goods at the Community level, which limited inflation and stimulated exports and investment as well as stabilising the economies of EU Member States,
- improvement of the economic and spatial cohesion of certain parts of the Community,
- improvement of social mobility, resulting in greater labour market flexibility,
- ongoing standardisation of transport equipment and techniques, the development of modern methods and technologies as well as of intelligent traffic management (e.g. interoperability, telematics, the Galileo satellite navigation system).

Solely efficient transport sector provided with modern infrastructure and effective market mechanisms can guarantee necessary level of mobility of goods and people. Nowadays, in the age of globalisation and existing highly competitive world economic environment, the mobility is getting essential to the EU's economies and communities. It is key to higher quality of life and welfare as well as fundamental for enhancing EU's competitiveness and vital to achieving the goals of the EU's ambitious strategies for growth and employment. The mobility, directly connected with the economic expansion (rise of GDP), has been growing in the EU rapidly since the mid of 90s. Goods transport rose ca. 2.8% per year (1995-2006), i.e. more dynamic than GDP did and passenger transport ca. 1.7% per year in the same period.

As a result goods and passenger transport grew by 33% and 18% respectively at that time and what is more, this dynamic growth is envisaged to continue in the next decade (see fig. 2).
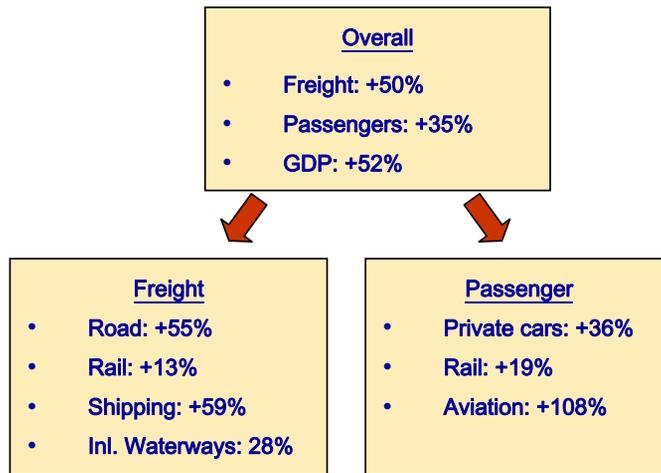
Overall

- **Freight: +50%**
- **Passengers: +35%**
- **GDP: +52%**

Freight
- **Road: +55%**
- **Rail: +13%**
- **Shipping: +59%**
- **Inl. Waterways: 28%**

Passenger
- **Private cars: +36%**
- **Rail: +19%**
- **Aviation: +108%**

Fig. 2 Most likely 2000-2020 growth in transport demand in EU27 [9].

Characteristic trademark of the UE high mobility is, however, relatively outsize share of road transport in the existing modal split. It accounts for 45,6 % in the servicing of total transport demand, whereas rail accounts for 10.5%, inland waterways contribute 3.3% and oil pipelines add another 3.2%. Maritime transport then accounts for 37.3% and air transport for 0.1% of the total traffic (all referring to the EU27 in 2006).

As a result of currently formed modal split in the EU's transport sector, and as predicted realistically by 2020 (fig. 2), no chance for any shift in it towards the more environmentally friendly modes of transport such as rail and inland waterways, reaching the set up transport policy's objective is thoroughly impossible. When this tendency is followed-up, sustainable mobility by still rapidly growing transport activity will even dash away. For, sustainable mobility this means disconnecting mobility from its many harmful effects for the economy, society and environment [10].

3.2. External and social costs of mobility

The emissions of many hazardous gases and substances, that threaten seriously human health, lower significantly local environment quality, as well as noise emissions, heavy congestions, accidents and many other inconvenient burdens and nuisances generated by transport activities (so called negative externalities) are not directly born by transport users. They have to pay currently only costs that are directly related to the scale of the use of their mode of transport, i.e. fuel costs, insurance, wages, salaries, amortisation and other capital costs, etc.. Such costs are regarded to be private in that sense, they are born directly by the users. As opposed to them, the external costs generated by the users as well, as the costs accompanied any kind of mobility, are borne by communities and economies (states and their citizens).

The sum of the users' direct costs (private ones) and external costs of mobility give its social costs. Exclusively the total social costs caused by the transport users need to constitute the real base for the transport prises. Consequently, incorporating external costs into users' direct costs, i.e. estimating social transport cost as a keystone for charging in transport sector, especially as the basis for future right calculations of infrastructure charges, policy makers shall meet the transport policy goal, aimed at creation an effective transport pricing system that is more efficient than exiting one and can more accurately reflect the true costs involved by mobility. Alone such transport charges can give the right and optimal from the macroeconomic point of view price signals to the providers and consumers of transport services and take account of the real needs of the services used as well as consumption of scarce resources (sc. scarcity prises).

New, realistic transport prices mechanism is expected to improve the efficiency of infrastructure use, reducing the need for new investments and all at once needs to create strong incentives for users to

switch to clean vehicles, speed up technological innovation and use advanced logistics transport solutions. Getting in such a way the transport prices right, that is to say that users will bear the full costs they create and subsequently will thus have an clear incentive to change their market behaviour and the whole medium and long run decision making process in order to reduce those costs [10].

Transforming this main paradigm of sustainable mobility into practice means, that in the EU, internalisation of external costs has to be effected as soon as possible. Such necessary and unavoidable solutions was indicated in the EU's White Papers on sustainable transport policy (1992, 1998, 2001), many reports, e.g. 2006 Mid-term report, issued by the European Commission (EC), its communications, and laid down in numerous directives and regulations closely connected with Community's environmental policy. The EC, being aware of existing market failures and huge external costs borne by society, estimated at minimum 5% of EU27 GDP (€12,276 bill. in 2007), has accelerated its efforts since the mid of this decade to internalise external costs and reach the transport policy goals by making transport system "greener and more sustainable" as it is [10].

The EC, adopted its Greening Transport Package (GTP) on 8th July 2008, aimed at meeting the general EU transport policy objective set in its White Paper of September 2001. GTP's essential goal is to promote the sustainable development of the transport systems by minimising their negative impacts on economy, society, environment and spatial order. The package consists of a few documents and a great deal of initiatives proposed in connection with its main goals.

First, GTP provides a common framework for estimating the external costs of transport activities. It is based on best practices suggesting methodology and producing a handbook with reference values that can be used for th estimation of external costs. This part of the package guides us how to use these values at assessing external costs in the transport sector. Second, there comes a strategy that sets out how external costs can be internalised in all modes of transport. The strategy is both mode and impact specific. It means that the European Commission has taken into account the fact that the level of possible impact on environment and society can vary depending on the transport mode, a particular/particularly place and time (like in case of noise and congestion) or stay unlikely of these conditions (e.g. greenhouse gas emissions).

The EC is about to succeed in internalising the external costs and achieve its policy goals set in GTP by using mainly economic instruments, such as charges, taxes and emission trading schemas. These instruments are regarded to be efficient enough to make all forms of mobility more sustainable. They are strong enough to stimulate transport users to switch to cleaner vehicles and to use more advanced technology as well as less congested infrastructure, or to avoid travelling at traffic peaks too. This concept will apply to all modes of transport [10].

The European Council addressed the problem of greenhouse gas emissions produced by maritime transport already in March 2007. The Commission intends to include this transport sector in the post-2012 agreement on preventing climate change and would also like the International Maritime Organisation to develop a series of measures in 2009 to reduce greenhouse gas emissions. If the IMO fails to make sufficient progress in this area, the Commission is determined to propose taking action on the European level. One of the considered options is the inclusion of maritime transport in the EU Emissions Trading System. It is therefore crucial that the strategy for maritime sector be developed in line with the new European integrated maritime policy.

4. Challenges for maritime transport development in the EU

Shipping has contributed largely to economic growth and prosperity all along the European history. The maritime transport system is at the forefront of the globalisation process and has provided, despite the temporary economic downturn, the vehicle for an unprecedented growth of world trade and industrial and commercial interconnections in the world economy. In terms of volume, 90% of the freight exchanges of Europe with the rest of the world are seaborne. Maritime transport services, including off-shore activities, are essential for helping European companies compete globally. Among EU Member States, short sea shipping is a key element in reducing congestion, ensuring territorial cohesion and promoting the sustainable development of the European continent. With more than 400 million sea passengers a year travelling through European ports (fig. 3), passenger ships and ferry services have a direct impact on the quality of life of citizens in islands and peripheral regions [11].
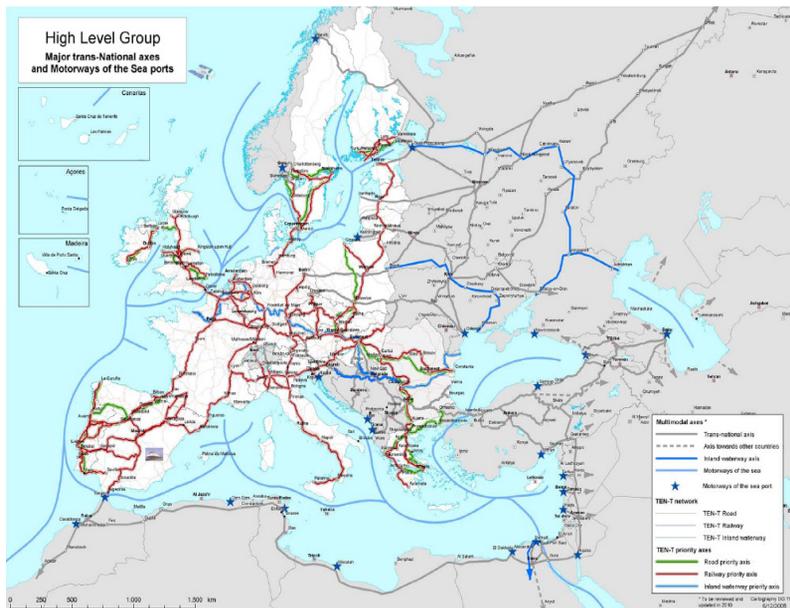
Fig. 3 Seaports and Motorways of the Sea in the EU [12].

Shipping represents one of Europe's largest export industries, providing deep sea transport services between Europe and the rest of the world, as well as in cross trades between third countries. European shipping is present in all segments of the sector in all regions of the planet. Transport of freight and passengers at sea generated € 24.7 billion in 2006 as a net contribution to the EU balance of payments. In terms of added value, traditional maritime sectors represent a share of 1.09% in the total GDP of the EU-27 and Norway. Maritime transport activities' related employment in Europe amounts to 1.5 million people. Some 70% of shipping related jobs are onshore – in shipbuilding, naval architecture, science, engineering, electronics, cargo-handling and logistics.[11]

As regards challenges and opportunities for maritime transport, the crisis of the international financial system, its impact on the real economy and the sluggish recovery prospects in different parts of the world have affected seaborne trade and thus the different branches of the shipping industry.

Moreover, recent developments in the energy markets, including the cut of pipelines for gas supplies, have underlined the strategic importance of LNG tanker-ships for ensuring a stable and long-term solution to guarantee reliable energy supplies to the EU. In a wider context, those developments remind the importance of the fleet, in all its branches of activity, for the well being of the European citizens and of the European economy as a whole.

Operators involved in the provision of maritime transport services and the European maritime transport as such will face significant challenges in the years to come. They will have to cope with the fluctuations in sea-borne trade, the negative impact of the financial crisis and other external factors, such as the risk of overcapacity in certain market segments, the rise of protectionist measures affecting world trade, environmental concerns related to climate change, volatility in energy and other commodities markets and loss of European maritime know-how because of the scarcity of skilled human resources.

Moreover, competitive advantages given by third countries to shipping businesses entail a real risk of de-localisation of head offices and maritime industries outside Europe. Often the position of European operators is undermined by unfair competition, which results from lax enforcement of safety, security, environmental and social standards in certain parts of the world. Achieving effective governance of maritime affairs and an international fair level playing field for maritime transport remains a crucial challenge to the global community.

The EU's sustainable transport policy aims at addressing the economic, social and environmental needs of our society. An efficient maritime transportation system is essential for Europe's prosperity, having significant impacts on economic growth, social development and the environment.

In autumn 2007, after having consulted the main stakeholders of the sector, the Commission started a strategic review of the EU's integrated maritime policy, examining also the challenges European and international maritime transport will face in the next ten years. This work has included the conduct of a prospective study analysing trends and signals of change in the maritime sector (the so-called 'shipping scenarios' for 2018). It has also involved consultation with experts from maritime administrations in the Member States and Norway, as well as advice from a group of senior industry leaders representing different interests within the maritime transport industries. Two major issues guided the reflection:

- By 2018, European shipping transport services should be at least as efficient, reliable and sustainable as today. There should be sufficient transport capacity available and the port and port hinterland capacities should be able to cope with increased cargo volumes.
- By 2018, the shipping industry should be at least as competitive as today, and have an equally strong or better position on the global markets.

Several important conclusions come from this strategic review exercise. First of all, the recovery of the world economy from the current financial crisis would lead to a growth in international trade and will require a maritime transport system able to deliver advanced logistic solutions. Moreover, in a recession period, short sea shipping is a perfect vehicle for stimulating intra-EU trade exchanges and thus supporting recovery of growth in the EU and its neighbouring countries. Overall, the next ten years may offer a unique opportunity to reinforce the competitiveness of European shipping, and to strengthen its contribution to the objectives of a sustainable European transport policy.

The strategic recommendations concern seven main issues [11]:

1. Competitive European shipping: The priority is to achieve and maintain an attractive framework for quality shipping and quality operators in Europe including financial measures. This will help maritime transport achieve sustainable development goals. Such a framework would also help the sector adapt to adverse financial conditions and to the slow-down in growth of the world's sea-borne trades.

2. Human Factor: There is a genuine European interest in making maritime professions more attractive to young people and thus improving employment of seafarers. Positive measures may include facilitating life-long career prospects in the maritime clusters; enhancing the image of shipping; supporting the work of international organisation (IMO and ILO) on fair treatment of seafarers; and implementing simplification measures which aim at reducing the administrative burden on masters and senior ship officers.

3. Greener Maritime Transport: The EU should encourage all actors to promote green solutions in maritime transport. The Commission, the Member States and the European maritime industry should be working together towards the long-term objective of "zero-waste, zero-emissions". The measures announced in the Greening Transport Package should be fully implemented.

4. A safe and secure system: We should give priority to the enforcement of existing Community and international rules and the speedy implementation of measures introduced with the 3rd maritime safety package. The work already started should be completed by establishing a comprehensive framework for security measures in terms of prevention, reaction capacity and resilience.

5. International Scene: The global challenges faced by the shipping and maritime industries demand convincing answers from the international community. The Commission and the Member States may be a real driving force for change towards a comprehensive international regulatory framework for shipping, adapted to the challenges of the 21st century.

6. Short Sea Shipping and Ports: Further economic integration of the EEA Member States and of the neighbouring countries will have positive impact on maritime transport connections within the EU. It should be noted that sea-trade normally grows even in periods of business contraction. In the 2018 horizon, the European economy should recover from the current stagnation. Positive measures in support of short sea shipping should also help intensify sea-exchanges in all the European maritime façades. These measures will include the creation of a

European Maritime Transport Space without Barriers the full deployment of the Motorways of the Seas but also the implementation of measures for port investment and performance. In all cases, the principles of open markets, fair competition and greening transport should be respected.

7. Innovation and technological development: The competitiveness of the European maritime industries and their capacity to meet the environmental, energy, safety and human challenges is positively influenced by increased efforts in research and innovation. There is wide scope for improving energy efficiency in ships, reducing environmental impact, minimising the risks of accidents or providing better quality of life at sea. In the years to come, innovation and technological research and development in shipping should be further promoted. A framework of reference should be introduced for the deployment of "e-Maritime" services at European and global levels.

For example, The European Maritime Transport Space without Barriers is a concept which extends the Internal Market wider to intra-EU maritime transport through the elimination or the simplification of administrative procedures in intra-EU maritime transport, in order to enhance its attractiveness and reinforce its efficiency and competitiveness, and contribute to a higher protection of environment. To implement this concept, the Commission identified a series of measures, which are described in the parallel Communication "establishing an EU Maritime Transport Space without barriers". Those measures are [12]:

- Elimination of systematic controls and documentary requests by Customs for goods carried by sea between EU ports in line with inland transport. The measure will require a modification of the implementing provision of the Community customs code.
- Concerning the legislation on veterinary and phytosanitary products, guidelines should be adopted in order to speed up the documentary checks in Directives 89/662/EEC , 90/425/EEC and 2000/29/EC .
- Rationalisation of vessel-related and goods-related reporting and forms required by Directives 2002/6/EC (formalities for vessels at the arrival/departure of ports), 2000/59/EC (waste and residue reception), 2002/59/EC (vessel monitoring) and Regulation (EC) N° 725/2004 (maritime security) through a proposal for a directive of the European Parliament and the Council attached to the Communication.

Further enabling measures would also need to be implemented, namely [12]:

- Examining the possibility to grant facilitation to ships sailing between Community ports but making a call in a port located in a third country or a free zone;
- Enhancing the electronic transmission of administrative data through the deployment of e-maritime systems;
- Setting-up an administrative single window;
- Evaluating the feasibility to recognise the equivalence of maritime rules and rules for road/rail for the carriage of dangerous goods in view to facilitate intermodal transport.

In addition, recommendations should be given that Member States implement further enabling measures, each time the local conditions permit to do it in an efficient manner, namely [12]:

- To coordinate the inspections carried out in the ports by the various administrative services;
- To extend the scope of Pilot Exemption Certificates;
- To facilitate administrative communication;
- To create areas in ports dedicated to Short Sea Shipping where that can facilitate the operations for this mode.

The administrative simplification is expected to reduce costs for undertakings and to induce a significant modal shift from land to short sea shipping which will bring environment benefits and reduce energy consumption and greenhouse gases emissions. The benefits for undertakings was estimated at 2.4 billion €, which is probably an underestimated figure as it does not take into account the effect of modal shift.

5. Conclusion

1. Transportation is expected to be the major driving force behind a growing world demand for energy. It is the largest end-use of energy in developed countries and the fastest growing one in most developing countries. The EU has mainstreamed sustainable development into a broad range of its policies. In particular, the EU has taken the lead in the fight against climate change and the promotion of a low-carbon economy.
2. Mobility imposes many harmful costs on the economy and society and also the environment. Because of the negative outcomes of the current modal split in the EU27, there is a need for bearing some of the external transport costs by the market players in order to achieve better sustainability in Europe.
3. The EU policy should combine the competitiveness and employment objectives of the Lisbon agenda with improving the marine environment protection.
4. In its Communication on the EU Maritime Transport Strategy 2018, that is addressed to the European Parliament and the Council and in the light of their opinion and conclusions, the Commission will continue to look for concrete ways to implement the recommendations. This work will involve close cooperation with all interested parties. Thus, the European Commission makes efforts for recognition of the vital importance of shipping, and for developing a comprehensive strategy to promote the future development of the industry in compliance with the sustainable development strategy.

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