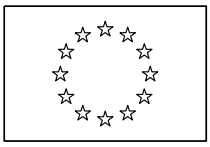

COMMISSION OF THE EUROPEAN COMMUNITIES

Brussels, […]

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WHITE PAPER ON TRANSPORT

A Single Transport Area

Smart Mobility for People and Businesses

Draft 06/08/2010

WHITE PAPER ON TRANSPORT

PART I: CHALLENGES

Introduction

Transport activity, market integration and economic growth are strongly related. In the EU, efficient transport connections have facilitated the creation and deepening of the internal market; conversely, each of the enlargements was accompanied by a strong growth of transport activity. Similar developments are observed on a global scale in connection with the globalisation of the world economy.

The link between internal market and transport was clearly recognised when transport policy was included, as one of the common policies, in the Treaty of Rome (Title V – Articles 70 to 80 of the EC Treaty). A trans-European network policy was added by the Maastricht Treaty in 1992 to help achieve the EU internal market and cohesion objectives.

In that same year, 1992, the Commission published the first White Paper on the common transport policy, which was essentially dedicated to market opening, in line with the priorities of the time. Almost ten years later, in 2001, a second White Paper was adopted. That time, the emphasis was on managing transport growth by achieving a more balanced use of all transport modes.

At the end of the decade, this new White Paper takes again a global look at developments in the transport sector, at its future challenges and at the policy initiatives that need to be considered.

The context is one of timid recovery from the deepest world economic crisis since the 1930s. The crisis had followed a sharp increase in the price of oil and of other commodities: a symptom of growing unbalances in the use of global resources. At the same time, the international community is struggling to reach a consensus on how to drastically reduce world greenhouse gas emissions. There is little doubt that our society needs to develop along a more sustainable path.

The challenge of establishing a more resource efficient economy is particularly severe for the transport sector, which continues to rely almost entirely on oil, has emitted 24% (tbc) more greenhouse gases in 2008 than in 1990 and remains a major source of noise and local pollution. Transport infrastructure can also cause territory fragmentation, with negative effects on biodiversity conservation.

The lack of progress in reducing the environmental impact and in addressing the concerns on the security of fuels' supply can be attributed to the strong inertia of the transport system. Transport is largely determined by localisation patterns and by the available infrastructure, both of which require time to be modified. Moreover, a significant transformation of the transport system can only occur if all its components – the hardware (infrastructure, vehicles), the software (the information layer) and the 'orgware' (the organisation of the markets, the rules and the standards) – are adapted to a new paradigm.

The present White Paper takes on the challenge of promoting a deep transformation of transport, seeking independence from oil, the creation of more modern infrastructure and a different concept of mobility assisted by timely and complete information.

The document is organised in three parts:

- **"Part I – Challenges"** takes a look at developments in the recent past and evaluates them in relation to the objectives set by the previous White Paper. The section on evaluation is

followed by a description of how transport could evolve up to 2050 if new policies did not intervene to modify the trends (reference scenario).

- **"Part II – Goals and Vision"** builds on the insights from Part I to set some broad objectives for EU transport policy. It clarifies what are the likely limits on emissions that transport will have to respect in the future and tries to identify a plausible and desirable way for the transport system to meet its challenges and to deliver better mobility services to citizens and businesses.
- **"Part III – Strategy"** is the operational part of the White Paper. It describes those initiatives that need to be taken into consideration in the next ten years to put the transport sector on a sustainable path and bridge the gap between vision and reality.

I. Challenges

I.A – THE COMMON TRANSPORT POLICY SINCE 2001: AN EVALUATION

1. This part puts the 2010 White Paper into its historical context and assesses to what extent previous political objectives – in particular those of the 2001 White Paper[1] and its mid-term review of 2006[2] – have been achieved. Chapters 1 to 6 focus on the *outcome* of policy measures, whereas Chapter 7 provides an overview of the adoption of the main policy measures (the *output*) included in the work programmes of 2001 and 2006. The assessment looks at the state of the European transport sector at the start of the century and compares it with today's situation. It concentrates mainly on the measurable objectives and is partly based on the findings of an external study of 2009 that evaluated the Common Transport Policy between 2000 and 2008[3].

1. MANAGING TRANSPORT GROWTH IN A MORE SUSTAINABLE WAY

2. Transport demand has shown strong growth rates in the 1990s. Rapidly rising traffic volumes resulted in high levels of congestion, noise and air pollution which were not sustainable. One of the main objectives of the 2001 White Paper was therefore to decouple transport growth from GDP growth and hence limiting the growth in transport demand. As transport growth in the 1990s had been uneven – mainly benefiting road and air, while largely neglecting cleaner and less congested modes of transport such as rail and inland waterways, another main objective was rebalancing the modal distribution of transport, away from congested roads and airports towards other, more environmentally-friendly modes.

1.1. Decoupling transport growth from GDP growth

3. Decoupling transport growth from growth in GDP, hence reducing the transport intensity of the economy, was one objective of the 2001 White Paper that had been taken from the Sustainable Development Strategy which the European Council had adopted in June 2001 in Gothenburg.

4. This objective should be seen in the context[4] of the 2001 White Paper: Between 1970 and 1998, both passenger and freight transport had grown faster than GDP. Moreover, following the adoption of the Lisbon Strategy in March 2010, an enhanced GDP growth rate of about 3% was expected for the decade 2000-2010. Even higher GDP growth rates (4-5% per annum) were predicted for the then candidate countries of Central and Eastern Europe. It was feared that an increase in

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1 COM(2001)370.

2 COM(2006)314.

3 The study can be downloaded from the internet under http://ec.europa.eu/transport/strategies/studies/doc/future_of_transport/20090908_common_transport_policy_final_report.pdf

4 As described, for example, in Section 3 of Chapter II of the Commission Staff Working Paper on "Integrating Environment and Sustainable Development into Energy and Transport Policies: Review Report 2001 and Implementation of the Strategies"; SEC(2001)502 of 21.3.2001.

transport demand that surpassed the expected GDP growth was not sustainable. It would have led to even more congestion which could have paralysed the transport system, in particular on roads and in aviation which showed signs of capacity shortages. The overall objective was to break the link between transport growth and GDP growth, which was to be achieved through implementation of the measures announced in the White Paper, without the need to restrict the mobility of people and goods.

5. One measure that should have helped in decoupling transport and GDP growth was believed to be the full internalisation of the external costs of transport. As long as external costs were not fully borne by transport users, the demand for transport was bound to be artificially high. Appropriate pricing and infrastructure policies that applied the "*user pays*" principle and the "*polluter pays*" principle would largely remove these inefficiencies over time.

6. As part of the greening transport package of 2008, the Commission presented a strategy for the internalisation of external costs[5] for all modes of transport. It proposed a revision of the Eurovignette Directive[6] which was to allow the charging of heavy goods vehicles for external costs of air pollution, noise and congestion, also beyond the amount needed to recover infrastructure costs, which – as a rule – is the limit set by the Directive right now. The revision of the Directive is however still being debated. In rail, infrastructure charges may be modified to take environmental costs into account. As long as there is no comparable level of charging of environmental costs in competing modes, however, such charging shall not result in an overall change in revenue to the rail infrastructure manager[7]. The costs of climate change shall be internalised by fuel taxation and/or by participation in the European emission trading scheme (ETS). The inclusion of aviation in the ETS from 2012 onwards[8] is part of this overall strategy.

7. As the internalisation of external costs is still far from being fully implemented, it has not helped much in bringing about the decoupling of transport and GDP growth. Other measures would need to be taken to eliminate 'unnecessary' transport activities – activities that do not add any economic value or which are the result of regulatory failures. An example for the latter would be the phenomenon of 'tank tourism' due to differences in fuel taxation in the various Member States. Attempts to harmonise fuel taxes across the EU have so far failed, however. Another example for 'unnecessary' traffic would be the traffic generated by a lack of information about available parking spaces in urban areas (drivers looking for a place to park their vehicles). If this kind of traffic could be eliminated, some congestion could be eased. A lot more in this field could be done via appropriate urban and land-planning, social and educational policies, but these fall outside the scope of traditional, let alone European, transport policy.

8. Even if all measures had been implemented, it is questionable whether significant progress in decoupling freight transport from economic growth could have been

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5 COM(2008)435.
6 COM(2008)436.
7 Art. 7(5) of Directive 2001/14/EC.
8 Directive 2008/101/EC.

achieved. Freight transport is largely a commercial business in which 'unnecessary' transport activities are already limited. Logistics practices like 'just-in-time' delivery and growing specialisation patterns dominate in modern industries and increase the transport intensity of the economy. External trade has also a direct impact on freight transport volumes: while in years of economic growth trade usually grows by more than GDP, it falls more steeply than GDP during recessions. As trade and freight transport are two sides of the same coin, this rule also applies to freight transport, which can be seen when looking at EU freight transport activity over the last decade.

9. Between 2000 and 2007, intra-EU freight transport grew on average by 2.6% per year while GDP has gone up by 2.2%. International transport has grown twice as fast as domestic transport. In the boom years, freight transport activity failed to decouple from GDP growth as it was boosted by deeper market integration inside the EU (following the introduction of the Euro and EU enlargement) and outside the EU (through the rise of emerging economies such as China and the general globalisation of production patterns). It should not be forgotten in this context that deeper market integration and the promotion of international trade are crucial ingredients for the creation of wealth and the elimination of economic disparities between countries and regions. These are key policy objectives of the EU.

10. In 2008, when the recent economic crisis set in, intra-EU freight transport demand went down by 2.1% while GDP was still growing by 0.7%. Preliminary figures for 2009 show an even greater gap between GDP growth (which dropped by 4.2%) and the demand for intra-EU freight transport which in terms of tonne-kilometres is estimated to have collapsed by 14.5% (tbc), wiping out all growth in freight transport since 2000. While intra-EU freight transport activity is back to 2000 levels, GDP in the EU27 is still 12% higher than it was in 2000. Seen over the whole period 2000-2009, therefore, freight transport appears to have decoupled from GDP growth. This decoupling is however largely due to the economic crisis.

11. Intra-EU passenger transport has grown by less than GDP in all years since 2000. It increased on average by 1.4% per year between 2000 and 2007. In 2008, there was a slight decline in intra-EU passenger transport activity (-0.3%) followed by a somewhat stronger drop in 2009 (-5.0%) (tbc). This reduces the average annual growth rate to merely 0.5% between 2000 and 2009. It confirms the trend that passenger transport activity in the EU has decoupled from GDP growth, despite an increase in average mobility per person by around 7% between 2000 and 2008[9]. The mobility of people was boosted by the liberalisation of air traffic within the EU, by the construction of high-speed rail lines in a number of countries and by the general increase in motorisation levels, above all in the countries which joined the EU in 2004 and 2007. These developments allowed EU citizens to travel faster and further away in a given time, but it was confirmed that personal mobility has a weaker link to economic activity then freight transport.

12. Over time, it had become clear that the decoupling objective, as it was, needed to be refined. While the renewed EU Sustainable Development Strategy of 2006[10] kept decoupling economic growth and the demand for transport as an objective with the

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9 As measured by the average amount of passenger-kilometres covered per inhabitant in the EU.

10 Council document number 10917/06.

aim of reducing environmental impacts, the 2006 mid-term review of the White Paper modified the original target into one of decoupling the growth of transport from its negative effects such as congestion, accidents and the emission of pollutants, CO_2 and noise.

13. In view of this revised objective, the outcome has so far been mixed – at least as far as gaseous emissions from transport are concerned. CO_2 emissions from transport have been growing unabatedly over the last 20 years. Only in 2008 and (possibly) 2009 was there a drop in CO_2 emissions from transport, but this was combined with a drop in transport activity, so no real decoupling has taken place there. New vehicles have become more fuel efficient and hence emit less CO_2 per km than earlier models did in the past, but these gains have been eaten up by rising vehicle numbers and increasing traffic volumes. It remains to be seen to what extent recently adopted measures to further improve the energy efficiency of passenger cars[11] or the inclusion of aviation in the ETS will help in the future, given the expected rise in traffic volumes.

14. The deterioration of the situation of CO_2 emissions from transport is also linked to the inability of the sector to switch to cleaner fuels. The high energy density of fossil fuels represents a crucial advantage in all mobile applications and an essential requirement for those that are more sensitive to weight, namely aviation, but also long-distance road transport.

15. Gasoline and diesel vehicles make up for 97% of road transport. Diesel accounts for almost the entirety of the commercial fleet, and a growing proportion of private cars (a third in 2008). This is causing a growing imbalance between EU demand and production, since European refineries are more specialised in gasoline. The share of GPL and LNG has … since 19…, although it increased significantly in countries endowed with the necessary infrastructure, namely Poland (GPL) and Italy (LNG)[12] (tbc). This proves the more general point that an adequate distribution network is essential for the promotion of alternative fuels.

16. Maritime and aviation continue to rely entirely on fuel oil and kerosene, whereas in rail some further electrification has taken place in the last decade...

17. In contrast to the evolution of CO_2 emissions, the emissions of air pollutants from transport vehicles were reduced significantly despite rising traffic volumes: transport-related emissions of PM_{10} and of acidifying substances have decreased by about one third between 1990 and 2006, those of ozone forming substances have even halved. Emission reduction has been more successful in road transport than in other modes of transport. This success is mainly due to ever more stringent Euro emission standards for road vehicles. It should be noted, however, that road still accounts for the lion's share (more than two thirds) of total pollutant emissions from transport.

18. Even if the total amount of pollutants and particulates has been significantly reduced, the concentrations in many urban areas are still often beyond what is considered to

[11] Regulation (EC) No 443/2009.

[12] Figures ?

be healthy[13]. More needs therefore to be done to combat the emission of these harmful substances, most of which come from transport. A co-ordinated approach across the EU should be preferred over each city setting up its own clean air scheme.

19. The decoupling objectives have essentially been expressed in relative terms: transport was to grow by less than GDP or the negative effects of transport (congestion, accidents, noise and air pollution) by less than transport itself. In the light of recent developments, in particular with regard to the discussions about climate change and the evolution of CO_2 emissions from transport, it may be asked whether *relative* improvements of transport are still ambitious enough or whether it is not time to call for improvements in *absolute* terms.

1.2. Shifting the balance between modes of transport

20. The unabated increase in road transport activity during the 1990s had led to high levels of congestion which were costing the European economy dearly[14] and which could not be sustained in the long-term. Something had to be done to contain the increasing share of road transport. The 2001 White Paper therefore included a series of measures which were to allow the non-road modes to return by 2010 to their market shares of 1998 and then further develop. Shifting the balance between the modes of transport had become one of the main objectives of the White Paper. This was to be achieved by regulating the competition between the modes (creating a level playing field between them) and by promoting intermodal transport.

21. The objective of bringing the modal share of road by 2010 back to where it was in 1998 has not been achieved. In fact, the share of road in total intra-EU freight transport increased from close to 43% in 1998 to almost 46% in 2008. This was partly due to the quick expansion of road transport in the new Member States and their more limited overall access to sea transport. International freight transport on trucks has seen the strongest growth: it roughly doubled over the last 20 years.

22. In passenger transport, the private car has lost some of its dominance – mainly to the benefit of intra-EU air transport which has grown by almost a quarter (+23%) between 2000 and 2008. The share of the passenger car has slightly gone down from 73.2% in 1998 to 72.4% in 2008. The motorisation level continues to increase[15], mainly boosted by developments in the 12 new Member States where it grew by almost 50% since 2000[16]. Across the EU27, more than 4 million cars are added to the vehicle stock every year.

1.2.1. Improving quality in the road sector

23. In road transport, price de-regulation and free access to the international haulage market considerably increased efficiency. Shippers enjoyed cheaper and more flexible services, which triggered an unprecedented market expansion of road transport to the detriment of more sustainable modes. The opening of the road *cabotage*[17] market, albeit only on a temporary basis, contributed to the reduction of

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13 i.e. beyond the limit values of Directive 2008/50/EC.

14 Congestion was estimated to cost the equivalent of around 1% of GDP.

15 From 417 to 470 cars per 1,000 inhabitants in the EU27 in 2000 and 2008, respectively.

16 At 352 passenger cars per 1,000 inhabitants, it is however still only at 70% of the level in the EU15.

17 i.e. the transport of goods within one Member State by an operator of another Member State.

empty returns from international deliveries. The rules had been rather unclear however which made it difficult to enforce them. They have recently been somewhat clarified[18] but still do not allow a completely free movement of lorries within the EU despite the advantages which this would bring to the European economy.

24. The growth in road traffic in the 1990s was considered to be unsustainable as it had led to levels of congestion and air and noise pollution which were no longer tolerable. Moreover, the relentless competition in the road haulage sector had led to practices which were putting safety at risk and which distorted competition between modes. Social rules on driving time and working time were deemed to be insufficient and, moreover, they were not properly enforced. The 2001 White Paper therefore came up with a number of suggestions which would both improve the working conditions of drivers and also create a more level playing field between the modes. They are being discussed in more detail in section x.x below.

1.2.2. Revitalising the railways

25. At the start of the 21st century, all transport modes but the railways had been liberalised in the EU. The absence of any competitive pressure on rail operators was believed to be one of the main reasons why the railways had become relatively uncompetitive and significantly lost market share during the 1990s. The three railway packages[19] included the most important initiatives through which the sector was to be revitalised. This was to be achieved essentially by opening up the rail market in the EU, by introducing common safety rules and standards and by improving the interoperability between national railway networks. As a result, both national and international rail freight services have been opened up to competition in 2007 and international passenger journeys have been liberalised in early 2010. Safety rules have been strengthened and the European Railway Agency has been created. The development and deployment of ERTMS offers a common rail traffic management system that can significantly improve the performance of cross-border rail connections.

26. In addition, the EU promoted the construction of high-speed rail (HSR) lines to bring citizens closer together and to offer them a viable alternative to planes on distances up to 1,000 km. The EU ensured interoperability between HSR infrastructure, equipment and rolling stock[20] and hence enabled high-speed trains to run safely and seamlessly throughout the trans-European rail network. Moreover, the TEN-T priority projects adopted in 2004 included a number of HSR lines, some of which have been completed by now. As a result, HSR already accounts for about a quarter of all rail passenger traffic in the EU. Measured in passenger-kilometres, HSR traffic has more than doubled between 1998 and 2008. The European HSR network currently comprises around 10,000 km of lines. By 2020, it is expected to be twice as long. Once completed, it will consist of more than 30,000 km of lines.

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18 By Art. 8 ff of Regulation (EC) 1072/2009.

19 The first package was adopted in 2001, the second in 2004 and the third in 2007. More information on the three packages is available on the internet under http://ec.europa.eu/transport/rail/index_en.htm

20 Essentially through Directive 96/48/EC, recently repealed and replaced by Directive 2008/57/EC.

27. Generally, freight trains are given lower priority compared with passenger trains sharing the same network. This creates a lot of delays which in turn make freight transport by rail relatively unattractive. The Commission has therefore proposed to create a European rail network for competitive freight with harmonised conditions for the management of rail freight corridors[21]. In addition, some rail lines purely dedicated to freight transport (e.g. the Betuwe line in the Netherlands) have been built, co-financed by the TEN-T budget.

28. All these measures have helped halting the relative decline of the railways in the European transport market. In fact, after losing one point between 1998 and 2001, the share of railways in intra-EU freight transport has then remained roughly the same at close to 11%. In intra-EU passenger transport, railways could also keep their market share of slightly more than 6% which they had at the beginning of the decade.

29. While rail could keep its modal share during the last decade in the EU as a whole, this success has not been evenly spread. Between 2000 and 2008, rail freight transport activity rose by 54% in the Netherlands, by 40% in Germany and by 37% in the United Kingdom while it shrank by 30% in France. It appears that the rail market has gained market share mostly in those countries which liberalised their rail market early on. Some countries which delayed market opening struggled to keep the market share of their rail sector at the level at which it was at the start of the century. There is a positive correlation between market opening and increasing volumes.

30. It may be argued that the rail sector could have performed even better had market opening not been postponed in many countries and had the market access directives – in particular those of the first railway package – been properly implemented. The unsatisfactory level of implementation and application of these Directives has led to many complaints by new operators who were faced with obstacles where there should have been none. Some provisions of the first package left some scope for interpretation which resulted in unequal transposition of the directives in the various Member States.

31. The greatest strengths of rail freight lie in longer distance transport. It is therefore essential to remove all obstacles that may hinder border-crossing traffic. Operators need equal access conditions to the rail network of all Member States. Too many rules and restrictions are still in place which make border-crossing transport more cumbersome than it needs to be. The full implementation of the provisions of the three railway packages is crucial in ensuring a level playing field for all operators. More simplifications and harmonisation of rules may be needed. A recast of the market access directive should clarify, simplify and modernise the existing rules to facilitate their implementation and thereby improve the functioning of the market.

1.2.3. Addressing the challenges from growing air transport

32. Air transport has shown the strongest growth of all modes of transport at the end of the 20th century. According to figures provided in the 2001 White Paper, passenger numbers in the EU15 had seen a five-fold increase between 1970 and 2000. The liberalisation of air transport in the EU in the 1990s significantly increased competition in the sector, lowered air fares and widened the range of choices for

[21] COM(2008)852.

passengers as the number of intra-EU routes offered by airlines more than doubled. It accelerated the growth in air transport. The share of air transport in the modal split of intra-EU passenger transport was expected to double between 1990 and 2010 (from 4 to 8%) – a scenario that has actually come true, despite a temporary slowdown in the wake of the terrorist attacks in 2001 and the SARS outbreak in 2002/2003. The increase in air traffic had put some strain on the available capacity – both in the sky and on the ground. Traffic density resulted in an increasing number of delays. The saturation of the skies and shortages in airport capacity needed therefore to be addressed. Moreover, air transport needed to become cleaner and less noisy if its growth was not to be thwarted by environmental concerns.

33. The creation of a Single European Sky[22] was one of the main measures to address the rising density of air traffic and to rationalise air traffic management in Europe. It puts an end to the fragmentation of the European airspace. This increases flight efficiency and also has positive environmental effects as airplanes will be able to fly more direct routes and hence consume less fuel.

34. In 2007, the Commission has adopted an Action Plan on airport capacity, efficiency and safety in Europe[23] to avoid an expected 'capacity crunch' at airports. It called, inter alia, for a better use of existing capacity at airports, a coherent approach to air safety operations at aerodromes and the promotion of 'co-modality' (stressing the need for better air-rail connections). While a lot has been done in the meantime, there are still some shortcomings as airport-rail connections are still often inadequate or completely missing.

35. The slot allocation mechanism at airports also proved to be inadequate. The slot Regulation[24], which aimed at ensuring that access to congested airports was organized through a system of fair, non-discriminatory and transparent rules for the allocation of landing and take-off slots, has therefore been amended in 2004.[25] The amendment contained a number of technical improvements – such as provisions with regard to enforcement, clearer definitions, better monitoring tools and stricter sanctions against abuse or non-compliance with the allocation rules. Nevertheless, experience showed that some problems remained: new entry takes place with difficulty because there is not sufficient turn-over of slots into the pool to be allocated. At congested airports, pool slots tend only to be available at unattractive times or are not available as series. This fact is impeding the creation of strong competition to the incumbent carriers and the optimal use of airport capacity.

36. Ground-handling operators, providing ground services to airlines, still do not benefit from an EU-wide market, as the access to some airports remains conditioned by the presence of historic operators.

1.2.4. Promoting the use of other non-road modes and of intermodal transport

37. Other measures intended to favour modal shift were targeted at maritime transport, inland navigation and intermodal transport in general. The promotion of short-sea

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22 Regulation (EC) No 549/2004.
23 COM(2006)819 of 24.1.2007.
24 Regulation (EEC) No 95/93.
25 By Regulation (EC) No 793/2004.

shipping was to shift transport away from road onto ships. One major aspect of this policy is the simplification of administrative procedures and the streamlining of reporting formalities, among others through the foreseen creation of a European maritime space without barriers[26] and the introduction of electronic documents. Short-sea shipping was also to be promoted through the creation of "Motorways of the Sea" and through the Marco Polo Programmes.

38. The Motorways of the Sea were to become a real competitive alternative to road transport. Certain shipping links, particularly those providing a way around the bottlenecks in the Alps and the Pyrenees were to become part of the trans-European transport network. A critical mass of goods was to be concentrated on certain ports to increase the economic viability of frequent regular maritime connections between them. [Explain reasons for poor outcome]. A revision of this policy would therefore be appropriate.

39. Next to short-sea shipping links, the Marco Polo programmes[27] promoted any shift of transport activities away from road. For each tonne-kilometre thus moved, the operator was reimbursed in cash from the EU budget. The Marco Polo programme has so far moved xxx [to be checked] billion tkm off the road.

40. Other initiatives to promote maritime transport, such as those to open up the market access to port services[28] have however failed. Following fierce demonstrations by dockers, the European Parliament rejected the Commission proposal in early 2006 and called instead for a directive on transparency and fair conditions of competition between ports.

41. After road, maritime freight transport recorded the strongest growth of all modes during the last decade. Intra-EU shipping increased by more than a fifth between 1998 and 2008. This is partly due to globalisation which boosted some shipping markets – in particular container shipping. Intra-EU shipping benefited from feeder traffic for these global connections as well as from the promotion policies mentioned above.

42. Inland waterways are among the safest and most environmentally friendly modes of transport. Moreover, they still have plenty of free capacity to transport goods around Europe. The Commission has therefore been eager to support this mode of transport. In early 2006, it adopted an Action Programme for inland waterway transport, called NAIADES[29]. The Programme included a number of legislative (harmonisation of rules), policy (e.g. TEN coordinator, market observation) and support instruments (such as the Reserve Fund, research and support programmes). Overall, the fruits of the work have not been reaped yet. In the years 2000 to 2008, inland waterways transport in the EU has grown by a total of 8.5% or 1.0% per annum. At 3.6% its share in intra-EU goods transport is below where it was in the 1990s.

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26 COM(2009)10.

27 Regulation (EC) No 1382/2003 (1st programme) and Regulation (EC) No 1692/2006 (2nd programme).

28 COM(2004)654.

29 COM(2006)6.

1.2.5. Modal shift in the new Member States of Central and Eastern Europe

43. The Central and Eastern European countries that joined the EU in 2004 and 2007 had traditionally a higher share of rail transport in the modal split. In 1998, rail still accounted for about 40% of inland freight transport in these countries. This relatively high share is even more remarkable when considering that it reflected the situation *after* a precipitous drop both in transport volumes – which nearly halved – and in market shares during the1990s. The fall in rail activity during the 1990s was mainly due to the economic restructuring in these countries away from heavy industries. As the Central and Eastern European countries still had an extensive rail network and a lot of expertise in rail transport, the EU set itself the target of maintaining a high share of rail in these countries. By 2010, rail should still account for 35% of all inland freight transport.

44. After the sharp decline during the 1990s in rail transport activity in the Central and Eastern European countries that joined the EU in 2004 and 2007, rail freight transport in these countries started to increase again in the course of the last decade, albeit at a snail's pace (+2.6% altogether between 2000 and 2008). As road transport had more than doubled during the same time, rail continued to lose market share. By 2008, the share of rail in inland transport of the new Member States had gone down to an estimated 34%[30]. The share of rail in these countries is hence still fairly close to the target value for 2010.

45. The accession of the Central and Eastern European countries to the EU and the integration of their economies into the wider EU economy had a dramatic effect on road transport. Its share in all inland transport activities of the new Member States has gone up from 48% in 1998 to 55% in 2008[31]. The international transport activities of Central and Eastern European road hauliers showed the most spectacular growth rates over the last decade: In terms of tonne-kilometres, they almost tripled (+190%) between 2000 and 2008. National and international activities of road hauliers from the new Member States more than doubled while those of hauliers from the EU15 only increased by 10%. The success of hauliers from the new Member States can be explained in part by their relative cost advantage. Lorry drivers in the new Member States earn a fraction of their colleagues' pay in the EU15. The salary of a lorry driver in Romania, for example, is less than a quarter of that of a driver in Germany. This explains why almost all transport operations between the EU15 and the EU12 are carried out by hauliers from the new Member States.

46. In this context, it is no surprise that Polish hauliers have in 2008 become the biggest cross traders in the EU, i.e. they transport most goods from one foreign country in the EU to another. More growth of the activities of road hauliers from Central and Eastern Europe can be expected, in particular given that all special restrictions on the cabotage market inside the EU – which had been imposed on a temporary basis upon

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30 This share has been calculated without taking the transport activities of road hauliers from the EU-12 into account which take place outside the territory of the EU-12. This way the data from all modes became comparable. The deducted activities account for about a third of all road transport activities by EU-12 road hauliers.

31 See footnote above.

accession on hauliers from most of the countries that joined the EU in 2004 – have been lifted on 1 May 2009.

47. Rapidly rising motorisation levels in the new Member States make it more difficult for other modes of transport to keep their market shares. The volume of passenger transport by rail in the new Member States, for example, has gone down by 20% between 2000 and 2008. This is in stark contrast to the evolution in the EU15 where railway passenger transport increased by about one sixth (+16%) during the same period. The relative success of rail in the old Member States can mainly be attributed to the attractiveness of the ever expanding high-speed rail network there.

48. Bus and coach operators in the new Member States are also losing market share to the passenger car. Their transport activities have slightly gone down (-4%) since 2000. In the EU15, in contrast, bus and coach operators could increase their transport activities by more than 8%. It should be noted, however, that bus and coach transport is still about 1.5 times more important (in terms of modal share) in the new Member States than it is in the old ones.

1.2.6. The 2006 mid-term review and the concept of co-modality

49. The existence of alternative modes is a precondition for shifting transport activities off the road to more environmentally friendly modes. Often enough, however, there is no economically viable alternative to the road. In the mid-term review of the White Paper, it was acknowledged that, in an integrated transport system, modes of transport do not necessarily compete against each other but rather complement one another. Improving the efficiency of each mode of transport on its own and in combination – in short: co-modality – was to become the leitmotif of European transport policy since then. Modal shift was still an objective – but only where it was most needed, such as over long distances, on congested corridors and in urban areas.

50. In 2007, the Commission adopted a Freight Transport Logistics Action Plan which was to make freight transport in the EU more efficient and more sustainable. It contained a number of measures which were to increase the attractiveness of non-road modes, e.g. through the creation of a European maritime space without barriers, the development of a freight-oriented rail network or the definition of green corridors. Other measures looked at the whole logistics chain and tried to reduce the administrative hurdles in intermodal transport by developing a single transport document. In addition, the use of new technologies such as e-freight and intelligent transport systems in freight transport was to be promoted. The rules on vehicle dimensions and standards in road transport were also to be reassessed. Some of the measures have been recently adopted or are still in the pipeline; it is therefore too early to assess any measurable impact from them. Other measures are yet to be implemented and would need to be considered in future working plans.

2. ELIMINATING BOTTLENECKS

2.1. TEN-T

51. The TEN-T policy goes back to the Maastricht Treaty which gave the Community the powers and instruments to establish and develop the trans-European networks. Their main purpose is to contribute to the smooth functioning of the internal market and the strengthening of economic and social cohesion. In general terms, the TEN

policies promote the interconnection and interoperability of national networks and support projects of common interest.

52. The European Council in Essen in 1994 has adopted a list of 14 transport projects of common interest. The selection of the 14 projects was largely based on national priorities (bottom-up approach) rather than European ones (top-down approach). The TEN-T guidelines adopted in 1996[32] included these 14 projects which were to be completed by 2010.

53. By the time of the 2001 White Paper, only 3 of the 14 projects had been completed (Malpensa airport in Milan, the Øresund fixed link between Denmark and Sweden and the railway axis Cork-Dublin-Belfast-Stranraer). Some other projects had made significant progress, but a number of projects were far behind schedule. While the EU15 countries struggled to make progress on their own projects, the upcoming accession of the then candidate countries called for even greater efforts as their infrastructure needs were much bigger.

54. A revision of the TEN-T guidelines in 2004 took account of EU enlargement: it expanded the list of priority projects to 30 (total cost: close to 400 billion €), with the horizon for completion moving to 2020. At the same time, the original projects were revised and, typically, extended; their target date had also been postponed. Moreover, the financing arrangements were changed: for cross-border sections, the EU could finance up to 20% of the total cost instead of only 10% – a share that was later once more increased to 30%. European co-ordinators had been appointed for the most important priority projects. They were to promote the projects and thus speed up their completion.

55. In 2010, a total of 5 out of 30 TEN-T priority projects have been completed. Only two railway projects (the Betuwe line in the Netherlands and the west coast main line in the UK) could be finished since 2001, but other projects, while not completed, did make significant progress. Out of the nearly 400 billion € of projected costs, over 150 billion have been invested before 2009, 13.7 billion are estimated for 2009 and 79.8 are projected for the period 2010-2013. The remaining 37% of the investments are foreseen after 2013.

56. The opening of high-speed lines in Germany, Italy, Spain, France and the Benelux countries have considerably improved accessibility and brought people closer together. Rail could capture market shares from aviation and from the car. These successes should however not hide some disappointments: a couple of projects such as the trans-Alpine rail tunnels on Brenner and Fréjus have been a 'priority' for more than 15 years but construction has not even started yet. These points have been critical bottlenecks since then. The elimination of bottlenecks – one of the key priorities of the 2001 White Paper – is work in (slow) progress.

2.2. Funding headaches

57. (to be added)

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[32] Decision 1692/96/EC.

3. PLACING USERS AT THE HEART OF TRANSPORT POLICY

3.1. Transport safety

58. As long as people get accidentally killed while moving from one place to another, ensuring and improving transport safety will remain a key theme of any transport policy. At EU level, such policies have already been pursued in the 1970s and 1980s in the context of safety features being included in the type approval process of new road vehicles. The breakthrough in the EU policy on transport safety came with the Maastricht Treaty of 1993, which has explicitly given the EU competence in that area. Improving transport safety has become one of the main objectives of EU transport policy ever since[33].

3.1.1. Road

59. Producing the highest number of casualties, road is the biggest challenge with regard to transport safety. The Commission has adopted two Road Safety Action Programmes in the 1990s, one going from 1993 to 1997[34] and the other from 1997 to 2001[35]. At the beginning of the 21st century, progress in road safety had however been slower than anticipated. The target of 38,000 road fatalities in the then EU15 by 2000 had been missed by more than 3,000. In addition to the more than 41,000 people who died on EU15 roads at the start of the decade, around 15,000 lost their lives on the roads of the countries that were to join the EU in 2004 and 2007. It was clear that more ambitious measures had to be taken to reduce the number of people killed on European roads.

60. In the 2001 White Paper, the EU has set itself the ambitious target of halving the number of road deaths by 2010. In 2003, the Commission adopted the third Road Safety Action Programme[36] to this end, a document with a list of 62 measures and initiatives to be adopted and carried out until 2010. Although the 50% reduction target initially only covered the EU15, it was extended to the new Member States upon their accession.

61. Improvements in road safety were to be achieved through action at different levels of government. The concept of shared responsibility was introduced. Member States have adopted national road safety plans; some did so for the first time. This helped focussing minds and targeting policies and hence reducing the number of road casualties.

62. In 2009, around 34,500 people were killed on the roads of the EU27. While this was the lowest figure ever recorded, it was still only 36% below the reference level of 2001, when about 54.300 people lost their lives on the roads of what is now the EU27. Most likely, the overall target of halving the number of road deaths in the EU by 2010 will not be met.

63. There are still big differences in the performance of individual Member States. The worst performers (Romania, Greece) have more than three times as many road deaths

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33 Art. 91 (1) c) TFEU.
34 COM(93)246.
35 COM(97)131.
36 COM(2003)311.

per million inhabitants than the best performers (United Kingdom, Sweden and the Netherlands). There should therefore be a huge scope for improvement just by applying best practice throughout the Union. If all countries were as 'safe' as the best performing ones, the annual toll of people killed in road accidents in the EU27 would already now be below 20,000. All new Member States except for Malta and the Slovak Republic are worse than the EU27 average of 69 deaths per 1 million inhabitants. Adequate road infrastructure that can cope with rising motorisation levels is often missing in these countries: the below-average performance of these countries can partly be attributed to this phenomenon.

64. Two countries (Latvia, Spain) have already achieved the 50% reduction target in 2009. Four more (Estonia, France, Lithuania and Portugal) will achieve it in 2010, if the trend of the years 2001-2009 continues then. It should be noted though that some of these countries still have a long way to go to become as safe as the best performers in relation to the size of their population.

3.1.2. Maritime

65. In recent years, the EU and its Member States have been at the forefront of improving maritime safety legislation and promoting high-quality standards. The aim is to eliminate substandard shipping, increase the protection of crews and passengers, reduce the risk of environmental pollution, and ensure that operators who follow good practices are not put at commercial disadvantage by others who are prepared to take short cuts with vessel safety.

66. The EU has so far adopted three legislative packages with the aim of improving maritime safety: the so-called "Erika I"[37] and "Erika II"[38] packages, and the third maritime safety package[39]. The Erika I and Erika II packages were a direct result of the catastrophic impact which the sinking of the single hull oil tanker Erika had in December 1999 off the southern tip of Brittany. It was felt that the Community needed to adopt stricter safety rules than IMO to prevent similar disasters from happening again. The first package (Erika I) involved more rigorous inspection of ships at Community ports, stricter monitoring of the classification societies and a ban on single hull tankers. The second package (Erika II) established a Community monitoring, control and information system for maritime traffic, a fund for the compensation of oil pollution damage and the European Maritime Safety Agency (EMSA).

67. In general terms, EMSA provides technical and scientific assistance to the Commission and the Member States in the fields of maritime safety, maritime security, prevention of pollution and response to pollution caused by ships. Its assistance is particularly relevant in the continuous process of updating and developing new legislation, monitoring its implementation and evaluating the effectiveness of the measures in place. In order to monitor the implementation of the Community *acquis*, the specialised staff of the Agency carries out inspections to Member States and, in specific areas, to third countries. Such inspections started in 2004 and intensified over the last years.

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37 COM(2000)142.
38 COM(2000)802.
39 COM(2005)585.

68. Another disaster, the sinking of the oil tanker Prestige off the coast of Galicia in November 2002, prompted more legislative action which resulted in the third maritime safety package which the Commission adopted in 2005 and which finally was adopted by Parliament and Council in 2009. It seeks to improve the effectiveness of existing measures to prevent accidents and the management of their consequences in case accidents do happen.

69. Apart from the Prestige accident in 2002, there has been no major catastrophic oil spill in European waters over the last ten years. The accelerated phasing-in of double hull tankers has significantly reduced the risk arising from the transport of heavy fuel oil in single-hull tankers. Moreover, the work done by EMSA and the stronger roles of national safety authorities helped improving safety in European waters.

70. In its Maritime Accident Review 2009, EMSA reports that the total number of vessels involved in accidents and the loss of life in and around EU waters were at historically low levels in 2009. 52 people on board commercial vessels were killed in 2009, close to 37% less than in 2007 and 2008.[40] It is not clear what part of the positive evolution in 2009 can be attributed to EU action in this area and what part is due to the economic crisis: with lower traffic volumes and less pressure on crews to meet tight deadlines a reduction in accidents was to be expected. In any event, there is room for improvement as there were still hundreds of accidents and (minor) oil spills in and around EU waters in 2009.

3.1.3. Rail

71. Rail is a relatively safe mode of transport. The number of railway passengers killed per year in the EU is usually counted in dozens, not in thousands as in road transport. There were two main reasons for the EU to become involved in railway safety: first of all, safety rules across Member States were so different that it was very cumbersome for a railway operator from one country to be granted a safety certificate from another one which is a prerequisite for market access. For the opening of the market, it was essential to harmonise safety rules and to ensure interoperability between different safety regimes in the Member States.

72. Then, with the opening of the railway market, it was feared that safety would suffer under the pressures of a competitive environment. In the 2001 White Paper, the EU therefore set itself the target of guaranteeing a level of safety that is at least equal to, if not higher than, that achieved in the national context. So far, this objective has been met: figures provided by the UIC suggest that the number of railway passengers killed in the EU15 has even gone down slightly: while between 2001 and 2004, an average of 91 rail passengers died every year in the EU15, this figure has gone down to 43 in the period 2005 to 2008 (when on average 91 passengers died in the whole EU27, not just the EU15).

73. Generally, rail is considered to be a relatively safe mode also when it comes to the transportation of dangerous goods. In an integrated European rail market, it has to be ensured that both infrastructure and rolling stock, in particular those carrying dangerous goods, meet high and comparable safety standards across the EU. The tragic accident in Viareggio in mid-2009, which killed 32 people, showed some

[40] Comparable figures for earlier years are not available.

shortcomings in existing rules. Distance-based controls for train wagons and a stronger role for the European Railway Agency (ERA) in accident investigations appear necessary.

74. ERA has been created as part of the second railway package[41]. It supports the Commission in setting up and enforcing common safety standards and in improving the interoperability of the European railway system. At Member State level, it is being supported by independent national rail safety authorities.

75. The certification and authorisation process is still managed by the national rail safety authorities. However, the cost and duration of the related procedures are significant and, what's more, the procedures differ from one country to another and they lack of transparency and predictability. A strengthening of ERA's role in this process would boost the functioning of the internal market and the harmonisation of safety levels.

3.1.4. Air

76. Europe has a relatively good track record when it comes to safety in air transport. The number of air crashes and related casualties is lower than on other continents. The White Paper of 2001 saw the need to establish a European Aviation Safety Agency (EASA) which was to work on all aspects of air transport activities, from aircraft certification to the operational rules. This has been done; EASA was created in 2003 and became fully operational in 2008. It supports the Commission among others in the implementation and monitoring of safety rules through inspections in the Member States, in the type certification of aircraft and in the authorisation of third-country operators.

77. To protect European citizens from potentially unsafe aircraft originating from third countries, the procedures for ramp inspections for third-country aircraft landing at EU airports have been harmonised, as announced in the White Paper. Moreover, the Commission has created a black list where all airlines with some safety concern are listed. These airlines are banned from European airspace. The list is regularly being updated.

78. Given the relatively good level of air safety, there are only very few major air crashes by EU carriers and over EU territory. Individual crashes often dominate the casualty statistics of a given year. Based on figures provided by EASA, the number of lives lost by any airline over EU27 territory has oscillated between 0 and 154 in the last 20 years, those lost on board an EU carrier anywhere in the world has fluctuated between 0 and 278 since 1990. Compared with the 1970s and the 1980s, air transport has become significantly safer. Since 1990, however, there has been no major improvement in absolute terms. In fact, the average number of people killed both on board any carrier over EU territory and on board an EU carrier anywhere in the world has slightly increased in the 2000s compared with the 1990s. In relation to the volume of air traffic, however, air transport has become significantly safer over time: air traffic in the EU has more than doubled during the last two decades while the number of people getting killed remained at very low levels.

[41] Regulation (EC) No 881/2004.

79. It is the increasing density of air traffic in EU skies that is causing some headaches for air traffic controllers and pilots alike. While there are no reliable statistics available, the number of near misses is said to have increased in recent years.

3.2. Transport security

80. While transport safety deals with the prevention of accidents, the protection of passengers and workers from unlawful interference or intentional attacks is being subsumed under the term transport security. Transport security is not mentioned in the White Paper of 2001. It has however become a big concern in the wake of the terrorist attacks of 11 September 2001 in the United States – which occurred just one day before the adoption of the 2001 White Paper. Soon thereafter, the EU has established common rules and common basic standards in the field of civil aviation security[42]. Harmonised rules across the EU created a 'one-stop security' regime where passengers arriving from one EU airport do not have to be re-screened when transferring at another EU airport. Unannounced Commission inspections at EU airports help ensuring the implementation of the security measures.

81. The absence of any terrorist attack in European air transport may be attributed to EU action in this area. It may therefore be considered to have been pretty effective to this date. It should be noted however that some attempted attacks since 9/11 were committed by passengers boarding an aircraft in the EU[43]. New security rules usually follow attempted or successful attacks which expose shortcomings in existing rules. The ban of liquids in containers larger than 100 ml on planes, for example, followed a terrorist plot in 2006 involving explosive liquids[44]. As it was rather costly and caused a lot of misery to ordinary travellers, its proportionality has been called into question. In view of the upcoming installation of new screening technology at airports, it has been decided to lift that ban in 2013. The 'Christmas Day bomber' in 2009 is another example: his failed attempt has stirred up the debate on the use of security scanners at airports.

82. In maritime transport, the EU has been active in enhancing ship and port facility security[45]. The Commission carries out inspections to monitor the correct application of the legislation. The fight against piracy is another EU activity in the field of maritime security. The EU is currently involved in the operation *Atalanta* off the coast of Somalia to protect vessels sailing in the area and to end acts of piracy and armed robbery, if needed. To date, the effect of EU action in this field has been overall positive.

83. In addition to legislation in air and maritime security, the Commission also proposed some measures to improve the security of surface freight transport in order to have unified security rules across the supply chain[46]. It included the concept of a 'secure

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42 Regulation (EC) No 2320/2002, later repealed and replaced by Regulation (EC) No 300/2008.

43 The "shoe bomber" in December 2001, who tried to detonate some explosives hidden in his shoes, was flying from Paris Charles de Gaulle to Miami. The "Christmas Day bomber" in 2009, who had some plastic explosives hidden in his underwear, was on board a flight from Amsterdam to Detroit.

44 The liquid ban on board aircraft was imposed in 2006 after a plot by British terrorists had been unveiled who wanted to blow up several trans-Atlantic flights from London using liquid explosives concealed in soft-drink bottles.

45 Regulation (EC) No 725/2004.

46 COM(2006)79.

operator' who would benefit from fast track treatment at security checks. The proposal has however never been adopted by the European Parliament and the Council.

84. There appears to be a clear need in increasing the security of surface freight transport in general and of road freight transport in particular. Lorry drivers are frequently attacked while staying at unsecured parking spots. The lack of secure parking spots is a growing problem that needs to be addressed.

85. Next to surface freight transport, surface passenger transport is another area without existing security rules at European level. The devastating terrorist attacks on the public transport systems in Madrid in 2004 and in London in 2005 killed almost 250 people altogether and exposed the vulnerability of these networks. With the gradual integration of the European transport system, common security rules also in inland transport seem appropriate.

86. In many cities, public transport suffers from a lack of security due to some anti-social behaviour. That goes from spraying graffiti via damaging carriages to attacking ordinary passengers. Pickpockets are another common threat in a number of public transport networks. It should be ensured that public transport is a no-go zone for thugs and criminals. Public transport must be perceived to be safe and secure if it is to succeed in convincing more people to leave the car at home and use public transport instead.

3.3. Passenger rights

87. There was a risk that with the opening-up of the transport market the increasing competitive pressure would at times lead to practices that were not in the interest of the passengers. Such practices had above all been observed in air transport where cases of denied boarding, flight cancellations and considerable delays had become frequent. The EU has therefore extended the rights of air passengers in these cases. They have now a right to care, to reimbursement and to compensation if needed. The enforcement of the rules is to be carried out by national designated bodies. The air passenger rights entered into force in 2005. The rights of passengers using other modes followed: those of rail passengers entered into force in 2009, those of ferry passengers have recently been adopted and those of bus and coach passengers are being discussed.

88. There is no doubt that air passengers enjoy better protection today than they did before EU legislation in this area entered into force. An evaluation[47] of the air passenger rights regulation[48] carried out in 2009/10 came however to the conclusion that there were still some shortcomings in the application and enforcement of the rules. Enforcement has improved, but it is still sometimes ineffective, notably owing to the diversity in length and duration between the national penalty schemes and the national administrative legal frameworks applicable to the execution of sanctions. Thus, air carriers often do not have sufficient incentives to comply with all the rules.

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47 http://ec.europa.eu/transport/passengers/studies/doc/2010_02_evaluation_of_regulation_261200 4.pdf

48 Regulation (EC) No 261/2004.

Moreover, sometimes the interpretation of the rules differs between Member States so that there is no level playing field. Further measures to improve enforcement and its harmonisation appear necessary.

89. Some rules in the Regulation would need to be clarified so that there is less room for interpretation. The Court of Justice of the EU has been called to interpret already a number of key issues, such as the rights in case of long delays[49] or the notion of extraordinary circumstances under which airlines are not obliged to pay compensation when cancelling a flight.

90. The air passenger rights legislation was put to a test in spring 2010 when a volcanic ash cloud led to air space closures in most of Europe which left millions of passengers stranded. The European Commission reminded the passengers of their rights. It made clear that passengers had a right to care (i.e. provision of meals and accommodation, if necessary) even in extraordinary circumstances like these. The Commission will take into account the experience learnt during this crisis – in the process of the review of the Regulation – in order to avoid putting an excessive and unfair burden on the aviation industry whilst ensuring at the same time that passengers are not left alone in bearing the financial cost and the inconvenience of natural catastrophes such as the volcanic eruption.

91. Air passengers' rights already start while booking a ticket: Passengers are entitled to know the final price to be paid from the start of the booking process. Some airlines had advertised much lower ticket prices only to add taxes and charges later on. This was thought to be misleading and hence it has been outlawed[50]. Joint EU 'sweep' exercises have revealed that compliance has greatly improved and that the legislation is effective.

92. It is probably too early to assess the effectiveness of the rail passenger rights that entered into force in December 2009. Passengers on board Eurostar that were stuck in the Channel tunnel in December 2009 were among the first to benefit from them. In general, the implementation of this new legislation does not seem to have given rise to major problems. Some experience from Germany suggests though that the number of delays officially lasting 59 minutes has gone up considerably[51]. In case of delays lasting 1 h or more, passengers are entitled to get a part of the ticket price reimbursed. Proper enforcement will be the key in all areas where passengers have been given rights.

3.4. Social dialogue and working conditions

93. [Include text on the introduction/extension of social dialogue in the transport sector]

94. Making transport safer and more secure is essential in improving working conditions in the sector. Better working conditions in turn contribute to a safer transport environment. As the opening of transport markets in Europe significantly increased the competitive pressure on operators and their mobile workers, social standards needed to be harmonised across the EU to ensure good working conditions, to protect the health and safety of workers and to prevent social dumping. Good working

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49 http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:62007J0402:EN:HTML

50 By Regulation (EC) No 1008/2008.

51 http://www.spiegel.de/reise/aktuell/0,1518,701095,00.html

conditions were also to be used as a magnet for young people to enter the profession of transport worker in a time characterised by an increasing shortage of qualified staff. The EU has therefore developed over the years a set of core social standards for its transport workers.

95. The first rules on driving time and rest periods dated from 1985. They have been significantly updated in 2006[52]. Moreover, enforcement of the rules has been strengthened by increasing the number of inspections, by more co-ordination and co-operation between national enforcement bodies and by introducing the digital tachograph in road vehicles, a device which automatically records the driving time of drivers and which cannot be manipulated as easily as traditional recording equipment.

96. As mobile workers are not covered by the general working time rules[53], specific rules were adopted for them. While in other modes, the working conditions for mobile workers have been agreed by the social partners and their agreements have been transposed into EU law,[54][55] no such agreement was found in road transport. The EU social dialogue in the road transport sector was deadlocked mainly over the question whether self-employed drivers should be covered or not. Here, the EU has come up with its own rules on working time[56] which – in a compromise fashion – temporarily exempted self-employed drivers during the first seven years after the Directive entered into force (i.e. until March 2009). A permanent exemption would be subject to a later assessment of the situation and a legislative amendment to that end.

97. Working time rules are notoriously difficult to enforce. While the digital tachograph automatically records driving times and rest periods, establishing the total working time of a transport worker, let alone a self-employed one, is less straightforward as the information has to be recorded manually. Considering the difficulty and the non-negligible costs to control the working time of self-employed drivers, the legislator had a fierce debate in 2010 on whether to exempt the independent drivers from the scope of the Directive. The European Parliament eventually decided to apply uniform rules for all drivers, including self-employed drivers. Enforcing the working time rules across the board will probably be a challenge for the road sector.

98. The road transport sector is highly fragmented and the bulk of the operators are very small undertakings or even one-man companies. To make their production capacity more flexible and demand-responsive – and to save costs, larger undertakings often subcontract the work to drivers who were previously employees. According to the social partners, this phenomenon of so-called 'fake' self-employed (i.e. self-employed drivers who essentially have only one client who could just as well be their employer) has become increasingly frequent. The Commission and the national

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52 Regulation (EC) No 561/2006.

53 Directive 2003/88/EC.

54 Directive 1999/63/EC for seafarers, Directive 2000/79/EC for mobile workers in civil aviation and Directive 2005/47/EC for mobile workers engaged in interoperable cross-border services in the railway sector.

55 Following the provisions of what is now Art. 154 and Art. 155 TFEU, which promote the involvement of the European social partners in the formulation of EU social policy.

56 Directive 2002/15/EC.

enforcement authorities therefore need to monitor the situation in order to avoid a worsening of working conditions.

99. There is still an important gap between the remuneration of lorry drivers from the new Member States and those from the old ones which is one of the reasons of the current limitation of *cabotage*[57]. This difference in labour costs decreases, but it will continue to put pressure for a number of years on road haulage undertakings established in the old Member States, unless they specialise in niche markets or diversify their activity in logistic activities with higher value added.

100. While uniform rules are in place, the application through the competent authorities and the foreseen penalties differ significantly from Member State to Member State. The legislation could deploy its full benefit in particular for drivers and undertakings, through an increasingly harmonised control and sanctioning system, also taking into account the new possibilities offered by the Lisbon Treaty.

101. In some areas, such as maritime transport, there is a growing shortage of qualified staff. The problem has already been identified in 2001[58] and the situation has not improved since. The ageing of existing crews is bound to further increase the scarcity of officers in the near future. More actions emphasising the attractiveness of the maritime profession appear necessary to attract more young people and thus ensure the competitiveness of the European shipping sector. This requires better perspectives for a life-long career that includes assignments on board and on ground. The same applies to inland navigation[59].

102. In air transport, the opening of the ground-handling market[60] has had an effect on working conditions at airports. The operational pressure has gone up and more flexible arrangements are needed. Actions aiming to improve the working conditions of those active in the ground handling market may be warranted.

4. URBAN TRANSPORT

103. Traditionally, EU transport policy has been active in simplifying and enabling cross-border traffic within the EU. Transport should not have to stop at national borders. Similarly, however, transport should not have to stop at city borders. As the majority of people live in urban areas and economic activities are concentrated there, most journeys, including international ones, start or end in urban areas. In an integrated transport system, there is a need to look at the whole transport chain – including the 'last mile'.

104. The subsidiarity principle[61] inevitably limits EU action in the area of urban transport. Many issues and challenges in urban transport are however common across Europe. Increasing road congestion, air pollution and noise are just a few examples. The EU can help solving such issues and add value by providing a framework for action, by

57 Art. 8 ff. of Regulation (EC) No 1072/2009.
58 COM(2001)188.
59 As identified in the NAIADES Action Programme; COM(2006)6.
60 Through Directive 96/67/EC.
61 Art. 5(3) TEU.

supporting initiatives that improve local transport systems and by promoting the exchange of ideas and examples of best practice.

105. EU action in urban and regional transport goes back to the Green Paper "The Citizens' Network" of 1995[62] which focused on the issue of public passenger transport in general and in urban areas in particular. It resulted in the launch of a series of initiatives based upon a 'best practice' approach. The CIVITAS initiative[63] about cleaner and better transport in cities, launched in 2000 and financed by the EU research budget, is one of the more prominent activities in this respect. It has brought together a number of cities and supported them in implementing and evaluating technology- and policy-based measures to achieve a more sustainable, clean and energy-efficient urban transport system. Among others, CIVITAS supported several projects involving buses running on hydrogen, natural gas or biofuels. This way, local air pollution, one of the biggest challenges in urban transport, was to be reduced.

106. Most road transport vehicles purchased by public authorities mainly run in an urban environment. The promotion of green public procurement was hence thought to also contribute to a cleaner urban environment – something badly needed given the fact that the air in many cities still is not sufficiently healthy. The EU has recently adopted new rules which stipulate that energy consumption, CO_2 and pollutant emissions linked to the operation of vehicles over their whole lifetime will have to be taken into account in all public purchases of road transport vehicles[64]. The market for clean and energy-efficient road transport vehicles is thus to be stimulated.

107. These new rules were one of the outcomes of a broad debate in the wake of the adoption of another Green Paper on urban mobility in 2007[65] and a thorough consultation of stakeholders. Another one was an Action Plan on Urban Mobility which the Commission adopted in 2009[66]. It contains a list of 20 actions which together form a comprehensive support package for local, regional and national authorities in their efforts to make urban mobility more sustainable. The actions will be launched until 2012. They contain a number of soft measures which essentially will increase the knowledge about urban mobility issues and share it. It is still too early to assess any effects of these measures.

5. PROMOTION OF RESEARCH AND TECHNOLOGICAL DEVELOPMENT IN TRANSPORT

108. Common approach to traffic management within each mode: ERTMS, RIS etc…

109. TMC and eCall in road..;

110. Galileo: Project 15 in TEN-T…

111. Clean aircraft (RTD)…

62 COM(95)601.
63 http://www.civitas-initiative.org/
64 Directive 2009/33/EC.
65 COM(2007)551.
66 COM(2009)490.

6. THE EXTERNAL DIMENSION OF TRANSPORT

112. To be added – 3 chapters:

- links and agreements with neighbouring countries
- agreements with important third countries (eg USA)
- EU's role in international transport forums.

Possibly also: Attempts to sustain / improve the EU's position in the transport world (both service provision and equipment manufacturing).

7. THE 2001 AND 2006 WORK PROGRAMMES

113. To be added: description of the state of play of the measures in the work programme 2001 and 2006, with a short assessment.

I.B – THE REFERENCE SCENARIO TO 2050

114. In formulating the future EU transport policy it is necessary to conduct a thorough analysis of possible developments in the EU's transport sector in a "no-policy change" scenario, also called the Reference scenario. This chapter examines the future challenges facing the Europe's transport sector which relate to the social, economic and environmental dimension.

Box 1 - The Reference scenario

The Reference scenario is a projection of developments in absence of new policies beyond those adopted by March 2010. It is not a forecast but a benchmark for evaluating new policy measures against developments under current trends and policies.

The Reference scenario builds on a modelling framework including PRIMES, TRANSTOOLS, TREMOVE and GEM-E3 models. This framework allows exploring developments in the transport sector from two different angles:

- A top-down perspective, which looks at the relative contribution of transport to economy-wide energy consumption and CO2 emissions using the PRIMES model and employment developments using the GEM-E3 model;
- A bottom-up perspective, which enables the analysis of transport specific issues using the TRANSTOOLS and the TREMOVE models.

The Reference scenario includes the 2008 Climate and Energy Package and transport specific policies adopted by March 2010. A list of policy measures included in the Reference scenario, together with a short description of PRIMES, TRANSTOOLS, TREMOVE and GEM-E3 models, is provided in [Annex 1].

1. THE DEMOGRAPHIC CHALLENGE

115. Demographic change is transforming the EU with inevitable consequences also on the transport sector. In the Reference case, the population projections draw on the EUROPOP2008 convergence scenario (EUROpean POPulation Projections, base year 2008) from Eurostat, which is also the basis for the 2009 Ageing Report (European Economy, April 2009)[67,68]. The key drivers for demographic change are: higher life expectancy, low fertility and inward migration.

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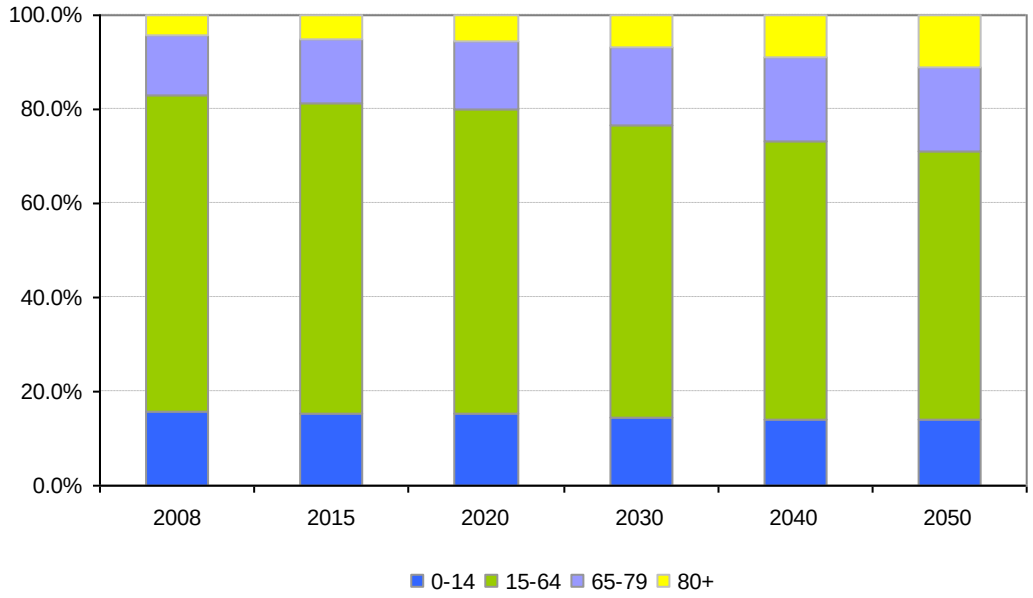
67 European Commission, DG Economic and Financial Affairs: 2009 Ageing Report: Economic and budgetary projections for the EU-27 Member States (2008-2060). EUROPEAN ECONOMY 2|2009, http://ec.europa.eu/economy_finance/publications/publication14992_en.pdf. The "baseline" scenario of this report has been established by the DG Economic and Financial Affairs, the Economic Policy Committee, with the support of Member States experts, and has been endorsed by the ECOFIN Council.

68 Demographic projections in the Reference scenario are common in PRIMES, TRANSTOOLS, TREMOVE and GEM-E3.

1.1. Ageing

116. The EU-27 population is expected to grow by 0.2% per year by 2035 and slightly decline afterwards, remaining fairly stable in number at around 500 million in the next 40 years. Elderly people, aged 65 or more, would account for 24% by 2020 and 29% by 2050 as opposed to 17% today.



Source: Eurostat, EUROPOP2008

Figure 1: Changes in the structure of the population by main age groups, EU27 (in %)

117. Age-related public expenditures are projected to increase by about 4 percentage points of GDP by 2050 due to the higher ratio of older people which require to devote more public resources to pension payments, health care and long-term care[69]. As a consequence, through its effect on public finance, ageing will put a strain on the supply and maintenance of transport infrastructure and set a limit for funding available to public transport.

118. The provision of transport services involving a high level of perceived security and reliability will gain a prominent role in an ageing society. Appropriate solutions for users with reduced mobility will also require increased focus because frailty and disability rise sharply at older ages, especially amongst the 80+ which will be the fastest growing segment of the population in the decades to come.

1.2. Migration and internal mobility

119. Migration already plays the predominant role in population growth today: in many Member States, the size of net migration determines whether the population still grows or has entered a stage of decline. Net migration might add 30 million people to the EU's population by 2030 and an additional 20 million by 2050.

69 European Commission, DG Economic and Financial Affairs: 2009 Ageing Report: Economic and budgetary projections for the EU-27 Member States (2008-2060). EUROPEAN ECONOMY 2|2009.

120. Migrants will further intensify Europe's ties with neighbouring regions, by creating cultural and economic links with their country of origin. These links will entail more movement of people and goods. However, the inward net migration would not be able to sustain the EU population growth after 2035, due to its assumed decelerating trend.

121. In 2008, only about 2.3% of the total EU population (11.3 million EU citizens) were living on the territory of another EU Member State[70]. Nevertheless, mobility of workers within the Union is expected to increase with the gradual removal of administrative and legal barriers and further deepening of the internal market.

1.3. Shortage of skills

122. Increasing labour force participation rates in most EU Member States and rising net immigration levels in some can only moderate the fall in employment caused by the ageing of the population and the negative population growth after 2035. The provision of transport services accounts for about 4.5% of total employment in the EU[71] and is projected to roughly maintain its share by 2050[72].

123. Overall employment in the EU is projected to shrink by 12 million by 2050. A scarcity of labour and skills may arise, further aggravating the shortage of skilled labour already experienced in some segments of the transport sector. The shortage of skilled labour can be further exacerbated by the cut in the transfers of know-how between generations, caused by ageing. Overall, this may result in higher transport costs for the society.

2. MACRO-ECONOMIC PROJECTIONS AND THE EFFECTS OF THE RECENT ECONOMIC CRISIS

124. The macro-economic projections reflect the recent economic downturn, followed by sustained economic growth resuming after 2010. GDP projections for the short term (2009-2010) mirror economic forecasts from the European Commission, DG Economic and Financial Affairs (European Economy, May 2009)[73], which complement the up to date statistics for 2005-2008 from Eurostat. The medium and long term growth projections follow the "baseline" scenario of the 2009 Ageing Report (European Economy, April 2009)[74] .

125. The Reference scenario assumes that the recent economic crisis has long lasting effects, leading to a permanent loss in GDP[75]. The recovery from the crisis is not

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70 Eurostat (population and social conditions), Statistics in Focus No 94/2009.

71 Source: Eurostat. This figure does not include own account transport. The construction and maintenance of transport infrastructure and of transport means (i.e. road vehicles, ships, trains) is not included either.

72 Result of the GEM-E3 model.

73 European Commission, DG Economic and Financial Affairs: Economic Forecast Spring 2009. EUROPEAN ECONOMY 3|2009, http://ec.europa.eu/economy_finance/publications/publication15048_en.pdf

74 European Commission, DG Economic and Financial Affairs: 2009 Ageing Report: Economic and budgetary projections for the EU-27 Member States (2008-2060). EUROPEAN ECONOMY 2|2009, http://ec.europa.eu/economy_finance/publications/publication14992_en.pdf

75 GDP projections in the Reference scenario are common in PRIMES, TRANSTOOLS, TREMOVE and GEM-E3.

expected to be so vigorous that the current GDP losses are compensated. In this scenario, growth prospects for 2011 and 2012 are subdued at around 1% per year. However, economic recovery enables higher productivity gains, leading to somewhat faster growth from 2013 to 2015. After 2015, GDP growth rates mirror those of the 2009 Ageing Report. Hence the pattern of the Reference scenario is consistent with the intermediate scenario 2 "sluggish recovery" presented in the Europe 2020 strategy[76].

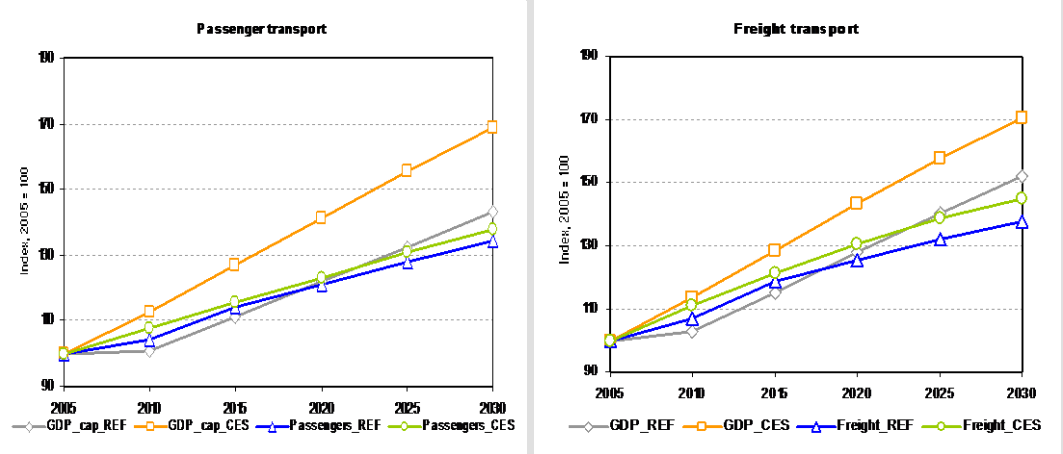
126. The average growth rate for EU-27 is only 1.2% per year for 2000-2010, while the projected rate for 2010-2020 is recovering to 2.2%, similar to the historical average growth rate between 1990 and 2000. In the medium run the higher expected growth rate is due to the higher productivity growth assumed in Member States that are catching up. GDP growth rate in the EU-27 is projected to fall to 1.6% during 2020-2050 because demographic ageing, with a reduction in the working-age population, is expected to act as a drag on growth. Over time, labour productivity will become the only driver of growth in the EU[77]. Nonetheless, given the recent juncture there remain considerable uncertainty concerning the medium-term economic developments.

[76] Communication from the Commission: Europe 2020. A strategy for smart, sustainable and inclusive growth. COM(2010)2020, Brussels, 3.3.2010.

[77] European Commission, DG Economic and Financial Affairs: 2009 Ageing Report: Economic and budgetary projections for the EU-27 Member States (2008-2060). EUROPEAN ECONOMY 2|2009, http://ec.europa.eu/economy_finance/publications/publication14992_en.pdf.

Box 2 - The long-run effects of the recent economic crisis on transport demand

In the long-run, a rough estimate of the impact of the recent economic crisis on transport demand is provided by comparing the Reference scenario with a similar scenario from the impact assessment for the 2008 Climate and Energy Package. Both passenger and transport demand decline compared to the projected pre-crisis level, although the effect is more pronounced on the freight transport. Overall, transport proves rather resilient: a 10% drop in GDP in 2030 compared to the projected pre-crisis level leading to 4% cut in the freight transport demand and a 14% reduction in GDP per capita in 2030 relative to projected pre-crisis level resulting in 2% drop in the passengers transport. However, this provides only a rough estimate, because not only GDP but also demographic projections, energy prices and some policy assumptions included in each scenario have changed.



Source: PRIMES

Note: REF stands for the 2010 Reference scenario and CES stands for a similar scenario from the impact assessment for the 2008 Climate and Energy Package (SEC(2008) 85/3). GDP_cap stands for GDP per capita.

127. The recent economic crisis has added to the public finances sustainability problems. Overall, as an effect of both economic crisis and the ageing of the population, without fiscal consolidation the gross debt-to-GDP ratio for the EU as a whole could reach 100 percent as early as 2014, and keep on increasing[78]. The recent economic crisis will therefore limit further, in addition to age-related public expenditures, the funding available for the supply and maintenance of transport infrastructure and for public transport.

3. INCREASING SCARCITY OF FOSSIL FUELS

128. Transport depends heavily on oil and oil products: for more than 95% of its needs worldwide and 95% in EU-27[79]. At the same time, more than 60% of the petroleum

78 European Commission, DG Economic and Financial Affairs: Sustainability Report 2009. EUROPEAN ECONOMY 9|2009, http://ec.europa.eu/economy_finance/publications/publication15998_en.pdf.

79 European Commission, EU Energy and Transport in Figures, 2010 http://ec.europa.eu/transport/publications/statistics/statistics_en.htm.

products used in OECD countries and about half of those used in non-OECD countries are used as transportation fuels[80].

129. The high oil dependence of the transport sector can be explained by: the high energy density and relatively easy handling/transportation characteristics of oil products, the low oil prices compared to available alternatives over the past 20 years and the extensive oil-based infrastructure and vehicle stock already in place. By contrast, most alternative fuels require extensive investments in infrastructure and fuel delivery systems as well as new types of vehicles, which make it difficult for alternative fuels to compete with oil products.

130. The high oil dependence of the transport sector constitutes a risk to a low-cost, uninterrupted and large-scale fuel supply due to the concentration of proved reserves in politically less stable regions and the high uncertainty surrounding the developments in the oil prices. Reserves in the Middle East alone account for 57% of the world's proved reserves while EU only contributes 0.5%[81]. Security of supply is particularly important because the oil products would still represent 88% of the EU transport sector needs in 2030 and 84% in 2050 in a "no-policy change" scenario.

131. The Reference scenario assumes a relatively high oil price environment compared with previous projections and similar to projections from the International Energy Agency (IEA)[82], with oil prices of 59 $/barrel in 2005 rising to 106 $/barrel in 2030 and 127 $/barrel in 2050 (in year 2008-dollars)[83]. Translated in current prices, the oil price would be about 160 $/barrel in 2030 and some 300 $/barrel in 2050 in the Reference scenario[84].

132. However, there is high uncertainty related to the oil price projections due to the timing and pace of economic recovery and the rebound in oil demand, the investments in productive and refining oil capacity and the expansion of non conventional production. Therefore, beyond 2020 there is a sharp increase in the likelihood of prices exceeding 100$/barrel[85].

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80 International Energy Agency, Transport, Energy and CO2: Moving Towards Sustainability, 2009.

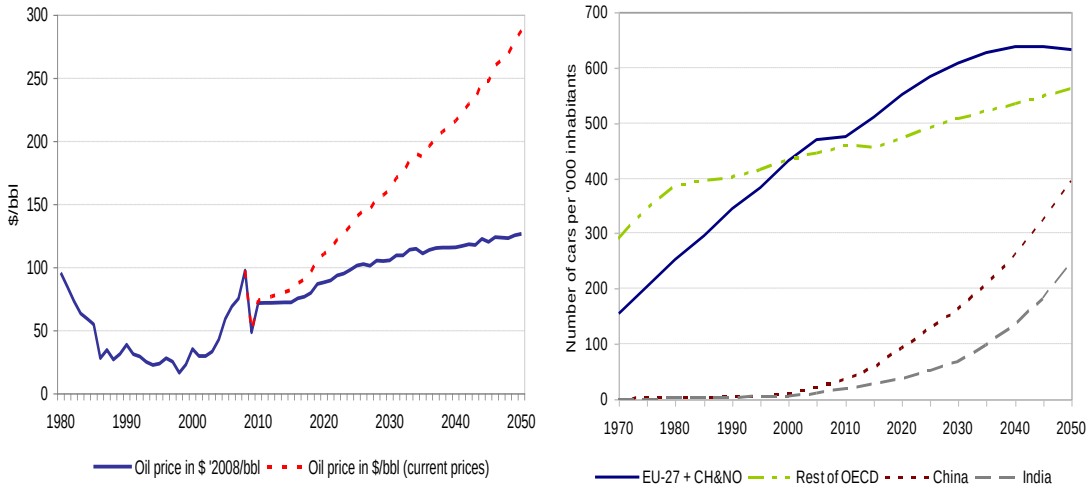
81 BP, Statistical Review of World Energy 2010, http://www.bp.com/productlanding.do?categoryId=6929&contentId=7044622

82 The IEA Energy Technology Perspectives 2010 assumes 115 $/barrel in 2008 prices for 2030 and 120 $/barrel for 2050.

83 The oil price projections are the result of world energy modelling with PROMETHEUS stochastic world energy model, developed by the National Technical University of Athens (E3MLab). The oil price assumptions are common in PRIMES, TRANSTOOLS, TREMOVE and GEM-E3 models.

84 The oil price in current prices is derived assuming an average inflation rate of 2% per year (i.e. ECB aims at maintaining inflation rates below, but close to, 2% over the medium term).

85 Result of the PROMETHEUS stochastic world energy model.



Source: Prometheus, National Technical University of Athens (E3MLab)

Figure 2: Oil price and car ownership projections in the Reference scenario

133. Similarly to IEA estimates, the oil price projections are based on only a moderate increase in the passenger LDV ownership in the emerging economies, assuming lower ownership at a given level of income than has occurred historically in many OECD countries. For example, by 2050 the car ownership in China is assumed to reach 394 cars per thousand inhabitants, similar to levels in EU-15 in the 1990s. The lower car ownership could be explained by the limits on infrastructure, the greater income disparities and the greater urbanisation combined with lower suburbanisation than in OECD countries[86]. Higher motorization levels in the emerging economies in the long-run further constitutes an upside risk to the current oil price projections and thus to the transport costs.

4. OVERALL TRANSPORT DEVELOPMENTS AND ACCESSIBILITY

134. Total transport activity continues to grow in line with economic activity in the Reference scenario. Even though a decrease is visible for 2008-2009 as a result of the recent economic crisis, the recovery foreseen starting with 2010 is reflected by transport activity returning to its long term trends. Road transport is expected to maintain its dominant role in both passenger and freight transport. Air and rail would grow significantly but still represent a small share of overall transport demand.

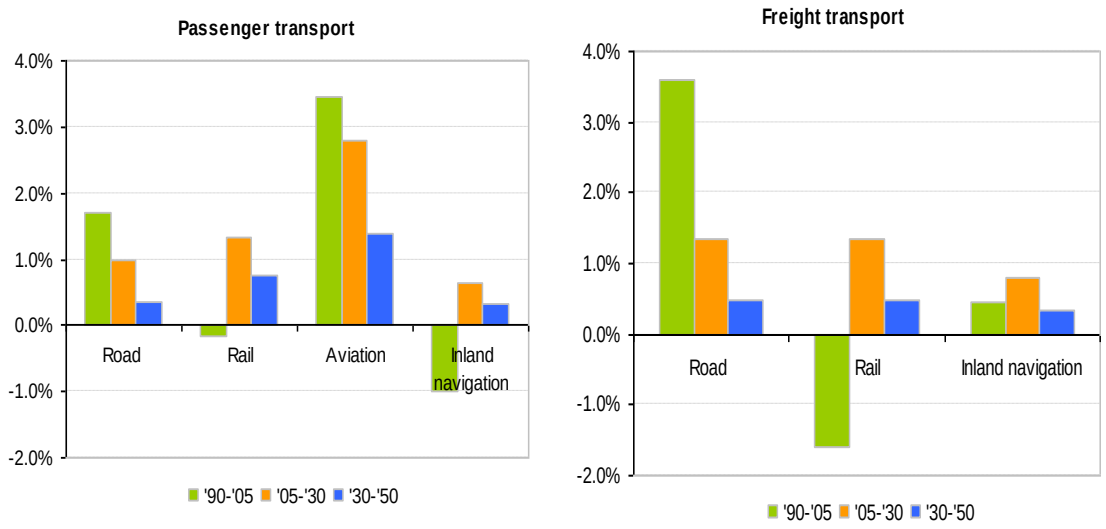
135. Total passenger transport activity is expected to grow by 34% between 2005 and 2030 in a "no-policy change" scenario, equivalent to an average growth of 1.2% per year. However, growth is not distributed proportionally among transport modes, with air transport activity almost doubling by 2030. The weaker growth in passenger transport compared to GDP per capita (1.4% per year) is explained by the passenger car activity that in some EU-15 Members States is close to saturation levels.

136. Rail competes with both road and air, but the results on its performance differ considerably between EU-15 and EU-12. In EU-15, given the expected saturation of

86 International Energy Agency, Transport, Energy and CO2: Moving Towards Sustainability, 2009.

passenger car demand, a large share of potential demand is covered by (high speed in most cases) rail, at least in the Member States where investments in rail are foreseen. At the same time, high speed rail attracts traffic from air transport. In EU-12 rail may worsen its competitive position against air transport and road[87] and is expected to grow slower than the other two main modes. After 2030 the slight decline in population combined with a slowdown in GDP growth and the saturation of passenger car demand leads to somewhat lower growth rates in passenger transport activity[88].

137. The various modes are in general expected to maintain their relative importance at EU level. Passenger cars would represent almost 70% of total passenger activity in 2030 and 67% in 2050, although this would correspond to a decrease of 6 percentage points by 2050 compared to 2005[89]. Air transport on the contrary is expected to increase its share, reaching almost 15% of total activity in 2050 and consolidating its position as the second most important passenger mode[90]. The increase in air transport demand is a result of the expected increase in: the number of trips per person/year and the average distance per trip. Rail would improve its share moderately, gaining less the 1 percentage point by 2050, up to 8% of passenger transport.



Source: PRIMES

Note: The projections between 2030 and 2050 represent preliminary modelling results. These projections may be revised upwards, especially for the freight transport.

Figure 3: Passenger and freight transport projections (average growth rate per year)

87 Whereas most EU-15 Member States seem to reach a saturation level for growth in passenger cars activity, the results of faster economic growth and rising car ownership levels would translate into higher growth in passenger car activity in EU-12.

88 The projections for 2030-2050 represent preliminary modelling results. These projections may be revised upwards, especially for the freight transport. The adjustment may also affect to a certain extent the modal split for 2050.

89 The share of total road transport (including buses and coaches and powered 2-wheelers besides passenger cars) in total passenger transport would be about 79% in 2030 and 77% in 2050.

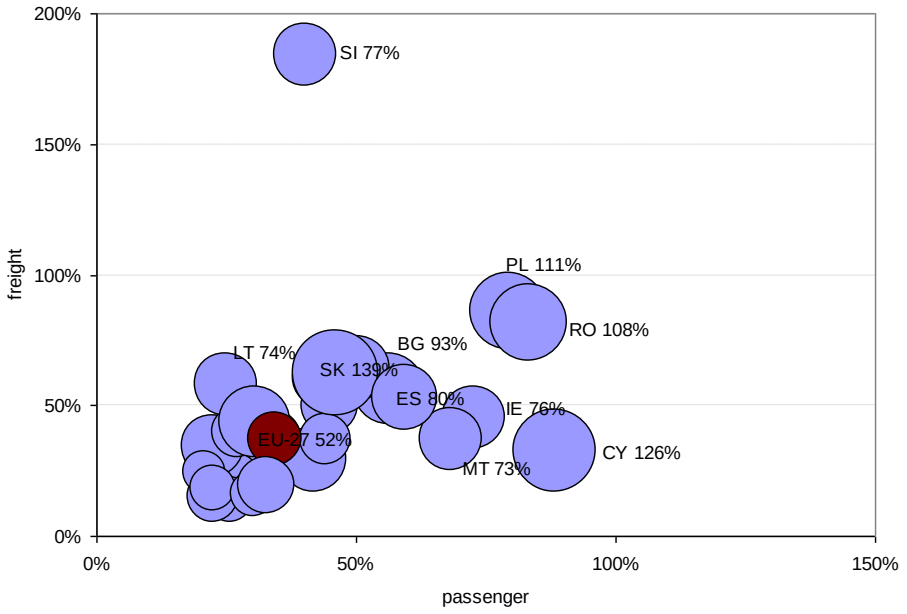
90 The shares are expressed in passenger-kilometres.

138. Several factors influencing the freight transport sector, including the restructuring of logistics systems, the realignment of supply chains and the rescheduling of product flows, are expected to change gradually during the period 2005-2050 but without a visible disruptive change in the overall trends. The developments in production and consumption patterns would lead to an increase in the average transport distances and a larger share of unitized /non-bulk goods.

139. Total freight transport volumes are expected to grow by about 38% by 2030, with road and rail growing at comparable rates. The developments in rail freight are sustained by a slower increase in fuel costs and the positive impacts of the rail markets opening. Road transport would maintain its dominant role in freight transport, contributing 73% in 2030, followed by rail (with 17%). Both road and rail slightly increase their shares between 2005 and 2030 to the expense of inland navigation[91], which grows at lower pace.

[Show figures of the growth of international transport = twice faster than the growth of domestic transport]

140. The geographic distribution of freight transport growth is not uniform. In absolute terms, road transport in EU-15 will attract most of the growth in demand. However, in relative terms EU-12 will increase the transport volumes much faster. Growth is expected to be high for all modes in the new Member States, with road being the fastest growing one. Inland waterways traffic, especially in the Danube, is also expected to grow by more than 80% by 2030.



Source: PRIMES

Note: Bubble size corresponds to GDP growth between 2005 and 2030.

Figure 4: Correlation of growth in passenger and freight transport activity with GDP growth per Member State (2005-2030)

91 Inland navigation includes inland waterways and short-sea shipping.

141. Beyond 2030, a certain weakening in the freight transport activity is expected relative to 2005-2030. Several factors contribute to this outcome: the weaker growth prospects after 2030, the shifts in GDP composition towards service and information activities, the shifts in value-to-weight ratios, the limits to distant sourcing and off-shoring.

[TO BE ADDED LATER – MARITIME]

142. Recent evidence on agglomeration economies suggests that economic growth, labour migration and accessibility are closely interrelated[92]. High accessibility to raw materials, suppliers and markets is positive for the competitiveness of the regions[93] . Accessibility is however a necessary but not a sufficient prerequisite for the positive economic development of regions. Furthermore, by capitalising on current strengths in relation to research, ICT, educational and environmental opportunities, more than 1/8 of the European regions (Nordic countries, north-east of Spain, Scotland, Ireland and northern Italy) are performing low on accessibility but high on GDP per capita.

143. Net migration is also linked to accessibility but there are additional factors influencing migration flows. Therefore, we cannot conclude that improving accessibility would provide by itself a positive effect on migration.

144. The current situation in terms of accessibility in the EU suggests that there is a marked division between central and peripheral areas as regards their transport connectivity and costs as a result of geography and patterns of economic activity. Peripheral areas require longer average trips for the rest of the EU using, in most cases, more expensive modes and networks than the central areas do. As a result, their average cost per long distance trip is significantly higher.

92 World Bank, World Development Report 2009: Reshaping economic geography.

93 ESPON project, Territorial Dynamics in Europe: Trends in Accessibility, Territorial Observation No. 2, 2009.

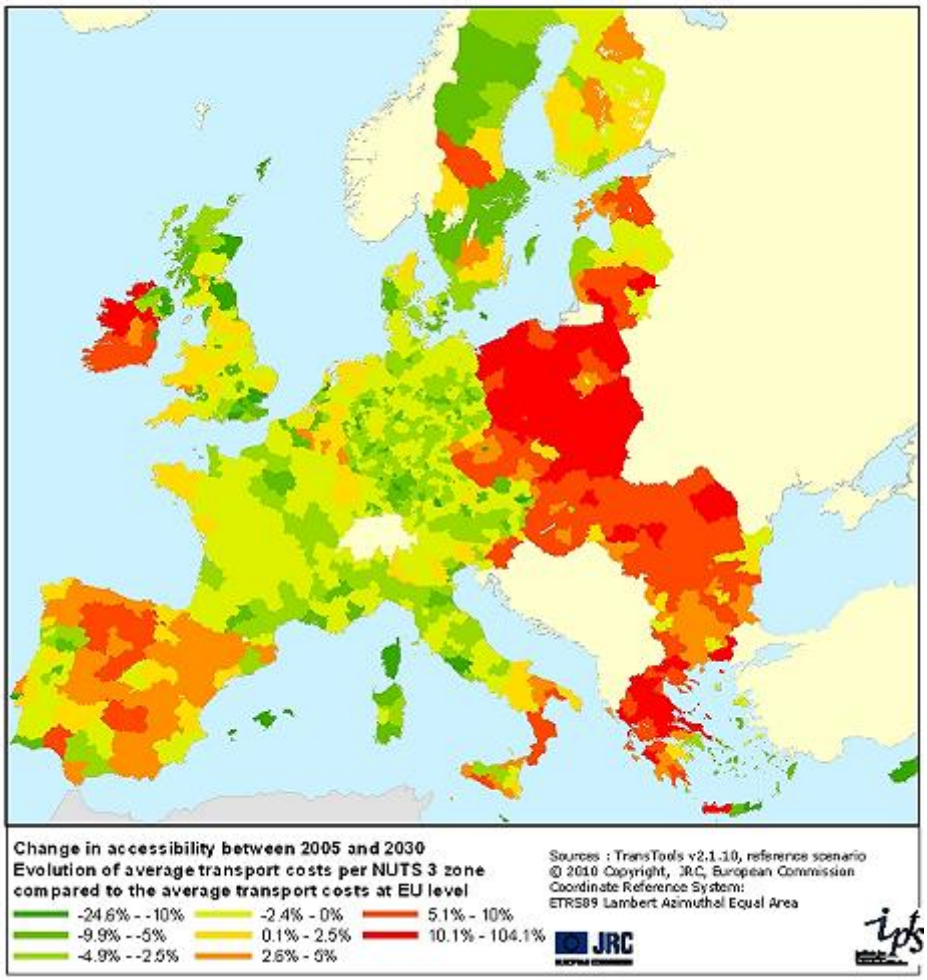


Figure 5: Change in accessibility between 2005 and 2030 in the Reference scenario

145. Fuel costs and congestion levels are expected to rise significantly by year 2030, leading to further divergences in accessibility. Peripheral areas with a high share of road transport are expected to worsen their situation, facing higher average transport cost increases than central areas. Given that without intervention economic activity is expected to continue demonstrating signs of centralisation at EU level, an improvement of accessibility through the reduction of transport costs is necessary. In several cases it may even be a prerequisite for a more decentralised distribution of trade patterns and economic activity.

5. URBANISATION AND CONGESTION

146. There are around 5000 towns with population between 5,000 and 50,000 and almost 1000 cities with population above 50,000 in the EU, in which economic, social and cultural activity is concentrated. About 7% of EU population lives in cities of over five million inhabitants[94]. Urbanisation has followed a clear trend in the past decades, which is expected to continue: the proportion of EU population residing in

[94] European Commission, Directorate-General for Regional Policy (2009), Promoting Sustainable Urban Development in Europe: Achievements and Opportunities, http://ec.europa.eu/regional_policy/sources/docgener/presenta/urban2009/urban2009_en.pdf.

urban areas is expected to increase from 74% in 2009 to about 80% in 2030 and 85% in 2050[95].

147. Economic activity in the EU is far more concentrated than the population. In a knowledge based economy, knowledge spillovers, which require proximity, become important. Services are also spatially concentrated because they tend to use less land per employee and because of external economies[96]. Services already represent about 72% of the EU gross value added and their share is projected to increase in the Reference scenario: up to 76% by 2050. Therefore, proximity of people and activities as well as the shift towards a knowledge based and services oriented economy are major sources of advantages that will continue to drive urbanisation in the EU.

148. Urban sprawl is the main challenge for urban transport, as it brings about a greater need for individual transport modes, thereby generating congestion and environmental problems. Passenger cars are responsible for more than 70% of emissions attributed to the urban transport[97].

[TO BE ADDED LATER: CO2 emissions and emissions of other pollutants attributed to urban transport]

149. Congestion that is prevalent in agglomerations and in their access routes is the source of large costs in terms of delays and higher fuel consumption. Denser cities are better served by collective modes of transport but the availability of land and public acceptability to construct new infrastructures for public or alternative means of transport remains a great challenge. Urban congestion also negatively impacts on inter-urban travel because most freight and passenger transport starts or ends in urban areas.

150. High congestion levels are expected to seriously affect road transport in several member states by 2030. While urban congestion will mainly depend on car ownership levels, urban sprawl and the availability of public transport alternatives, congestion on the inter-urban network will be the result of a growing freight demand across specific corridors at their points of intersection with links serving local traffic.

151. The largest part of congestion will be concentrated near densely populated zones with high economic activity such as Belgium and the Netherlands – to a certain extent as a result of port and transhipment operations – and in large parts of Germany, the United Kingdom and northern Italy. Congestion patterns differ significantly among member states though, since their hourly, daily and seasonal variation depends on local conditions.

152. In principle a combination of demand management, capacity improvement and investment in alternative modes would be required. Measures that aim at channelling traffic to other modes, links or time periods – such as congestion charging – can improve the use of capacity and reduce peak time congestion levels. Developing

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95 United Nations, Department of Economic and Social Affairs/Population Division (2009), World urbanisation prospects - The 2009 revision, http://esa.un.org/unpd/wup/index.htm

96 World Bank, World Development Report 2009: Reshaping economic geography.

97 Draft results from the TREMOVE model. These results may be revised at a later stage. The share of urban transport activity is expressed in passenger-kilometres.

improved road networks can remove the capacity limitations that may cause congestion, especially in EU-12. In Member States where few alternatives to road exist, improving the rail or inland navigation networks and services can remove a significant part of road traffic.

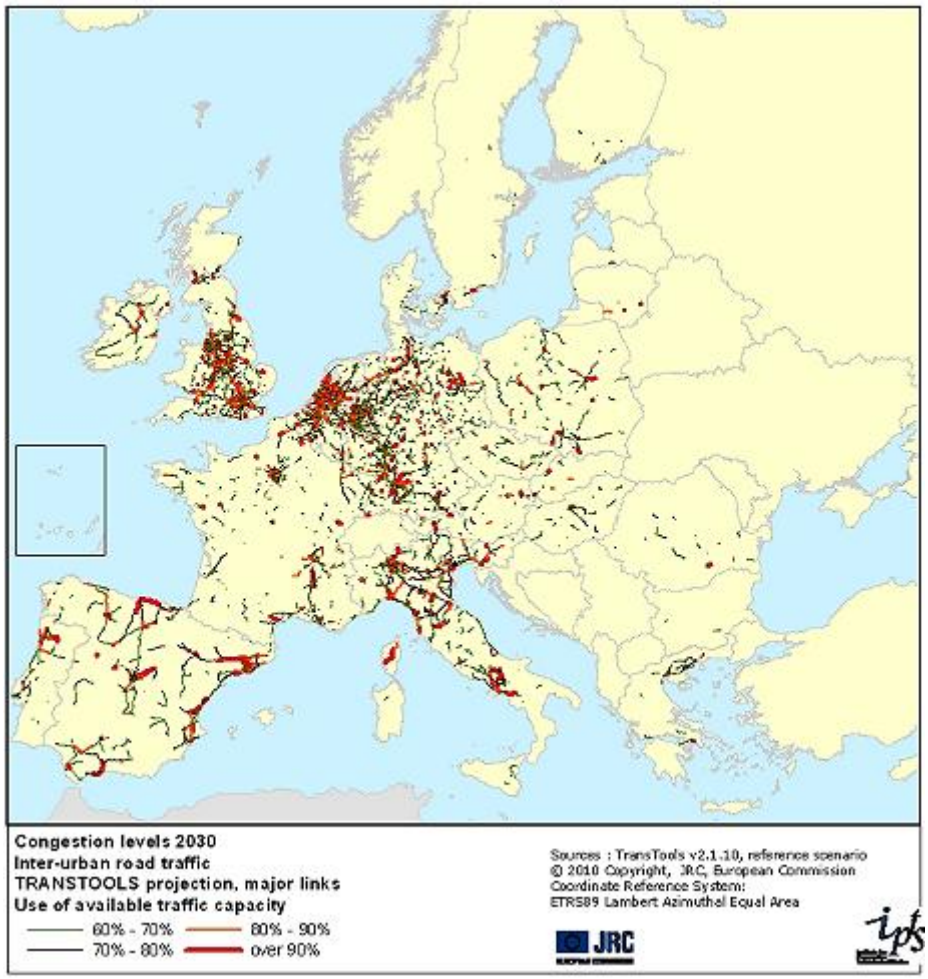


Figure 6: Congestion levels for inter-urban road traffic in 2030

153. Estimating the costs of congestion is not straightforward, because it occurs mostly during certain times of the day, often caused by specific bottlenecks in the network. [TO BE ADDED – JRC TREMOVE estimate of congestion costs]

6. ENVIRONMENTAL IMPACTS AND OTHER EXTERNALITIES

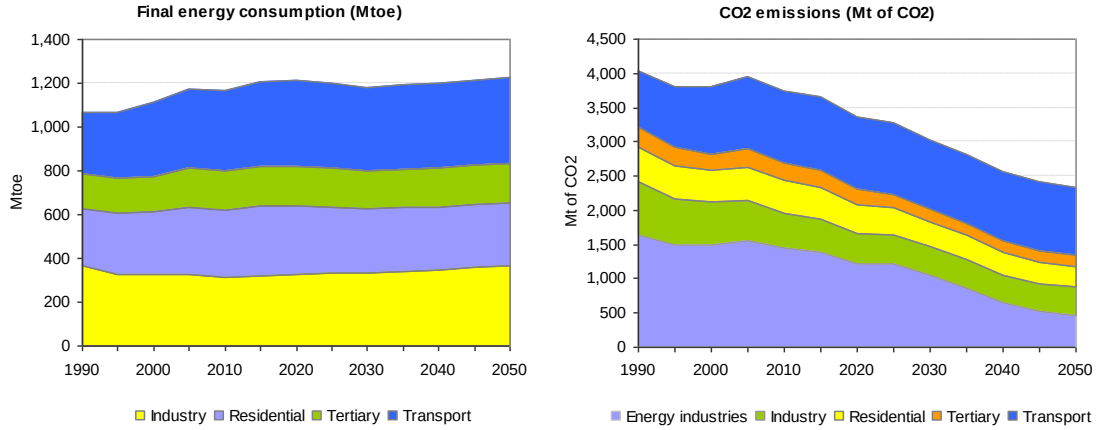
6.1. CO_2 emissions

154. Transport accounts for over 30% of final energy consumption and about one forth of CO2 emissions[98]. In the Reference scenario energy use by transport is projected to increase by 5% by 2030 and an additional 3% by 2050, driven mainly by aviation and road freight transport. On the contrary, energy use by passenger cars would drop

98 The maritime bunkers are excluded from the calculation of the shares to ensure consistency with the PRIMES model projections.

by 11% between 2005 and 2030 due to the implementation of the Regulation setting emission performance standards for new passenger cars[99].

155. CO2 emissions from transport, excluding maritime bunkers, are projected to be 4% below their 2005 level by 2030 and roughly stabilize afterwards. This outcome is sustained by the penetration of biofuels in road transport and the further electrification of rail. Renewables in transport would represent 10% by 2020, reflecting the implementation of the new Renewables Directive[100], and gradually increase to 17% by 2050.



Source: PRIMES

Note: The projections between 2030 and 2050 represent preliminary modelling results. These projections may be revised.

Figure 7: Final energy consumption and CO2 emissions projections

156. The share of CO2 emissions from transport would continue increasing, to 33% by 2030 and over 40% by 2050. This is due to the relatively lower decline of CO2 emissions from transport compared to power generation and other sectors over the projection period. Overall, CO2 emissions from transport would still be 24% higher than their 1990 level by 2030 and over 20% by 2050, owing to the fast rise in the transport emissions during the 1990s.

157. Transport emissions can be seen as the product of three broad components: transport activity levels, energy intensity of transport and carbon intensity of the energy used. Following this approach, we could evaluate by how much the projected transport emissions increase/decrease (in percentage terms or Mt of CO2) between 2005 and 2030 (or 2050) due to: transport activity growth, improvements in energy intensity and carbon intensity[101].

99 Regulation (EC) No 443/2009 of the European Parliament and of the Council of 23 April 2009 setting emission performance standards for new passenger cars as part of the Community's integrated approach to reduce CO2 emissions from light-duty vehicles, OJ L 140, 5.6.2009, p. 1–15.

100 Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC, OJ L 140, 5.6.2009, p. 16–62.

101 The proposed method is the Montgomery decomposition. For a recent application of the method see: De Boer, P.M.C. (2008) Additive Structural Decomposition Analysis and Index Number

158. In particular, CO2 emissions from passenger transport decrease by 9% (62 Mt of CO2) between 2005 and 2030 in the Reference scenario.

159. *Transport activity growth* results in a 34% (245 Mt of CO2) increase in passenger transport emissions, with demand for road transport and aviation being responsible for most of these additional emissions.

160. *Improved energy intensity* reduces passenger transport emissions by 35% (250 Mt of CO2), compensating the expansion of emissions due to transport activity growth. Efficiency improvements are triggered by the implementation of the Regulation setting emission performance standards for new passenger cars and by efficiency gains in aviation. For rail passenger transport, efficiency gains play a limited role due to the uptake of high-speed rail on larger scale.

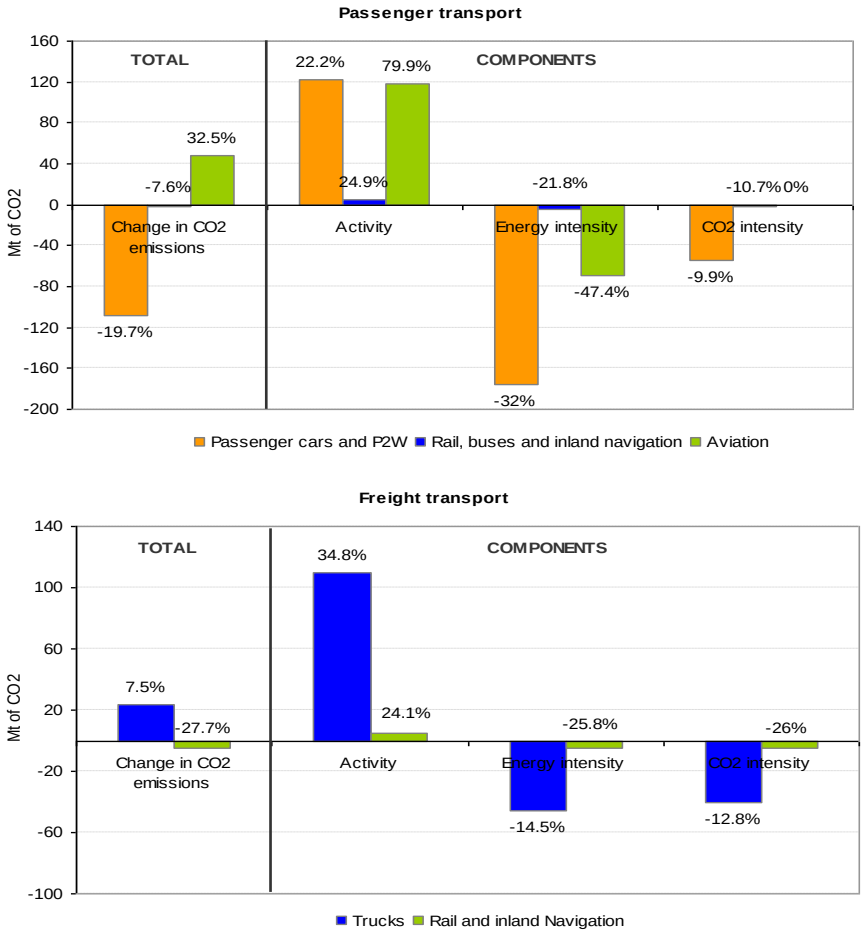
161. In addition, the improvement in carbon intensity through the *use of cleaner fuels* has a more limited impact on passenger transport emissions, with CO2 emissions decreasing by 8% (57 Mt of CO2) between 2005 and 2030. The penetration of renewables in road transport (mostly biofuels) contributes to a large extent to the carbon intensity gains, followed by rail transport electrification.

162. Summing up, the 9% decrease in CO2 emissions from passenger transport is due to transport activity growth (+34%), improvements in energy intensity (-35%) and in carbon intensity (-8%). The trend for the three components and their contribution to emissions by transport mode is different. Efficiency gains play a decisive role in reducing emissions in road transport, while in aviation they would not offset the activity growth leading to higher fuel use and emissions. The use of cleaner fuels contributes to emissions reduction for road and rail passenger transport with no effect on aviation in the Reference scenario.

163. For freight transport, the 6% (19 Mt of CO2) increase in CO2 emissions between 2005 and 2030 is a result of: transport activity growth (+34%, equivalent to 115 Mt of CO2), improvements in energy intensity (-15%, equivalent to 51 Mt of CO2) and in carbon intensity (-13%, equivalent to 45 Mt of CO2).

164. The trends in projected emissions of different freight transport modes are also diverging. On one hand, for road transport the efficiency gains and the uptake of cleaner fuels are not sufficient to offset the effects of activity growth, resulting in growing emissions. On the other hand, in the rail sector, the electrification has positive effects on emissions, despite the growth in traffic volumes.

Theory: An Empirical Application of the Montgomery Decomposition, Economic Systems Research, 20(1), pp. 97-109.



Source: PRIMES

Note: The figures report the changes in CO2 emissions due to the three broad components (transport activity levels, energy intensity of transport and carbon intensity of the energy used) in two ways: in levels and in relative terms compared to 2005. The size of each column bar, read on the left axis, represents the change in terms of CO2 emissions compared to 2005, expressed in Mt of CO2. The percentage changes reported above the column bars represent relative changes in these emissions compared to their respective 2005 levels. Provided that CO2 levels for 2005 corresponding to each transport mode are not comparable in size, the percentage changes reported in the figures are not directly comparable.

Figure 8: Decomposition of CO2 emissions in the Reference scenario (2005-2030)

165. Beyond 2030, in absence of additional policies, the trends of CO2 emissions from passenger and freight transport remain unchanged. In the Reference scenario the development pace in the electrification of transport sector is slow: the electric vehicle does not make significant inroads by 2050. However, the conventional hybrids represent about 34%.

6.2. Air pollution and other externalities

[TO BE ADDED LATER]

7. GLOBAL TRENDS AFFECTING THE EUROPEAN TRANSPORT SECTOR

166. Global GDP is projected to grow by more than three times between 2007 and 2050. Faster economic growth can be expected in industrializing and developing countries than in the developed economies. This high relative growth will lead to an increased

importance in the world's commerce – among other – of the so-called "BRIC" countries[102]. The tangible result will be a change in trade flows and volumes.

167. International trade is one of the key drivers for prosperity and trade is inseparable from transport. A prompt answer is needed at the level of the Union to avoid that EU is marginalized due to its incapacity to cope with the above mentioned challenges. The Union should therefore take into consideration these changes and their consequences when setting its transport policy for the years to come.

168. The restructuring of the world economy with the rise of Asia and the eastward tilting of the European economy are the main driving forces to be considered. In the transport market a doubling of global traffic is projected for both motorized passenger travel and for surface freight transport by 2050, mainly driven by the developing economies. International shipping activity would follow a similar trend[103].

169. In particular, maritime transport will be influenced by the size of vessels, by the opening of the new Panama Channel (2014) and by the shift of Mediterranean transhipment hubs outside the EU. Projections for aviation show an increase by a factor of four for passenger and freight transport between 2005 and 2050[104], with a possible shift of main world airports outside the EU. Thus the EU main gateways for international traffic - airport and ports - will be seriously affected, in particular in terms of capacity gap. The changes in flow directions and volumes will also have an impact on traffic on the hinterland connections to that entry points, leading to possible additional congestion and pollution.

170. In response to the global economic crisis and to prepare for the forthcoming recovery, a number of our major economic and strategic partners have announced large investments in the transport sector, such as development in high-speed rail connection, the construction of new airports or ports.

171. In this context, the increase of passenger and freight mobility will be mainly concentrated in the countries where the highest economic growth takes place. This will also have an impact on pollution and on CO2 emissions. The vast majority of the increase is attributable to road transport. In a world where personal motorised mobility reaches a wider share of the global population, and demand for long-distance travel increases, adopting the latest technological solutions will be essential to tackle the problems that the developed world's transport systems already face. In light of the growing concerns on climate change, and the inherently international nature of the sector, it is essential that a common approach is reached on how to put in place sustainable transport policies learning from successful practices.

172. At the same time, in the developing world transport costs are some of the highest globally, and in some landlocked African countries they can be as high as 77% of the

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102 Brazil, Russia, India, China.

103 International Energy Agency 2010, Energy Technology Perspectives: 2010. Please note that IEA MoMo model does not currently enable projection for shipping and air goods transport. Therefore, international shipping activity in the Energy Technology Perspectives 2010 is based on growth projections from the International Maritime Organization.

104 International Energy Agency, Transport, Energy and CO2: Moving Towards Sustainability, 2009.

value of exports. The inadequacy of infrastructure often severely constrains economic growth and hampers human and social development. Air pollution and road safety are formidable problems in the rapidly urbanising developing countries. Therefore further consideration should be given on how the EU could facilitate – through its own experience – the development of sustainable transport systems in developing countries.

173. Finally, there is an increased need to ensure worldwide an appropriate level of safety and security for passengers and goods, to avoid human and ecological disasters. In this context – to prevent possible transport disruption linked to unforeseeable events (e.g. volcano eruption) – the setting up of assistance/coordination mechanisms with our main neighbours could be of crucial importance to avoid the paralysis of the EU transport system.