The Performance of Transport systems in the Southern and Eastern Mediterranean Countries

This document has been developed within the framework of the Euro-Mediterranean statistical cooperation project Medstat III, funded by the European Union.

The programme MEDSTAT III in brief

MEDSTAT III, the statistical cooperation programme with the European Union's partner countries of North Africa and the Eastern Mediterranean, was financed and managed by EuropeAid, the European Commission's Directorate-General for Development and Cooperation. The programme, which was officially launched on 28th April 2010, ran until the end of 2013 and had a budget of seven million euros. The aim of the programme was to strengthen the capacity of the statistical authorities of the EU's Mediterranean partners (Algeria, Egypt, Israel, Jordan, Lebanon, Morocco, Palestine, Syria, Tunisia) to collect up to date, timely and relevant statistics, ensuring the reliability and coherence of available information.

Objectives

MEDSTAT III built on the achievements of the MEDSTAT I (1996-2003) and MEDSTAT II (2006-2009) programmes. It sought to promote evidence-based policy-making and to foster democratic development through the use of robust statistical data. The programme aimed to improve the quality and availability of data in six priority thematic sectors - agriculture, energy, migration, social statistics, transport, and trade and balance of payments - and promoted the increased dissemination and use of this data.

What was done?

MEDSTAT III was designed to strengthen the national statistics institutes and national statistical systems in the Mediterranean Partner Countries by improving their capacity to collect the timely, relevant and high-quality data necessary for political decision-making and good governance. Furthermore, it promoted the harmonisation of statistical data with European and international standards, and consolidated the exchange of data between partners.

The MEDSTAT III experts worked closely with their counterparts in the partner countries to carry out the project's activities and to transfer know-how and best practices. This was done through targeted technical assistance, and a series of workshops, seminars, training courses and study visits.

Other activities included promoting a more user-friendly dissemination of statistics and a better understanding of the importance of statistics among the final users (politicians, governments, administration, private sector, journalists, universities, civil society, EU bodies, and international institutions).

Available data

In a complementary activity, Eurostat collects annually a wide range of data from the Mediterranean partners.

These data can be consulted on-line at:
http://epp.eurostat.ec.europa.eu/portal/page/portal/european_neighbourhood_policy/enp_south/data_1/database
A synopsis of this data is also available in pdf version in Eurostat's pocketbook series, see:
http://epp.eurostat.ec.europa.eu/portal/page/portal/publications/collections/pocketbooks

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The contents of this publication are the sole responsibility of Medstat III and can in no way be taken to reflect the views of the European Union.

Foreword

The performance of transport systems is a key issue for economic development, social cohesion and protection of the environment. It is all the more important for the Southern and Eastern Mediterranean countries, which have experienced significant economic and social changes over the last few years. In these circumstances, it seems essential to establish reliable, standardised methods to analyse this performance.

Furthermore, analysing the performance of transport systems and activities is essential to encourage an evaluative culture in terms of transport policy, and to foster dialogue and further cooperation between producers and users of transport statistics. It is the natural complement to the development of reliable, standardised statistical information in order to create a proper, strategic, transparent management tool.

This analysis forms the starting point of this publication, which is the result of a collaboration between national institutes of statistics and transport ministries in Mediterranean countries as part of the MEDSTAT III programme, a Euro-Mediterranean statistical cooperation programme which aims to develop high-quality statistics that meet international standards in the Southern Neighbourhood of the European Union, and grow the analysis capabilities of producers and users of statistics to create a real strategic management tool from the information.

In terms of transport statistics, the main areas of development implemented over the course of this programme involved formulating standardised statistics which meet international standards on infrastructure, equipment and transport flows for the four main modes of transport present in all of the countries in the region: rail, road, sea and air. This work also formed a basis for producing statistics on intermodal transport, whose growth reflects a rapid transformation of transport systems on a global level.

Within this framework, a reflection was started on the performance of transport activities and systems in the Mediterranean partner countries, whose first stage was to define the specific indicators of economic, technological and environmental performance. Producing indicators of environmental performance in particular will form a real basis for analysis for the development of clean and sustainable transport.

This work on defining the indicators of economic, technical and environmental performance resulted in a limited list of priority indicators being set out during a workshop organised in Istanbul in January 2012, which partner countries have committed to using as a basis for developing national summaries. It is on the basis of these summaries, produced between August 2012 and June 2013 that this collective publication has been drawn up.

This publication is therefore the first tangible result of this work, at the level of the whole region, on the performance of transport systems in Southern and Eastern Mediterranean countries. Its content shows that there is still significant progress to be made to develop and standardise statistical information, as well as

analysing and utilising it to its full potential. In this respect, it is hoped that this publication will be merely the first edition of an analysis that will continue to grow in size and consistency in following editions. However, it already provides very useful information for anybody, whether politician, transport analyst, business leader or researcher, who wishes to better understand the economic, technical and environmental performance of different modes of transport in the Mediterranean region.

Thierry Coulet
Key expert
Transport Statistics
MEDSTAT III programme

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Performance of transport systems in Morocco

The economic, technical and environmental performance of Transport activities and systems in Morocco

Located at the extreme north-west of the African continent, Morocco has a sea frontier that covers 3,500 km – bordering the Mediterranean to the north, with a coastline of around 500 km, and the Atlantic Ocean to the west, with a coastline of around 3,000 km.

Morocco shares a land border with Algeria in the east and Mauritania in the south. Morocco covers an area of 710,850 km², a large part of which is mountainous terrain.

Table 1 – Key figures for Morocco

	2000	2005	2006	2007	2008	2009	2010	Unit
Population	28,705	30,172	30,506	30,841	31,177	31,514	31,851	*Thousands*
Population density	40	42	43	43	44	44	45	*Inhabitants/km²*
GDP (current prices)	393,381	527,679	577,344	616,254	688,843	732,449	764,031	*Millions of DH*
Rate of growth	0.9	1.7	7.8	2.7	5.6	4.8	3.6	*%*
GDP/inhabitant	13,704	17,489	18,926	19,982	22,095	23,242	23,988	*DH*
Transport as a proportion of GDP	4.1	3.4	3.2	3.8	3.5	3.5	3.6	*%*

Source : Direction de la Statistique, Haut Commissariat au Plan

As can be seen from table 1 above, Morocco saw significant development between 2000 and 2010, both in terms of its demographics and its economy.

Its total population reached almost 32 million inhabitants in 2010, a rise of almost 11 % in ten years, with the population density increasing from 40 inhabitants per km² in 2000 to 45 in 2010. Nevertheless, these figures hide wide regional disparities, with the population largely concentrated, and therefore the density actually much higher, in the north of the country and along the coast, compared with the south and interior of the country.

The national economy, in which the agricultural sector continues to hold an important place, has developed irregularly during the decade 2000-2010, with a rate of growth that varies considerably from year to year. It reached 7.8 % in 2006, despite only being 1.7 % in 2005 and 0.9 % in 2000.

The GDP per inhabitant is making regular progress, passing from just over DH 13,700 in 2000 to almost DH 24,000 in 2010; a growth of over 75 % at current prices over the whole period, which corresponds to an increase of more than 45 % at constant prices over the same period.

The transport sector plays a strategic role in developing the country, although this role does not necessarily translate into a particularly high proportion of its gross domestic product. The trend for the proportion of transport in the Moroccan GDP therefore seems to have been cyclical over the whole period and overall in decline, from 4.1 % in 2000 to 3.6 % in 2010, after reaching its lowest in 2006 at 3.2 %.

The economic performance of transport in Morocco

Growth in the activity and profitability of transport companies

The transport sector has developed rapidly over the last decade, as has the operating surplus of the companies that operate within it, as is illustrated by the figures in table 2, below.

Table 2 - Turnover, value added and gross operating surplus of transport companies in Morocco

Millions of DH	2000	2005	2006	2007	2008	2009	2010
Turnover of transport companies	:	38,069	44,382	61,192	46,484	52,304	:
Value added (current prices)	15,972	17,961	18,357	23,264	23,897	25,795	27,480
Gross operating surplus	9,587	9,244	9,052	13,840	14,159	15,518	16,821

The turnover of all transport companies dramatically increased between 2005 and 2007, by more than 60% in just two years, due in particular to the strong gains in turnover made by transport auxiliaries, particularly the Société des Autoroutes du Maroc (ADM) which generated about 50% of this turnover in 2007. It then saw a sudden drop in 2008 (− 24 %) before recovering in 2009, however without reaching the heights of 2007.

The value added rate for the sector, here measured using the ratio between value added at current prices and companies' turnovers, dropped off significantly between 2005 and 2007, from just over 49% to less than 40%. This remarkable swing in such a short period can be linked to the changes in the price of fuel during this period.

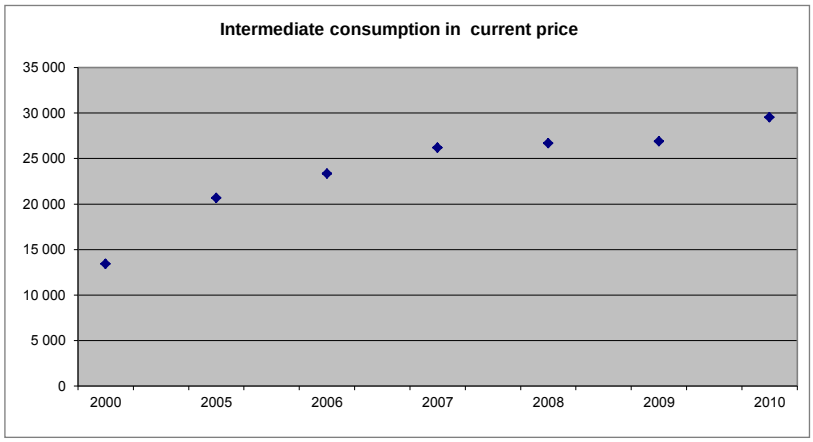
The gross operating surplus in the sector decreased significantly between 2000 and 2006 (− 5.6%), before bouncing back in a spectacular fashion in 2007 (+ 52.9% in just one year) and continuing to rise over the following years (+ 21.5% between 2007 and 2010).

The sector's margin rate, measured by the ratio between the gross operating surplus and the turnover, also saw contrasting trends between 2005 and 2007, moving from 25.3% in 2005 to 20.7% in 2006 and 23.7% in 2007.

Cost structure

Chart 1 – Intermediate consumption at current price

The total intermediate consumption of the sector saw continuous growth between 2000 and 2010 (see chart 1 below). It multiplied by more than 2.2 over the whole period, and recorded an increase of almost 10% for 2010 alone.



The following analysis allows us to detail these changes for the different modes of transport, and to compare them with their technical and environmental performances.

The economic, technical and environmental performance of rail transport in Morocco

Rail transport in Morocco is the exclusive activity of the ONCF, Office National des Chemins de Fer, which is responsible for managing the networks and transporting passengers and freight. Table 3 below presents the key figures for this sector.

Table 3 - Key figures for rail transport

	2000	2005	2006	2007	2008	2009	2010
Infrastructure :							
Length of network (km)	1,907	1,907	1,907	1,907	1,907	2,109	2,109
Equipment :							
Number of locomotives	225	209	209	224	232	228	234
Passenger transport capacity	33,240	27,055	25,015	24,365	24,639	27,650	37,258
Wagon load capacity (tonnes)	348,662	317,054	318,303	331,159	336,169	336,110	312,871
Flows :							
Total passenger transport *(millions of passenger-kilometre)*	1,956	2,987	3,333	3,659	3,820	4,190	4,399
Total freight transport *(millions of tonne-kilometre)*	4,650	5,918	5,873	5,837	4,986	4,127	5,585

The key figures for rail transport for the 2000-2010 period reveal the following striking facts:

- A considerable increase in the length of the network in 2009, with 202 kilometres of new lines put into service;
- Irregular changes to the locomotive stock, with a dramatic drop between 2000 and 2005, followed by fairly regular growth;
- Passenger transport capacity, measured in the number of seats available, follows a similar trend, with a significant drop recorded between 2000 and 2007 (− 8,875 seats), followed by a steady increase with almost 13,000 additional seats provided, almost 10,000 of which in 2010 alone. This upturn corresponds with a large number of vehicles being put into service in order to improve the transport offering;
- Freight transport capacity, measured by wagon load capacity, also dropped considerably between 2000 and 2005, from 348,700 to just over 317,000 tonnes. It then started to rise again until 2009, before falling and reaching its lowest point in 2010;
- The volume of passengers transported, measured in millions of passenger-kilometres, increased significantly between 2000 and 2010 (it multiplied by 2.24 over the whole period);
- The volume of freight transported, measured in millions of tonne-kilometres, progressed more unevenly, increasing strongly between 2000 and 2005 (+ 27.3%), then dropping steadily until 2009 (− 30.3%) before recording a remarkable recovery in 2010 (+ 35.3% in one year alone).

All of these trends imply that there has been a substantial increase in the rate of use of the equipment, whether locomotives, passenger vehicles or wagons.

The economic performance of rail transport in Morocco

The ONCF's turnover saw a cyclical development between 2005 and 2010, with an initial peak in 2007 and a low point in 2009, followed by a second peak in 2010 (see table 4 below).

Table 4 - Activity and profitability of the ONCF

Millions of DH	2000	2005	2006	2007	2008	2009	2010
Turnover of transport companies	:	2,882	3,119	3,466	3,253	3,193	3,247
Value added *(current prices)*	1,328	2,131	2,238	2,257	2,266	1,953	2,406
Gross operating surplus	656	1,393	1,464	1,612	1,503	1,396	:

The value added rate for rail transport activity also saw a cyclical trend emerge, and established itself at slightly more than 74% in 2010.
The gross operating surplus made significant gains between 2000 and 2007, before dropping considerably between 2007 and 2009.

Table 5 below gives us a better understanding of the cost structure for the sector and, in particular, the proportion of personnel costs in the total production amount.

Table 5 - Cost structure

Millions of DH and %	2005	2006	2007	2008	2009	2010
Personnel costs for the company	700	726	737	769	801	851
Personnel costs (% of turnover)	24.3	23.3	21.3	23.6	25.1	26.2

The total personnel costs for the ONCF seem to be constantly rising between 2005 and 2010, from DH 700 million to DH 851 million, an increase of more than 22% over the whole period. Conversely, the proportion of personnel costs within the turnover has a contrasting trend over the same period, marked by a significant drop between 2005 and 2007 and then a strong rise until 2010.

The technical performance of rail transport in Morocco

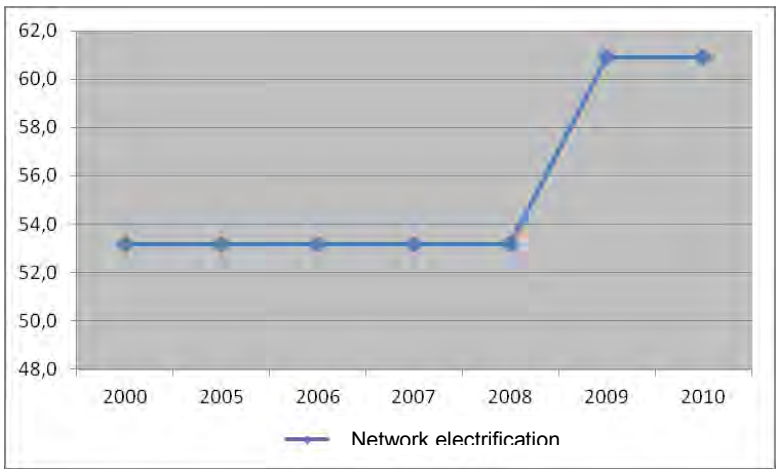
As we have already mentioned, the length of the rail network was expanded by 202 km between 2007 and 2009, bringing the total track length to 2,109 km (see table 6 below). This expansion corresponds to two new sections of rail lines, towards the port Tanger-Med and also towards the port Nador, being successively brought into service. In these two cases, the lines were primarily intended for transporting freight, and were part of a policy to develop intermodal transport.

Table 6 – Performance of networks and infrastructure

Km	2000	2005	2006	2007	2008	2009	2010
Length of rail network	1,907	1,907	1,907	1,907	1,907	2,109	2,109
Length of electrified network	1,014	1,014	1,014	1,014	1,014	1,284	1,284

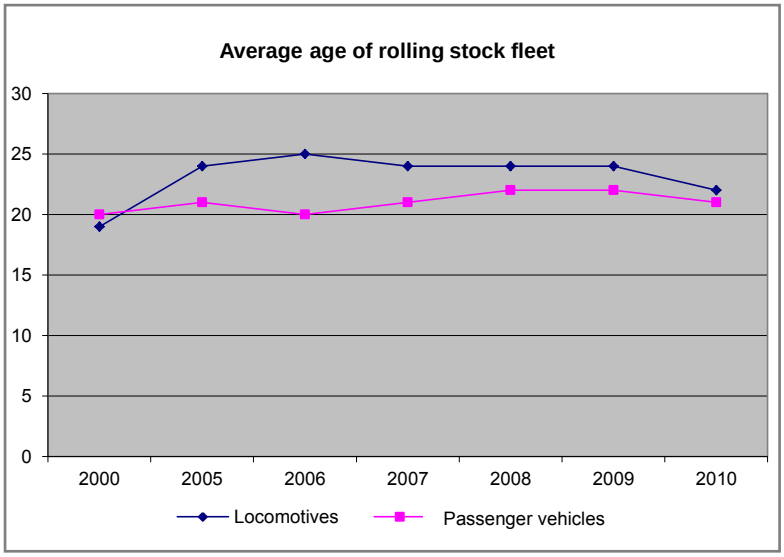
Chart 2 – Network electrification

Network electrification also increased sharply in 2009 and 2010, moving from just over 53% in 2008 to almost 61% in 2010 (see chart 2 below), a trend that corresponds with the commissioning of the sections previously mentioned.



Performance of productive stock

Chart 3 – Average age of rolling stock fleet



Generally speaking, in Morocco the rolling stock fleet is outdated, both in terms of the locomotives and in terms of the passenger vehicles. The average age of these vehicles rose even further over the period, with locomotive stock ageing from 19 to 22 years, and passenger vehicles stock from 20 to 21 years (see opposite chart 3).

Labour productivity

Labour productivity in the rail transport sector can be measured by a summary indicator, rail traffic per employee, i.e. the total number of kilometres travelled by rail transport vehicles compared with the number of employees.

This indicator demonstrates a bell-shaped pattern between 2000 and 2009, peaking in 2007 – when productivity was almost double the productivity recorded in 2000 – before falling considerably. The indicator was therefore 21% lower in 2009 than at its peak in 2007 (see chart 4 below).

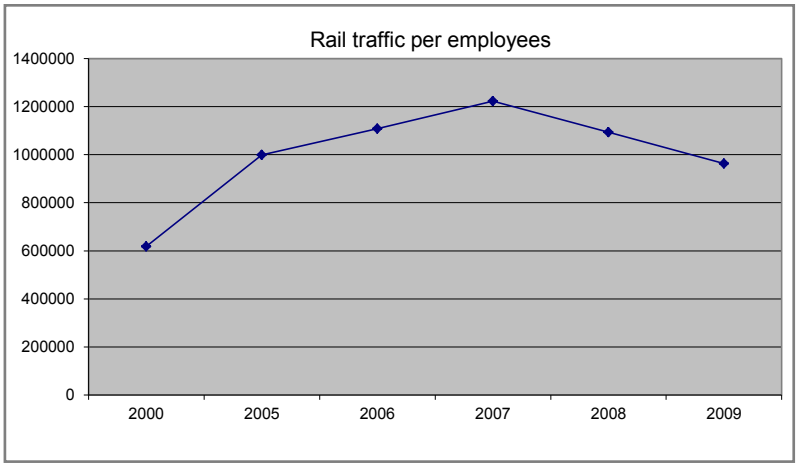


Chart 4 – Rail traffic per employees

The environmental performance of rail transport in Morocco

Density of rail transport infrastructure

The density of the rail network increased in 2009 when the two sections previously mentioned were commissioned, and by the end of the period reached just under 3 kilometres of rail network lines for every 1,000 km² (see the opposite chart 5).

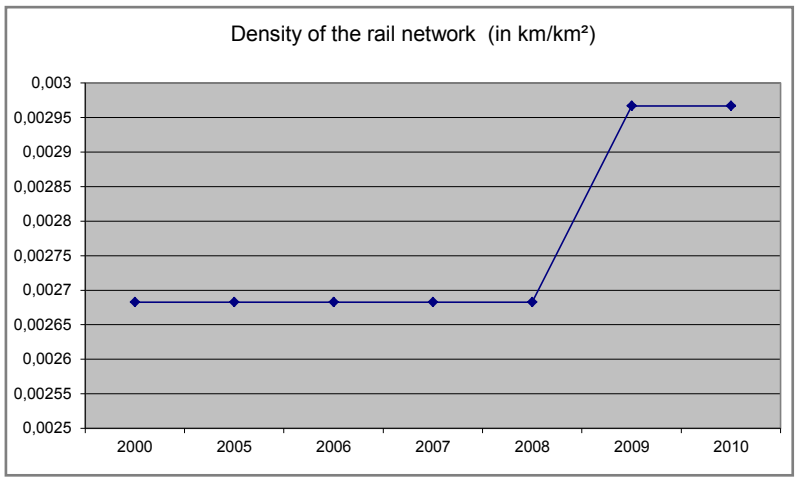


Chart 5 – Density of the rail network (in km/km²)

The economic, technical and environmental performance of road transport in Morocco

A key link in the transport chain, the road clearly plays a leading role in the economic and social activity of the country and contributes a great deal to its development. Road transport is therefore the most used means of transport in Morocco for internal movements of people and freight.

- ***The key figures for road transport (table 7 below) illustrate a few striking facts concerning infrastructure and equipment:*** The road network experienced a significant expansion between 2005 and 2010 after having recorded a very slight contraction between 2000 and 2005, which was linked to the modification of existing sections in order to make them more linear;
- The road vehicle fleet for transporting freight expanded markedly between 2000 and 2010, with an increase of more than 65% over the whole period;
- The road vehicle fleet for transporting passengers also saw a sharp increase between 2000 and 2010, from 1.25 million to more than 2 million vehicles, a rise of more than 50% over the whole period.

Table 7 – Key figures for road transport

	2000	2005	2006	2007	2008	2009	2010	*Units*
Infrastructure								
Total length of the road network	57,652	57,597	57,625	57,813	57,852	58,215	58,394	*km*
Equipment								
Number of road vehicles for freight transport	397,335	506,406	540,944	585,696	621,627	684,252	730,116	*Number*
Number of road vehicles for passenger transport	1,257,725	1,506 696	1,581,547	1,672,987	1,787,756	1,911,822	2,029,535	*Number*

The economic performance of road transport in Morocco

The road transport sector saw substantial growth both in terms of turnover and in terms of value added (see table 8 below). The turnover in current prices increased by over 43% between 2005 and 2009, and the value added at current prices by more than 92% between 2005 and 2010. However, it must be noted that the turnover of road transport companies seems to be significantly underestimated, due to widespread informal activity in this sector, which could explain the apparent inconsistencies between the data for turnover, value added and intermediate consumption (table 9 below).

Table 8 - Activity and profitability of road transport companies

Millions of DH	2000	2005	2006	2007	2008	2009	2010
Turnover	:	8,162	8,607	9,779	10,625	11,685	:
Value added *(current prices)*	:	6,328	8,117	9,614	10,248	11,635	12,168
Gross operating surplus	4,860	4,085	4,320	6,826	7,477	8,626	:

The intermediate consumption by road transport of energy products, i.e. mainly its expenses for fuel, saw a cyclical trend during the 2005-2010 period, in all probability linked to the changes in prices of these products (see table 9 below). These expenses are nevertheless rising overall, with an increase of more than 46% between these two years.

Table 9 - Cost structure for road traffic

Millions of DH	2005	2006	2007	2008	2009	2010
Intermediate consumption of energy products	4,627	5,848	5,214	6,592	6,491	6,760

Technical performance of road transport in Morocco

The network of express roads and motorways, like the paved network in Morocco, expanded vastly during the last decade (see table 10 below), with the first progressing from 425 km to 1,096 km in the period 2000-2010, multiplying by a factor of more than 2.5, while the second saw its total length steadily rise, from 32,510 km in 2000 to 41,117 km in 2010, an increase of more than 26%.

Table 10 – Performance of the networks

Km	2000	2005	2006	2007	2008	2009	2010
Length of express road and motorway network	425	611	639	827	866	917	1 096
Length of paved network	32,510	35,637	35,665	35,853	35,892	40,938	41,117

These trends are the result of a pro-active policy of major works, launched by the Moroccan authorities at the start of the 2000s. This led in particular to an acceleration in the implementation of the country's first highway master plan, which included the construction of 1,500 km of motorways, and the preparation of a second highway master plan projecting for work to begin on an additional 380 km by 2012. This policy also translated in the completion of the Mediterranean bypass, the renewal and development of the national road network through the paving of untarmacked roads and the acceleration of the speed at which rural roads are built.

The proportion of the paved network in Morocco was consequently boosted significantly over the whole period, from 56.4% in 2000 to more than 70% in 2010 (see chart 6 below). Similarly, the proportion of express roads and motorways within the network rose from just over 0.7% in 2000 to almost 1.9% in 2010.

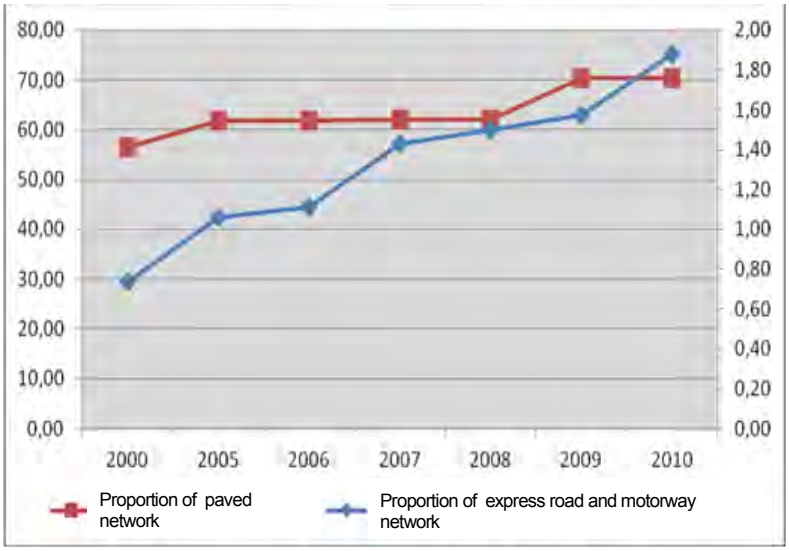


Chart 6 - Proportion of express road and motorway network in the total network - Proportion of paved network

The environmental performance of road transport in Morocco

Data on the specific CO2 emissions of road transport is unfortunately not available. However, it is possible to analyse the environmental impact of the road transport infrastructure by measuring the density of this infrastructure within the country.

The road infrastructure density is in fact an important element for the environmental cost linked to this means of transport. The density of the road network, measured in km of roads per 1,000 km² of land, while slightly increasing appears to be relatively stable, at around 80, over the whole of the period examined (see chart 7 below). Nevertheless, this value hides great regional disparities, with coverage having a far greater density in coastal areas and the north of the country, than in the interior and, in particular, the Middle Atlas and southern regions.

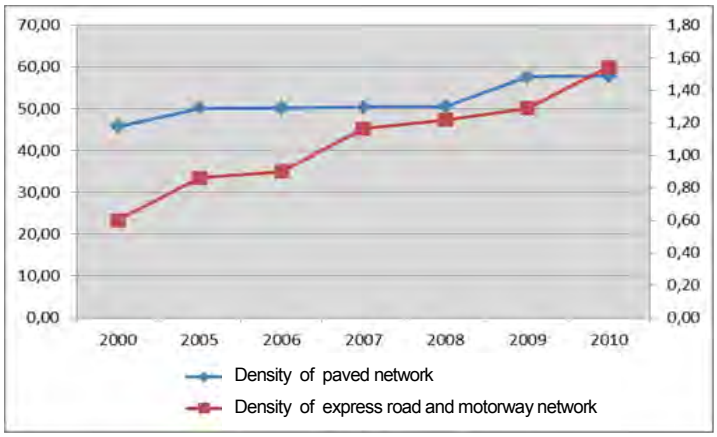


Chart 7 - Density of road network and motorway network *(length of network in km per 1,000 km²)*

The density of the motorway network, measured in km of motorways per 1,000 km² of land, has seen, as for it, an important change, in parallel to the considerable expansion of this network over the decade, although its absolute value remains limited.

The economic, technical and environmental performance of sea transport in Morocco

The key figures for sea transport in Morocco (table 11 below) allow us to identify the following main trends:

- Morocco had 8 principal ports, in the statistical sense, until 2006. From 2007 it benefited from a ninth one, with the commissioning of the port Tanger-MED in July 2007;
- The total length of quays of principal ports increased in parallel, from 23.5 to 24.3 km;
- The fleet of merchant freight vessels registered in Morocco decreased significantly over the whole period, from 41 vessels in 2000 to 14 in 2010;
- Conversely, the fleet of merchant vessels for passenger transport is on the up, increasing from 9 to 16 vessels over the same period;
- The number of vessels arriving in Moroccan ports followed an uneven trend, with a marked increase recorded between 2000 and 2005 (+ 34%), then a downward trend between 2005 and 2010 (– 20%);

- The number of passengers embarking and disembarking saw an almost constant decline between 2005 and 2010 (– 32.3% over the whole period), with this being particularly notable in 2010 (– 30.3% in this year alone);
- The total volume of freight handled in Moroccan ports fluctuated, but was overall on the rise (+ 29.5% over the whole period). However it peaked in 2007, before declining sharply the following two years and then picking up again in 2010.

Table 11 - Key figures for sea transport

	2000	2005	2006	2007	2008	2009	2010
Infrastructure :							
Number of principal ports	8	8	8	9	9	9	9
Total length of quays in principal ports	23,513	23,513	23,513	24,313	24,313	24,313	24,313
Equipment :							
Number of freight merchant ships	41	29	26	21	22	19	14
Number of merchant ships for passenger transport	9	14	13	14	15	15	16
Traffic :							
Number of arrivals of ships	15,078	20,194	19,076	19,799	19,035	18,051	16,158
Number of passengers embarking and disembarking	:	3,906	3,871	3,734	3,629	3,794	3,797
Total volume of freight [1]	53,444	67,508	66,823	72,833	67,940	60,330	72,016

The economic performance of sea transport in Morocco

Like the value added at current prices, the turnover of sea transport companies was highly cyclical between 2000 and 2010 (see table 12 below).

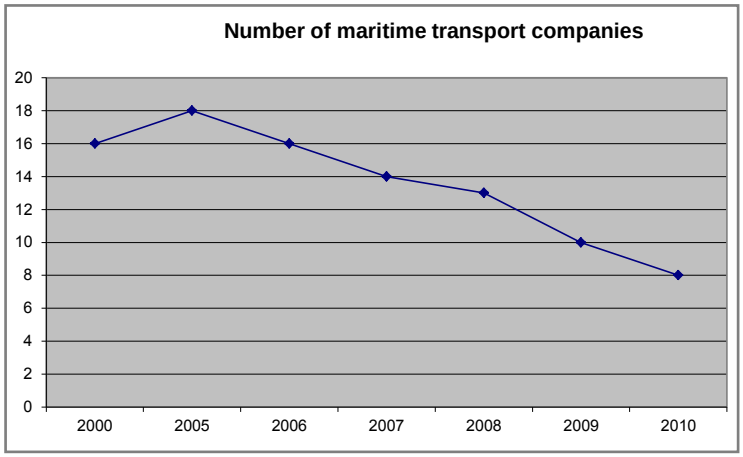
Table 12 - Activity and profitability of sea transport companies

	2000	2005	2006	2007	2008	2009	2010
Turnover of transport companies (millions of DH)	2,230	4,002	4,248	4,339	4,452	3,033	2,686
Value added (current prices)	1,646	2,512	2,130	3,054	2,983	2,799	:

The demographics in the sector

After peaking in 2005, the number of sea transport companies dropped substantially in subsequent years, which is evidence of a clear movement towards concentration within the sector (see chart 8 below); only eight companies remained active in 2010, as opposed to 18 five years previously.

[1] including domestic traffic at the port Tanger-Med.



Graphique 8 – Number of maritime transport companies

Technical performance of sea transport in Morocco

Performance of equipment

As indicated previously, the number of freight merchant ships registered in Morocco dropped considerably between 2000 and 2010 (see table 13 below). This reduction in the fleet hit almost all categories of vessels, with the exception of roll-on/roll-off vessels, but particularly affected the fleet of general freight carriers, whose numbers dropped from 17 to 1, and the fleet of tankers which was comprised of 6 vessels in 2000 and had completely disappeared ten years later.

Table 13 - Number of merchant ships by type

	2000	2005	2006	2007	2008	2009	2010
Number of oil tankers with a gross tonnage of 300 tonnes or more	3	3	3	3	3	3	3
Number of chemical tankers with a gross tonnage of 300 tonnes or more	6	4	4	4	4	4	0
Number of liquid gas tankers with a gross tonnage of 300 tonnes or more	0	0	0	0	0	0	0
Number of bulk carriers with a gross tonnage of 300 tonnes or more	0	0	0	0	0	0	0
Number of bulk oil carriers with a gross tonnage of 300 tonnes or more	0	0	0	0	0	0	0
Number of general freight carriers with a gross tonnage of 300 tonnes or more	17	8	6	4	4	3	1
Number of container vessels with a gross tonnage of 300 tonnes or more	13	13	12	9	10	8	8
Number of roll-on/roll-off cargo ships with a gross tonnage of 300 tonnes or more	2	1	1	1	1	1	2
Number of passenger vessels and roll-on/roll-off passenger vessels with a gross tonnage of 1000 tonnes or more	9	14	13	14	15	15	16
Number of cruise ships with a gross tonnage of 1000 tonnes or more	0	0	0	0	0	0	0

All the passenger vessels registered in Morocco are conventional transport vessels, regardless of whether they are roll-on/roll-off.

The carrying capacity of the vessels registered saw a similar trend to that of the fleets themselves, although less marked in this case (see table 14 below).

Tableau 14 - Carrying capacity of merchant ships by type

	2000	2005	2006	2007	2008	2009	2010
Carrying capacity of oil tankers with a gross tonnage of 300 tonnes or more	22,687	:	16,352	16,352	16,352	20,072	20,072
Carrying capacity of chemical tankers with a gross tonnage of 300 tonnes or more	109,185	:	96,000	96,000	96,000	96,000	0
Carrying capacity of liquid gas tankers with a gross tonnage of 300 tonnes or more	0	0	0	0	0	0	0
Carrying capacity of bulk carriers with a gross tonnage of 300 tonnes or more	0	0	0	0	0	0	0
Carrying capacity of bulk oil carriers with a gross tonnage of 300 tonnes or more	0	0	0	0	0	0	0
Carrying capacity of general freight carriers with a gross tonnage of 300 tonnes or more	74,415	:	26,439	12,807	12,807	10,267	4,967
Carrying capacity of container vessels with a gross tonnage of 300 tonnes or more	59,140	:	107,356	80,853	92,661	70,760	70,760
Carrying capacity of roll-on/roll-off cargo ships with a gross tonnage of 300 tonnes or more	2,919	:	1,519	1,519	1,519	1,519	1,519
Carrying capacity of roll-on/roll-off passenger vessels with a gross tonnage of 300 tonnes or more	20,802	26,829	26,829	28,617	28,617	28,617	29,488

The transport capacity of general freight carriers has therefore dramatically declined (– 93.3% over the whole period). Conversely, the transport capacity of container vessels increased (+ 19.6%) despite the significant reduction of the fleet, which suggests a considerable increase in the average capacity of vessels of this type.

The capacity of passenger vessels also increased, in parallel to the number of vessels of this type.

While the total volume of sea freight, measured in thousands of tonnes, and the volume of roll-on/roll-off freight, measured in the number of lorries transported, were stable overall between 2005 and 2010, the volume of containerised freight, measured in TEU, grew exponentially from 2008. This expansion is directly linked to the commissioning of the port Tanger-MED (see table 15 and chart 9 below).

Table 15 – Volumes of intermodal freight transport

	2005	2006	2007	2008	2009	2010
Volume of containerised freight (TEU)	611,035	677,999	814,911	1,838,404	2,114,832	3,184,142
Volume of roll-on/roll-off freight (number of lorries	164,656	172,365	190,972	193,201	186,355	182,817

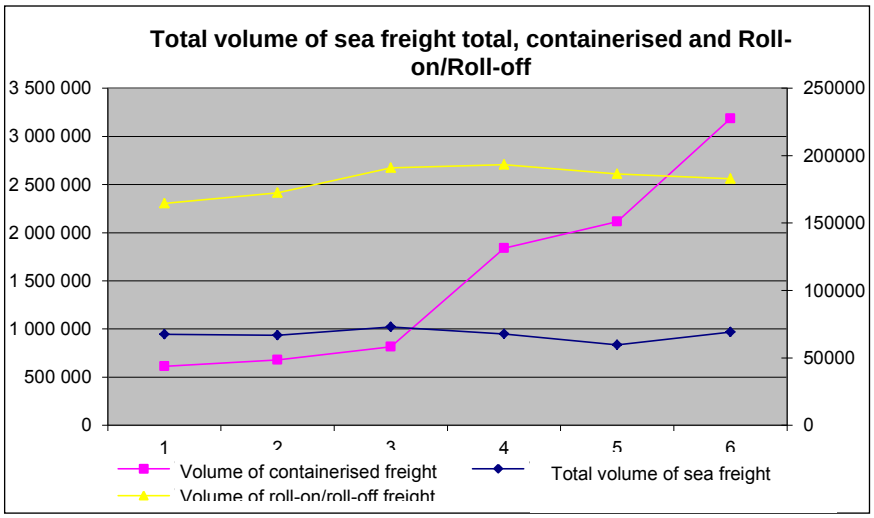


Chart 9 – Total volume of sea freight total, containerised and Roll-on/Roll-off

Environmental performance of sea transport in Morocco

Infrastructure density

The density of port infrastructure, measured by the ratio between the total length of quays in the principal ports and the total length of the coastline, also saw spectacular growth in 2007, again linked to the commissioning of Tanger-MED port (chart 10 below).

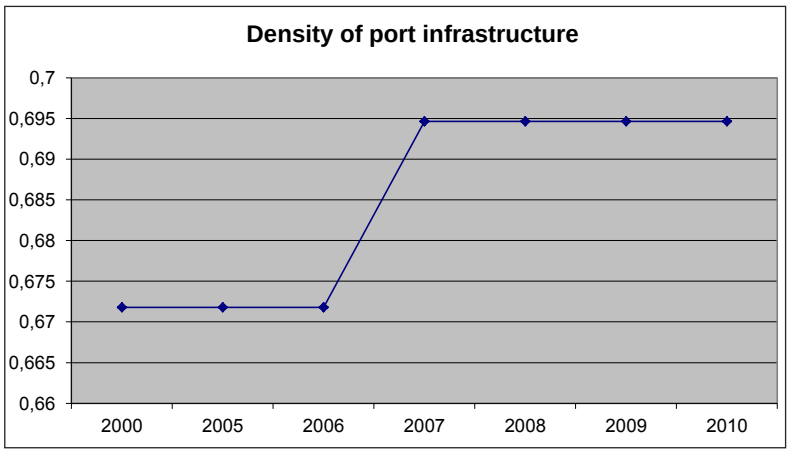


Chart 10 – Density of port infrastructure

The economic, technical and environmental performance of air transport in Morocco

Air transport infrastructure changed considerably in Morocco during the last decade, as the number of principal airports increased from 1 to 3 between 2000 and 2010 (see table 16 below). Casablanca airport was joined by Marrakesh airport in 2005 and Agadir airport in 2007.

Table 16 - Key figures for air transport

	2000	2005	2006	2007	2008	2009	2010
Infrastructure:							
Number of principal airports	1	2	2	3	3	3	3
Total length of paved runways of more than 2,438 m	38,120	40,620	40,620	40,620	40,620	40,620	40,620
Equipment :							
Number of passenger aircraft	37	41	46	58	59	62	62
Number of freight aircraft	2	1	1	0	0	0	0
Traffic :							
Total number of aircraft movements	118,915	144,247	163,733	177,414	174,019	181,816	196,538
Total number of passengers (thousands)	7,170	9,192	10,395	12,126	12,866	13,350	15,361

In this context, the total length of runways of more than 2,438 metres has remained stable, at just over 40,000 metres, since 2005[2] .

The Moroccan fleet of passenger aircraft rose remarkably between 2000 and 2010, increasing from 37 to 62 aircraft over the course of the period. Conversely, the fleet of freight aircraft, which was already very low in 2000 (two aircraft), had completely disappeared by 2007.

As for air traffic, it increased substantially during the last decade, with the total number of aircraft movements increasing by more than 65% between 2000 and 2010, and the total number of passengers more than doubling over the same period.

The economic performance of air transport in Morocco

The air transport sector enjoyed reasonably sustained growth in its activity between 2005 and 2009, with its turnover increasing by 73% between these two years. The only year to see a drop during the period was 2007.

The gross operating surplus recorded a constant and very sustained increase during the same period (+ 128% between 2000 and 2009).

The value added ratio for air transport activity, measured here by the proportion of value added at current prices within the turnover, established itself at more than 39% in 2009. This ratio seems to have experienced a contrasting, overall downward trend (see table 17 below).

[2] It must be remembered that the definition of a main airport is based on the volume of passenger and freight transport recorded, and that therefore the number of main airports can change without new runways being commissioned.

Table 17 - Activity and profitability of air transport companies

Millions of DH	2000	2005	2006	2007	2008	2009	2010
Turnover	:	9,545	15,076	13,637	16,515	16,543	:
Value added (current prices)	3,398	4,183	4,833	4,997	5,777	6,510	7,070
Gross operating surplus	1,742	1,915	2,605	2,956	3,476	3,978	:

The technical performance of air transport in Morocco

Performance of equipment

As indicated previously, the fleet of passenger aircraft expanded considerably during the decade 2000-2010. However, this expansion did not involve all categories of aircraft; it was essentially concentrated on aircraft with a seating capacity of 151-250, whose numbers increased from 14 aircraft in 2000 to 39 in 2010 (table 18 below). While the number of aircraft with a seating capacity of 50 or less also increased over the period that of aircraft with 51 to 150 seats decreased. Morocco had two high-capacity aircraft (251 seats or more) in 2000, and only one by the end of the period.

Table 18 - Number of passenger aircraft according to capacity

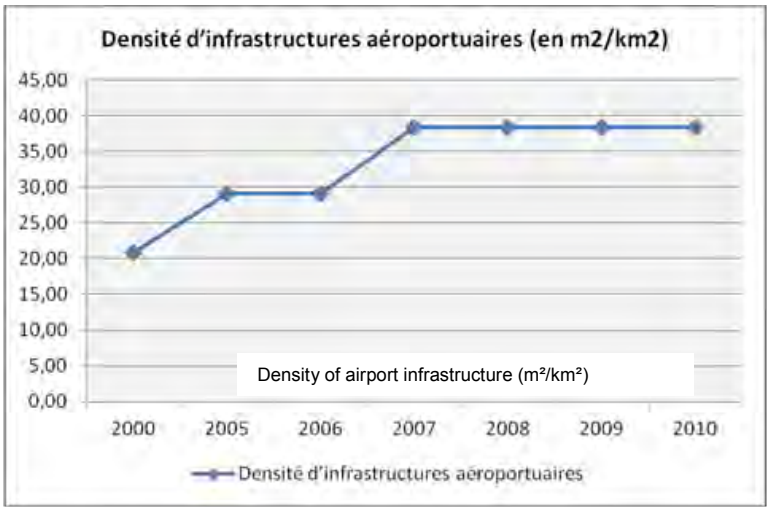
	2000	2005	2006	2007	2008	2009	2010
Total number of passenger aircraft	37	41	46	58	59	62	62
50 seats or less	6	7	8	11	12	10	10
51 to 150 seats	15	12	15	10	10	12	12
151 to 250 seats	14	21	21	36	36	39	39
251 seats or more	2	1	2	1	1	1	1

The environmental performance of air transport in Morocco

Infrastructure density

The density of airport infrastructure, measured by the ratio between the surface area of airports measured in m^2 and the surface area of the national territory, increased significantly between 2000 and 2007, before stabilising by the end of the period (chart 11 below).

Chart 11 – Density of airport infrastructure (m²/km²)



Conclusion

The preceding analysis allows us to identify a number of striking facts in the trends for transport infrastructure, equipment and activities in Morocco. In this regard, we can particularly highlight the following elements.

The transport sector plays a strategic role in the country's development, although this role does not necessarily translate into a particularly high proportion of the gross domestic product. The turnover of all transport companies dramatically increased between 2005 and 2007, by nearly 60% in just two years. Conversely, the gross operating surplus in the sector decreased substantially between 2000 and 2006, before bouncing back in a spectacular fashion in 2007 (+ 52.9% in just one year) and continuing to rise over the following years.

Focusing more specifically on rail transport, we can see a considerable increase in the length of the network in 2009, with 202 kilometres of new lines commissioned. The trend in the fleet of equipment, locomotives, passenger vehicles and wagons was downward overall at the beginning of the period, until its recovery in 2006. The volume of passengers transported, measured in millions of passenger-kilometres, increased significantly between 2000 and 2010 (it multiplied by 2.24 over the whole period), while the volume of freight transport, measured in millions of tonne-kilometres, saw a noticeably more uneven trend.

As for the road network, it experienced a significant expansion between 2005 and 2010 after having recorded a very slight contraction between 2000 and 2005. The road vehicle fleet for transporting freight expanded markedly between 2000 and 2010, with an increase of more than 65% over the whole period. The road vehicle fleet for transporting passengers also saw a sharp increase between 2000 and 2010, from 1.25 million to more than 2 million vehicles, a rise of more than 50% over the whole period.

Morocco had 8 principal ports, in the statistical sense, until 2006. From 2007 it has benefited from a ninth one, with the commissioning of the port Tanger-MED. However, the fleet of merchant freight vessels registered in Morocco has decreased significantly, from 41 vessels in 2000 to 14 in 2010. Conversely, the fleet of merchant vessels for passenger transport is on the up, increasing from 9 to 16 vessels over the same period.

The number of vessels arriving in Moroccan ports followed an uneven trend, with a marked increase recorded between 2000 and 2005, then a downward trend between 2005 and 2007. The number of passengers embarking and disembarking saw an almost constant decline between 2005 and 2010, with this being particularly notable in 2010 (− 30.3% in that year alone).

The total volume of freight handled in Moroccan ports fluctuated, but was overall on the rise over the whole period.

Air transport infrastructure changed considerably during the last decade, as the number of principal airports increased from 1 to 3 between 2000 and 2010. The Moroccan fleet of passenger aircraft also rose remarkably between 2000 and 2010, increasing from 37 to 62 aircraft over the course of the period. Similarly, air traffic increased substantially, with the total number of aircraft movements

increasing by more than 65 % between 2000 and 2010, and the total number of passengers more than doubling over the same period.

All these elements confirm the dynamic growth of infrastructure, equipment and transport flows in Morocco over the last decade, which went hand in hand with the momentum of the Moroccan economy as a whole during the period. In the future, the environmental impact should be examined in greater detail, as to date there is little data available to perform this crucial analysis.

Performance of transport systems in Algeria

The economic, technical and environmental performance of transport activities and systems in Algeria

With a total surface area of around 2.4 million square kilometres and a coastline stretching 1,280 km, Algeria is one of the largest countries on the Mediterranean. The Saharan region covers more than 87 % of Algeria's land area.

Table 1 below shows the country's key figures, giving a better understanding of its recent economic, social and demographic changes, as well as the role of transport in its economy.

Table 1 - Key figures for Algeria

	2000	2005	2006	2007	2008	2009	2010
Total population[1] *(thousands)*	30,416	32,906	33,481	34,096	34,591	35,268	35,978
Natural rate of population growth *(%)*	1.5	1.7	1.8	1.9	1.9	2.0	2.0
Population density *(inhabitants/km²)*	13	14	14	15	15	15	15
GDP *(billions of DA[2])*	4,124	7,562	8,515	9,367	11,077	10,007	12,034
Rate of growth *(%)*	3.8	5.8	1.7	3.5	2.3	1.4	3.4
GDP /inahabitant *(DA)*	135,571	229,806	254,319	274,712	320,232	283,737	334,493
Transport as a proportion of GDP *(%)*	6.1	6.0	6.2	6.3	5.6	6.6	6.0

Source : Office National de la Statistique

In 2010 the population density was 15 inhabitants per km², but with considerable contrast between the south of the country and the northern coastal strip.

According to 2010 estimates, the Algerian population has risen to almost 36 million inhabitants. The change in population in the decade 2000-2010 was marked by a constant rise in the natural rate of growth, which exceeded the 2 % mark in 2010. The average annual rate of growth during this period was almost 1.7 %.

The Algerian economy is highly dependent on hydrocarbon production.

[1] In the middle of the year

[2] Algerian Dinar

The rate of growth of the gross domestic product (GDP) fluctuated substantially over the analysed period, going from 5.8 % in 2005 to 3.4 % in 2010, with a low point of 1.4 % in 2009.

In current terms, the GDP increased from DA 7,562 billion in 2005 to DA 12,034 billion in 2010, an increase of almost 60 % over the period as a whole.

GDP per inhabitant, which is an indicator of a country's wealth and living standards, rose from around DA 136,000 in 2000 to DA 335,000 in 2010, increasing by a factor of almost 2.5 between those years.

Although the country's economic growth is predominantly driven by hydrocarbons, the GDP excluding hydrocarbons saw an annual rate of growth of 5.2 % in 2011.

Transport as a proportion of GDP dropped from 6.1 % in 2000 to 6 % in 2010, but this change appears to be cyclical, as the ratio increased in 2009 (6.6 %) after a decrease in 2008 (5.6 %).

The economic performance of transport in Algeria

Table 2 - Activity and profitability of transport companies in Algeria

	2000	2005	2006	2007	2008	2009	2010
VA[3] at current prices *(millions of DA)*	250,595	455,096	529,290	587,309	616,959	660,596	721,911
GOS[4] *(millions of DA)*	140,043	363,677	413,981	476,925	494,605	469,492	558,662

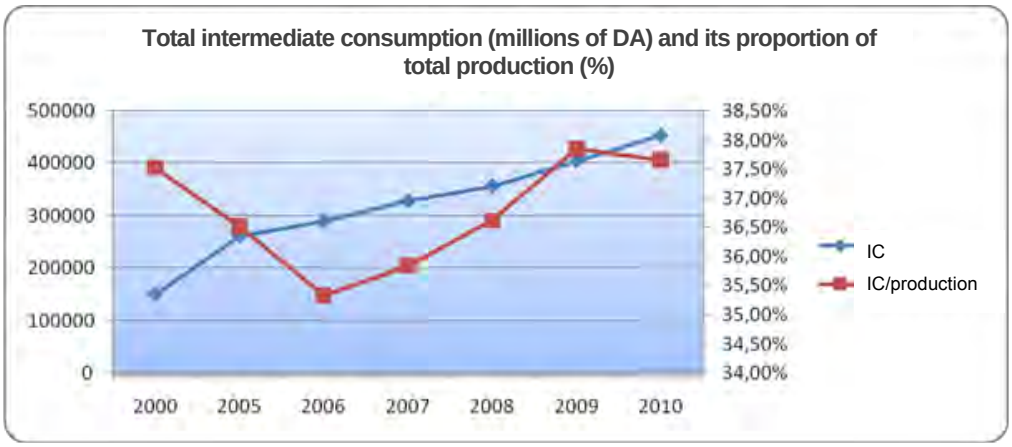
Source : Office National de la Statistique (ONS)

The table above shows that the sector has grown dramatically, with its value added at current prices increasing from DA 455.1 billion to DA 721.9 billion between 2005 and 2010, an increase of around 59 %.

Similarly, the gross operating surplus increased sharply between 2005 and 2010, moving from DA 363.6 billion to DA 558.7 billion, an increase of around 54 %.

[3] Value added
[4] Gross Operating Surplus

Chart 1 - Total intermediate consumption (millions of DA) and its proportion of total production (%)



The proportion of intermediate consumption in total production progressed unevenly, falling substantially between 2000 and 2006, before increasing considerably between 2006 and 2009, and then declining again in 2010 to 37.7 % in that year.

The economic, technical and environmental performance of rail transport in Algeria

The operation of railway lines and the management of traffic relating to both passengers and goods transport are run exclusively by the SNTF (Société Nationale des Transports Ferroviaires – National Railway Transport Company). The data in the table below provides an overview of the infrastructure and equipment of rail transport, as well as passenger and freight transport, over the decade from 2000 to 2010.

Tableau 3 - Key data for rail transport

Years	2000	2005	2006	2007	2008	2009	2010
Infrastructure :							
Length of network *(km)*	3,572	3,572	3,572	3,572	3,894	4,210	4,440
Equipment :							
Number of locomotives	278	245	245	267	275	275	275
Passenger transport capacity *(thousands)*	27.7	23.6	22.7	22.2	24.3	30.6	34.4
Wagon load capacity *(thousands of tonnes)*	558	548	544	534	532	538	538
Flows :							
Total passenger transport *(millions of passengers/km)*	1,142	929	821	813	937	1,141	1,146
Total goods transport *(millions of tonnes/km)*	1,980	1,471	1,429	1,425	1,562	1,302	1,281

Rail infrastructure has seen significant network expansion, with 868 km of new tracks opened during the period.

New lines are currently being constructed as part of the national railway development policy, with others proposed, and major investments have been made or planned for this purpose.

Locomotive stock increased rapidly towards the end of the period, reaching 275 units in 2010, which is 30 units more than in 2006. This change is the result of railcars being acquired and becoming operational from 2007. However, it is notable that the stock declined considerably between 2000 and 2005, and in 2010 it had not returned to the levels seen at the beginning of the period.

The SNTF has committed to acquiring new diesel and electric locomotives dedicated to freight transport in order to improve the availability rate of locomotive stock.

Rail passenger transport capacity increased considerably over the decade, with a rise of 24 %.

The wagon load capacity declined overall during the decade, despite an upturn at the end of the period.

Passenger transport volume, measured in passenger-kilometres, decreased between 2000 and 2007, and then increased between 2007 and 2010. Furthermore, the volume of freight transported in 2010 was significantly lower than in 2000 (a drop of around 35 %).

The economic performance of rail transport in Algeria

As shown in chart 2 below, the turnover of the SNTF increased considerably between 2007 and 2009, before levelling off in 2010. This trend correlates with the transport volumes, particularly of passengers, that were listed previously.

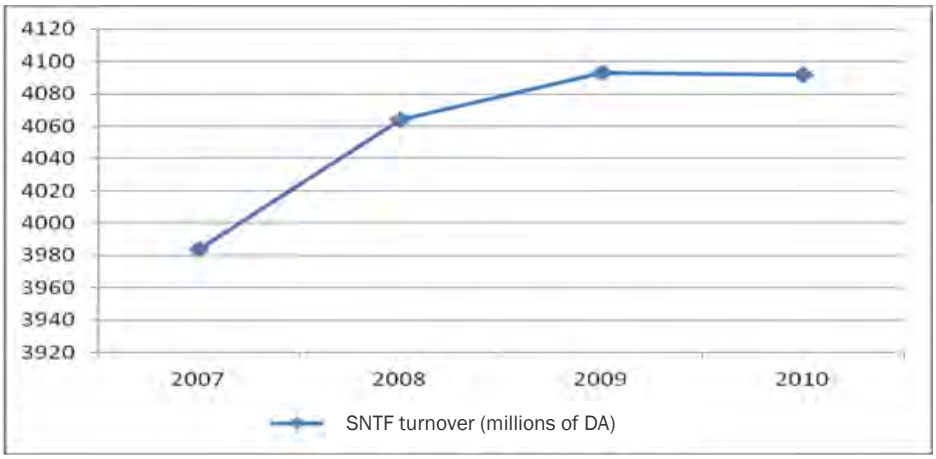


Chart 2 - SNTF turnover (millions of DA)

The technical performance of rail transport in Algeria

The technical performance of rail transport can be measured first of all by the expansion and electrification of the network. As shown in table 4 below, the length of the rail network increased by 868 km between 2007 and 2010, bringing the total track length to 4,440 km.

Network electrification also increased significantly between 2006 and 2007, from 7.9 % to 9.4 %, before recording a more variable development and settling at 8.7 % in 2010.

Table 4 - Performance of networks and infrastructure

	2000	2005	2006	2007	2008	2009	2010
Length of network (km)	3,572	3,572	3,572	3,572	3,894	4,210	4,440
Length of electrified network (km)	283	283	283	337	337	386	386
Network electrification (%)	7.9	7.9	7.9	9.4	8.7	9.2	8.7

Another essential aspect of the technical performance of rail transport is the equipment in use, with its age being one of the important factors.

As shown by charts 3 and 4 below, rail equipment stock overall in Algeria is generally old, and this is true for both the locomotives and the passenger transport vehicles. Furthermore, without much development over the period as a whole, the average age of the vehicles is generally increasing, with locomotive stock ageing from 19 to 24 years, and passenger transport vehicles stock from 19 to 26 years.

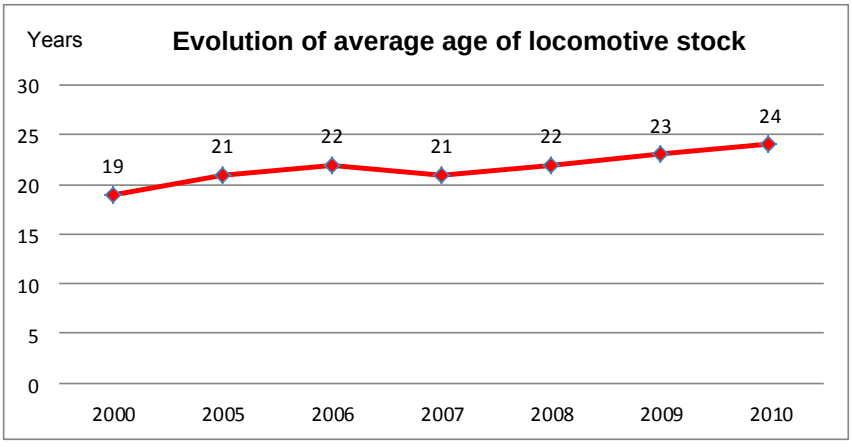


Chart 3 - Average age of locomotive stock (number of years)

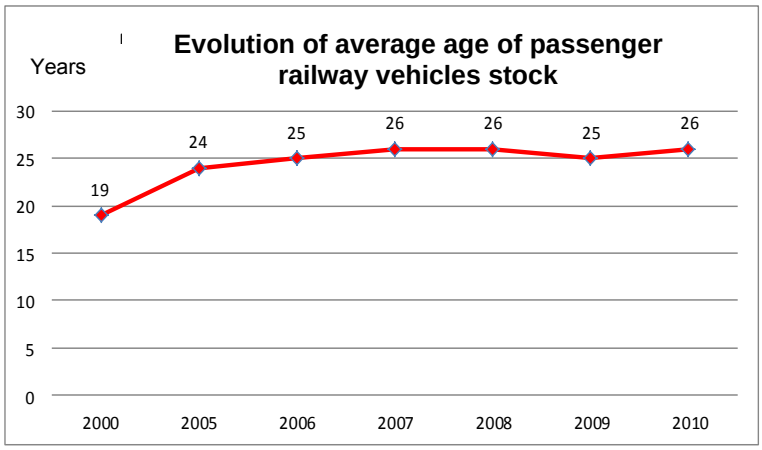


Chart 4 - Average age of passenger railway vehicles stock (number of years)

The final important indicator of rail transport technical efficiency that available data allows us to measure is labour productivity. This is measured as the volume of rail traffic per employee, i.e. the total number of kilometres travelled by rail transport vehicles compared with the number of employees. This figure changed cyclically between 2000 and 2010, dropping significantly between 2000 and 2005, then increasing in 2006 and falling the following year (see chart 5 below). The end of the period, 2007-2010, saw a substantial increase in this productivity indicator (+47 % in three years).

Chart 5
Labour productivity (km/person employed)

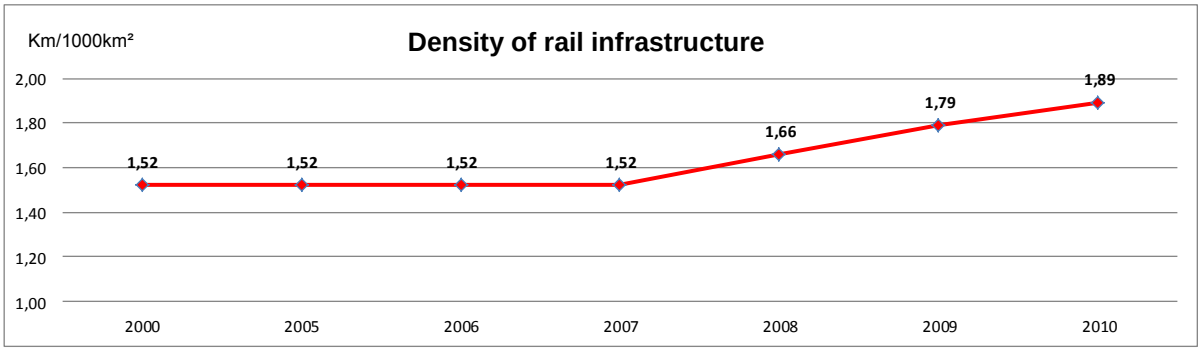
The environmental performance of rail transport in Algeria

The environmental performance of rail transport in Algeria can be measured by both the density of infrastructure across the country and the proportion of diesel vehicles in the total locomotive stock.

As shown by chart 6 below, the density of the railway network, measured as the ratio between the length of the railway network and the surface area of the country, increased sharply from 2008 as new lines were commissioned at the end of the period.

It should be emphasised that the railway network is far denser in the northern fringe of the country, where the vast majority of the population and businesses are concentrated.

Chart 6 - Density of rail infrastructure (km/1000 km²)



The proportion of diesel locomotives in the total stock rose continuously between 2000 and 2010 as new railway lines were built, and new diesel locomotives were acquired by the Société Nationale des Transports Ferroviaires (SNTF) over those last years. This meant that nearly 95 % of locomotives were using this energy source in 2010 compared with just 86 % in 2000.

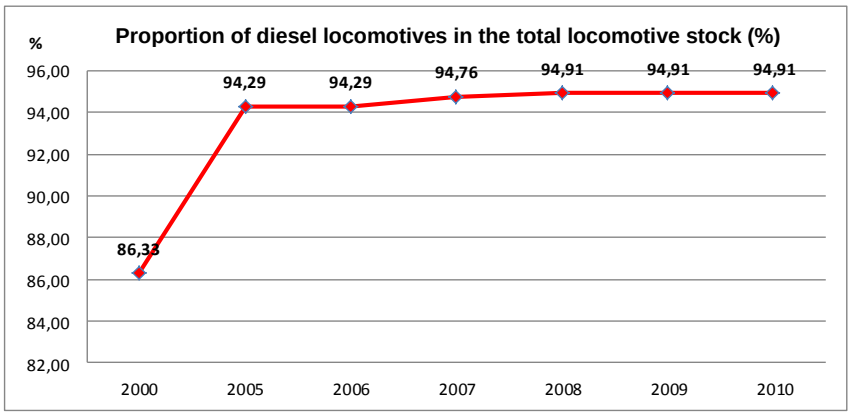


Chart 7 - Proportion of diesel locomotives in the total locomotive stock (%)

The economic, technical and environmental performance of road transport in Algeria

The key road transport data, illustrated in table 5 below, provides a clear snapshot of the changes in Algeria's road network over the last decade, as well as of the state of the road vehicle fleet for goods and passenger transport in 2010.

Table 5 Key data for road transport

	2000	2005	2006	2007	2008	2009	2010
Infrastructure							
Length of network (km)	104,294	109,589	110,354	110,987	111,667	112,923	113,942
Equipment							
Number of road vehicles for the transport of goods (thousands)	1,047	1,117	1,166	1,227	1,313	1,363	1,403
Number of road vehicles for passenger transport (thousands)	1,735	1,958	2,098	2,288	2,529	2,663	2,764

From this data, it is clear that the road network developed significantly between 2000 and 2010, expanding by 9.3 % between those years.

The road vehicle fleet for the transport of goods also grew steadily and significantly in this period, reaching more than 1.4 million vehicles in 2010, which is an increase of 34 % compared with 2000. That rise is even more striking in the case of road vehicles for passenger transport, which increased by almost 60 % over the same period.

The economic performance of road transport in Algeria

Road transport activity increased considerably in Algeria over the last decade, both in terms of value added and in terms of gross operating surplus, as shown in table 6 below.

Table 6 - Activity and profitability of road transport companies *(millions of DA)*

	2000	2005	2006	2007	2008	2009	2010
Value added at current prices	224,015	382,550	463,758	514,799	527,552	570,444	650,163
Gross operating surplus	122,698	321,078	376,938	429,163	433,021	455,512	542,042

The value added is composed of three elements, personnel costs, duties and taxes (net of subsidies) and gross operating surplus (GOS). Its value at current prices multiplied by almost a factor of three between 2000 and 2010.

The gross operating surplus was around 80 % of the road sector's value added during the 2000-2010 period, despite only being around 55 % in 2000. Analysis of the breakdown of value added therefore shows that employee remuneration in the sector remains very low, which may be indicative of the size of individual companies in the sector.

Intermediate consumption in the sector also appears to have increased rapidly between 2000 and 2010 (its value rose by more than three times (3.3) in this period, as chart 8 shows below), while remaining at a markedly lower level than the value added, or even the gross operating surplus.

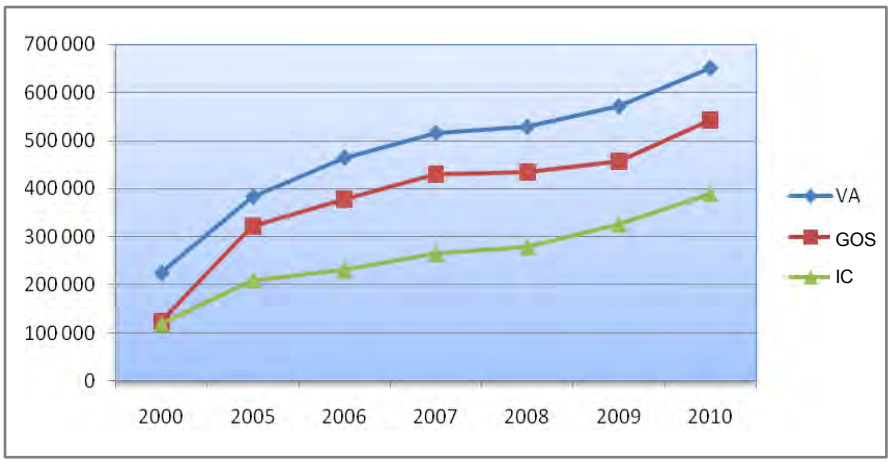


Chart 8
Cost structure (Intermediate consumption of the sector in millions of DA)

The technical performance of road transport in Algeria

As already mentioned, the Algerian road network has seen rapid expansion over the last decade, with the whole network growing from a little under 105,000 km in 2000 to almost 114,000 km in 2010. The paved road network expanded even faster over the same period, from 75,000 km in 2000 to almost 90,000 in 2010 (see chart 9 below), with the proportion of paved roads increasing from 71 % to 79 % between the two years.

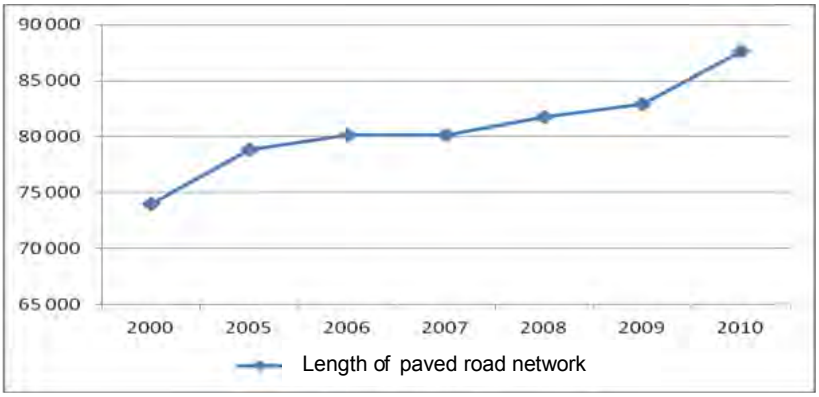


Chart 9 - Performance of the networks (km)

As in rail transport, another important factor governing the technical efficiency of road transport is the age of the vehicle fleet, and coaches in particular. The change seen in this area in the last ten years seems far less pronounced, as shown in chart 10 hereinafter.

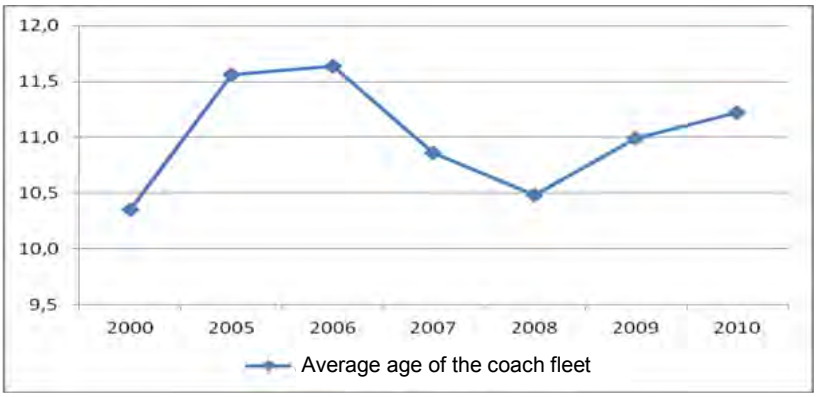


Chart 10 – Average age of the coach fleet (number of years)

The chart shows that the change in the average age of the coach fleet was cyclical between 2000 and 2010. However, the average age remained at around 11 years old over the period.

The environmental performance of road transport in Algeria

The only available indicator which can be used to measure the environmental efficiency of road transport in Algeria is directly linked to the matter discussed above: the density of the road network. This indicator is presented in chart 11 below, and demonstrates that the density of the road network has increased steadily. Again, it is worth remembering that this density is very different in the coastal area to the rest of the country.

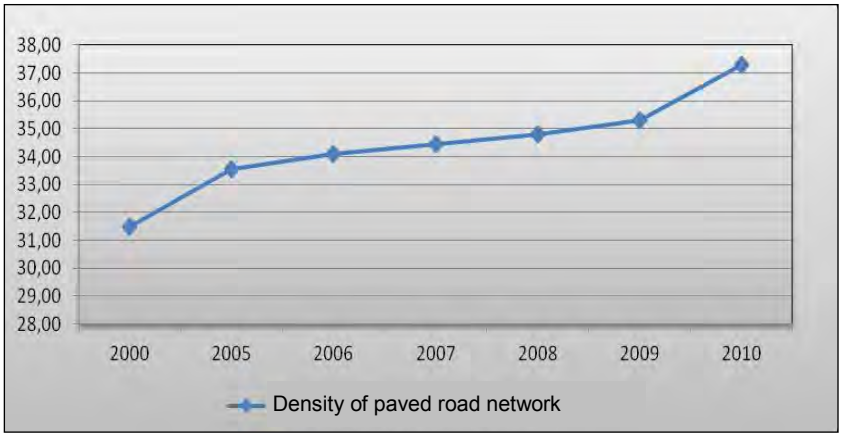


Chart 11 - Density of paved road network (km per 1000 km²)

The economic, technical and environmental performance of sea transport in Algeria

Algeria had ten main ports in 2010, with a total quay length of 36,510 metres. This length has remained the same since 2006.

The sea transport sector in Algeria consists of a national passenger transport company (ENTMV) which provides regular international servicing from five national ports, mainly to Marseille and Alicante. There are

also five national sea companies operating in freight transport: CNAN Nord, CNAN Med, NEOLIS, IBC and HYPROC.

The Algerian sea fleet consisted of 37 merchant ships at the end of 2010, made up of 34 freight vessels and 3 passenger vessels. This fleet underwent considerable change over the last decade, as shown in table 7 below. Although the number of passenger ships remained stable between 2005 and 2010, the fleet of freight merchant ships had decreased by 35 units in 2010 compared with 2000.

Table 7 - Key data for sea transport in Algeria

	2000	2005	2006	2007	2008	2009	2010
Infrastructure							
Number of principal ports	10	10	10	10	10	10	10
Total length of quays in principal ports (metres)	36,218	36,448	36,510	36,510	36,510	36,510	36,510
Equipment							
Number of freight merchant ships	69	46	34	30	30	31	34
Number of passenger merchant ships	7	3	3	3	3	3	3
Traffic							
Number of merchant ships arrivals	8,763	10,201	10,114	9,973	10,407	10,647	10,390
Number of passengers embarking and disembarking (thousands)	588	846	879	856	719	642	634
Total volume of freight (thousands of tonnes)	99,283	127,002	126,978	130,304	128,140	120,411	117,892

The number of vessels arriving in Algerian ports increased by 18.6 % between 2000 and 2010. The total number of passengers embarking and disembarking and the total volume of freight handled at all national ports also experienced an upturn, of 7.8 % and 18.7 % respectively during the period.

The economic performance of sea transport in Algeria

Table 8 below illustrates the significant growth in sea transport activity over the last decade, both in terms of value added and in terms of gross operating surplus. Value added, at current prices, increased by more than three times between 2000 and 2010, and the gross operating surplus almost doubled in the same period. In 2010, the gross operating surplus was 45 % of the sector's value added, compared with more than 73 % in 2000.

Table 8 - Activity and profitability of sea transport companies (millions of DA)

	2000	2005	2006	2007	2008	2009	2010
Value added at current prices	2,169	12,061	4,306	5,475	4,555	4,147	6,633
Gross operating surplus	1,588	5,858	496	1,307	682	572	2,985

Intermediate consumption in the sector increased rapidly between 2000 and 2005, more than doubling, but then experienced a sustained and almost uninterrupted decline (see chart 12 below). In 2010 it was more than 35 % lower than the level it reached at its peak in 2005. Notably, it is much higher than the sector's value added, as is also shown in chart 13 below.

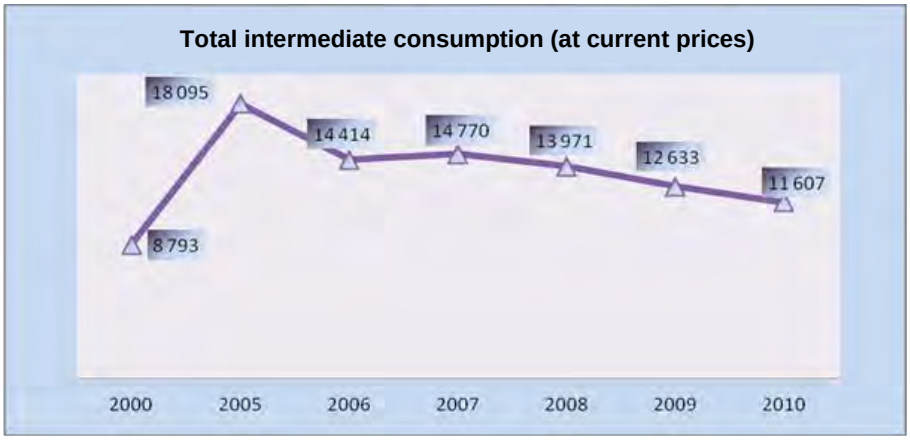


Chart 12
Total intermediate consumption (millions of DA)

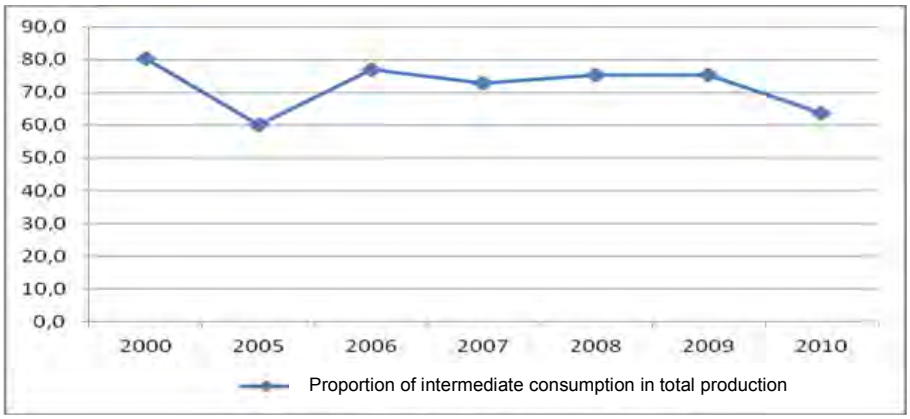


Chart 13
Proportion of intermediate consumption in total production (%)

The proportion of intermediate consumption in the total production of the sea sector therefore remained high for the whole period, at between 60 % and 80 %. However, it did drop considerably between 2000 and 2005, before rising sharply in 2006. This indicator has therefore demonstrated a very cyclical trend, although clearly in a downward direction.

The technical performance of sea transport in Algeria

As shown above, in 2010, the fleet of commercial vessels flying the Algerian flag consisted of 37 ships of all types, which is a drop of 39 compared with 2000. Table 9 shows that this fleet mainly consists of liquid gas tankers (14 units in 2010, three more than in 2000), general freight carriers (7 units in 2010, 16 less than in 2000) and bulk carriers (6 units in 2010, one less than in 2000).

The corresponding load capacities are detailed in table 10 below. This shows that the carrying capacity of liquid gas tankers grew by 55 % between 2000 and 2010, while the capacity of general freight carriers was divided by a factor of almost 9 over the same period.

Table 9 - Number of merchant ships by type

	2000	2005	2006	2007	2008	2009	2010
Number of oil tankers	4	4	0	0	0	0	0
Number of chemical tankers	7	4	4	3	2	4	4
Number of liquid gas tankers	11	11	11	12	12	11	14
Number of bulk carriers	7	7	6	6	6	6	6
Number of ore/bulk/oil tankers	4	4	0	0	0	0	0
Number of general freight carriers	23	12	9	7	7	7	7
Number of roll-on/roll-off cargo ships	13	4	4	2	3	3	3
Number of passenger and passenger Ro-Ro ships	7	3	3	3	3	3	3

Table 10 - Carrying capacity of merchant ships by type *(in millions of tonnes)*

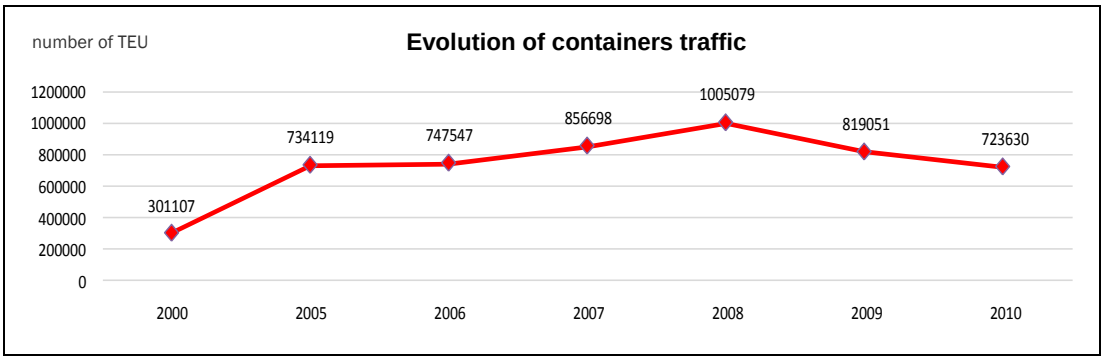
	2000	2005	2006	2007	2008	2009	2010
Carrying capacity of oil tankers	12,143	0	0	0	0	0	0
Carrying capacity of chemical tankers	12,137	7,415	7,415	6,705	4,959	13,445	13,445
Carrying capacity of liquid gas tankers	472,816	585,074	585,074	637,929	686,619	656,273	732,737
Carrying capacity of bulk carrier vessels	140,872	140,872	140,872	122,088	122,088	122,088	122,088
Carrying capacity of ore/bulk/oil tankers	12,143	0	0	0	0	0	0
Carrying capacity of general freight carriers	101,295	44,910	22,221	11,452	11,452	11,452	11,452
Carrying capacity of roll-on/roll-off cargo ships	72,537	33,572	33,572	16,786	32,161	32,161	32,161
Carrying capacity of passenger and passenger Ro-Ro Ships	103,905	61,707	61,707	61,707	61,707	61,707	61,707

It should be noted that CNAN Nord and ENTMV plan to acquire three vessels in 2013 as part of their development plan, including two cargo ships and a car ferry.

Another essential aspect of sea transport performance is the growth of intermodal transport, and container transport in particular. The corresponding volume transported is illustrated in chart 14 below.

Chart 14 shows that the number of containers handled in Algerian ports changed cyclically during the period analysed, increasing significantly between 2000 and 2008, followed by quite a strong decrease between 2008 and 2010. The volume of intermodal transport handled in 2010 was a little lower than in 2005.

Chart 14 - Performance of goods transport (number of containers loaded and unloaded in TEU[5])



The economic, technical and environmental performance of air transport in Algeria

Algeria has 36 airports, including one principal airport (Algiers airport) with traffic exceeding 1.5 million passengers per year.

Table 11 below summarises the key data for air transport in Algeria, showing that the total length of runways at national airports, each possessing over 2,438 m, increased by 17 % between 2000 and 2005, before stabilising.

The number of passenger aircraft increased by 27 units between 2000 and 2010, reaching a total of 110 aircraft in 2010. However, the number of freight aircraft remained stable over the period.

After increasing sharply between 2000 and 2006 (+48 % between these two years), the number of commercial aircraft flights decreased considerably in 2007. It then began rising again, recording particularly significant growth in 2009 (+58 % compared with the previous year).

The total number of passengers transported also increased substantially over the 2000-2010 period, with more than 9 million passengers transported on the national and international networks in 2010.

[5] Twenty-foot Equivalent Units

Conversely, the total volume of freight and mail handled in 2010 at national airports as a whole was lower than in previous years. This drop seems to be mainly the result of strong competition from other means of transport which have grown remarkably, as new road and rail transport infrastructure has been commissioned.

Table 11 - Key data for air transport

	2000	2005	2006	2007	2008	2009	2010
Infrastructure							
Number of principal airports	1	1	1	1	1	1	1
Total length of runways (metres)	94,685	110,895	110,895	110,895	110,895	110,895	110,895
Equipment							
Number of passenger aircraft	83	107	89	92	99	105	110
Number of freight aircraft	2	3	2	2	2	2	2
Traffic							
Total number of commercial aircraft movements	70,410	87,859	104,192	90,476	110,922	174,805	175,489
Total number of passengers (thousands)	6,069	6,625	5,785	7,284	7,710	7,248	8,848
Total volume of freight and mail (tonnes)	22,363	26,865	27,307	29,055	30,020	28,550	26,556

The economic performance of air transport in Algeria

Air Algérie is the main Algerian airline. However three other private national companies also exist, operating in air transport across the national network.

Table 12 below illustrates the significant growth in these companies' activities, both in terms of value added and in terms of gross operating surplus. Value added, at current prices, increased by more than three times between 2000 and 2010, and the gross operating surplus grew by almost 70 % over the same period. In 2010, the gross operating surplus was almost 55 % of the value added, compared with 96 % in 2000. This sharp decrease could be the result of a more competitive marketplace.

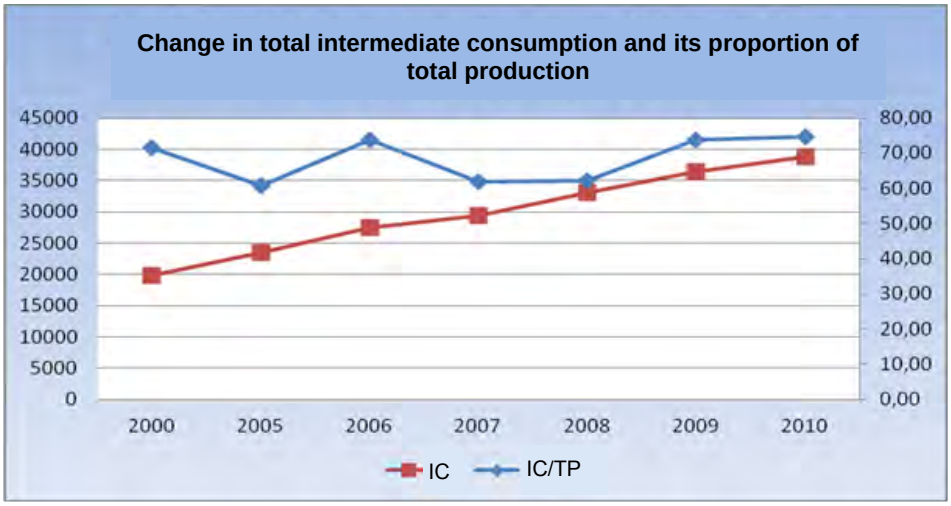
Table 12 - Activity and profitability of air transport companies *(millions of DA)*

	2000	2005	2006	2007	2008	2009	2010
Value added at current prices	8,145	25,019	19,078	20,381	22,898	25,312	24,279
Gross operating surplus	7,821	15,126	9,739	18,017	19,984	12,921	13,196

Chart 15 below shows the change in intermediate consumption in the sector and its proportion of total production between 2000 and 2010. This proportion appears to follow an uneven trend. In 2005, it

decreased by 10.8 points compared with 2000, while 2006 saw an increase of 13 points. After another sharp decrease in 2007, the ratio rose again at the end of the period.

Chart 15 - Change in total intermediate consumption (millions of DA) and its proportion of total production (%)



The technical performance of air transport in Algeria

The technical performance of air transport in Algeria can be evaluated from the composition of the passenger aircraft fleet. This is presented in table 13 and chart 16 below.

Table 13 - Number of passenger aircraft according to capacity

	2000	2005	2006	2007	2008	2009	2010
50 seats or less	49	60	60	63	70	76	78
51 to 150 seats	28	39	21	21	21	21	24
151 to 250 seats	3	0	0	0	0	0	0
More than 250 seats	3	8	8	8	8	8	8

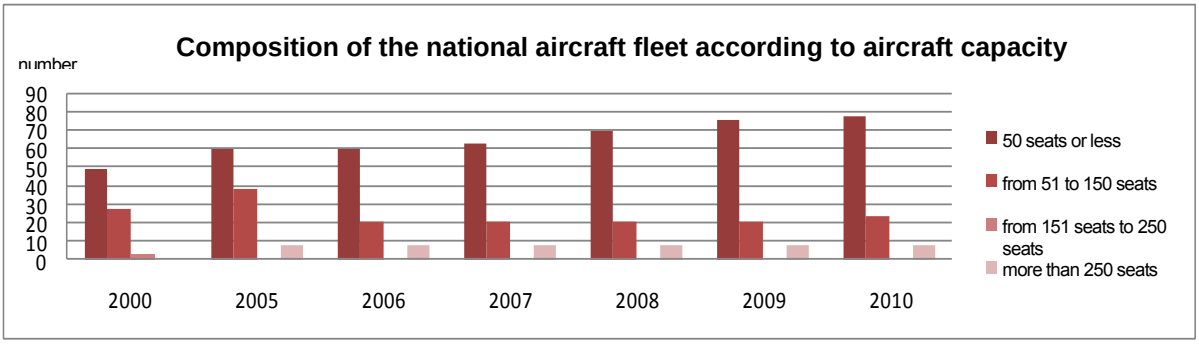
The table and graph show that the fleet mainly consists of small aircraft with 50 seats or less. The number of aircraft in this category also increased year on year, going from 49 units in 2000 to 78 in 2010, an increase of nearly 60 %.

The national aircraft fleet with a capacity of 51 to 150 seats developed unevenly, with an increase from 28 to 39 aircraft between 2000 and 2005, and then a decrease in 2006, before recovering again with three new aircraft operating in 2010.

It should be emphasised that, since 2005, no national Algerian company has had aircraft with a capacity of 151-250 seats, while three aircraft of this category were in operation in 2000.

Finally, the number of large aircraft with more than 250 seats moved from three to eight units between 2000 and 2005, and remained at this level until 2010.

Chart 16 - Composition of the national aircraft fleet according to aircraft capacity *(number)*

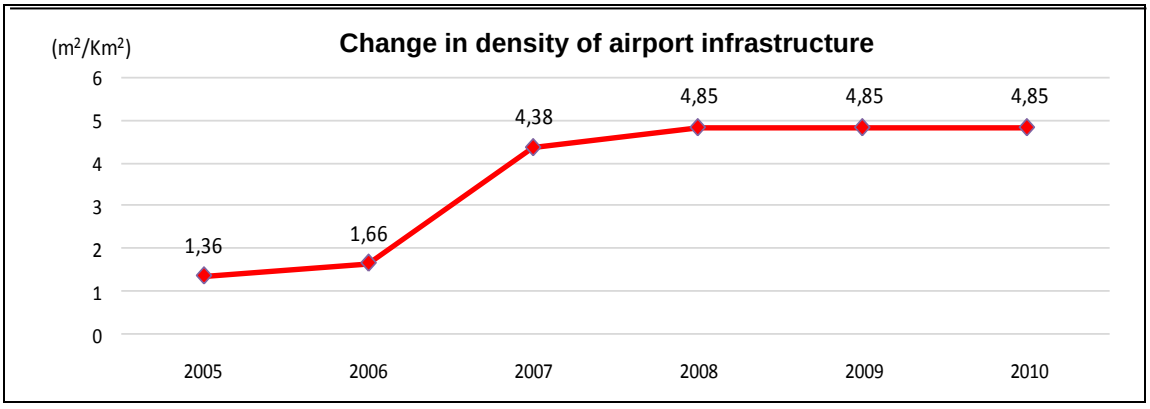


The environmental performance of air transport in Algeria

The environmental performance of air transport in Algeria is measured using the density of airport infrastructure on the ground.

The indicator of the density of national airport infrastructure, i.e. the ratio between the surface area of the principal airport measured in m² and the surface area of the country measured in km², increased considerably between 2006 and 2007, by around 2.7 (see chart 17 below). In 2008, another increase of around 0.5 was recorded compared with 2007, before stabilizing.

Chart 17 - Density of airport infrastructure (m²/km²)



Conclusion

Among other things, the preceding analyses show that the trend for the economic performance of transport in Algeria is often cyclical, especially in sea and air transport. This cyclical trend appears to be directly related to the financial crisis. Over the same period a significant change can also be observed in road transport, the most widely used means of transport for people and goods within the country.

This analysis also shows that infrastructure and transport equipment in Algeria have improved significantly over the last decade, especially in rail and road transport.

The performance of transport systems in Tunisia

The economic, technical and environmental performance of transport activities and systems in Tunisia

The Tunisian Republic is a country in North Africa, in the East of the Maghreb. It is bordered by the Mediterranean in the north and east with a coastline stretching 1,300 km, by Algeria in the west with 965 km of common border and by Libya in the south east with a 459 km border. Its capital city, Tunis, is located in the north east of the country on the Gulf of Tunis. The total land area of Tunisia is 162,155 km^2 and its population 9.9 million inhabitants according to the last population census carried out in 2004.

Table 1 below shows the change in the main demographic, economic and social indicators in Tunisia. The following main observations can be made:

- In 2000 the population of Tunisia was 9.6 million inhabitants. It reached 10.5 million in 2010 with average annual growth of 1% over the last five years;
- Population density changed significantly over the 2000-2010 period, increasing from 58.9 to 65 inhabitants/km^2 between the two years;
- Tunisian GDP more than doubled between 2000 and 2010, increasing from DT 29.4 billion to DT 63.5 billion between the two years;
- GDP per inhabitant also grew considerably, from DT 3,081 to DT 5,541 between 2000 and 2010, an increase of almost 80% at current prices;
- The proportion of transport remained at around 9 % over the decade. It reached a low of 8.7% in 2006-2007, and a high of 9.3% in 2010.

Table 1 – Key figures for Tunisia

	2000	2005	2006	2007	2008	2009	2010
Population *(thousands)*	9,553	10,029	10,128	10,225	10,329	10,440	10,547
Population density (inhabitants/km2)	58.9	61.8	62.5	63.1	63.7	64.4	65.0
GDP (current prices) [millions of DT]	29,433	41,781	45,758	49,858	55,269	58,890	63,540
GDP rate of growth (%)	4.3	4.0	5.7	6.2	4.5	3.1	3.1
GDP/inhabitant (millions of DT)	3,081	4,562	4,129	4,487	4,971	5,147	5,541
Transport[1] as a proportion of GDP (%)	9.2	8.8	8.7	8.7	9.0	8.9	9.3

Source : INS

[1] Scope of transport sector in NACE code: 60 to 63.

The economic performance of transport in Tunisia

The transport sector is very dynamic overall from a demographic point of view, as shown in table 2 below, which also outlines these demographic changes by means of transport.

Table 2 - Number of companies for each mode of transport

	2000	2005	2006	2007	2008	2009	2010
Rail transport	1	1	1	1	1	1	1
Urban and road transport	56,005	75,625	77,826	82,446	85,118	87,600	89,762
Including : Passenger transport by taxi and louage	22,555	31,001	30,770	31,676	32,343	31,775	31,932
Road freight transport	28,229	35,751	37,749	41,177	43,061	47,397	49,450
Pipeline transport	3	3	3	3	3	3	3
Sea transport	7	3	3	4	5	5	5
Air transport	4	6	6	5	4	4	4
Auxiliary transport services	1,080	1,651	1,736	1,912	2,019	2,182	2,189
TOTAL	**57,100**	**77,289**	**79,575**	**84,371**	**87,150**	**89,795**	**91,964**

Source : INS

The total number of transport companies has continued to grow over the last decade, increasing from 57,100 companies in 2000 to almost 92,000 in 2010. This growth is mainly the result of an increase in the number of small "individual passenger and freight transport" companies, which accounted for 88.5% of the total number of companies in the sector in 2010.

Activity and profitability of transport companies

As shown in table 3 below, the demographic dynamism of the sector goes hand in hand with an economic impetus that can be observed both in terms of turnover and in terms of value added.

Table 3 - Activity and profitability of transport companies in Tunisia *(millions of DT)*

	2000	2005	2006	2007	2008	2009	2010
Turnover	3,152	4,277	4,676	5,315	5,622	5,916	6,533
Turnover (private sector)	1,776	2,471	2,750	3,135	3,369	3,699	4,141
Value added at current prices	2,384	3,340	3,624	3,999	4,600	4,783	5,431
Value added at current prices (private sector)	1,474	2,027	2,229	2,682	3,091	3,348	3,958
Value added at constant prices[2]	2,982	3,340	3,490	3,683	3,882	3,956	4,211
Gross operating surplus	1,667	2,348	2,533	2,801	3,239	3,307	3,612

Source : INS

[2] The base year is 2005.

The table reveals that the turnover of transport companies rose sharply over the decade, increasing from DT 3.1 billion in 2000 to DT 6.5 billion in 2010, recording annual average growth of about 10% over the last five years.

Private companies held a significant but unequal place in the activity of the transport sector. They represented 31.5% of all companies in the road sector, 4% in the sea sector, 8% in the aviation sector and 17% in services linked to the transport sector.

It should be noted that the rail and pipeline transport companies are public companies.

Over this period, the value added (at constant 2005 prices) of the transport sector saw average annual growth of 4.8%, while turnover at current prices recorded average growth of 11.5% over the same period. This difference is mainly the result of transport prices rising in the private sector over the period.

Chart 1 below illustrates the significant proportion of value added and gross operating surplus in the turnover of companies in the sector. Furthermore, they both rose over the last decade.

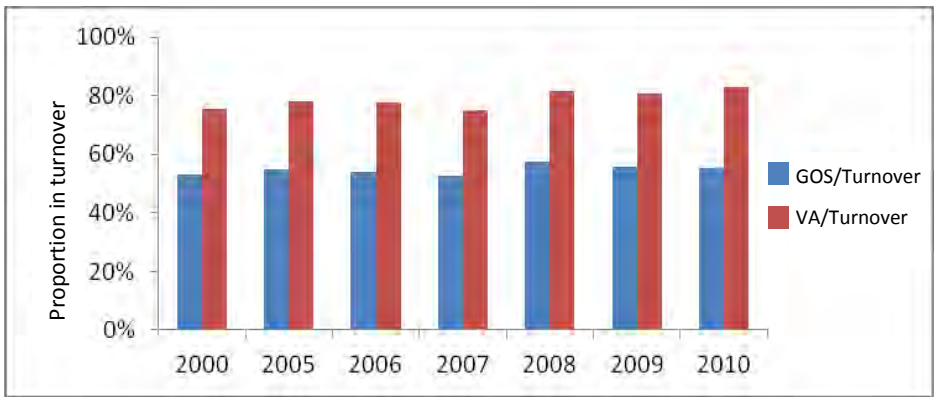


Chart 1 - Proportion of value added and gross operating surplus in turnover (%)
Source : INS

The proportion of value added in turnover increased from 76% in 2000 to 83% in 2010, while the proportion of gross operating surplus in turnover increased from 53% in 2000 to 55% in 2010, reaching a high point of 58% in 2008. This high proportion demonstrates the importance of individual companies in the sector's demographic structure.

Cost structure

Chart 2 below shows that while intermediate consumption in the sector has continually risen over the last decade, its proportion of total production decreased considerably, especially between 2007 and 2008.

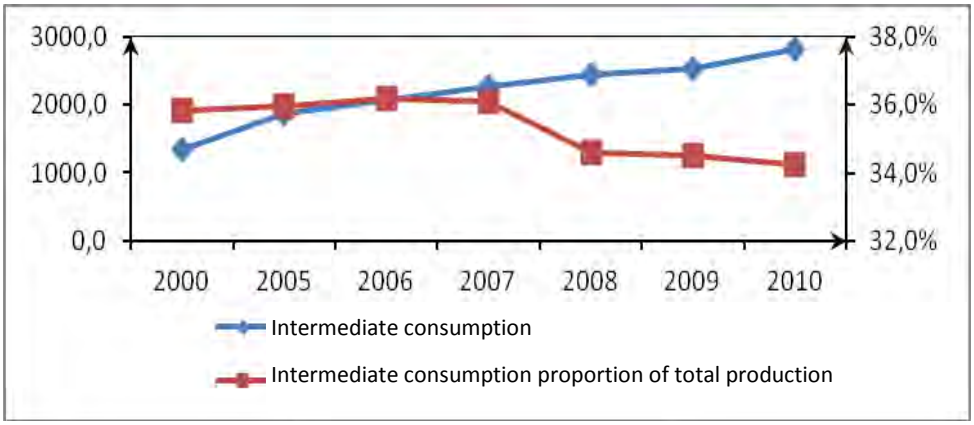


Chart 2
Total intermediate consumption and its proportion of total production *(millions of DT and %)*
Source : INS

Intermediate consumption increased from DT 1,331 million in 2000 to DT 2,825 million in 2010, recording an annual average growth rate of 8.6% over the last five years. Conversely, its proportion of production fluctuated over the period, moving from 35.8% in 2000 to 34% in 2010, with a high point of 36.2% recorded in 2006.

The economic, technical and environmental performance of rail transport in Tunisia

In Tunisia rail transport is run exclusively by the Société Nationale des Chemins de Fer Tunisiens (National Tunisian Railway Company – SNCFT), a public company of a non-administrative nature. This company has legal personality and financial autonomy. It is under the aegis of the Ministry of Transport.

The company is tasked with managing the various assets allocated to it by the state on the basis of a franchise, and operating passenger and freight rail transport services on the national rail network.

Table 4 below presents the key figures for rail transport in Tunisia. These demonstrate that there has been significant growth in passenger transport despite stagnation, or even regression, in infrastructure and equipment.

Table 4 – Key figures for rail transport

	2000	2005	2006	2007	2008	2009	2010
Infrastructures							
Length of network *(km)*	2,169	2,153	2,165	2,165	2,165	2,165	2,165
Equipment							
Number of locomotives	193	172	172	172	172	172	168
Passenger transport capacity (thousands of seats)	:	:	22.7	22.7	23.2	23.3	22.8
Wagon load capacity (thousands of tonnes)	121.7	159.2	150.3	149.0	149.0	149.0	144.5
Flow							

Total passenger transport *(millions of passengers-kilometres)*	1,253	1,317	1,406	1,487	1,494	1,487	1,534
Total freight transport *(millions of tonnes-kilometres)*	2,281	2,067	2,173	2,197	2,073	1,820	2,024

Source : SNCFT

Growth and profitability of the SNCFT

Table 5 below presents the key figures of the activity and profitability of the SNCFT. They show a significant increase in activity, but a decrease in the profitability of the national company.

Table 5 - Activity and profitability of the SNCFT *(millions of DT)*

	2000	2005	2006	2007	2008	2009	2010
Turnover	98.8	109.5	119.4	127.2	133.7	136.6	148.6
Subsidy granted by the state	21.0	16.0	18.0	20.0	21.5	23.0	25.0
Value added (at constant 2005 prices)	91.2	87.9	88.7	90.0	87.0	90.0	97.8
Value added (current prices)	75.2	87.9	89.0	92.1	94.0	103.9	107.6
Gross operating surplus	44.9	45.8	42.6	41.2	35.9	40.6	35.2

Source : INS

More precisely, it appears that SNCFT turnover increased substantially between 2000 and 2010, rising from DT 88.8 million to DT 148.6 million during the period, an annual growth of 6.3%.

Value added in volume see-sawed, tending towards a slight increase. Its minimum value was DT 87 million in 2008, and its maximum value DT 97.8 million in 2010.

The gross operating surplus value followed an irregular pattern between 2000 and 2008. After a jolt in 2009, it reached its lowest point over the whole period in 2010.

Table 6 below allows us to analyse the structure of the SNCFT's production costs, in particular the proportion of intermediate consumption and proportion of personnel costs in the total turnover.

Table 6 - Cost structure *(millions of DT)*

	2000	2005	2006	2007	2008	2009	2010
Intermediate consumption	63.0	58.5	64.4	69.5	70.9	78.4	81.2
Personnel costs	66.7	73.7	75.4	70.7	82.1	86.6	91.0
Personnel costs as a % of turnover (%)	67.5	67.3	63.1	55.6	61.4	63.4	61.0

Source : INS

It should be noted that the proportion of personnel costs in the SNCFT's turnover declined continually until 2007, followed by growth until 2009 and then a steep drop in 2010.

The technical performance of rail transport

The technical performance of rail transport can be evaluated by looking at the network, equipment and changes in traffic flows and transport volumes. Table 7 below presents the key figures for the rail network in Tunisia.

Table 7 - Performance of networks and infrastructure

	2000	2005	2006	2007	2008	2009	2010
Length of network *(km)*	2,169	2,153	2,165	2,165	2,165	2,165	2,165
Length of electrified network *(km)*	65	65	65	65	65	65	65

These figures show that the length of the network decreased by 16 km between 2000 and 2005. This reduction is actually due to network improvements, since it relates to the construction of the Sidi Elbarrek dam in the Mateur region (Bizerte Governorate). In 2006, the network was enhanced with a new stretch of 12 km, forming the Kalaa Sghira-Msaken bypass. The network then reached 2,165 km and its length remained constant over the whole 2006-2010 period. The length of the electrified network remained constant (65 km) over the period and accounts for a small portion of the whole network (around 3%).

The density of the rail network is around 13.2 km per 1,000 km². This density fell between 2000 and 2005, as 16 km of track was removed over that period.

As previously mentioned, another important constituent of rail technical performance is the equipment, and the age of locomotive stock and transport vehicles in particular. Chart 3 below provides some information on the subject.

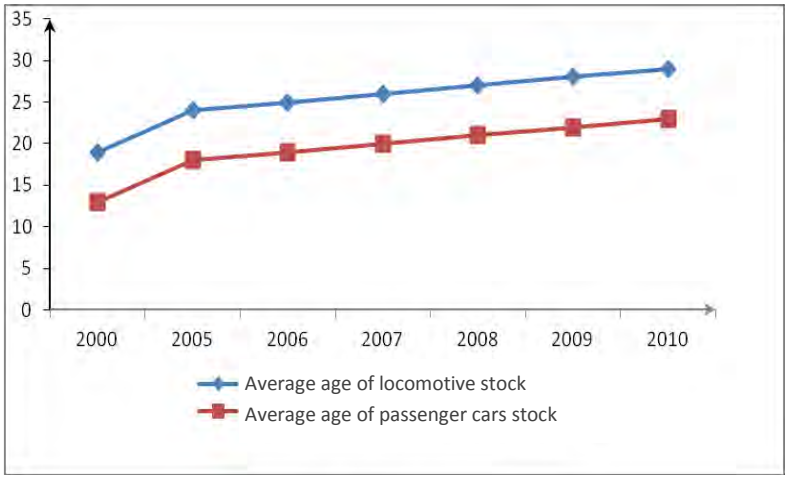


Chart 3 - Average age of locomotive stock and passenger cars stock
Source : « SNCFT »

The average age of both locomotive stock and passenger cars stock increased by 10 years over the 2000-2010 period, translating the fact that the stock has not been renewed during the period.

Finally, the technical performance of rail transport can be evaluated by looking at labour productivity data. In this case, this can be measured using the indicator of rail traffic per agent, i.e. the volume of passenger transport and freight transport compared with the number of SNCFT employees. Chart 4 below illustrates the change in these indicators.

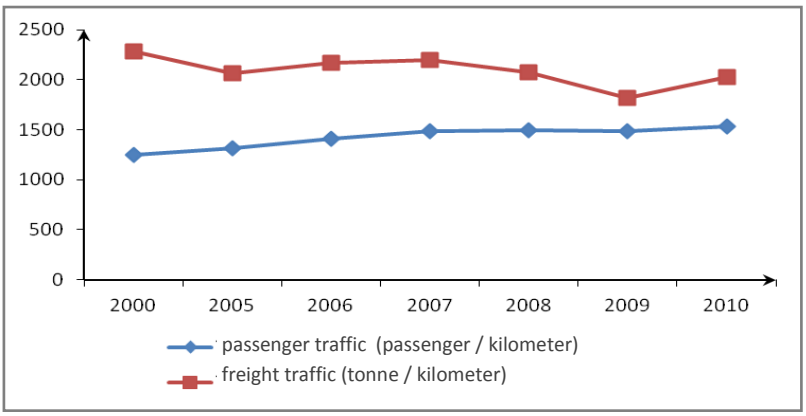


Chart 4 – Rail traffic per agent

This chart shows that the volume of passengers transported per employee increased continually over the whole period, while the volume of freight transport increased until 2007, before falling slightly in 2008 and 2009, and subsequently rising again in 2010.

The environmental performance of rail transport in Tunisia

Two important indicators allow the environmental performance of rail transport in Tunisia to be evaluated, namely the volume of CO2 emitted and the rail mobility of passengers and freight. Chart 5 below presents the data for CO2 emissions.

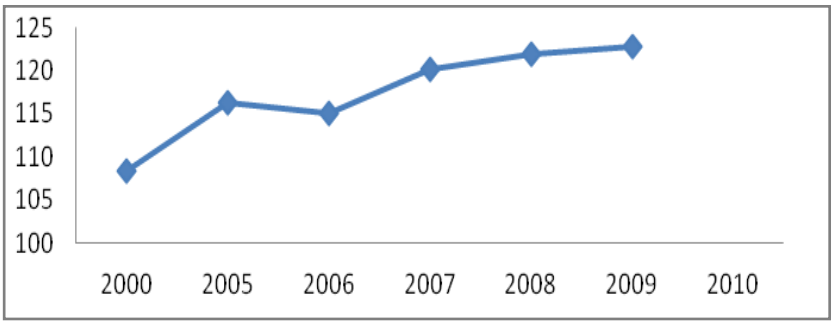


Chart 5 - CO_2 emissions attributable to rail transport

Source : ANME

This chart shows that CO2 emissions rose continuously between 2000 and 2009, rising from 108 kt CO2e to 123 kt CO2e between the two years, an annual average increase of 1.4%.

There were quite distinct changes in passenger rail mobility and freight rail mobility, as shown in charts 6 and 7.

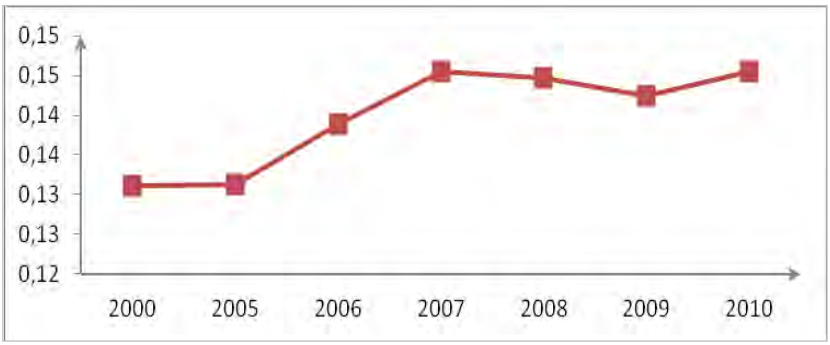


Chart 6 – Passenger mobility
Source : INS

Passenger mobility grew almost continually over the analysed period, increasing from 0.13 to 0.15 passengers-kilometres per inhabitant.

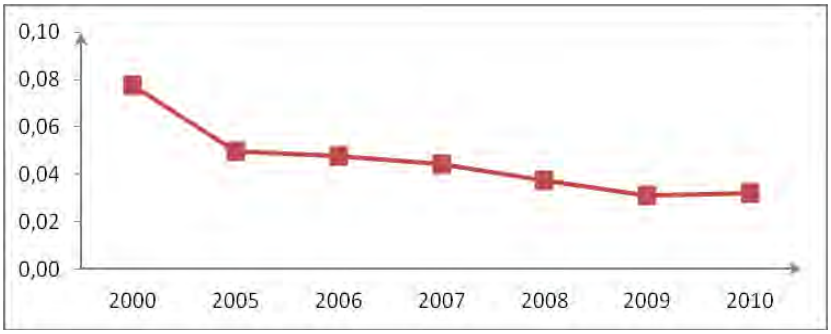


Chart 7 – Freight mobility
Source : INS

Conversely, freight mobility dropped steeply over the analysed period, decreasing from 0.08 tonne-kilometres per DT million of GDP in 2000 to 0.03 in 2010. This shows that the increase in freight rail traffic is not following the pattern of growth of GDP.

The economic, technical and environmental performance of road transport in Tunisia

Tunisia has undertaken major modernisation and renovation works on its road infrastructure since it became independent, with the aim of making towns more accessible and encouraging the movement of passengers and goods. A large portion of passenger transport companies are run by the Tunisian state, but the sector has been open to private investors for a number of years, following the liberalisation of the country's economy. Table 8 below presents some indicators of road infrastructure and equipment.

Table 8 – Key figures for road transport

	2001	2005	2006	2007	2008	2009	2010
Infrastructures							
Total length of the road network *(km)*	18,997	:	19,111	:	19,371	:	19,418
Equipment							
Number of road vehicles for freight transport *(thousands)*	:	331	343	359	371	387	406
Number of road vehicles for passenger transport *(thousands)*	510	680	717	757	797	839	893

Source : Ministry of Equipment and ATTT (Technical Land Transport Agency)

The road transport network expanded by 421 km between 2001 and 2010. There was also an increase of 22.7% in the number of freight transport vehicles between 2005 and 2010, and an increase of 75% in passenger transport vehicles between 2000 and 2010.

The economic performance of road transport in Tunisia

Table 9 below tracks the demographics of the road transport sector over the last decade.

Table 9 - The demographics of road transport companies

	2000	2005	2006	2007	2008	2009	2010
Urban passenger transport	19	19	18	18	18	18	18
Passenger transport by taxi and louage	22,555	31,001	30,770	31,676	32,343	31,775	31,932
Rural passenger transport	5,180	8,828	9,263	9,547	9,669	8,382	8,333
Road freight transport	28,251	35,777	37,775	41,205	43,088	47,425	49,479
Urban and road transport	**56,005**	**75,625**	**77,826**	**82,446**	**85,118**	**87,600**	**89,762**

Source : INS & ATTT

Analysing the table above allows us to draw the following conclusions:

- In urban and suburban areas, regular passenger transport on lines at scheduled times was in 2010 generally run by public operators such as the Société Nationale de Transport Interurbain (National Inter-Urban Transport Company – SNTRI), the Société des Transports de Tunis (Tunis Transport Company – STT), the 12 regional transport companies and four private operators. This sector now has 18 operators in total. In 2006, the Société Nationale de Transport (National Transport Company, SNT) and the Société de Métro Léger de Tunis (Tunis Light Rail Company, SMLT) merged to form the Société des Transports de Tunis (Tunis Transport Company, STT).

- Passenger transport activity by taxi and louage is run by private companies. According to the National Companies Register (Répertoire National des Entreprises) and the Technical Land Transport Agency (ATTT), the number of these companies increased from 22,555 in 2000 to 31,932 in 2010, with an average annual rate of growth of 3.5% over the last five years.

- The number of companies providing rural passenger transport increased by more than 60% between 2000 and 2010, moving from 5,180 to 8,333 companies between those two years.

- Features of road freight transport include:
  - ✓ Own-account transport. This activity, which has been liberalised, does not require authorisation from, or declaration to, the Ministry of Transport;
  - ✓ Transport for hire or reward, which adheres to a specification and must be declared in advance to the competent departments of the Ministry of Transport;

✓ In 2000, the sector of transport for hire or reward consisted of 28,229 companies. This number reached 49,450 companies in 2010, an average annual rate of growth of 6.7%.

Table 10 after shows the economic change in the road transport sector over the last decade.

Table 10 - Activity and profitability of road transport companies *(millions of DT)*

	2000	2005	2006	2007	2008	2009	2010
Turnover of the road transport sector	1,169	1,572	1,713	1,821	1,856	2,102	2,331
Turnover of the public road transport sector	175	180	191	202	214	212	217
Value added (current prices)	1,032	1,367	1,491	1,585	1,615	1,926	2,143
Value added of the public road sector	181	196	213	250	253	269	272
Subsidies	70	115	127	141	159	175	193
Value added (constant prices)	1,367	1,367	1,427	1,485	1,543	1,663	1,823
Gross operating surplus	814	1,066	1,159	1,221	1,200	1,473	1,515

Source : INS

Analysing the table above allows us to bring the following points to light:

- On average, the road sector represented 35% of the total turnover of the transport sector over the last five years;
- The proportion of the public road sector in the overall turnover for the road sector has decreased over the last ten years. It was 9% of the total in 2010 compared with 15% in 2000. Public road passenger transport companies are supported by state intervention. This support takes the form of direct subsidies which amounted to a total of DT 70 million in 2000 and DT 193 million in 2010;
- The proportion of state intervention in the turnover of these public companies continued to increase over the period, going from 40% in 2000 to 89% in 2010;
- The value added at current prices of the road sector was on average 39.4% of the total value added of the transport sector.

The value added at constant prices increased gradually between 2000 and 2010, rising from DT 1,367 million in 2000 to DT 1,823 million in 2010, recording an average annual growth of 5.9% between 2005 and 2010.

The turnover at current prices of the road sector almost doubled over the last ten years, from DT 1,169 million in 2000 to DT 2,331 million in 2010. The average rate of growth over the last five years was 8%.

Chart 8 below illustrates the change in the proportions of value added and gross operating surplus in the sector's turnover.

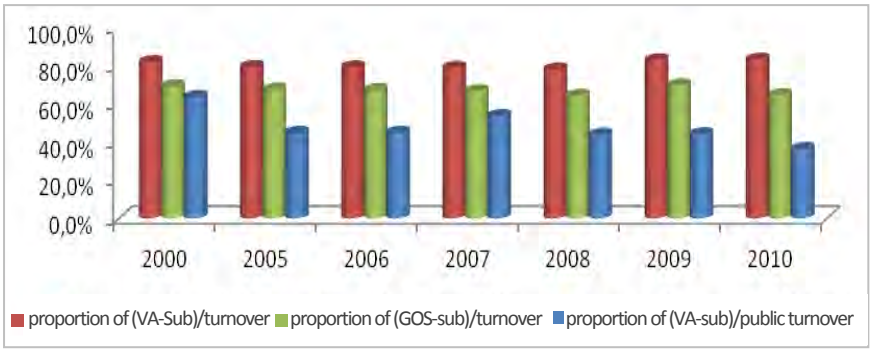


Chart 8 – The proportions of value added and gross operating surplus in turnover

Source : INS

These figures show that the rate of value added net of subsidies (VA – subsidies/turnover) developed unevenly over the 2000-2010 period. It peaked at 78.5% in 2010.

The rate of profitability of companies in the road sector (GOS/turnover) stabilised at around 67% between 2005 and 2010. This high level is once again the result of the dominant role of individual companies in the sector.

Table 11 below shows the change in intermediate consumption within the sector and, in particular, the change in intermediate consumption of energy products.

Table 11 - Cost structure *(millions of DT)*

	2000	2005	2006	2007	2008	2009	2010
Intermediate consumption Total *(at current prices)*	442	614	670	711	725	725	797
Intermediate consumption of energy products	134	181	180	176	185	221	270

Source : INS

As shown in chart 9 below, the proportion of intermediate consumption of energy products in the total intermediate consumption declined in a first period, from 2000 to 2007, before recovering slightly.

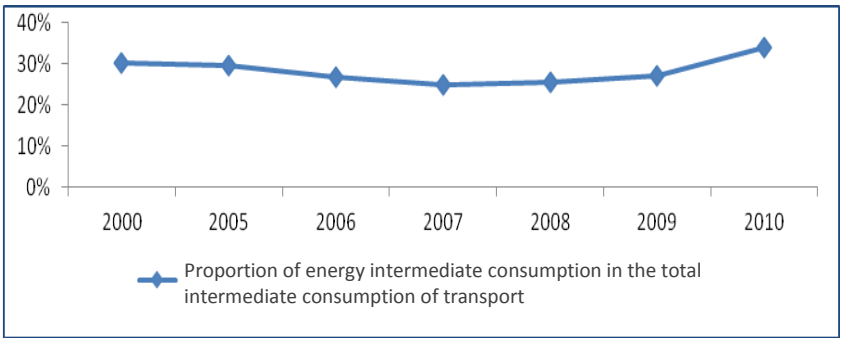


Chart 9 - Proportion of energy intermediate consumption in the total intermediate consumption (%).

Source : INS

In the road sector, the proportion of intermediate consumption of energy products in the total intermediate consumption went from 30% in 2000 to 34% in 2010, having dropped until 2007 and then rallied.

The technical performance of road transport in Tunisia

Like in rail transport, the technical performance of road transport in Tunisia can be evaluated by looking at the network, equipment and changes in traffic flows and transport volumes. Table 12 below presents the figures for the road network in Tunisia.

Table 12 - Performance of the networks *(km)*

	2001	2006	2008	2010
Length of road network	18,997	19,111	19,371	19,418
Total length of the paved networks	13,414	13,830	14,564	14,779
Length of motorway network	478	522	828	899
Length of express roads network	141	259	356	356
Length of other paved networks	12,795	13,049	13,379	13,524

Source : Ministry of Equipment and Housing

These figures show that Tunisia had a road network of around 19,418 km in 2010, 76% of which were paved roads.

The motorway network has grown substantially over the decade, increasing from 478 km in 2001 to around 900 km in 2010, an increase of 421 km and an almost twofold expansion of the network over the period.

The Tunisian road network is used for almost all movements of people, and a large proportion of freight transport. It contributes to intra- and inter-regional travel across the whole country.

The proportion of express roads network and motorways increased over the 2001-2010 period, increasing from 3.3% to 6.5% of the total road network. Similarly, the length of paved roads increased by around 729

km between 2001 and 2010. Its proportion of the total road network went from 67.4% in 2001 to 70% in 2010.

The make-up of the vehicle fleet is also a major factor in the technical performance of road transport. In Tunisia's case, this can be analysed using the indicator of the average age of the coach fleet. After declining markedly between 2000 and 2005, the average age of coaches subsequently remained stable, at 8 years of age, until 2010. This stability shows that the fleet is being replaced regularly.

The environmental performance of road transport in Tunisia

Three indicators allow the environmental performance of road transport in Tunisia to be evaluated. These indicators include CO2 emissions, the network density, and the energy mix of the vehicle fleet. The change in CO2 emissions from road transport is shown in chart 10 after.

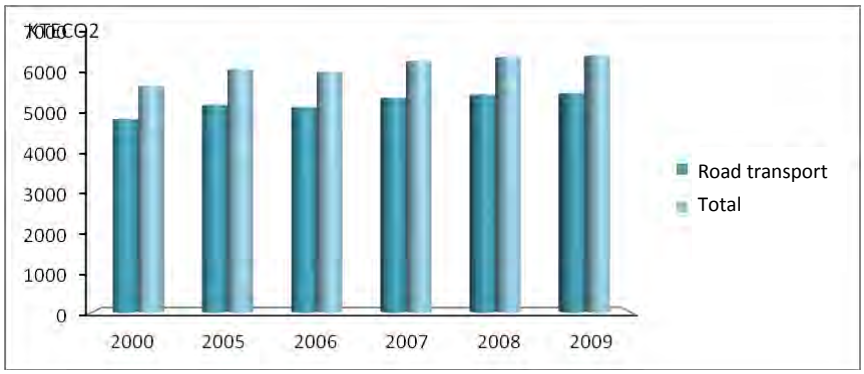


Chart 10 - CO2 emissions from road transport and their proportion of total emissions in the transport sector

The road transport sector is traditionally considered to be highly polluting in terms of CO_2 emissions. The chart confirms this, demonstrating that almost 85% of CO2 emissions in the transport sector are generated by road transport.

Although limited, the road transport network's density has expanded significantly in the country over the last decade, especially that of the motorway network. This is shown in the figures in table 13 below.

Table 13 - Density of road network and motorway *network (km/1,000 km²)*

	2001	2006	2008	2010
Density of paved road network	82.7	85.3	89.8	91.1
Density of motorway network	2.9	3.2	5.1	5.5

Source : Ministry of Equipment

This shows that the density of the paved road network reached 91 km per 1,000 km2 in 2010, while the density of the motorway network reached 5.5 km/1,000 km2 in the same year, almost doubling since 2001.

Finally, the indicator representing the vehicle fleet's energy mix has remained relatively stable, with diesel vehicles making up around 52.5% of the total.

The economic, technical and environmental performance of sea transport in Tunisia

In Tunisia, the port chain stretches along a coast of around 1,300 km, with 7 commercial sea ports: Bizerte Menzel Bourguiba, Tunis Goulette Radés, Sousse, Sfax, Gabés, Zarzis and the Skhira oil terminal. All the ports are managed by the Merchant Marine and Ports Office (OMMP), except the Skhira oil terminal, which is managed by the Sahara Pipeline Transport company (TRAPSA).

These ports play a crucial role in promoting Tunisia's commercial trading, since they represent almost 98% of the country's commercial traffic. In 2010, these ports enabled 24.5 million tonnes to be transported, with a turnover estimated at almost DT 108 million. The national fleet has been divided between five sea transport companies since 2008.

Table 14 below presents the key figures of sea transport in terms of infrastructure, equipment, traffic flows and transport volumes.

Table 14 – Key figures for sea transport

	2000	2005	2006	2007	2008	2009	2010
Infrastructure							
Number of principal ports	7	7	7	7	7	7	7
Total length of quays in principal ports (metres)	10,435	10,435	10,435	10,435	10,435	11,092	11,092
Equipment							
Number of merchant ships	18	12	12	12	13	13	16
Traffic							
Number of arrivals of ships	6,184	6,690	7,253	7,898	7,871	7,832	7,405
Number of passengers embarking and disembarking (thousands)	414	611	661	692	690	719	715
Total volume of freight (thousands of tonnes)	20,791	21,681	22,773	24,107	24,460	22,670	24,471

In 2009, two new berths stretching 657 metres were added to the La Goulette basin quay to increase its capacity. This extension has enabled a 30% increase in the number of cruise passengers.

The volume of freight handled in Tunisian ports grew from 20.7 million tonnes in 2000 to 24.5 million tonnes in 2010, an average annual increase of 7%. This change conceals a 9% drop in traffic in 2009 caused by the global financial crisis.

Vessel traffic across all Tunisian commercial ports increased from 6,184 vessels in 2000 to 7,405 vessels in 2010. This change hides a slight decrease between 2009 and 2010, which appears to be linked to an increase in vessel size.

The economic performance of sea transport in Tunisia

Table 15 below presents the main data on the activity and profitability of the sea transport sector. They show that turnover and value added have increased substantially, even at constant prices, as has the gross operating surplus.

Table 15 – Activity and profitability of sea transport companies *(millions of DT)*

	2000	2005	2006	2007	2008	2009	2010
Turnover	259.3	381.1	408.3	471.7	517.1	522.3	637.2
Turnover of public companies	152.9	216.0	232.2	282.2	301.3	282.8	287.7
Value added (current prices)	96.8	145.6	155.0	170.6	185.8	186.8	226.6
Value added of public companies	65.7	82.0	87.2	92.4	97.2	88.2	93.1
Value added (constant prices)	102.3	145.6	149.0	162.0	176.4	183.5	242.5
Gross operating surplus	59.8	94.6	98.9	109.1	116.2	111.9	145.2

Source : INS

The turnover of public sea transport companies saw an average annual increase of 6.5% between 2000 and 2010. In the aftermath of the global financial crisis, however, this turnover fell by 6% between 2008 and 2009.

The table above also reveals a steady increase in the gross operating surplus and in value added, which grew, at constant prices, by a factor of almost 2.4 between 2000 and 2010.

The value added and gross operating surplus made up a relatively stable proportion of sea transport turnover over the decade 2000-2010. The proportion of value added in the turnover of companies sat at around 37% between 2000 and 2010, and the gross operating surplus at around 23%.

Analysing the sector's cost structure reveals that intermediate consumption varies in proportion to production. It made up almost 64% of the sea sector's production value over the analysed period. Chart 11 below shows the change in intermediate consumption within the sea sector and the proportion of intermediate consumption of refined oil in the intermediate consumption total.

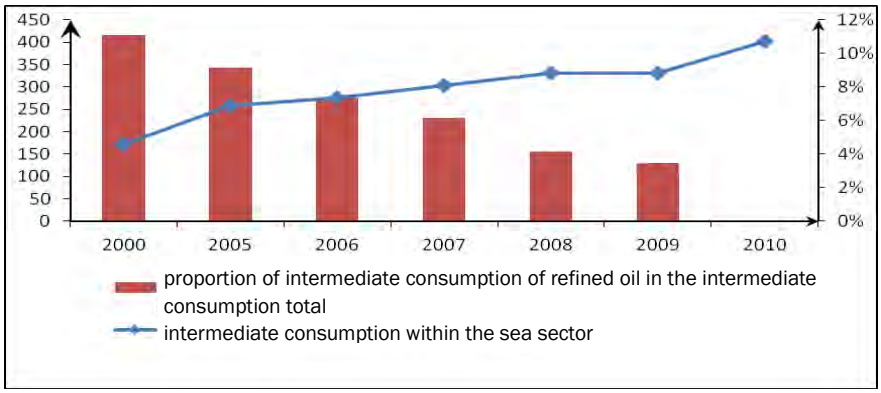


Chart 11 - Intermediate consumption of sea transport *(millions of DT)*

The proportion of refined oil in the sector's total intermediate consumption changed from 11% in 2000 to 3.5% in 2010, which was possibly linked to the increase in size of vessels used by shipping companies.

Finally, looking at the sector's demographics, a considerable decrease can be observed in the number of companies between 2000 and 2005, falling from seven to three between the two years, followed by new players entering from 2007. At the end of the period, five companies were active in the sector in 2010. These changes are entirely linked to variation in the number of private companies, since the number of public companies remained completely stable throughout the decade (two units).

The technical performance of sea transport in Tunisia

The technical performance of the sector can be assessed first of all by evaluating the features of the Tunisian fleet and the changes within it. The main data available is presented in table 16 below.

Table 16 – Performance of sea transport equipment

	2000	2005	2006	2007	2008	2009	2010
Number of merchant ships	18	12	12	12	13	13	16
Carrying capacity of merchant ships (tonnes)	163,813	105,127	105,127	72,041	73,412	73,412	126,290

The number of national merchant ships dropped from 18 to 12 between 2000 and 2005. This fall occurred after four sea transport companies ceased operating over the same period. The fleet then grew from 2008 onwards, reaching 16 vessels in 2010. This reformation of the fleet took place with the acquisition of two roll-on/roll-off vessels by the CTN (Tunisian Navigation Company) in 2010 and two other vessels by private companies (Rades by MétalShip in 2008 and Zembra by GMT in 2010).

The rise in intermodal transport is one of the main drivers of growth for sea transport globally, and in Tunisia in particular, as the figures demonstrate in table 17 below.

Table 17 – Unitisation of the sea transport of goods

	2000	2005	2006	2007	2008	2009	2010
Transport of containerised freight (TEU)	230,671	339,554	349,517	383,176	424,780	418,722	466,210
Transport of ro-ro freight (units)	71,950	89,064	101,794	111,586	119,227	109,474	127,641

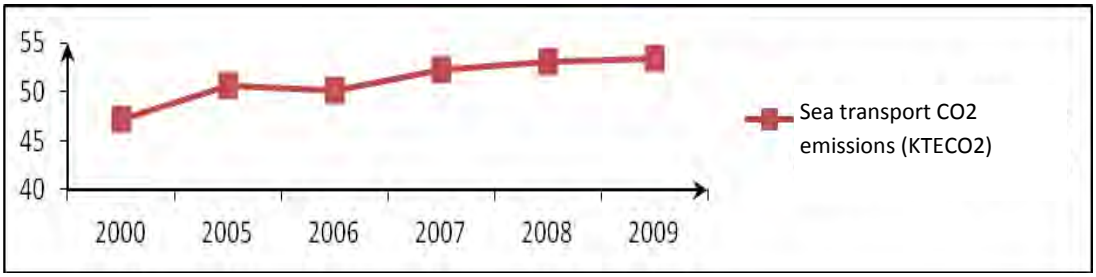
These figures show that intermodal sea traffic increased continually between 2000 and 2010:

- The number of containers handled at Tunisian ports doubled over the period, increasing from around 231,000 TEU in 2000 to around 466,000 TEU in 2010.
- The number of roll-on/roll-off units also increased sharply, advancing from 72,000 units in 2000 to 128,000 units in 2010.

The environmental performance of sea transport in Tunisia

Several indicators allow us to assess the environmental performance of sea transport in Tunisia. To begin, the volume of CO2 emissions from the sector is shown in chart 12 below.

Chart 12 – Sea transport CO_2 emissions



Source : ANME

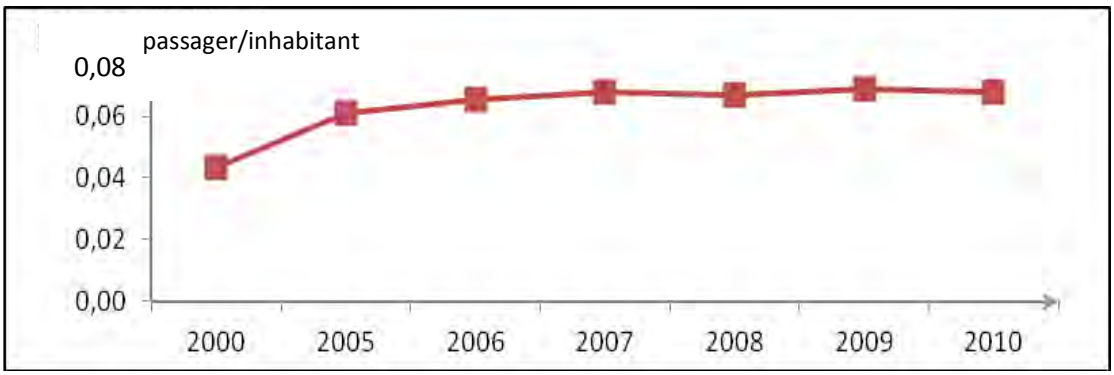
This chart shows an almost continual increase in CO2 emissions from sea transport (except in 2006). CO2 emissions were estimated at 47,000 tonnes in 2000 and reached 53,000 tonnes in 2009.

The density of port infrastructure reached 0.85 metres of quay per kilometre of coast in 2009. This is increasing somewhat, following an extension of 657 metres in the La Goulette basin.

During the 2000-2010 period, only two cases of marine pollution were recorded, one in 2008 and another in 2010. This reduced number is due to strict adherence to the safety instructions laid down by international law.

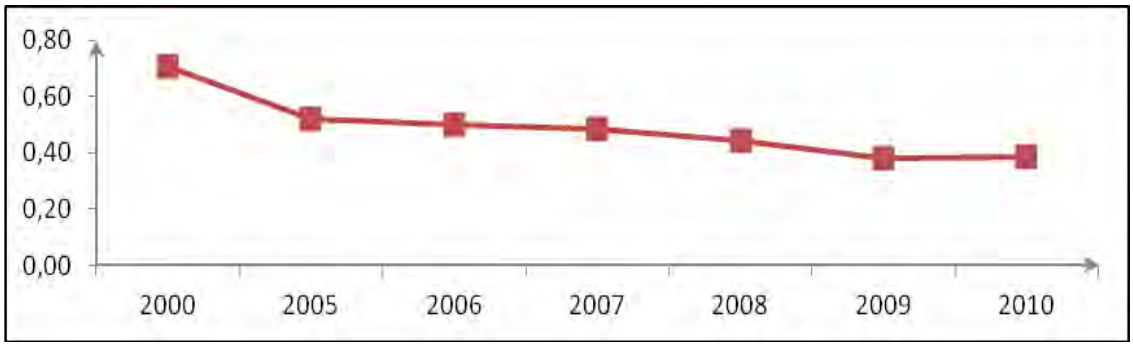
Finally, a last important indicator of the environmental impact of sea transport is the mobility of passengers and freight by sea. These two indicators are illustrated in charts 13 and 14 below.

Chart 13 – Passenger mobility



Passenger sea mobility increased significantly between 2000 and 2010, rising from 43 to 68 passenger sea movements per 1,000 inhabitants over the period.

Chart 14 – Freight mobility



The value of freight mobility was 0.7 tonne loaded or unloaded in Tunisian ports per DT million of GDP in 2000. This mobility declined sharply over the period, ending at 0.4 in 2010.

The economic, technical and environmental performance of air transport in Tunisia

Tunisia has significant airport infrastructure at its disposal, which is continuing to grow. This infrastructure forms a solid base for the country's economy, the main assets of which are the export of agricultural and industrial products, and tourism development.

In 2010, nine principal airports spread across the country connected Tunisia with Europe, Africa and the Middle East, and welcomed over 11 million passengers annually. Six airline companies are registered in Tunisia (Tunisair, Tunisair Express, NouvelAir, Tunisavia, Kartago Airlines and Syphax Airlines). Table 18 below presents the sector's key figures.

Table 18 – Key figures for air transport

	2000	2005	2006	2007	2008	2009	2010
Infrastructure							
Number of principal airports	7	7	7	7	8	8	9
Total length of paved runways of over 2,438 metres	24 085	24 085	24 085	24 085	27 095	27 095	30 395
Equipments							
Number of passenger aircraft	32	50	53	59	62	64	66
Number of freight aircraft	0	0	0	0	0	0	0
Total number of special transportation, ambulance and corporate civil aircraft	1	2	2	3	3	4	5
Traffic							
Total number of aircraft movements	91 219	97 944	98 277	103 002	109 156	103 781	106 096
Total number of passengers (thousands)	9 651	10 399	10 504	10 997	11 365	10 794	11 332
Total volume of freight and mail (thousands of tonnes)	28	20	20	18	21	24	25

Source : OACA

In 2010, Tunisia had nine principal airports, with two commissioned in 2008 and 2010. These were Gabès airport, which was previously a military airport, and Enfidha-Hammamet international airport, which began activity in November 2009.

The total length of paved runways of over 2,438 metres increased from 24,085 metres over the 2000-2007 period to 27,095 metres in 2008, reaching 30,395 metres in 2010 as the new airports were commissioned.

The number of passenger aircraft in use by national companies increased from 46 in 2000 to 57 in 2012.

The total number of passengers transported through Tunisian airports exceeded 10 million passengers in 2005. This traffic decreased sharply in 2009 following the global financial crisis.

The volume of freight dropped over the 2005-2007 period, before picking up again in 2008, but by the end of the period it still hadn't returned to its levels in 2000.

The economic performance of air transport in Tunisia

Table 19 below tracks the trends seen for the main economic indicators as regards the activity and profitability of the air transport sector in Tunisia over the last decade. It reveals that, although all the indicators at current prices increased significantly over the period, value added at constant prices fell.

Table 19 - Activity and profitability of air transport companies *(millions of DT)*

	2000	2005	2006	2007	2008	2009	2010
Turnover	763	1 193	1 261	1 425	1 629	1 513	1 621
Tunisair turnover	614	850	898	1 053	1 053	1 099	1 164
Value added (current prices)	450	716	757	774	994	955	1 061
Tunisair value added	276	633	670	529	614	553	552
Value added (2005 constant prices)	663	716	713	722	653	536	566
Gross operating surplus	287	490	508	501	685	621	657

Source : INS

The turnover of air transport more than doubled at current prices between 2000 and 2010, rising from DT 763 million in 2000 to DT 1.6 billion in 2010, an average annual growth of 6.6%. This turnover was around 27% of the transport sector's overall turnover.

The Tunisair company alone accounted for 72% of the sector's turnover in 2010, although this is lower than it was in 2000 (it was 81% at that time).

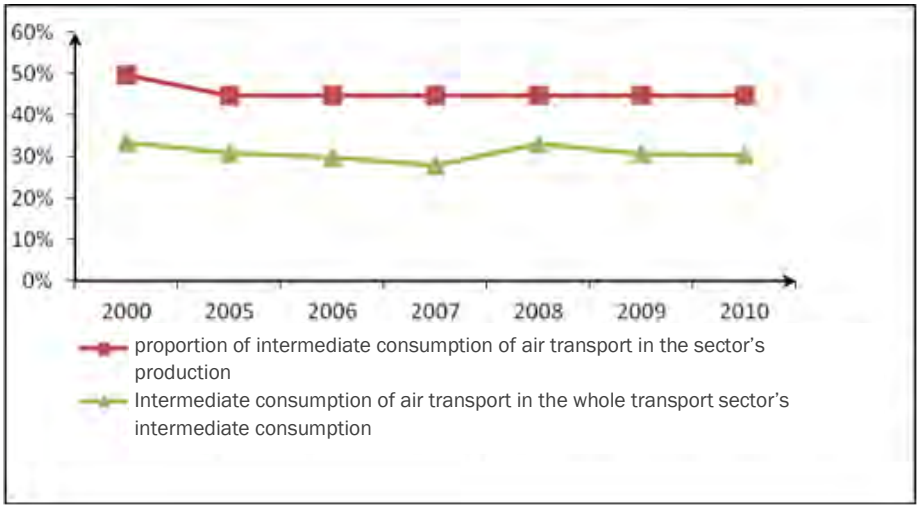
The value added at constant 2005 prices for the aviation sector was almost stationary over the 2005-2007 period, and then fell between 2007 and 2009, most likely as a result of the global financial crisis. A slight increase was recorded in 2010. In total, the annual average rate of growth of value added at constant 2005 prices over the 2005-2010 period was – 4.2%.

The proportion of value added and gross operating surplus of the turnover developed unevenly, with a succession of ups and downs.

The rate of value added (VA/turnover) was 59% in 2000. It hit a low point of 54% in 2007 before rising again, reaching 65% in 2010. Similarly, the companies' rate of profitability was 38% in 2000. It reached a low point of 35% in 2007 and bounced back in 2008, subsequently stabilising at 41%.

Chart 15 below shows that the intermediate consumption of air transport has remained a relatively stable proportion of the production value since 2005.

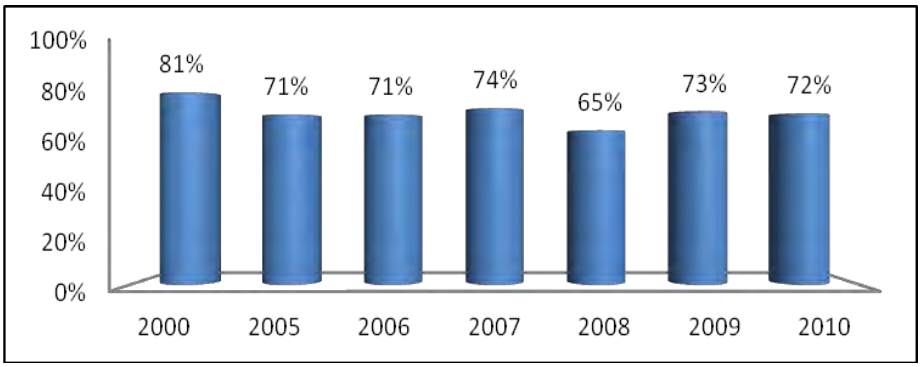
Chart 15 - Proportion of intermediate consumption in total production (%)



Intermediate consumption of air transport accounted for around 50% of the sector's production in 2000. This rate subsequently decreased, and stabilised at around 45%.

The air transport sector has traditionally been a sector with a high degree of concentration. This is measured here by the proportion of the dominant company's turnover (Tunisair) in the sector's total turnover (see chart 16 below).

Chart 16 - Concentration rate (%)



Source : INS

Tunisair accounted for 81% of the aviation sector's turnover in 2000. This proportion reached a low of 65% in 2008 before increasing again, reaching 72% in 2010.

The technical performance of air transport in Tunisia

As shown in table 20 below, the Tunisian aircraft fleet has changed considerably over the last decade. It is mainly composed of medium-capacity aircraft of 51 to 150 seats. Despite this development, the average age of the Tunisian fleet has slightly increased over the same period (see chart 17 below).

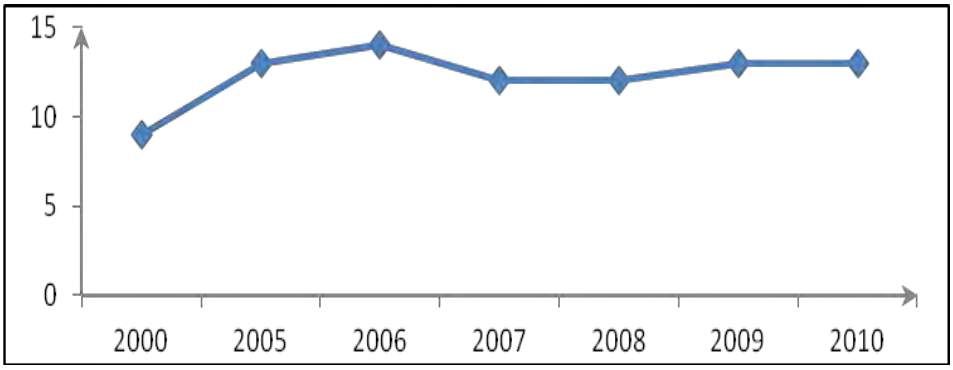
Table 20 - Number of passenger aircraft according to capacity

	2000	2005	2006	2007	2008	2009	2010
Total number of passenger aircraft:	**32**	**50**	**53**	**59**	**62**	**64**	**66**
50 seats or less	4	5	6	7	8	9	10
51 to 150 seats	18	28	28	32	33	34	35
151 to 250 seats	8	14	16	17	18	18	18
251 seats or more	2	3	3	3	3	3	3

Source : OACA

More precisely, the table above demonstrates that the number of aircraft more than doubled between 2000 and 2010, increasing from 32 to 66 units between those two years. Medium-capacity aircraft accounted for more than half of this number throughout the period.

Chart 17 - Average age of the passenger aircraft fleet



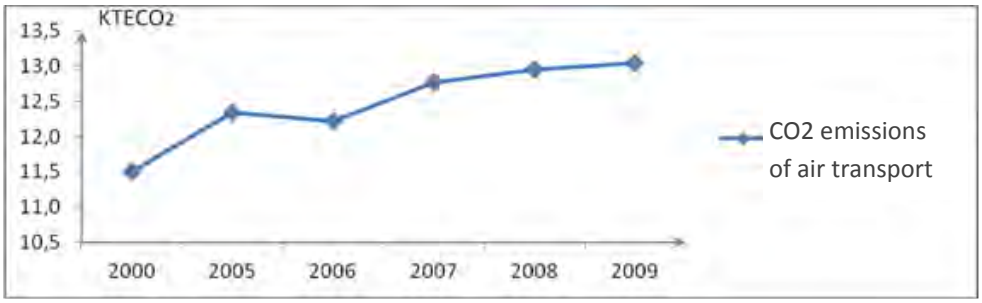
The average age of the national fleet was estimated at 12.8 years in 2010, compared with a little over 8 years in 2000 (see chart 17 besides).

The environmental performance of air transport in Tunisia

The environmental impact of air transport in Tunisia can be evaluated using the CO2 emissions linked to this means of transport, and the air mobility indicators for freight and passengers.

Chart 18 shows that CO2 emissions have increased substantially over the period analysed, from 11.5 to 13 kt CO2e between 2000 and 2009.

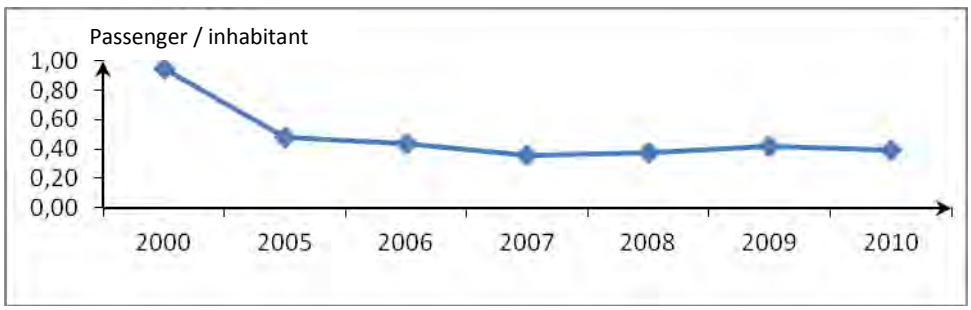
Chart 18 - CO_2 emissions of air transport



Source: ANME (National Agency for Energy Conservation)

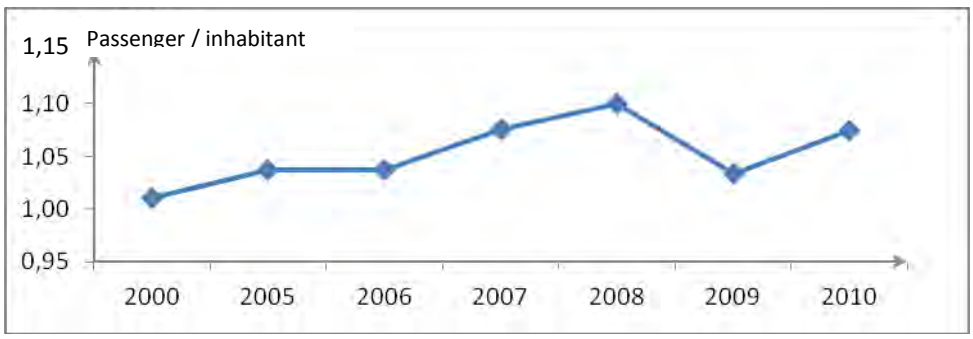
Passenger air mobility increased overall (+ 70% between 2000 and 2010). However, it did record a sharp drop in 2009, both as a result of the international financial crisis and the national political situation (see chart 19 below).

Chart 19 - Passenger mobility



The air mobility of freight dropped sharply between 2000 and 2007 before later stabilizing (see chart 20 below).

Chart 20 - Freight mobility



Conclusion

Analysing the main performance indicators of the various means of transport in Tunisia over the 2000-2010 period brings the following facts to light:

- On the one hand, there has been cyclical change in the main economic performance indicators for most means of transport, which are all experiencing the consequences of the financial crisis. Road transport, the most used way of transporting people and freight within the country, seems to be withstanding the crisis better than the other means of transport;
- On the other hand, there have been considerable improvements to the infrastructure and equipment of all means of transport, especially road, sea and air infrastructure;
- In terms of CO2 emissions, all means of transport have recorded an increase in emissions, largely as a result of an increase in traffic.

The performance of transport systems in Egypt

The economic, technical and environmental performance of transport activities and systems in Egypt

Egypt is a vast country of nearly 1 million km² with a population of more than 80 million inhabitants. This suffices to understand the huge importance of transport systems for its economy and its society as a whole.

Transport systems in Egypt encompass all four usual key modes of transport, railways, road, maritime and air transport, but also inland waterways transport on the Nile river. These transport infrastructures and activities are concentrated along the Nile river, which is about 800 km long, in the delta and the Great Cairo region, a territory which corresponds to around 7% of the whole country.

The transport sector has been rapidly growing over the last decade, as the whole economy of the country itself. Still, its technical and environmental performance is pretty uneven across sub-sectors and over the whole period, as the following analysis will show.

Table 1 - Population of Egypt, Cairo and the South Sinai area

	2000	2005	2006	2007	2008	2009	2010	2011	*Unit*
Population Estimates [1]	64.0	70.7	72.0	73.6	75.2	76.9	78.7	80.4	*Million*
Population density	64.3	71.0	73.2	74.0	75.6	77.3	79.2	80.9	*Person/km²*
Cairo population	7.2	7.8	8.0	8.0	8.1	8.3	8.5	8.7	*Million*
Population density in Cairo	2,339	2,541	2,583	2,589	2,630	2,693	2,750	2,807	*Person/km²*
South Sinai population	59	67	68	151	152	154	156	157	*Thousand*
Population density in South Sinai	2.1	2.3	2.4	5.3	5.4	5.4	5.5	5.6	*Person/km²*

[1] Midyear population estimates.

Table 2 - GDP, growth and transport

	2000	2005	2006	2007	2008	2009	2010	2011	*Unit*
GDP	:	538.2	649.1	780.5	932.8	1 072.7	1 248.6	1 382.2	*Billion EGP*
Growth rate	:	10.4	20.6	20.2	19.5	15.0	16.4	10.7	*%*
GDP/inhabitant	:	7,688	9,016	10,547	12,437	13,927	15,794	17,270	*Egyptian pound*
Share of transport & Storage sector in GDP	:	4.1	4.1	4.1	4.1	4.1	4.1	4.1	*%*

Overall, the share of the transport and storage sector in the Egyptian economy is noticeably stable at 4.1% of GDP between 2000 and 2011. This means that the transport and storage sector has witnessed an as impressive growth as the whole economy, the growth rate being always above 10% and even above 20% during the two consecutive years of 2006 and 2007.

The economic performance of transport systems in Egypt

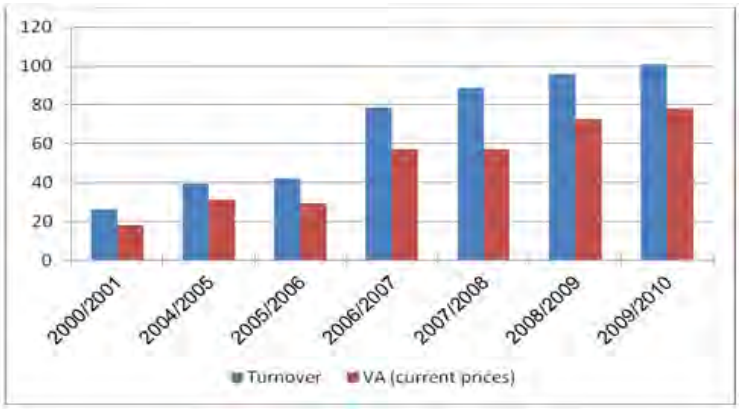
Table 3 - Key figures of the transport, storage and communications sector *(in billion EGP)*

Years [2]	2000/2001	2004/2005	2005/2006	2006/2007	2007/2008	2008/2009	2009/2010
Turnover	26.2	39.4	42.1	78.5	88.5	95.8	104.8
Value added (current prices)	18.2	31.3	29.5	57.4	57.4	72.5	78.0
Gross operating surplus	14.1	26.1	23.9	44.4	53.2	56.7	61.2

The transport, storage and communication sector witnesses a strong dynamism in terms of turnover and value added, particularly between the years 2005/2006 and 2006/2007, as also shown in the graph 1 below.

Gross operating surplus is also progressing rapidly although more irregularly with a year of decline in 2005/2006.

[2] Figures are available for fiscal years which run from 1 July to 30 June.



Graph 1 – Value added and turnover

Overall, the share of value added in turnover varies between 70% and 77% while the share of gross operating surplus varies between 53% and 60%

Economic, technical and environmental performance of railway transport in Egypt

As shown in table 4 below, the railway transport activity has witnessed huge variations over the period analysed with big drops in passenger transport registered in 2008 and 2009 while the decline of freight transport has been constant between 2000 and 2009, its total volume being divided by more than two during these two years, before recovering in 2010 and 2011.

Table 4 - Key data of railway transport

	2000	2005	2006	2007	2008	2009	2010	2011	*Unit*
Infrastructure									
Length of rail network	5,047	5,128	5,138	5,138	5,138	5,138	5,530	5,530	*km*
Equipments									
Number of locomotives	671	701	701	701	701	701	820	820	*Unit*
Capacity of passenger railway vehicles	247	293	228	274	274	266	266	239	*Thousand seats*
Load capacity of goods transport wagons	492	505	505	505	505	513	513	542	*Thousand tons*
Flows									
Total passenger traffic in pkm	38,106	55,187	54,884	52,624	43,269	27,899	28,097	27,252	*Million pass-km*
Total freight traffic in tkm	4,184	3,965	3,833	2,696	2,021	1,592	1,889	1,965	*Million tonne-km*

The decline in rail transport seems to be related to the ageing of the vehicles fleet, and more particularly of the locomotives, which entails frequent and long withdrawals of material for maintenance.

The economic performance of railways transport in Egypt

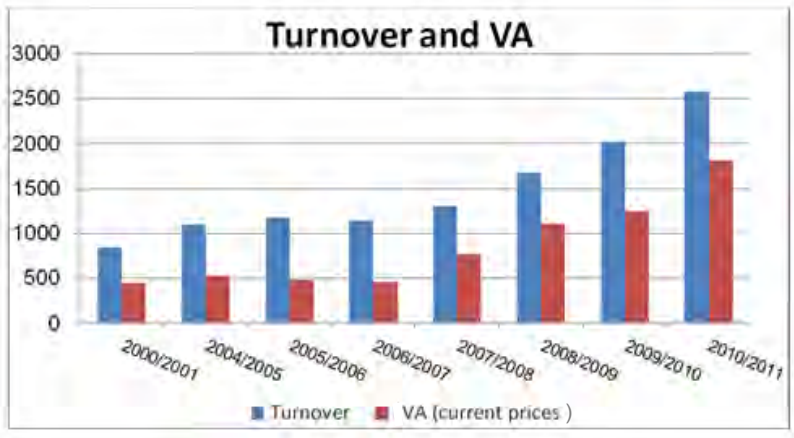
The Egyptian National Railways Company, or ENR, is the only company entitled to perform railways transport in Egypt. The following figures are thus related to this company.

Table 5 - Growth of activity and profitability of the rail transport Authority (in million EGP)

	2000/2001	2004/2005	2005/2006	2006/2007	2007/2008	2008/2009	2009/2010	2010/2011
Turnover	842	1,091	1,174	1,145	1,637	1,672	2,016	2,571
Value added (current prices)	442	532	483	455	936	1,108	1,249	1,807
Gross operating surplus	– 97	– 132	– 275	– 395	37	129	152	322

Despite the drop in terms of transport volumes, turnover and value added witness a pretty strong growth over the period 2000-2011, especially after 2007/2008, the years 2005/2007 witnessing on the contrary a slight drop on one or two of these indicators, as can be seen also in the graph 2 below.

Chart 2 - Turnover and value added of railway transport Authority



More specifically, turnover increased by 32% from 2000 to 2010. In the same period, the share of the value added in total turnover varies widely between 40% and 70%. The growth of turnover seems to be mostly related to the increase in the compensation for Public Service Obligation which takes the form of subsidized rail tickets fares allocated on non-economically operating railway lines. This increase started in 2007 and reached 1.1 billion EGP in 2010 and 2011.

Over the same period, the gross operating surplus dramatically improved. It was indeed negative from 2000 to 2007 and became positive from 2007/2008. It kept strongly growing since then.

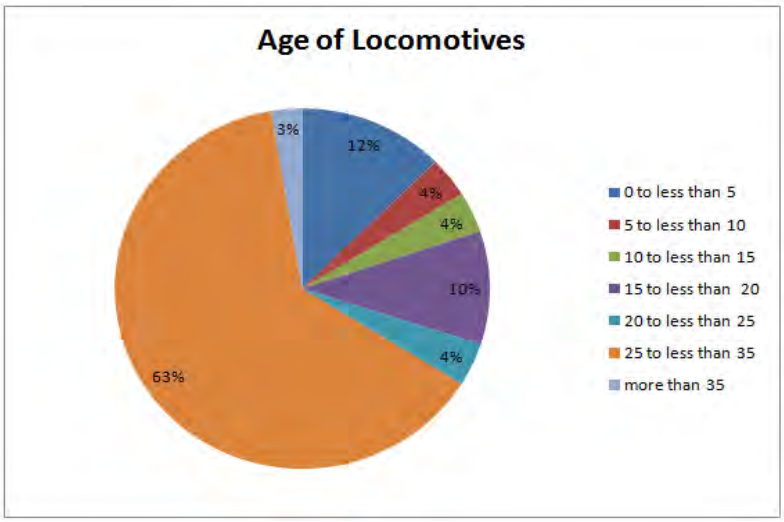
Table 6 below shows that Intermediate consumption in railway transport increased by 91% and personnel costs were multiplied by about 2.8 over the period. The share of personnel costs in total turnover seems to be pretty uneven and cyclical. It reaches a peak of 73.7% in 2006/2007 and a bottom the following year at 53.6 %. It is however downward-oriented over the whole period of observation.

Table 6 - Cost structure (in million EGP)

	2000/2001	2004/2005	2005/2006	2006/2007	2007/2008	2008/2009	2009/2010	2010/2011
Intermediate Consumption	400	559	692	690	701	564	767	764
Personnel costs	539	664	758	850	877	979	1,100	1,485
Personnel costs as a % of turnover	64.0	60.9	64.6	73.7	53.6	58.6	54.6	57.8

The technical performance of railways transport in Egypt

Chart 3 - Age of the locomotive stock *(ranges in years)*



As shown in the graph 3 above, the performance of the railway sector clearly suffers from the age of the locomotives stock. It should be noted, however, that a plan to renew this stock was launched five years ago, which explains the relatively high share of locomotives aged less than five years in the total stock. In the same way, a plan for the renewal of the railway passenger cars fleet has been engaged ten years ago (see graph 4 below). It should be noted that all locomotives in Egypt are diesel locomotives.

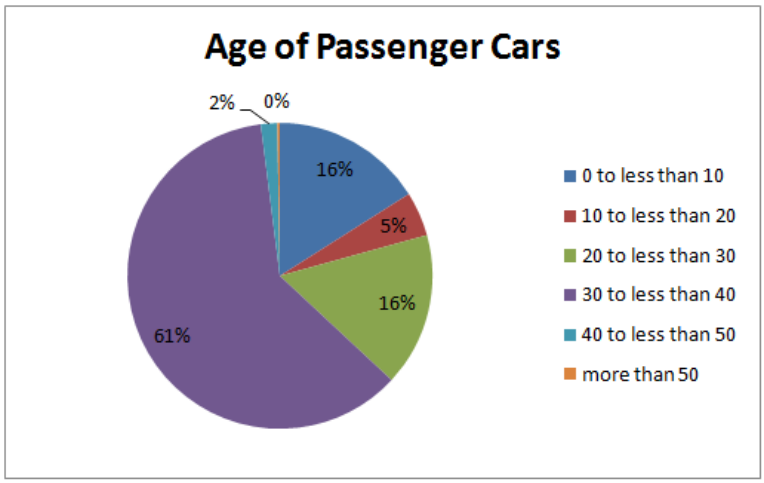


Chart 4 - Age of passenger cars stock (ranges in years)

Beyond the efficiency of equipment, another important aspect of the technical performance of railway transport is the productivity of labour in the sector. This productivity records large variations over the period 2005-2011, as shown in the graph 5 below.

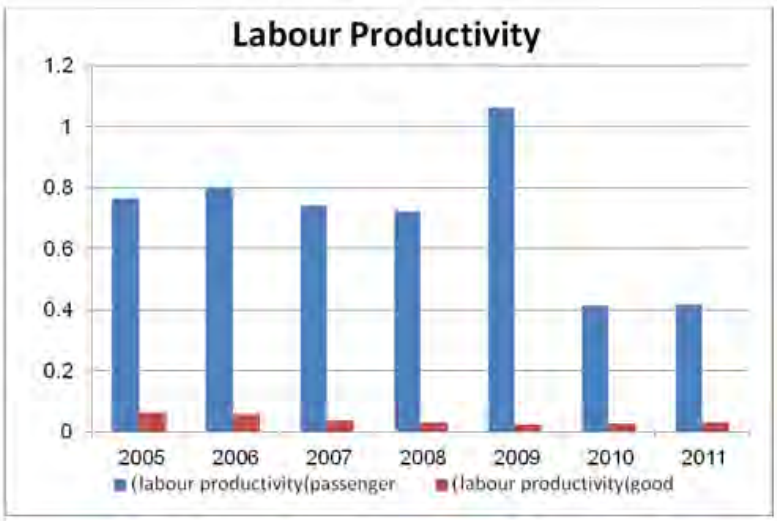


Chart 5 - Labour productivity

Labour productivity, measured as the ratio between the number of passenger-kilometre, respectively tonne-kilometre, transported and the number of employees of the National Railways Company, shows a very irregular development in the case of passenger transport and a constant reduction in the case of goods transport.

For the passenger transport activity, productivity reaches a peak in 2009, after two years of decline, and dramatically drops to its lowest level the following year. These evolutions may be related to variations in the availability of the rolling stock over the period and, thus, to the performance of the equipment discussed above.

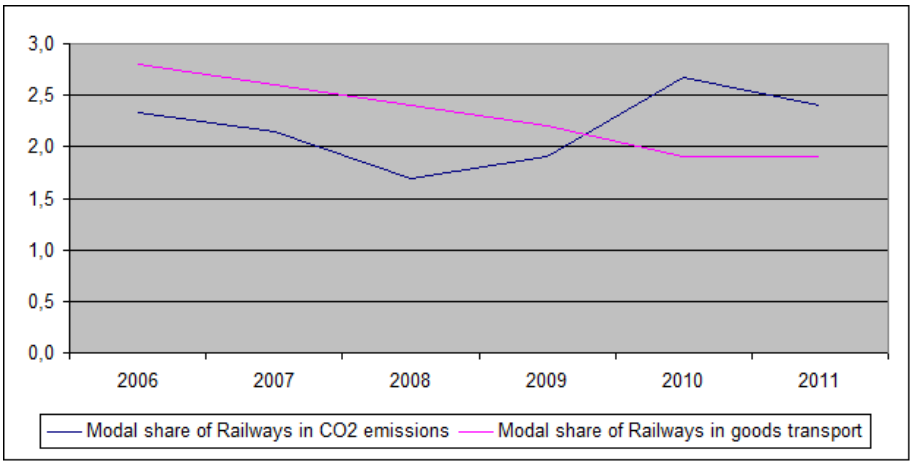
The environmental performance of railways transport in Egypt

Table 7 - CO2 emissions linked to railways transport *(Million tonnes)*

	2000	2005	2006	2007	2008	2009	2010	2011
All modes	:	:	21.6	23.0	26.0	28.1	20.8	21.4
Railway	0.6	0.6	0.5	0.5	0.4	0.5	0.6	0.5

While CO2 emissions linked to transport activity as a whole follow a pretty irregular evolution, with a peak reached in 2009 and a sudden drop in 2010, CO2 emissions specifically related to railways transport show, on the contrary, a pretty stable pattern, ranging between 400,000 and 600,000 tonnes per year over the period observed. There seems to be a weak relation between these CO2 emissions and the real volume of transport performed measured in passenger-kilometres or in tonnes-kilometres. This may mean that variations in transport volumes translate into variations in filing rates of similar passenger or goods trains.

Chart 6 - Modal share of railways transport in CO2 emissions and freight transport



The modal share of railways in passenger transport has declined from an estimated 8% in 2000 to an estimated 5% in 2011, while the modal share of railways in freight transport has declined from 4% to 1.9% over the same period.

Interestingly, CO2 emissions oscillate between 2.0 and 2.5% in an upward trend over the period 2006-2011 while the modal share of railways in passenger transport is estimated to be stable at about 5% over the same period and the modal share of railways transport in goods transport regularly declines[3].

[3] Volumes of passenger transport were estimated for all modes in the national transport study on the master plan for nationwide transport system in the Arab Republic of Egypt.

Table 8 - Environmental performance of railway transport

	2000	2005	2006	2007	2008	2009	2010	2011
Density of railway network	51	51	51	51	51	51	51	51
Passenger mobility	595	781	762	715	575	362	357	339
Goods mobility	:	0.007	0.006	0.004	0.002	0.002	0.002	0.001

Density of the railway network, measured as the ratio between the length of this network and the total area of the country, is absolutely stable in the period 2000-2011.

Passenger mobility is defined as the ratio between the volume of rail passenger transport measured in passenger-kilometre and the total population. After a strong increase in the first half of the period examined (+ 31% between 2000 and 2005), this ratio regularly declines. Rail passenger mobility is indeed divided by more than two between its peaks in 2005 and 2011. It is, in 2011, more than 43% below its level of 2000.

Goods mobility is defined as the ratio between the volume of rail freight transport measured in tonne-kilometre and GDP in EGP. This ratio regularly declines over the period under examination. This is in line with the decline of the share of railways in freight transport in Egypt.

Economic, technical and environmental performance of road transport in Egypt

Road transport is a major mode of mobility for both goods and persons in Egypt, as shows the dramatic growth of the road network and of the fleets of road goods and passenger vehicles.

As shown in the table 9 below, the length of the road network[4] has considerably increased over the period, by more than 22% between 2001 and 2007, most of this extension having been realised in 2010.

Table 9 - Key data of road transport

	2000	2005	2006	2007	2008	2009	2010	2011
Length of the network (km)	:	:	:	60,538	61,108	61,338	73,988	73,988
Number of road good vehicles *(thousands)*	595	728	767	782	831	895	937	982
Number of road passenger vehicles *(thousands)*	1,746	2,150	2,317	2,467	2,616	2,847	3,273	3,566

The number of road goods vehicles has increased by 65% between 2000 and 2011 and the number of road passenger vehicles has more than doubled over the same period.

[4] Including paved and unpaved roads.

The economic performance of road transport in Egypt

Table 10 - Activity and profitability of road transport companies[5] in 2008/2009 (Million EGP)

	2008/2009
Turnover	44,862
Value added (current prices)	32,603
Gross operating surplus	20,085

It should be noted that economic data on road transport companies are available for the fiscal year 2008/2009 only, as the economic department of the Central Agency for Public Mobilization and Statistics (CAPMAS) started to produce these indicators for road transport that year.

According to these data, value added represented about 73% of the turnover of road transport companies and gross operating surplus about 62% of that value added. This probably translates the high share of individual or very small companies in that sector.

The technical performance of road transport in Egypt

As already said, the technical performance of road transport is characterized by a dramatic progression in the length of the network and in the fleets of road goods and passenger vehicles.

Table 11 - Performance of networks

	2000	2005	2006	2007	2008	2009	2010	2011
Length of motorways and express road network (km)	134	134	134	134	194	194	194	494
Length of the paved network (km)	:	:	:	46,983	47,553	47,783	60,433	60,433

The network of motorways and express roads witnesses a remarkable progress in 2011 as its length is more than doubled in just one year. This evolution is related to the introduction of a new express road between Helwan, Elkorymat and Asuit. The total network of paved roads, on the other hand, records a sharp rise in 2010, a year during which its total length increases by more than 25%. Most of the new paved roads are local roads.

The environmental performance of road transport in Egypt

The environmental performance of road transport in Egypt can be measured by the land requirement of infrastructures on one side and the share of diesel vehicles in the total fleet of vehicles on the other, as shown in the table 12 below.

[5] Including pipeline transport companies.

Table 12 - Environmental performance of road transport

	2000	2005	2006	2007	2008	2009	2010	2011	Unit
Density of paved roads	:	:	:	47	48	48	61	61	km per 1,000 km2
Density of motorways and express roads	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.5	km per 1,000 km2
Share of diesel cars in the total fleet of vehicles	:	:	:	:	:	:	24.8	24.8	%

Although progressing rapidly, the density of paved roads, and even more the density of motorways and express roads, remain very weak, with 61 kilometres of paved roads and less than a kilometre of motorway and express road per 1,000 square kilometre at the end of the period. This clearly points to the share of desert areas in the total territory.

Diesel cars represent almost 25% of the total fleet of vehicles. Figures are only available for the end of the period and do not allow to assess the evolution of this variable.

Economic, technical and environmental performance of maritime transport in Egypt

Egypt is a big maritime power with two coastal areas, one on the Mediterranean sea, the other on the Red sea, eleven principal ports in statistical terms, and, of course, a key infrastructure for the whole Mediterranean sea and the world maritime transport as a whole: the Suez Canal.

The table 13 below presents the key evolutions in maritime infrastructures, equipment and traffic between 2000 and 2011. It shows that four ports have emerged as principal ports in this period, in addition to the seven ones existing in 2000. While the number of passenger ships registered in Egypt is almost constant over the period, the fleet of freight merchant ships, on the other hand, has noticeably decreased.

The traffic of merchant ships in Egyptian ports has progressed, as well as the maritime transport of goods, while the number of sea passengers has strongly declined.

Table 13 - Key data of maritime transport

	2000	2005	2006	2007	2008	2009	2010	2011	*Unit*
Infrastructures									
Number of principal ports	7	8	11	11	11	10	12	11	*Port*
Total length of quays of principal ports	31.6	31.6	31.6	31.8	32.1	32.1	32.4	32.4	*km*
Equipments									
Number of freight merchant ships[6]	137	74	96	93	89	86	86	86	*Ship*
Number of passenger merchant ships[6]	12	13	11	10	11	13	13	13	*Ship*
Traffic									
Number of merchant ships arrivals	10,715	9,978	18,389	19,625	20,299	20,278	20,343	18,161	*Ship*
Number of arriving and departing passengers[7]	2,510	3,096	3,397	3,270	3,008	2,841	2,938	1,976	*'000 pass.*
Total volume of freight [8]	:	97,545	106,649	112,214	116,180	123,139	135,395	128,437	*'000 tonnes*

The technical performance of maritime transport in Egypt

One of the key technological evolutions having impacted maritime transport over the last decades is the rapid growth of intermodal transport. Egypt did not stay on the sidelines of this evolution as shows the strong rise in the volume of container freight recorded in its ports, even though the volume of Ro-Ro freight is on the decline over the last few years.

Table 14 - Intermodal activity in Egyptian ports

	2000	2005	2006	2007	2008	2009	2010	2011	*Units*
Container freight	:	:	4 569	5 076	6 082	6 176	6 699	:	*Thousands TEU*
Ro-Ro freight	:	947	1 069	1 190	1 066	1 056	835	826	*Thousands units*

As shown in table 14, container freight witnesses a sharp and regular growth over the period, its volume measured in TEU being almost 50% higher in 2010 than in 2006.

[6] Passenger Ro-Ro ships are considered as passenger ships.

[7] Excluding cruises.

[8] Arriving and departing.

The evolution is mixed as regards the volume of Ro-Ro freight which registers a peak in 2007 and then regularly declines until 2011.

The environmental performance of maritime transport in Egypt

Three indicators are available to measure the environmental performance of maritime transport in Egypt, i.e. the number of marine pollutions, the index of passenger mobility and the index of goods mobility. These indicators are presented in the table 15 below.

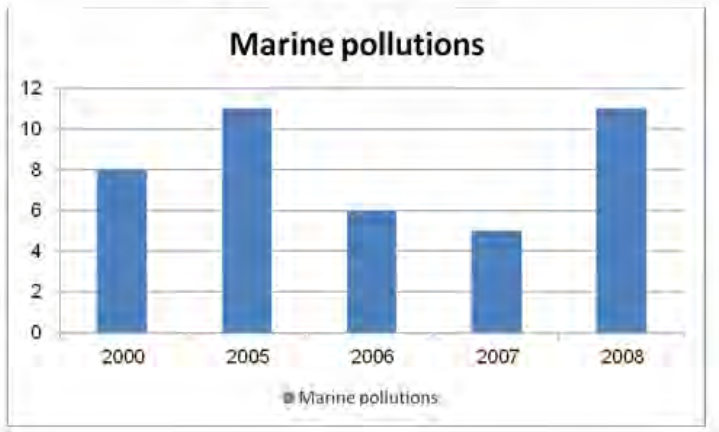
The number of marine pollutions, as shown in this table and in the graph 7 below, is pretty uneven between 2000 and 2008, with a minimum of 5 incidents recorded in 2007 and a sudden jump to a peak of 11 in 2008. No clear downward or upward trend can be identified over the whole period.

Table 15 - Environmental performance of maritime transport

	2000	2005	2006	2007	2008	2009	2010	2011	Unit
Marine pollutions	8	11	6	5	11	:	:	:	*Number of incidents*
Passenger mobility	39.2	43.8	47.2	44.4	40.0	36.9	37.3	24.6	*Total arrivals and departures per 1,000 inhabitants*
Goods mobility	:	181.2	164.3	143.8	124.5	114.8	108.4	92.9	*Total volume of freight in tonnes per 1 million EGP of GDP*

As shown in the table 16 above, maritime passenger mobility, measured as the total arrivals and departures per 1,000 inhabitants, witnesses an irregular development. It reaches a peak in 2006 and then declines regularly, the drop being more accentuated in 2011. On the other hand, maritime goods mobility, measured as the total volume of freight in tonnes per 1 million EGP of GDP, regularly declines over the period examined. It is almost divided by two between 2005 and 2011.

Chart 7 - Number of damages, leaks and discharges of unauthorized liquid and gaseous effluents in territorial waters



Economic, technical and environmental performance of air transport in Egypt

Since 2005, Egypt has eight principal airports, four more than in 2000, with runways of more than 45 kilometres in total.

The number of civil passenger aircraft in service (see table 16 below) seems to witness large apparent evolutions, but it should be noticed that these data relate to the Egyptair fleet only until 2007, while they include the fleets of other companies later on. The steep increase in the recorded fleet in 2008 is thus not significant. The increase later on reflects the expansion of Egyptair fleet.

Activity in all respects, traffic and volumes of passenger and freight transport, witnesses a regular growth until 2009 (2008 in the case of freight transport) followed by one or two years of decline and by a new decline in 2011 that can probably be related to the economic and political situation.

Table 16 - Key-data of air transport

	2000	2005	2006	2007	2008	2009	2010	2011	Unit
Infrastructures									
Number of principal airports	4	8	8	8	8	8	8	8	*No*
Total length of runways longer than 2,438 m	45.9	45.9	45.9	45.9	45.9	45.9	45.9	45.9	*km*
Equipments									
Number of civil passenger aircraft in service	38	37	38	41	72	95	100	99	*No*
Number of civil freight aircraft in service	2	3	4	4	5	6	4	4	*No*
Traffic									
Total number of aircraft movements	229	271	270	303	353	348	378	311	*Thousand*
Total number of passengers	19,498	24,819	26,634	30,039	35,831	35,632	40,447	29,245	*Thousand*
Total volume of freight and mail	189	235	257	314	291	290	313	281	*Thousand*

The economic performance of air transport in Egypt

Data on the economic performance of air transport in Egypt are, for the major variables, available for the fiscal year 2008/2009 only. This does not allow to make any chronological analysis. Still, some outstanding facts can be identified.

With a value added to turnover ratio of 41.5% and a gross operating surplus to value added of 75.3%, air transport can be considered as a high margin activity in Egypt (see table 17 below). This can probably be related to the high degree of concentration in the sector (see below).

Table 17 - Growth of activity and profitability of transport companies *(million EGP)*

	2008/2009
Turnover	19,043
Value added (current prices)	7,900
Gross operating surplus	5,951

As regards the cost structure of air transport (see table 18 below), it should be noted that energy represents only 23.4% of the total intermediate consumption of air transport companies in 2008/2009, while intermediate consumption as a whole represents more than 58% of turnover.

Table 18 - Cost structure *(million EGP)*

	2008/2009
Intermediate Consumption (IC)	11,143
IC in Energy	2,607

It should be noted that energy represents only 23.4% of intermediate consumption of air transport companies in 2008/2009.

Graph 8 below shows that the total number of air transport companies oscillates between 9 and 13 between 2008 and 2011, and graph 9 that the concentration ratio, measured as the market share of the dominant company, i.e. Egyptair, oscillates between 85% and 89% over the same period.

Chart 8 - Number of air transport companies

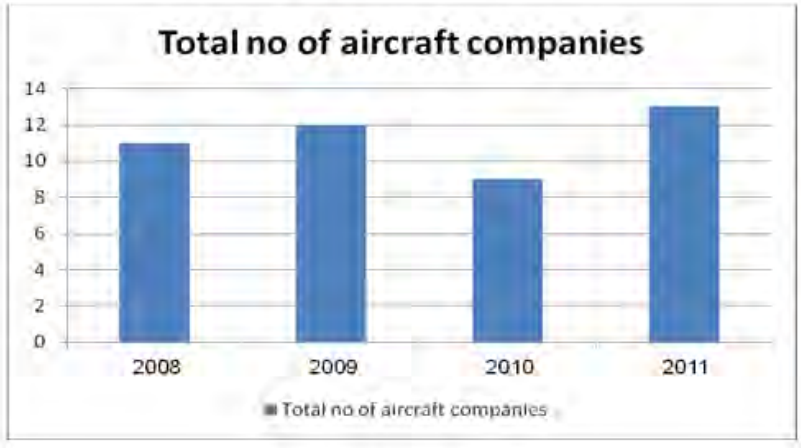
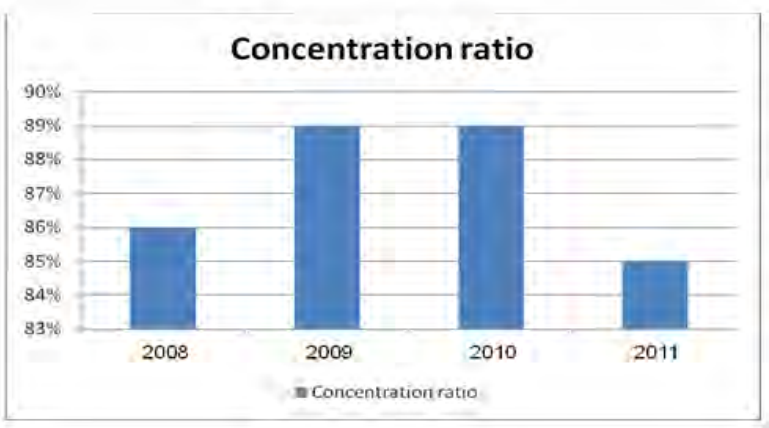


Chart 9 - Concentration ratio



The technical performance of Air transport in Egypt

The Performance of equipments

The Egyptian fleet of passenger civil aircraft is made of 99 units in 2011, excluding rented aircrafts, in strong progression with respect to 2008 when only 52 aircrafts were registered. This fleet is mostly constituted of medium-sized aircraft with between 51 and 250 seats, the category which also witnesses the strongest rise over the whole period (see table 19).

Table 19 - Number of passenger civil aircraft according to their capacity

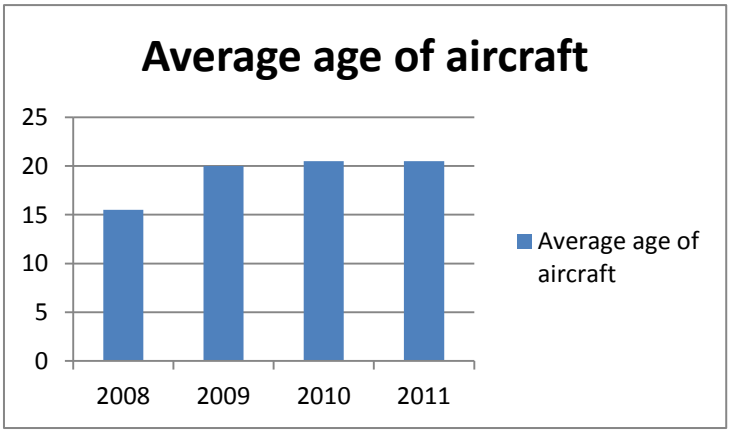
	2000	2005	2006	2007	2008	2009	2010	2011
50 seats or less	:	:	:	:	:	1	2	2
51-150					27	53	49	37
151-250	:	:	:	:	10	26	24	38
More than 250	:	:	:	:	15	15	25	22

Still, the fleet of passenger civil aircraft follows a quite erratic development. It seems that there is a significant reduction of this fleet after 2009 for the lower medium-sized aircraft category (51-150 seats) and after 2010 for the large aircraft category.

The environmental performance of air transport

The age of aircrafts is a key indicator of the potential impact of air transport on the environment. In this respect, the Egyptian fleet seems to be relatively old and getting even older over the period analysed (see graph 10 below).

Chart 10 – Average age of aircraft *(years)*



Indeed, a general ageing of the fleet is observed between 2008 and 2011. The average age of aircrafts thus increased from 15.5 years to 20.6 years between 2008 and 2011.

Conclusion

There is clearly a huge distortion in the performance of the various modes of transport in Egypt. Road sector is and will remain the dominant mode in domestic transport for the foreseeable future.

The role for railway sector is declining over the last decade. This is mainly due to the low technical performance of this mode as the operating fleet suffers from the ageing of all categories of vehicles. This means that the development of the railway modal share clearly demands an investment effort in the related equipment.

As in many cases in the region, Maritime transport is the dominant sector as far as international trade is concerned, and air transport the dominant one as far as international passenger transport is concerned. Both modes of transport witness strong developments in terms of traffic and transport volumes.

Finally, it should be noticed that all transport performance indicators relate to intercity transport activity excluding intra-city transport.

The performance of transport systems in Israel

The economic, technical and environmental performance of transport activities and systems in Israel

The population of Israel has reached about 7.8 million inhabitants in 2011. Its area is 22,072 km² with a coastline of 206 km (196 km along the Mediterranean and 10 km along the Red sea).

The population has increased in a constant and steady pace over the last decade (20% between 2000 and 2011) and so has the population density (see table 1 below).

The gross domestic product (GDP), at current prices, has increased faster in this period (over 70%), which brought the GDP per capita at current prices to rise by almost 40%.

It should be noted, however, that the international economic crisis has influenced GDP growth rate and it fell down to 1.1% in 2009 while GDP per capita in constant prices decreased by 0.7%.

Table 1 - Israel key figures

	2000	2005	2006	2007	2008	2009	2010	2011
Population *(thousands)*	6,508.8	6,990.7	7,116.7	7,243.6	7,419.1	7,552.0	7,695.1	7,836.6
Population density	300.7	323.0	328.8	334.7	342.8	348.9	355.5	362.1
GDP *(NIS million, at current prices)*	506,173	600,011	646,735	683,352	723,035	765,958	813,938	871,827
GDP / inhabitant (NIS) at current prices	80,297	86,194	91,239	94,667	98,357	102,372	106,805	112,298
GDP annual growth rate in 2005 prices	8.7	4.9	5.8	5.9	4.1	1.1	5.0	4.6
Share of transport sectors in GDP (%)[1]	4.5	4.1	3.8	3.7	3.8	3.4	3.5	3.6
Share of transport, storage communication sectors in GDP (%)[2]	7.2	6.9	6.3	6.3	6.5	6.3	6.1	6.1
Share of transport sectors in Employment (%) [3]	3.8	3.6	3.7	3.4	3.3	3.4	3.4	3.4

[1] Transport sectors defined as ISIC Rev.3 classes 60 to 63.

[2] Transport, storage and communication sectors defined as ISIC classes 60 to 66.

[3] Transport sectors defined as ISIC Rev.3 classes 60 to 63 except group 633.

The economic performance of transport activities and systems in Israel

The production of transport services in current prices grew faster than the value added of transport companies over the last decade; 45% between 2000 and 2009 vs. 8.7% accordingly (Table 2). As a consequence, the value added rate, i.e. the share of value added in the total value of production, decreases dramatically from 40% in 2000 to 30% in 2009. It is worth noting that both production and value added have reached a peak in 2008 and declined in 2009.

Gross operating surplus of transport companies, on the other hand, reached a peak in 2005 and then declined; its value in 2009 is 30% lower than the value in 2000 and 50% lower than its value in 2005.

Table 2 - Production, Value added and Gross operating surplus of Transport companies *(NIS million)*[4]

	2000	2005	2006	2007	2008	2009
Output	29,987	40,667	41,772	46,197	50,112	43,530
Value added *(current prices)*	11,890	14,842	14,151	15,281	15,333	12,919
Gross operating surplus	3,701	5,138	3,955	4,386	4,221	2,601

The following analysis details economic evolutions in the different modes of transport, as well as the technical and environmental indicators relating to these modes.

Railways transport in Israel: economic, technical and environmental performance

Table 3 below presents the key figures of the railways transport sector in Israel. These figures show a strong development of railways infrastructure, equipment[5] and activity over the last decade. Moreover, large development projects of new rail lines and stations are currently developed, along with procurement of new passenger rolling stock that will further increase all key figures in 2012 and beyond.

Table 3 - Key data of railways transport

	2000	2005	2006	2007	2008	2009	2010	2011
Infrastructure								
Length of rail network *(km)*	926	896	905	913	989	1 001	1 035	1 079
Equipment								
Number of locomotives	53	74	72	77	81	81	88	88
Capacity of passenger railway vehicles *(seats thousand)*	12	26	30	32	37	39	33	37
Load capacity of goods transport wagons (tons thousand)	75	:	45	45	44	44	44	43
Flows								
Total passenger traffic in pkm *(millions)*	781,4	1 617,8	1 609,2	1 834,2	1 968,4	2 011,5	1 986,3	1 926,9
Total freight traffic in tkm *(millions)*	1 173	1 149	1 123	1 177	1 056	799	1 062	1 099

[4] The data are based on ISIC Rev 3, and include the following industries: 60-62.

[5] Except for the load capacity of goods transport wagons.

Technical performance of railways transport in Israel

The length of the railway network has increased by more than 20% between 2005 and 2011[6] . The number of locomotives has increased by 66% between 2000 and 2011 while the capacity of passenger railways vehicles has been tripled over the same period.

The only decline recorded in terms of equipment relates to the capacity of goods transport wagons which is indeed more than 40% lower in 2011 than in 2000, but is almost stable since 2005. In Israel, goods transport by railways is neither practical nor economical since there is no important facility in a distance longer than 100 km from a port.

Finally, the volume of passenger transport has dramatically increased over the period. Measured in passenger-kilometre, it has been multiplied by almost 2.5 between 2000 and 2011, reaching a peak in 2009 before retreating by more than 4% until 2011.

However, the volume of goods transport followed a more chaotic evolution over the last decade but declined, overall, over the period. Measured in tonne-kilometre, it was about 6% lower in 2011 than in 2000. It however reached a bottom point in 2009 and was strongly on the rise in the end of the period, growing by more than 37% between 2009 and 2011.

Environmental performance of railways transport in Israel

Although the share of railways CO2 emissions from the entire transport sector is very low (less than 1%), CO2 emissions related to railways transport strongly increased, by nearly 90%, between 2000 and 2011, as a result of the increase in kilometres travelled by train in this period. This growth was much more rapid than that of the whole transport sector (around 15% over the same period).

Table 4 - Carbon dioxide (CO2) emissions *(1,000 tons)*

	2000	2005	2006	2007	2008	2009	2010	2011
Railways Transport	77	125	128	142	141	139	149	144
Total Transport [7]	14,018	14,117	14,549	15,198	15,346	15,550	16,186	16,079
% from Total Transport	0.55	0.89	0.88	0.94	0.92	0.90	0.92	0.90

The density of the railways network slightly increases over the period, from 43 km per 1,000 km² in 2000 to 48 in 2010, as shown in table 5 below[8] .

Finally, the passenger mobility, measured in passenger-kilometre performed per inhabitant, strongly rises, from around 123 pkm in 2000 up to 263 pkm in 2010, being hence multiplied by more than 2 over the

[6] There are no electrified lines in Israel.

[7] Excluding marine and aviation International Bunkers according to the IPCC guideline.

[8] All locomotives in Israel are diesel locomotives

period. It should be noted that, as the average distance per traveller trip was 53 km in 2011, this means that, on average, every inhabitant makes 5 trips per year.

Table 5 - Environmental performance of railway transport

	2000	2005	2006	2007	2008	2009	2010
Density of railways network (km/1,000 sq. km)	43	41	42	42	46	46	48
Share of diesel locomotives in the total fleet of locomotives (%)	100	100	100	100	100	100	100
Passenger mobility[9]	122.7	231.4	226.1	253.2	266.9	271.1	263.0

Road transport in Israel: economic, technical and environmental performance

Table 6 below presents the key figures of road transport in Israel between 2000 and 2011. It shows that both road infrastructure and equipment have rapidly developed in the country over this decade.

Table 6 - Key data of road transport

	2000	2005	2006	2007	2008	2009	2010	2011
Infrastructure								
Length of the network *(km)*	16,450	17,591	17,714	17,872	18,105	18,319	18,482	18,569
Equipement								
Number of road vehicles used for freight transport *(Excluding Semitrailers and trailers)*	313,980	354,842	358,245	362,164	362,646	354,423	351,270	352,298
Number of road vehicles used for freight transport *(Including Semitrailers and trailers)*	348,741	396,460	402,019	409,967	414,558	410,642	411,727	417,230
Number of road vehicles used for passenger transport *(Including motorcycles)*	1,517,550	1,752,476	1,817,271	1,921,470	2,027,909	2,104,293	2,214,921	2,414,687
Number of road vehicles used for passenger transport *(Excluding motorcycles)*	1,440,078	1,671,672	1,731,620	1,826,662	1,924,515	2,101,914	2,213,635	2,295,392

[9] Passenger-kilometre per inhabitant.

The economic performance of road transport in Israel

Road transport is a dynamic sector both in terms of business demography and employment, as shown in the table 7 below. Still, the number of road transport companies reaches a peak in 2006 and then decreases. Employment, on the other hand, is following a relatively steady rise, even though it records two years of decline in 2006 and 2008.

In 2010, employment in the sector is more than 27% above its level in 2000. It should be noted however that these data cover also railways transport, which could have an impact on the figures of employment.

Table 7 - Key economic figures of road transport in Israel[10]

	2000	2005	2006	2007	2008	2009	2010
Number of companies	27,323	32,432	32,980	32,374	31,671	30,788	29,453
Employment *(thousands)*	61.6	72.6	72.5	76.7	74.7	76.6	78.5

The technical performance of road transport in Israel

The road network in Israel has steadily expanded between 2000 and 2011. The total length of the network was nearly 13% higher in 2011 than it was in 2000 (see table 8 below).

Table 8 - Performance of networks

	2000	2005	2006	2007	2008	2009	2010	2011
Length of paved network *(km)*	16,450	17,591	17,714	17,872	18,105	18,319	18,482	18,569

There is a global modernization of the fleet of coaches and buses over the last decade (table 9). The average age of the fleet has declined from 7.5 years in 2000 to 6 years in 2011.

Table 9 - Average age of the fleet of coaches and buses

	2000	2005	2006	2007	2008	2009	2010	2011
Average age (years)	7.5	7.0	6.8	6.5	6.4	6.2	6.1	6.0

[10] The data refer to industry 60 in ISIC Rev.3.

The environmental performance of road transport in Israel

Road transport usually accounts for the major part (92-93%) of CO2 emissions related to transport activities (table 10).

In volume, CO2 emissions related to road transport increase by more than 15% between 2000 and 2011 even though they seem to slightly decrease in 2011[11].

Table 10 - CO2 Emissions of road transport *(thousands tonnes)*

	2000	2005	2006	2007	2008	2009	2010	2011
Road transport	12,942	13,108	13,540	14,160	14,266	14,468	15,054	14,990
Total transport[12]	14,018	14,117	14,549	15,198	15,346	15,550	16,186	16,079
% from total transport	92.3	92.8	93.1	93.2	93.0	93.0	93.0	93.2

The density of roads in Israel has declined over the last decade, even though the length of the network has augmented (table 11). The share of diesel cars in the total fleet of vehicles has slightly, but irregularly, increased over the period. It was 13.4% in 2000, reached a peak of 16.5% in 2005 and 2006, and then decreased to reach 15.4% in 2010.

It should be noted that the use of diesel engines in passenger cars in Israel is rarely practiced, due to tax considerations which make the use of private diesel cars unattractive to households. Indeed, the "green" taxation scheme severely dissuades the use of polluting vehicles.

Table 11 - Environmental performance of road transport

	2000	2005	2006	2007	2008	2009	2010
Density of paved roads (km/1,000 km²)	136	126	125	123	122	120	119
Share of diesel cars in the total fleet of vehicles (%)	13.4	16.5	16.5	16.4	16.2	15.7	15.4

[11] This decline is however not significant and could be a result of a statistical error.

[12] Excluding marine and aviation International Bunkers according to the IPCC guideline.

Maritime transport in Israel: economic, technical and environmental performance

Table 12 below presents key data of maritime transport in Israel. The country had three principal ports up to 2010, and four from 2011. This change, however, was the consequence of a managerial restructuring; yet, the length of the quays was extended by one kilometre in 2011.

The fleet of ships has gone through minor changes over the last decade while the activity in Israeli ports has increased in terms of ships traffic, passenger transport and goods transport.

Table 12 - Key data of maritime transport

	2000	2005	2006	2007	2008	2009	2010	2011
Infrastructures[13]								
Number of principal ports	:	3	3	3	3	3	3	4 [14]
Total length of quays of principal ports (meters)	:	12,578	12,578	12,578	13,278	13,278	13,278	14,278
Equipments								
Number of freight merchant ships[15]	57	57	53	55	50	54	56	58
Number of passenger merchant ships[15]	0	0	0	0	0	0	0	0
Traffic								
Number of merchant ships arrivals	6,041	6,229	5,571	5,324	5,310	5,884	6,197	6,421
Number of arriving and departing passengers (thousands) [13]	:	293	251	311	300	381	583	460
Total volume of freight (tons thousand)	43,063	37,714	36,252	40,223	40,988	36,943	43,412	44,516

The technical performance of maritime transport in Israel

Most ships constituting the Israeli fleet are container ships (table 13). This fleet seems to follow a somewhat patchy evolution with minor fluctuations over the period.

Evolutions are more significant in terms of capacity. Capacity of oil tankers was almost multiplied by two between 2000 and 2011, while capacity of container ships increased by 60% over the same period. The changes in the carrying capacity are caused by the purchase of a bigger ship.

[13] Due to structural changes in ports, data for 2005 and later cannot be compared with data for previous years.

[14] The additional port was established via restructuring.

[15] Including only the ships of the Israeli Merchant Fleet. The Israeli fleet includes freight merchant ships only.

Table 13 - Performance of equipment

		2000	2005	2006	2007	2008	2009	2010	2011
Number of merchant ships by type	Oil tankers of 300 grt and over	2	2	3	3	3	3	4	4
	Chemical tankers of 300 grt and over	2	2	2	1	1	1	1	1
	Liquid gas tankers of 300 grt and over	0	0	0	0	0	0	0	0
	Bulk carriers of 300 grt and over	5	5	1	0	0	0	1	1
	Ore / bulk / oil carriers of 300 grt and over	2	4	4	4	4	4	4	4
	General cargoes of 300 grt and over	8	5	4	4	3	1	1	1
	Container ships of 300 grt and over[16]	37	39	38	42	38	42	43	38
	Ro-Ro cargoes of 300 grt and over	1	0	1	1	1	3	2	1
Carrying capacity of merchant ships by type	Oil tankers of 300 grt and over	22,588	22,588	3,798	3,798	3,798	3,798	43,797	44,922
	Chemical tankers of 300 grt and over	21,447	15,345	15,345	12,287	12,287	12,287	12,287	12,287
	Liquid gas tankers of 300 grt and over	0	0	0	0	0	0	0	0
	Bulk carriers of 300 grt and over	502,430	137,601	22,669	0	0	0	8,100	8,100
	Ore / bulk / oil carriers of 300 grt and over	164,705	689,750	696,252	696,252	696,252	696,252	696,252	696,252
	General cargoes of 300 grt and over	135,390	85,039	62,085	62,085	42,330	2,685	2,685	2,685
	Container ships of 300 grt and over[16]	1,403,707	1,616,195	1,576,571	1,778,638	1,635,880	2,400,724	2,488,267	2,246,071
	Ro-Ro cargoes of 300 grt and over	4,634	0	3,726	3,726	3,726	10,292	7,009	3,283

As a natural complementary development was the quite rapid increase of intermodal transport over the last decade in Israeli ports (table 14 below). The number of loaded and unloaded containers increased by 76%, in TEUs, and the number of loaded and unloaded Ro-Ro units increased by 66% over the same period. Still, the evolution in the container traffic was almost steady while that of Ro-Ro units was less regular, with a big drop recorded in 2009 and a decline again in 2011.

16 Including cooling ships

Table 14 - Performance of freight transport - Loaded and unloaded containers and Ro-Ro units

	2000	2005	2006	2007	2008	2009	2010	2011
Container freight *(thousands TEU)*	1 358	1,714	1,769	1,964	2,081	2,032	2,284	2,396
Ro-Ro freight in units *(thousands)*	154.7	190.0	164.7	217.1	256.6	155.8	265.9	256.9

The environmental performance of maritime transport in Israel

CO2 emissions related to maritime transport represent a marginal share of the total CO2 emissions related to transport activities.

Table 15 - CO2 emissions of maritime transport *(thousands tonnes)*

	2000	2005	2006	2007	2008	2009	2010	2011
National navigation[17]	:	4	4	4	4	4	4	4
Total transport [18]	:	14,117	14,549	15,198	15,346	15,550	16,186	16,079
Share in total transport emissions (%)	:	0.03	0.03	0.03	0.02	0.02	0.02	0.02

The density of port facilities, measured as the ratio between the length of quays in metres and the length of the coast in kilometres, grew by more than 13% between 2005 and 2011.

The same holds true for the passenger mobility, measured as the ratio between the number of passengers embarked and disembarked in national maritime ports and the total population; which grew by more than 40% between 2005 and 2011.

Table 16 - Environmental performance of maritime transport

	2000	2005	2006	2007	2008	2009	2010	2011
Density of port facilities *(m/km)*	[19]	61.06	61.06	61.06	64.46	64.46	64.46	69.31
Passenger mobility *(thousands)*	[19]	0.042	0.035	0.043	0.040	0.050	0.076	0.059

[17] Based on an estimation of the domestic navigation only..

[18] Excluding marine and aviation International Bunkers according to the IPCC guideline.

[19] Due to structural changes in ports, data for the years 2005 and later cannot be compared with data for previous years.

Air transport in Israel: economic, technical and environmental performance

Israel has one principal airport, in statistical terms, the Ben-Gurion airport near Tel Aviv. While the national fleet of passenger aircraft expanded over the last decade, that of freight aircraft reduced over the same period (Table 17 below).
Traffic and passenger transport increased significantly between 2000 and 2011, while the volume of air freight and mail declined over the same period.

Table 17 - Key-data of air transport

	2000	2005	2006	2007	2008	2009	2010	2011
Infrastructures								
Number of principal airports	1	1	1	1	1	1	1	1
Total length of runways longer than 2438 m	:	:	:	:	:	:	:	24,862
Equipments								
Number of civil passenger aircraft in service	43	46	47	47	48	49	51	49
Number of civil freight aircraft in service[20]	6	7	6	6	4	2	4	3
Traffic								
Total number of aircraft movements[21]	33,363	29,230	31,939	34,481	38,362	38,549	40,512	42,745
Total number of passengers (thousands) [22]	9,608	8,586	8,896	10,151	11,134	10,574	11,571	12,343
Total volume of freight and mail (thousand tons)[22]	343	322	327	349	329	273	301	296

The technical performance of air transport in Israel

The Israeli fleet of passenger aircraft consists of medium-size and large aircraft (Table 18). The changes in both categories of aircraft were relatively small between 2000 and 2011. The fleet of medium-size aircraft reached a record low in 2007 (19 aircraft) and then expanded in 2008 and 2009 before stabilizing at 25 aircraft until the end of the period. The fleet of large aircraft followed a disordered evolution with an alternation of years of expansion and contraction, yet clearly oriented on the rise.

[20] Including convertible aircraft
[21] International landings only.
[22] International only.

Table 18 - Number of passenger civil aircraft according to their capacity

	2000	2005	2006	2007	2008	2009	2010	2011
50 seats or less (domestic)	5	4	4	4	3	3	3	1
51-150 seats	23	20	20	19	22	25	25	25
Thereof : *Domestic*	8	8	8	8	7	8	8	8
International	15	12	12	11	15	17	17	17
151-250 seats (international)	6	10	12	12	9	8	10	9
More than 250 (international)	9	12	11	12	14	13	13	14

The age of the fleet of passenger aircraft did not change significantly between 2006 and 2010, with a decreasing tendency.

Table 19 - Average age of the fleet of passenger civil aircraft

	2000	2005	2006	2007	2008	2009	2010
Average age of the fleet of passenger civil aircrafts	:	:	13.6	13.8	13.1	12.7	12.7

The environmental performance of air transport in Israel

CO2 emissions related to domestic air transport constitute a small but significant part of total CO2 emissions related to local transport activities. The volume of CO2 emissions related to domestic air transport decreased by 9% over the last decade. The share of emissions of domestic air transport out of the total transport emissions decreased by 20%.

Table 20 - CO2 emissions of air transport (thousands tonnes)

	2000	2005	2006	2007	2008	2009	2010	2011
Domestic aviation[23]	1,029	880	877	892	935	939	979	941
Total transport [24]	14,018	14,117	14,549	15,198	15,346	15,550	16,186	16,079
Share in total transport emissions (%)	7.34	6.23	6.03	5.87	6.09	6.04	6.05	5.85

Air passenger mobility, defined as the ratio between the number of passenger arrivals and departures (to and from Israeli international airports) and the total population of the country, follows an inconsistent evolution between 2000 and 2011: it is significantly declining between 2000 and 2005, then hits a first record high in 2008, drops in 2009 before reaching a new peak in 2011.

[23] Based on an estimation of the domestic aviation only.
[24] Excluding marine and aviation International Bunkers according to the IPCC guideline.

Table 21 - Environmental performance of air transport

	2000	2005	2006	2007	2008	2009	2010	2011
Passenger mobility *(international only)*	150.8	122.8	125.0	140.1	150.1	140.0	150.4	157.5

The performance of transport systems in Palestine

The economic, technical and environmental performance of transport activities and systems in Palestine

Transportation is constituting one of the main economic activities in Palestine. This activity contributes to the gross domestic product significantly and provides working opportunities to a considerable number of people.

This report presents the available statistics on the main components of the transportation system in Palestine. Land transport is a major component of this. Available data cover the length of the road network according to the type of road and the number of vehicles by type. The report also includes and analyses the main indicators of the air transport activity. Data cover in particular the number of movements of aircraft belonging to Palestinian Airlines on departure and arrival from the airport of Al Arish (Egypt).

Table 1 - Key figures of Palestine 2000, 2005-2011

	2000	2005	2006	2007	2008	2009	2010	2011
Population (thousands) (Estimation at Mid-Year)	2,840.0	3,286.8	3,388.9	3,494.5	3,596.6	3,702.3	3,811.1	3,927.1
Population density (inhabitants/sq km)	507	583	600	618	635	654	672	693
GDP (million USD) (current prices)	4,194.7	4,634.4	4,619.1	5,182.4	6,247.3	6,719.6	8,330.6	9,775.3
Growth rate (%) (current prices)	0.4	10.4	– 0.3	12.2	20.5	7.6	24.0	17.3
GDP / inhabitant (USD)	1,477.0	1,410.0	1,363.0	1,483.0	1,737.0	1,815.0	2,185.9	2,489.2

Population (estimation at Midyear) data excludes those parts of Jerusalem which were annexed by Israel in 1967.

The above table shows that the Palestinian population has increased by more than 36% between 2000 and 2011, the population density reaching almost 700 inhabitants per km² at the end of the period. It is worth noting that the population density is much higher in the Gaza Strip than in the West Bank, this difference being partly a result of the 1948 war and of the subsequent exodus of Palestinian refugees to small land areas.

The GDP of Palestine has been increasing dramatically during the period 2000-2011, the annual growth rate in current prices exceeding 20% in 2008 and reaching 24% in 2010. The only decline is registered in 2006 (– 0.3 %). This fall is to be related to the political crisis in the Gaza Strip where the GDP fell by 16% during that year.

Economic, technical and environmental performance of road transport in Palestine

The economic performance of road transport in Palestine

The analysis of the economic performance of road transport in Palestine can be based on a few key national accounts indicators, i.e. turnover, value added and gross operating surplus (GOS). Turnover and value added aim to measure the activity of the sector while GOS allows to measure the profitability of the companies and individuals composing this sector.

It is important to note that the road transport sector is made of two different kinds of operators, i.e. establishments and operators outside establishments. Operators outside establishments are individuals performing transport of goods and passengers on an independent and professional basis.

The figures in this section concern both categories and the transport activity of other sectors of the economy, that is transport for own account.

The table 2 and the graph 1 below show a few major developments. A sharp drop is witnessed in terms of turnover (at current prices) in the period between 2000 and 2006 (– 4.5%), followed by a steady rise between 2006 and 2011 (+ 67.6%). It is worth underlining that these figures are in current prices and US dollars, which means that they are subject to both price and exchange rate evolutions.

Value added in current prices and US dollars shows a similar trend with a decline between 2000 and 2007 (– 26.2%) followed by a steady rise until 2011 (+ 50.9%).

It is important to note that value added sharply declines in 2011 (– 13.6%), while turnover has been slightly growing during the same year (+ 0.8%). These paradoxical evolutions seem to be related to changes in the prices of fuels.

Gross operating surplus witnesses exactly the same evolution as the value added at current prices.

As a consequence, the share of value added in turnover dramatically declines over the period 2000-2011, from 63.7% to 44.4%. The share of GOS in value added also declines, even though less dramatically, from 52.6% in 2000 to 43.6% in 2011.

This high ratio of gross operating surplus in value added is a witness of the large share of individual operators in the road transport activity.

Value added in constant prices and US dollars witnesses a sharp drop between 2000 and 2005 (– 57.1%). Indeed, the year 2000 was a very good one in terms of economic conditions and political stability, while the year 2002 was marked by the development of the Second Intifada and a decline of all economic activities.

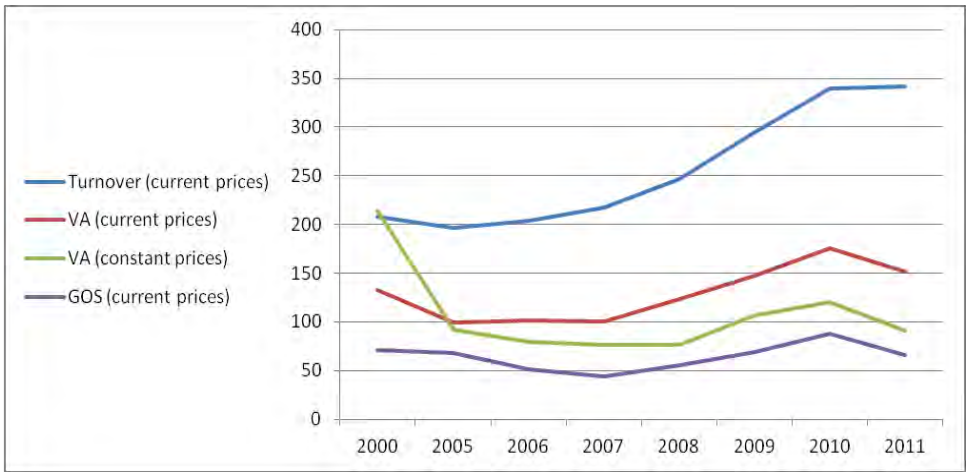
The decline in the value added of the transport sector goes on until 2008 (– 17.1% between 2005 and 2008), followed by a sharp rise in 2009 and 2010 (+ 57.4% between 2008 and 2010). This strong growth seems to be related to the government credit policy aimed at facilitating the granting of personal loans for the purchase of vehicles by reducing the requested guarantees. A sharp drop is finally observed in 2011 which, again, might be related to movements in the prices of fuels.

Table 2 – Growth of activity and profitability of road transport companies *(value in USD million)*

	2000	2005	2006	2007	2008	2009	2010	2011
Turnover (current prices)	208.3	196.8	204.0	216.9	246.9	294.3	339.2	341.9
Value added (current prices)	133.0	99.8	101.9	100.5	123.8	147.3	175.6	151.7
Value added (constant prices)	214.1	91.8	79.3	76.4	76.1	106.4	119.8	91.3
Gross operating surplus (current prices)	71.6	67.7	51.1	43.8	55.3	69.0	87.4	66.2

2004 is the Base Year

Chart 1 – Growth of activity and profitability of transport companies *(million USD)*



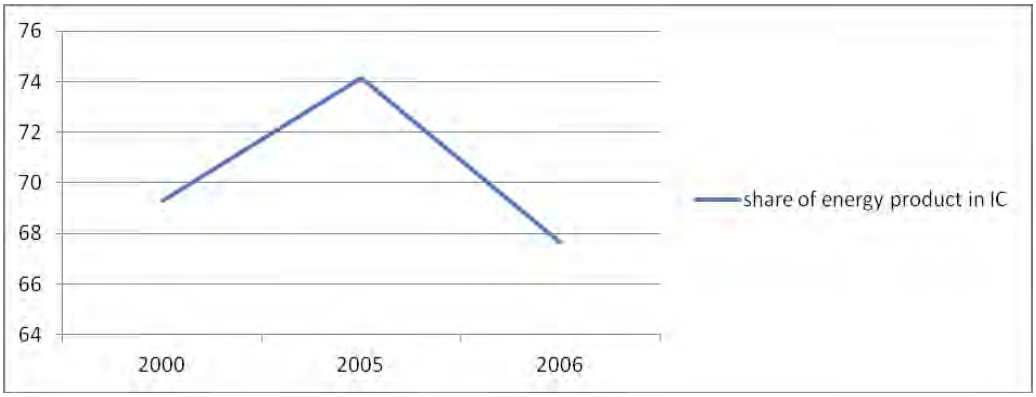
As shown in the table 3 below, intermediate consumption of the road transport sector in current prices and US dollars strongly rises between 2000 and 2011 (+ 145.5%), and in particular in 2011, with a rise of 16.2% compared to the previous year. These evolutions contrast with those of the turnover which was rising much more slowly in that period (+ 60.1% over the whole period and + 0.8% between 2010 and 2011). This pattern reveals that intermediate consumption is weighing more and more in the total value of production of the transport sector. It is making up 55.7% of total turnover in 2011 while this ratio was only 36.3% in 2000.

Most of the intermediate consumption (IC) of the road transport sector is made up of energy products, that is fuels for vehicles. Those energy products are thus counting for 67.7% of total intermediate consumption of the transport sector in 2006.

Table 3 - Cost structure *(USD million)*

	2000	2005	2006	2007	2008	2009	2010	2011
Total intermediate consumption (IC)	77.5	89.7	102.1	116.5	123.1	147.0	163.7	190.3
IC in energy products	53.7	66.5	69.1	:	:	:	:	:

Chart 2 - Intermediate consumption in energy products as a % of total IC



Demography of sector

The demography of the sector witnesses a constant growth between 2000 and 2009 in terms of number of establishments (+ 82.7%) followed by a significant decline over the last two years (– 13.7%).

The evolution in terms of vehicles operated outside of establishments shows a bit more patchy pattern with a succession of years of growth and decline. The overall trend is still that of a slight growth (+ 2.6% over the whole period).

Table 4 - Number of road transport establishments and vehicles operated outside of establishment

	2000	2005	2006	2007	2008	2009	2010	2011
Establishments	248	365	366	373	440	453	399	391
Vehicles operated outside establishments	9,937	11,327	11,337	10,087	10,189	10,791	10,945	10,195

The technical performance of road transport in Palestine

The analysis of the technical performance of the transport sector is based on few indicators, i.e. the length of the network, the number of road vehicles used for freight transport and the number of road vehicles used for passenger transport as shown in the table 5 below.

It is important to note that 2010 is the only year for which a reliable figure for the length of the network was available. This length stands at 4686.3 km for West Bank and Gaza Strip including bypasses and settlements roads, that is all areas.

It is also worth noting that the numbers of road vehicles used for freight and for passenger transport correspond to the licensed and legal vehicles that are entitled to operate on the streets and not to the registered vehicles that include vehicles in commercial stocks that are not allowed on the road network. These figures were obtained from the Ministry of Transport.

It should be noted that about 25% of the vehicles which use Palestinian roads are vehicles registered in Israel.[1]

The table 5 below shows a few major developments. A growth in the number of road vehicles used for freight transport is witnessed between 2000 and 2005 (+ 20.0%), followed by a sharp drop between 2005 and 2006 (– 13.7%) due to the political crisis in the Gaza Strip. The subsequent financial troubles led indeed a remarkable number of car owners (particularly governmental employees) to stop licensing their cars.

Due to the political split between the West Bank and the Gaza Strip, the data for the Gaza Strip were not available between 2007 and 2009. Data for the Gaza Strip were again available in 2010 and showed a sharp rise in the number of road vehicles used for freight transport in comparison with 2006 (+ 46.3%). This strong growth could be related to the economic recovery in the period.

The number of road vehicles used for passenger transport shows a similar trend, with an increase in 2005 compared to 2000 (+ 7.1%), then a decline in 2006 (– 13.9%), for the same reason as mentioned above for the freight vehicles, and, finally, a sharp growth in 2010 compared to 2006 (+ 59.2%). In this case, the growth seems to be related to the government credit policy aimed at facilitating the granting of personal loans for the purchase of vehicles by reducing the requested guarantees. This move seems to have had a direct impact on the number of licensed vehicles for passenger transport.

[1] A number of Palestinian residents also having an official residence in Israel and the subsequent capacity to register their vehicles there.

Table 5 - Key data of road transport

	2000	2005	2006	2007	2008	2009	2010
Infrastructure							
Length of the network	:	:	:	:	:	:	4,686.3
Equipment							
Number of road vehicles used for freight transport	24,444	29,322	25,299	:	:	:	37,011
Number of road vehicles used for passenger transport	99,001	106,037	91,347	:	:	:	145,455

The environmental performance of road transport in Palestine

As road transport develops, so does the related emission of greenhouse gases, as can be seen in the graph 3 below.

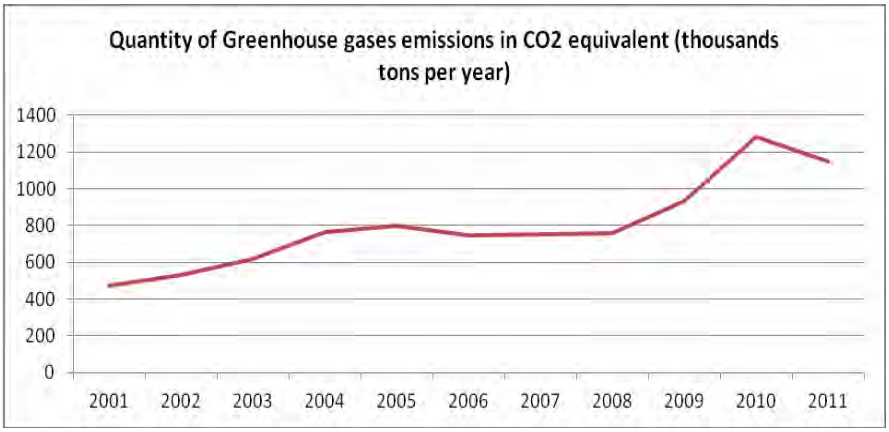


Chart 3
Quantity of greenhouse gases emissions in CO2 equivalent *(thousands tons per year)*

The graph above shows indeed a strong rise of CO2 emissions of road transport in 2005 compared to 2001 (+ 68.1%). This evolution was due to the gradual increase in the number of vehicles. A slight drop is then observed between 2005 and 2008 (– 4.6%) followed again by a sharp rise between 2008 and 2010 (+ 51.3%) and a new drop in 2011. The global evolution between 2001 and 2011 is clearly to be related to the increase in the number of passenger vehicles as detailed above, while the drop in CO2 emissions in 2011 is to be related to the drop in the fuel consumption due to prices evolutions over that year.

If we compare the evolution of CO2 emissions of road transport with that of the fleet of vehicles, it is worth noting that the amount of fuel consumption associated with road transport relates to all operated vehicles even though some of them are not licensed in certain periods as explained above, while the number of vehicles only relates to the licensed vehicles. This asymmetry means that no direct relation can be established between the fleet of licensed vehicles and the global volume of emissions.

Economic, technical and environmental performance of air transport in Palestine.

Air transport in Palestine has a chaotic history since the only airport of the territory, in Gaza, was destroyed in 2002. After a short interruption of its operations, the national company, Palestinian Airlines, resumed its activity, mostly from the airport of Al Arish on the Egyptian territory and from Marka Airport (Jordan). The table 6 hereinafter presents the key data of the sector.

Table 6 - Key-data of air transport

	2000	2005[2]	2006[2]	2007	2008	2009	2010	2011
Infrastructures								
Number of principal airports	1	0	0	0	0	0	0	0
Total length of runways longer than 2,438 m	3,076	0	0	0	0	0	0	0
Equipments								
Number of civil passenger aircraft in service	4	3	3	3	3	2	2	2
Number of civil freight aircraft in service	0	0	0	0	0	0	0	0
Traffic								
Total number of aircraft movements	1,354	162	138	75	0	0	86	127
Total number of passengers	53,457	5,327	4,022	2,200	0	0	2,510	3,700
Total volume of freight and mail	0	0	0	0	0	0	0	0

The technical performance of air transport in Palestine

As said, there was one principal airport in the Gaza Strip in 2000. This airport was destroyed in 2002 by Israeli forces.

After 2005, the Palestinian Airlines company (PALC) operated from Jordanian and Egyptian airports, mostly Al Arish (Egypt) and Marka (Jordan). PALC stopped its activities again in 2008 and 2009, due to the Palestinian political situation.

The major destinations of the Palestinian Airlines flights operated from Al Arish are Amman in Jordan and Jeddah in KSA.

The national fleet of airplanes decreased over the last decade, mostly because the national company had to sell some of its aircraft to reduce the cost of parking at Marka airport.

As shown in the table 7 below, the fleet owned and operated by PALC was made of four aircraft in 2000, half of them with a capacity of 50 seats or less, half of them with a capacity of 51 to 150 seats. One of

[2] The data include departures and arrivals of Palestinian airlines flights from Al Arish airport (Egypt). Source: Transportation statistics in Palestinian Territory; Annual Report 2007.

these larger aircraft was sold in 2005 and the other in 2011, the fleet hence being made up of two smaller aircraft at the end of the period. It should be added, however, that other aircraft are hired and operated by PALC every year for the religious season (Hajj).

Table 7 - Number of passenger civil aircraft according to their capacity

	2000	2005	2006	2007	2008	2009	2010	2011
50 seats or less	2	2	2	2	2	2	2	2
51-150	2	1	1	1	1	1	1	0
151-250	0	0	0	0	0	0	0	0
More than 250	0	0	0	0	0	0	0	0

Conclusion

This analysis shows that the number of road transport establishments and of vehicles operated outside of establishment are increasing strongly over the period considered, by about 50% in each case. This holds true for the turnover and the value added in current prices but, on the contrary, value added in constant prices witnesses a sharp drop between 2001 and 2011.

Owing to the political situation, data on the technical performance of road and air transport in Palestine are not available for each and every year in the period considered. This is true in particular for air transport, as the Gaza airport was destroyed in 2002 by Israeli forces.

Overall, the volume of greenhouse gases emissions related to road transport gradually increases in the decade under observation. It should be noted however that the estimation of road transport emissions in Palestine depends on the quantities of fuel combustion to which are applied average emission factors. The rise of CO2 emissions is thus directly related to the increase in the number of operated vehicles.

The performance of transport systems in Jordan

The economic, technical and environmental performance of transport activities and systems in Jordan

Jordan has witnessed a significant evolution in demographic and economic terms over the last decade, as shows the table 1 below. The population rose from nearly 4.9 million inhabitants in 2000 to more than 6.2 million in 2011.

The GDP rose from around 6 billion JDs in 2000 to around 20.5 billion JDs in 2011, with growth rates at current prices reaching nearly 30% in 2008. This strong growth translated in a steep increase of per capita income from 1,235 JDs in 2000 to 3,277 JDs in 2011.

On the other hand, the share of the transport sector in GDP decreased significantly over the period, from 6% in 2000, through a peak of 6.5% in 2005, to only 4.3% in 2011.

Table 1 - Key data on Jordan

	2000	2005	2006	2007	2008	2009	2010	2011
Population *(thousands inhabitants)*	4 857	5 473	5 600	5 723	5 850	5 980	6 113	6 249
Population density	54.4	61.3	62.7	64.1	65.5	67.0	68.4	70.0
GDP (million JDs)	5 998	8 925	10 675	12 131	15 593	16 912	18 762	20 477
Growth rate (%)	3.8	10.3	19.6	13.6	28.5	8.5	10.9	9.1
GDP / inhabitant (JD)	1 235	1 631	1 906	2 120	2 666	2 828	3 069	3 277
Share of transport sectors in GDP	6.0	6.5	6.1	5.8	5.6	5.2	5.0	4.3
Share of transport sectors in Employment	8.3	7.9	8.3	8.6	8.5	8.9	9.4	9.3

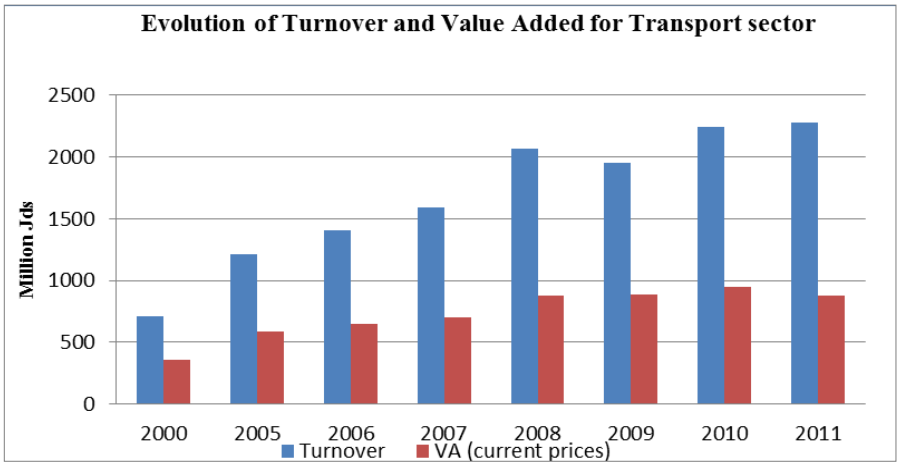
The economic performance of transport activities and systems in Jordan

Growth of activity and profitability of transport companies

Table 2 - Turnover, value added and gross operating surplus of transport companies (million JDs) [1]

	2000	2005	2006	2007	2008	2009	2010	2011
Turnover	708.9	1 210.8	1 408.7	1 591.9	2 068.0	1 951.7	2 240.3	2 279.2
VA *(current prices)*	361.8	584.1	650.2	702.2	877.0	886.6	944.4	875.7
GOS	179.4	343.1	404.1	415.2	517.3	500.0	535.8	451.9

Chart 1 - Turnover and VA *(current prices)*



The table and graph above show that the transport sector witnesses a decline in turnover in 2009 and a decline in value added in 2011. The turnover reached 2,068 million JDs in 2008 and fell back to 1,951 million JDs in 2009. The value added reached 877 million JDs in 2008 and increased to 886 in 2009 although the production has dropped in 2009, which means that intermediate consumption of the sector fell back during that year. The upsurge in turnover and intermediate consumption in 2008 was mainly due to the fluctuation in fuel prices in 2008.

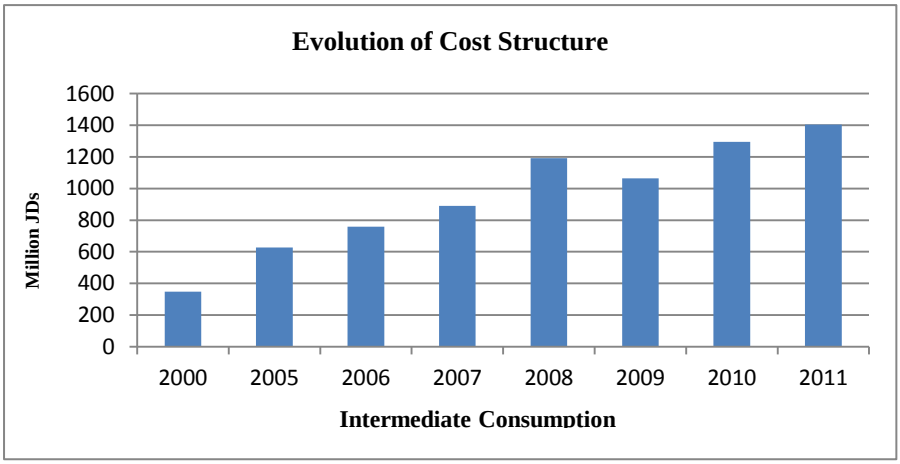
The share of value added in turnover decreased from 50% to 38% between 2000 and 2011 while the share of gross operating surplus in turnover decreased from 25% to 19% between 2000 and 2011. These evolutions are probably witnesses of a more competitive context in the transport industry.

Symmetrically, the share of intermediate consumption in the production raised from 48% to 61% between 2000 and 2011.

[1] All economic performance indicators are based on ISIC Rev.3 until 2010, ISIC Rev.4 in 2011.

Cost structure

Chart 2 - Transport cost structure



Economic, technical and environmental performance of railway transport in Jordan

The total length of the rail network is constant over the period, at a bit more than 620 km. A project regarding a new connection between the Shedyia phosphate mines and the new Aqaba port is under way as part of the national railway project. It should combine standard and normal ways to accommodate both existing and new locomotives.

The fleet of locomotives is constant over the period 2000-2006 with 29 locomotives, but has seen a slight increase during the period 2007-2011 with 33 locomotives.The capacity of passenger railway vehicles has witnessed a slight increase during 2000-2006 and then was constant until 2011 with 508 seats.

On the other hand, the capacity of goods transport wagons has witnessed a slight gradual decrease during the period 2000-2011 although it is picking up in 2011.

The total passenger traffic in passenger-kilometre reached a peak in the year 2000 and started declining during the period 2005-2007 before rising again during the period 2008-2010. It declined again in 2011.

As for the total freight traffic in tonne-kilometre, it registers a peak in 2005 and then regularly declines during the 2006-2011 period. Its volume is almost 38% lower in 2011 than in 2005.

Table 3 - Key data of railway transport

	2000	2005	2006	2007	2008	2009	2010	2011
Infrastructure								
Length of rail network *(km)*	621.5	621.5	621.5	621.5	621.5	621.5	621.5	621.5
Equipments								
Number of locomotives	29	29	29	33	33	33	33	33
Capacity of passenger railway vehicles *(No. of seats)*	400	540	508	508	508	508	508	508
Load capacity of goods transport wagons *(tones)*	15 666	14 238	13 860	13 356	13 482	13 482	12 010	13 752
Flows								
Total passenger traffic in pkm *(million)*	1 807	1 569	551	260	390	850	1 330	700
Total freight traffic in tkm *(million)*	346.5	500.7	438.4	433.2	449.0	439.2	344.1	308.5

Economic performance of railways transport in Jordan

Turnover and value added in railway transport surged in 2008 (see table 4 below), owing to the increase of the volume of phosphate exported via the port of Aqaba.

Table 4 - Growth of activity and profitability of transport companies *(thousands JDs)*

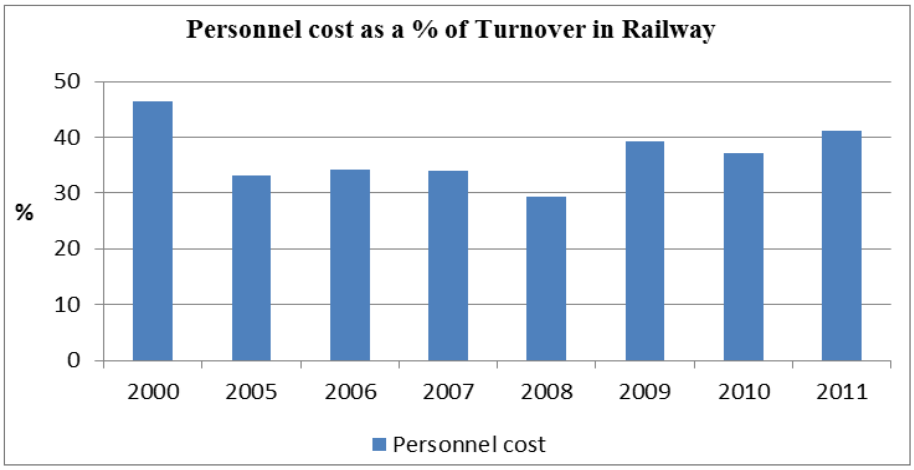
	2000	2005	2006	2007	2008	2009	2010	2011
Turnover	5 544	9 762	10 040	10 318	16 206	12 195	13 523	14 840
Value added *(current prices)*	2 475	4 670	5 065	5 682	7 800	6 182	6 568	8 687
Gross operating Surplus	- 2 505	- 373	23	576	1 357	- 115	190	1 331

As shown in table 5 below, there is an obvious and noticeable reduction in the value of personnel cost as a percentage of turnover in the railway sector during the period 2000 to 2008. This ratio then tends to increase again. These changes have to be related to the privatization of the Aqaba Railway in 2008 and the consequent transfer of a large number of employees to other government departments.

Table 5 - Cost structure *(thousands JDs)*

	2000	2005	2006	2007	2008	2009	2010	2011
Intermediate Consumption	3 069	5 092	4 975	4 637	8 406	6 013	6 955	6 153
Personnel cost	2 576	3 225	3 442	3 512	4 770	4 787	5 033	6 095
Personnel cost as a % of turnover	46.5	33.0	34.3	34.0	29.4	39.3	37.2	41.1

Chart 3 - Personnel cost as a % of turnover



The technical performance of railways transport in Jordan

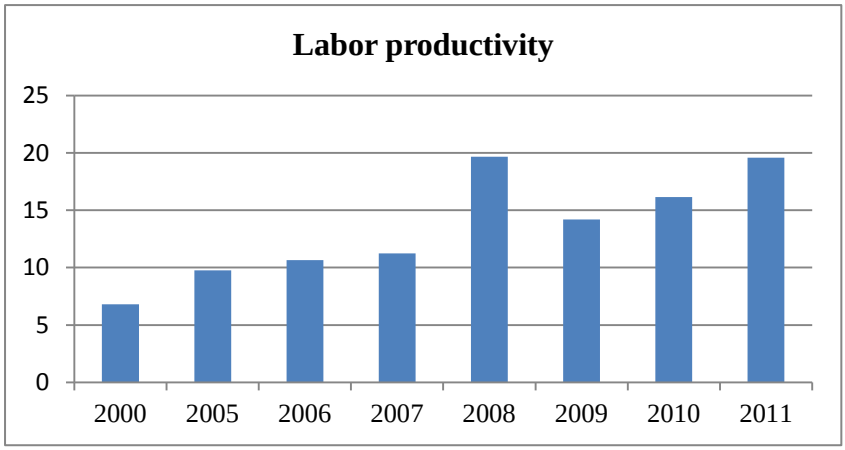
The railway network is unchanged between 2000 and 2011, with around 620 kilometres of line, which represents a density of about 6.8 km of railways per 1,000 km².

Table 6 - Performance of networks and infrastructures

	2000	2005	2006	2007	2008	2009	2010	2011
Length of rail network (km)	621.5	621.5	621.5	621.5	621.5	621.5	621.5	621.5

Labor productivity is highest in the years 2008 and 2011 (graph 4 below), the reason for this being in 2008 the high value of the turnover, while in 2011 this high value is due to the reduction in the number of employees as a result of the privatization process.

Chart 4 - Labor productivity (turnover per employee) [thousands JDs]



The environmental performance of railways transport in Jordan

The density of the railways network is constant during the whole period, as is the length of the network itself (see above and table 7 below).

The Diesel locomotives account for about 80% of the total fleet during the whole period, a slight increase of this share being observed in 2007.

Table 7 - Environmental performance of railway transpo

	2000	2005	2006	2007	2008	2009	2010	2011
Density of railways network (km per 1,000 km²)	7	7	7	7	7	7	7	7
Share of diesel locomotives in the total fleet of locomotives (%)	79.3	79.3	79.3	81.8	81.8	81.8	81.8	81.8
Passenger mobility (pkm per inhabitant)	372	287	98	45	67	142	218	112
Goods mobility (tonne-km per 1,000 JDs of GDP)	58	56	41	36	29	26	18	15

Although very irregular, passenger mobility, defined as the ratio between the volume of railways, passenger transport measured in passenger-kilometre and the total population, is clearly oriented downward over the period. Still, it recorded its lowest level in 2007 and was clearly on the rise until 2010 before recording a new and steep fall in 2011.

On the other hand, goods mobility, defined as the ratio between the volume of railways transport of goods measured in tonne-kilometre and GDP in thousands JDs, follows a constant and steep decline. In 2011, it is about 75% lower than in 2000.

Economic, technical and environmental performance of road transport in Jordan

The length of the road network is gradually increasing during the period 2000-2009, as shown in the table 8 below, but we note a sudden drop during the period 2010-2011 due to a new classification plan of the Jordanian roads conducted in the frame of the Jordan Highway Master Plan Study.

The number of road vehicles used for freight transport is also gradually increasing during the whole period 2000-2011.

Finally, the number of road passenger vehicles increases each and every year over the period and is more than 183% higher in 2011 than in 2000.

Table 8 - Key data of road transport

	2000	2005	2006	2007	2008	2009	2010	2011
Infrastructure								
Length of the network (km)	7 245	7 601	7 694	7 768	7 816	7 878	7 100	7 204
Equipement								
Number of road vehicles used for freight transport (thousands)	89.5	133.9	144.7	153.1	163.0	177.7	172.2	175.9
Number of road vehicles used for passenger transport (thousands)	329.4	511.6	577.0	644.8	712.0	784.3	864.3	932.5

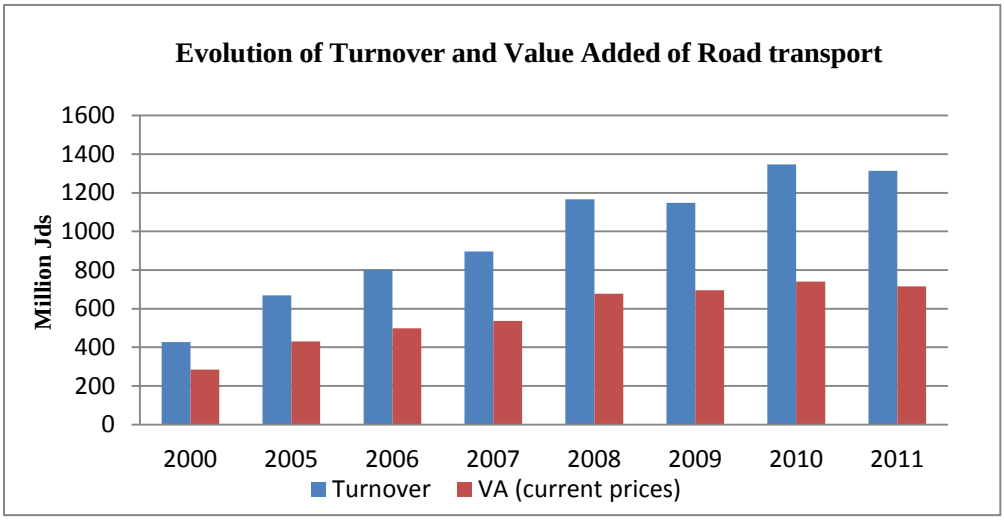
The economic performance of road transport in Jordan

The contribution of value added to turnover in road transport saw significant fluctuations heading to a gradual decline through 2000 to 2011 (see table 9 below). The contribution percentage was 67% in 2000 and about 54% in 2011, this decline being due to the continued increase in intermediate consumption and in production costs.

Table 9 - Growth of activity and profitability of road transport companies *(million JDs)*

	2000	2005	2006	2007	2008	2009	2010	2011
Turnover	427.1	669.1	802.0	896.8	1 165.9	1 147.4	1 347.8	1 314.1
Value added *(current prices)*	285.3	429.8	498.5	537.2	677.9	696.3	740.3	715.7
Gross operating surplus	178.0	288.6	359.3	364.4	465.9	473.9	502.3	476.2

Chart 5 - Turnover and value added of road transport at current prices



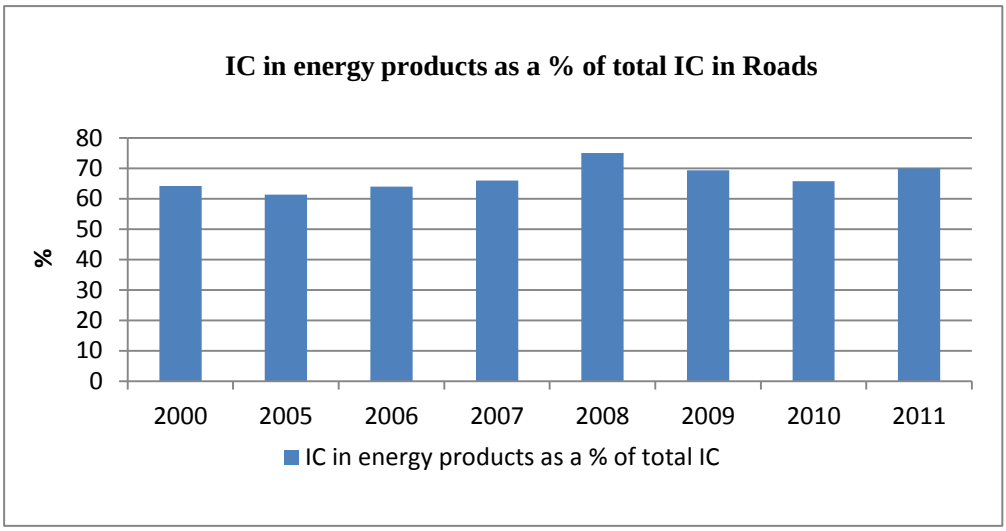
In the same way, the share of gross operating surplus in the turnover of the road transport sector saw significant fluctuations heading to a gradual decline. The contribution percentage of GOS to turnover was 42% in 2000 and dropped to 36% in 2011, this decline being also due to the increase in production costs, as well as to the continued increase of wages and taxes on production (see table 10 below).

Table 10 – Cost structure *(millions JDs)*

	2000	2005	2006	2007	2008	2009	2010	2011
Total Intermediate Consumption (IC)	141.8	239.3	303.4	359.6	488.0	451.1	607.5	598.5
IC in energy products	91.0	147.0	194.0	237.4	366.4	312.8	399.7	418.9

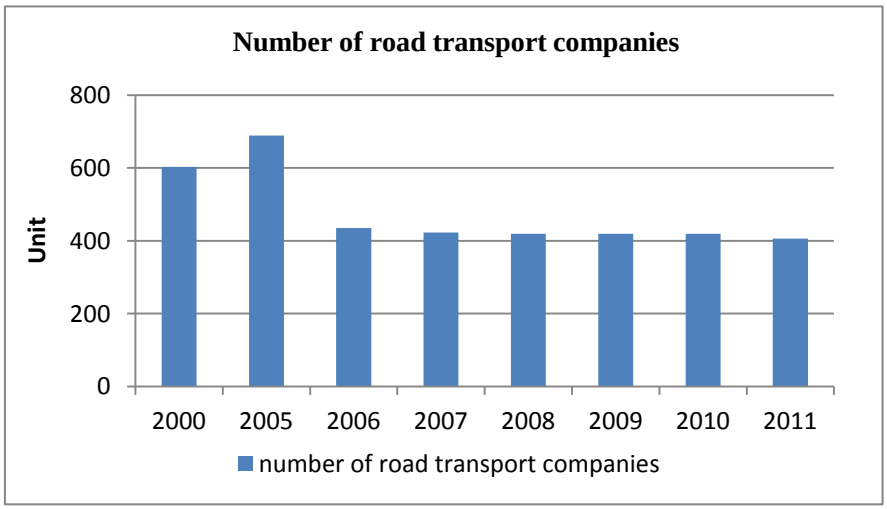
The share of intermediate consumption in the production of the road transport sector raised from 33% to 46% between 2000 and 2011. This is largely due to the growing share of intermediate consumption of energy products, which represented 32% of the sector turnover in 2011 against 21% in 2000, the major reason for this increase being the fluctuation of fuel prices during this period.

Chart 6 – Intermediate consumption in energy products as a % of total intermediate consumption of the road transport sector



The number of road transport companies has changed little between 2006 and 2011, but was considerably lower during this period than in the previous 2000-2005 years. An increase was recorded in 2005 in relation with the licensing of a large number of taxis offices. Many of these offices then merged and the number of road transport companies thus declined in the subsequent years.

Chart 7 - Demography of the road transport sector



The technical performance of road transport in Jordan

Table 11 - Performance of networks

	2000	2005	2006	2007	2008	2009	2010	2011
Length of the paved network (km)	7 245	7 601	7 694	7 768	7 816	7 878	7 100	7 204

The length of the paved network is slightly declining over the period 2005-2011, but this decline seems to be artificial as it is related to the introduction of a new classification plan of the Jordanian roads in the frame of the Jordan Highway Master Plan Study.

It should be noted that there is neither motorways nor express roads in Jordan.

The environmental performance of road transport in Jordan

As shown in table 12 below, the density of the road network is gradually increasing during the period 2000-2009 but a sudden decline is recorded in the year 2010, due again not to a real evolution but to the introduction of a new classification plan of Jordanian roads.

As for the share of diesel cars in the total fleet of vehicles, it witnesses a gradual decrease over the whole period. This is due, primarily, to the State's policy aiming at reducing the number of diesel cars in order to minimize the environmental impact of this fleet.

Table 12 - Environmental performance of road transport

	2000	2005	2006	2007	2008	2009	2010	2011
Density of paved roads (km per 1,000 km²)	81	85	86	87	88	88	79	81
Share of diesel cars in the total fleet of vehicles (%)	32.3	31.0	30.4	29.5	28.1	27.0	25.8	24.8

Economic, technical and environmental performance of maritime transport in Jordan

There is one principal port in Jordan, i.e. Aqaba on the Red Sea, and the total length of quays of this port is constant over the last decade at 2,040 meters (see Table 13 below).

The number of freight and passenger merchant ships is gradually increasing during the whole period from 3 merchant ships in 2000 up to 28 merchant ships in 2011.

The maritime traffic and the related volumes of both passenger and goods transport are following a very irregular evolution over the last decade. Indeed, the number of merchant ships arrivals, the number of

arriving and departing passengers and the total volume of freight are hovering in a succession of rises and falls during the entire period.

Table 13 - Key data of maritime transport

	2000	2005	2006	2007	2008	2009	2010	2011
Infrastructures								
Number of principal ports	1	1	1	1	1	1	1	1
Total length of quays of principal ports (metre)	2 040	2 040	2 040	2 040	2 040	2 040	2 040	2 040
Equipments								
Number of freight and passenger merchant ships	3	14	14	18	21	23	25	28
Traffic								
Number of merchant ships arrivals	1 253	1 467	1 442	1 471	1 512	1 450	1 451	1 446
Number of arriving and departing passengers *(Thousands pass.)*	611	881	1 287	1 097	1 117	828	766	670
Total volume of freight embarked and disembarked *(Thousands tonnes)*	5 360	20 430	18 078	18 914	18 386	15 272	16 852	19 183

The economic performance of maritime transport in Jordan

The contribution of value added to turnover in the maritime transport sector saw a significant increase through 2000 to 2005. The percentage increased from 21% to 41% in this period while this contribution was relatively stable during the period 2005-2011 during which these percentages ranged from 39% to 49% (see table 14 below).

The fall in activity recorded in 2009, in terms of both turnover and value added, corresponds to the closure of one maritime transport company.

Table 14 - Growth of activity and profitability of maritime transport companies *(in thousands JDs)*

	2000	2005	2006	2007	2008	2009	2010	2011
Turnover	18 015	48 405	55 191	69 029	90 134	81 858	87 733	75 603
Value added (current prices)	3 777	19 802	26 803	29 153	35 216	34 122	39 337	31 728
Gross operating surplus	- 579	12 276	17 875	20 391	22 040	16 254	18 101	7 973

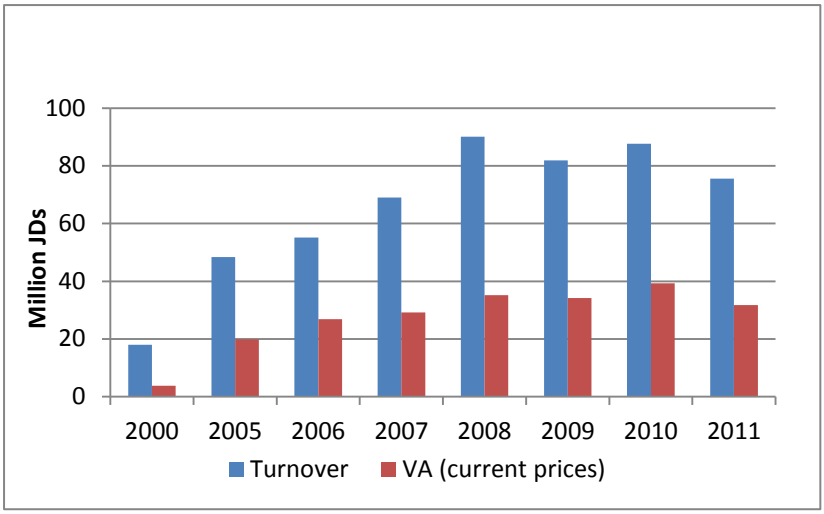


Chart 8 - Turnover and Value Added at current prices (million JDs)

Gross Operating Surplus (GOS) of the maritime transport sector was negative in 2000 when losses represented about 3% of the total production of the sector. The share of GOS in the total production of the sector then recorded an increase and reached 25% in 2005, before decreasing again in the period 2006-2011, to reach 11% in this last year.

Cost structure of the maritime transport sector

The share of intermediate consumption in the turnover of the maritime transport sector was about 79% in 2000 and decreased to 59% in 2005. This percentage saw a relative stability during the period 2006 to 2011 during which it ranged between 51% and 61%.

Intermediate consumption of the sector reached a peak in 2008 (55 million Jordanian dinars) representing about 61% of the turnover of the sector during this year, the reason of this peak being the influx of a large number of passengers through the port of Aqaba during that year.

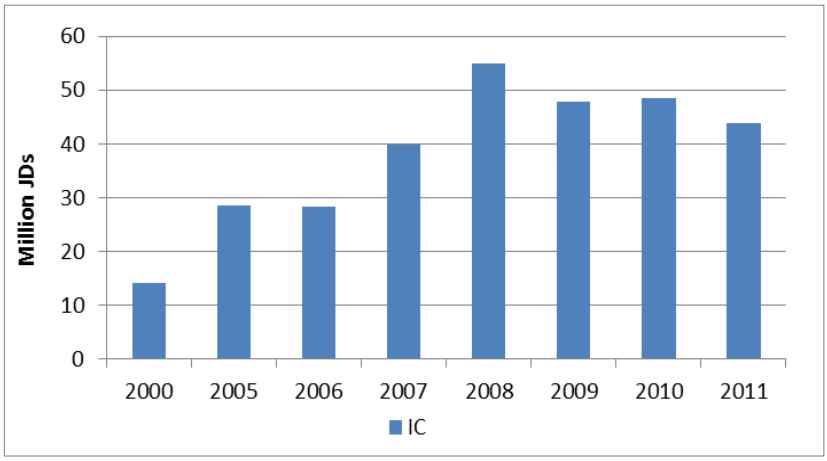
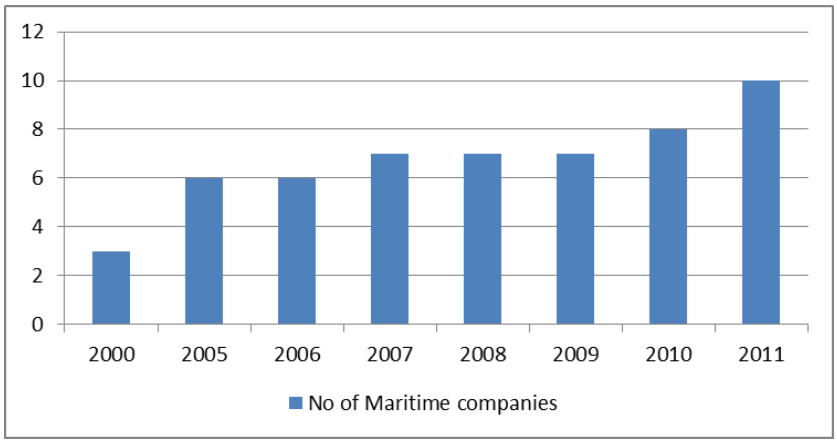


Chart 9 - Total intermediate consumption of the maritime transport sector

Demography of the sector

A significant increase in the number of maritime companies is observed during the whole period 2000-2011. This seems to be a direct consequence of the development of the Aqaba port during that period.

Chart 10 - Number of maritime transport companies



The technical performance of maritime transport in Jordan

Both the fleet of merchant ships and the corresponding carrying capacity are progressing very rapidly over the period analysed, as shown in the table 15 below. The fleet is indeed multiplied by more than nine between 2000 and 2011 while the corresponding carrying capacity is multiplied by nearly sixteen, which also means that the average carrying capacity has increased by around 70 % over the same period.

Table 15 - Performance of equipment

	2000	2005	2006	2007	2008	2009	2010	2011
Number of merchant ships by type	3	14	14	18	21	23	25	28
Carrying capacity of merchant ships by type (thousands tonnes)	5.3	47.5	47.5	57.9	74.7	76.4	78.7	84.5

Economic, technical and environmental performance of air transport in Jordan

The number of principal airports and the total length of runways longer than 2,438 m is constant over the whole period 2000-2011, with three principal airports and more than 13,600 meters of runways.

The total number of civil passenger aircraft in service increases each and every year between 2000 and 2011, most markedly in 2008, with the introduction of 13 new aircraft. In total, the number of civil passenger aircraft in service has been multiplied by more than 3 between 2000 and 2011. On the other

hand, the number of civil freight aircraft in service is almost constant during the same period, with 3 aircraft in 2000 and also 3 aircraft in 2011, after having reached a peak of 5 in 2006.

The total number of aircraft movements in Jordanian airports increases each and every year between 2000 and 2011 and is 126% higher over the period.

The number of arriving and departing passengers witnesses a regular evolution too. In total, the number of arriving and departing passengers is 133% higher in 2011 than in 2000.

The volume of departing freight and mail, on the other hand, witnesses a more patchy evolution with a bottom in 2000 and a very vigorous recovery in 2010 followed by a new decline in 2011.

Table 16 - Key data of air transport

	2000	2005	2006	2007	2008	2009	2010	2011
Infrastructures								
Number of principal airports	3	3	3	3	3	3	3	3
Total length of runways longer than 2,438 m (metres)	13 606	13 606	13 606	13 606	13 606	13 606	13 606	13 606
Equipments								
Number of civil passenger aircraft in service	16	22	27	28	41	43	51	52
Number of civil freight aircraft in service	3	4	5	4	4	4	4	3
Traffic								
Total number of aircraft movements	34 181	48 888	54 266	58 416	64 121	71 241	76 737	77 411
Total number of passengers	2 563	3 467	3 783	4 138	4 812	5 133	5 858	5 977
Total volume of freight and mail	84	106	99	95	91	83.7	94.8	92

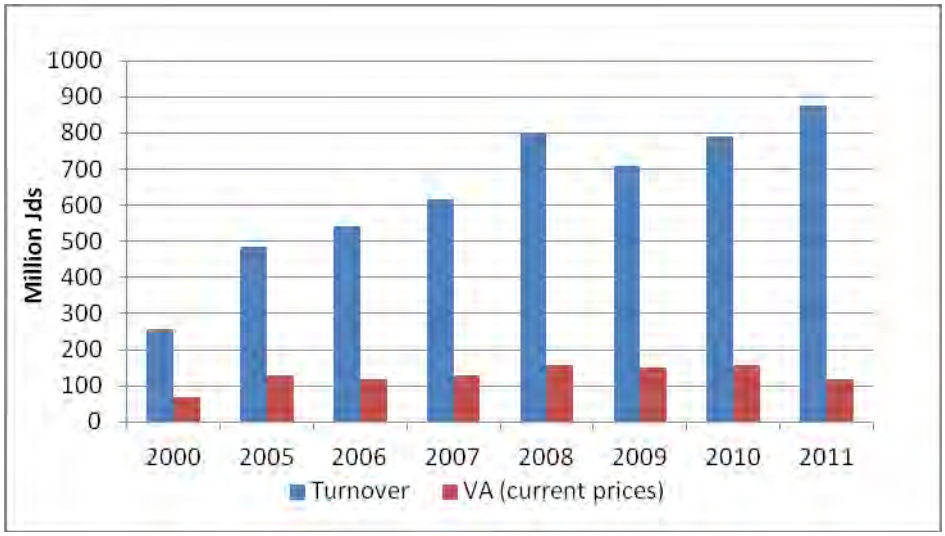
The economic performance of air transport in Jordan

The Jordanian air transport sector witnesses a strong growth in terms of turnover between 2000 and 2011, its value being multiplied by almost 3.5, while the growth in terms of value added, even though significant, is much more modest (+ 70%), as shown in the table 17 and the graph 11 below. As a consequence, the share of value added in total production is on the decline, from about 27% in 2000 to 14% in 2011.

Table 17 - Growth of activity and profitability of air transport companies *(thousands JDs)*

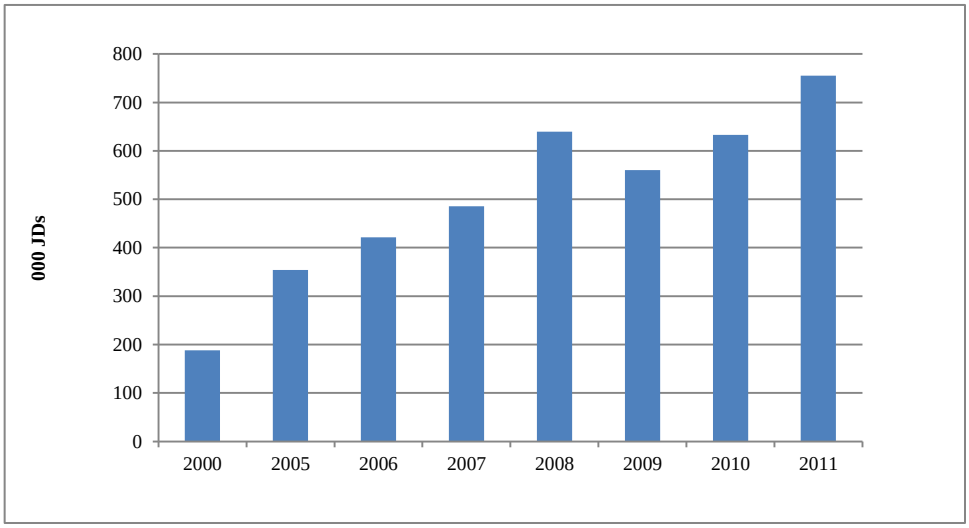
	2000	2005	2006	2007	2008	2009	2010	2011
Turnover	258 272	483 607	541 503	615 761	795 766	710 302	791 201	874 634
Value added *(current prices)*	70 300	129 794	119 816	130 224	156 153	150 030	158 154	119 581
Gross operating surplus	4 501	42 618	26 893	29 864	27 984	9 923	15 199	- 33 596

Chart 11 - Turnover and Value Added at current prices



Symmetrically, the value of intermediate consumption witnesses a strong rise between 2000 and 2011, as shown in the graph 12 below. As a consequence, the share of intermediate consumption in the total production of the air transport sector increases from about 73% during the period 2000-2005 to about 86% in 2011.

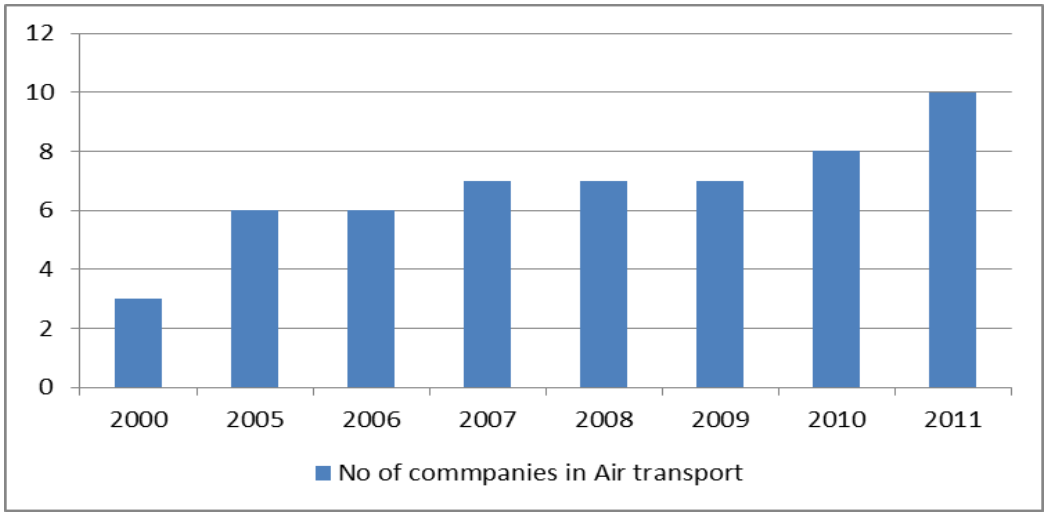
Chart 12 – Total intermediate consumption of the air transport sector



Demography of the sector

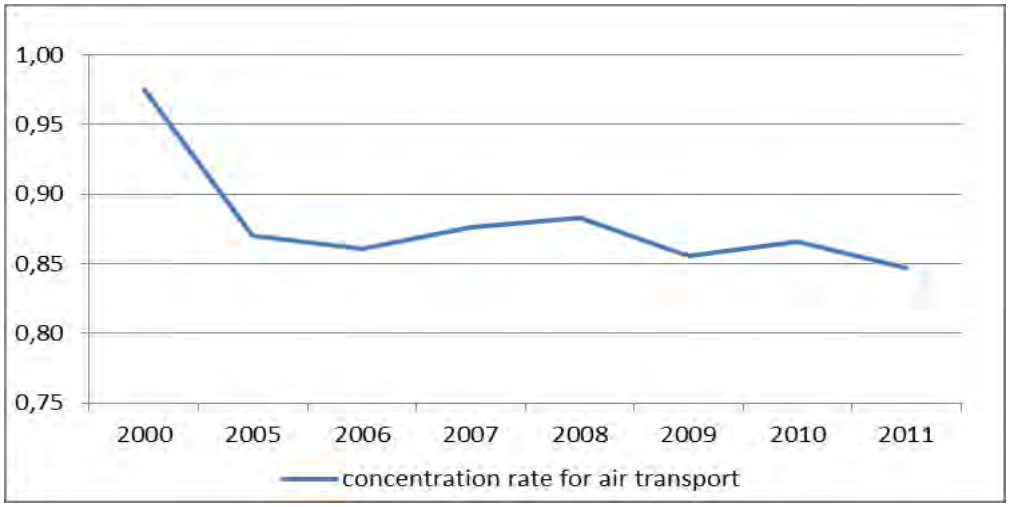
The number of air transport companies witnessed a remarkable evolution during the period 2000-2011 with a jump from 3 companies in 2000 to 10 companies in 2011, as shown in the graph 13 below.

Chart 13 - Number of Air transport companies



On the other hand, the concentration ratio in the air transport sector witnessed a sharp drop between 2000 and 2005 but then remained pretty stable, between 85% to 87% until 2011 (see graph 14 below).

Chart 14 – Concentration ratio



The technical performance of air transport in Jordan

The large majority of the fleet of civil passenger aircraft is made of medium-sized aircrafts with between 51 and 250 seats. No Jordanian aircraft had more than 250 seats until 2008, when seven such aircrafts were put in service. This figure rose up to twelve in 2011.

Table 18 - Number of passenger civil aircraft according to their capacity

	2000	2005	2006	2007	2008	2009	2010	2011
50 seats or less	2	0	0	0	0	0	0	0
51-150 seats	5	5	10	10	20	22	26	26
151-250 seats	9	17	17	18	14	14	15	14
More than 250 seats	0	0	0	0	7	7	10	12

The performance of transport systems in Lebanon Liban

The economic, technical and environmental performance of transport activities and systems in Lebanon

Lebanon is located on the East Mediterranean coast. It has a total surface area of around 10,452 square kilometres and its coastline stretches some 220 kilometres.

The latest estimates[1] from 2007 indicate that the population was around 3.8 million inhabitants, a small increase from 2005 (according to estimates from 2004).

Population density on the other hand, was 360 inhabitants per km² in 2010, practically unchanged from 2005 (359 inhabitants per km²).

The key figures for the country are collated below in table 1, allowing us to draw the following key observations:

- In 2010, the Lebanese economy recorded a GDP of around LP 57,300 billion (Lebanese pounds), compared with LP 31,593 billion in 2004 (a rise of around 81% at current prices).

- In 2010, the Lebanese economy grew by 8%, compared with 10.3% in 2009, 9.1% in 2008 and 9.4% in 2007. However, 2006 was marked by the weakest economic growth over the period (+ 1.6%), a direct consequence of the war that broke out in that year between Israel and Lebanon. Lebanon's economic growth remains highly influenced by the growth of market services, trade and construction sectors. The growth in economic activity over these last four years has involved practically all of these sectors and others to a greater or lesser degree. The trade sector has developed significantly following a large rise in the volume and value of imports. Construction also experienced strong growth due to a favourable investment climate. There was also an increase in agricultural production, thanks to virtuous climate conditions. The industrial sector was the only one not to experience real growth over the period.

- Conversely, transport as a proportion of GDP was more or less stable over the period, at between 3% and 4%, although it saw a marked decline between 2008 (3.9%) and 2010 (3.2%).

[1] It should be noted that this population estimate does not include Palestinians living in refugee camps. Care should therefore be taken when interpreting these figures.

Table 1 – Key figures for Lebanon[2]

	2004	2005	2006	2007	2008	2009	2010
Population	3,755,034	:	:	3,759,137	:	:	:
Population density *(inhabitants/km²)*	359	:	:	360	:	:	:
GDP *(LP billions[3])*	31,593	32,089	32,859	37,050	43,465	52,974	57,300
Rate of growth *(%)*	:	2.7	1.6	9.4	9.1	10.3	8.0
Transport as a proportion of GDP (%)	3.1	3.4	3.3	3.5	3.9	3.5	3.2

The economic performance of transport in Lebanon

As shown in table 2 below, the transport sector has grown significantly in terms of value added at current prices and at the prices of the previous year, although it has still seen considerable fluctuation.

Table 2 - Growth in the activity of transport companies

	2004	2005	2006	2007	2008	2009	2010
Value added at current prices *(LP billion)*	994	1,092	1,082	1,289	1,683	1,861	1,846
Value added at the previous year's prices *(LP billion)*	:	1,038	1,077	1,171	1,466	1,910	1,977

The value added at current prices in the transport sector was cyclical, leaning towards a slight increase, moving from LP 994 billion to LP 1,846 billion between 2004 and 2010 (+ 86%).

The data at the previous year's prices confirms that value added in the sector grew significantly between 2005 and 2010, with the calculated value added moving from LP 1,038 billion to LP 1,977 billion, an increase of around 90%. It should be noted that the sector experienced negative inflation over the two last years analysed which is shown by the data on value added at the previous year's prices, which is higher than the values at current prices.

Before analysing the economic, technical and environmental performance of the different modes of transport in Lebanon, it should be noted that the country has a rail network of 408 km but it has not been operational since the outbreak of civil war in 1975.

[2] Economic data is not available on a comparable basis for the years before 2004 because of a change in the national accounting system and classification of economic activities. The data presented has been prepared using the basis of SNA 2008 and the ISIC Rev. 4.

[3] Lebanese Pounds

The economic, technical and environmental performance of road transport in Lebanon

A key link in the transport chain, the road clearly plays a leading role in the economic and social activity of the country and contributes a great deal to its development. Road transport is therefore the dominant means of transport in Lebanon for internal movements of people as well as internal and external movements of freight.

As seen in table 3, which assembles the key figures on road transport, Lebanese infrastructure consists of a network of 6,359 km in length, including 300 km of motorways.

In Lebanon, road transport services are run by individual companies and other private companies. There are several companies which are authorised to perform freight transit, 30-40 of which are large companies[4].

International road transport is governed by international conventions and bilateral agreements. The main countries of origin and destination for international freight transport are Syria[5], Jordan, Turkey, Iraq and the Gulf states.

Table 3 – Key figures for road transport

	2000	2005	2006	2007	2008	2009	2010
Infrastructures							
Total length of the road network *(km)*	6,229	6,229	6,359	6,359	6,359	6,359	6,359
Equipements							
Number of road vehicles for freight transport *(thousands)*	63.8	:	:	114.4	121.3	135.4	124.4
Number of road vehicles for passenger transport *(thousands)*	774.8	:	:	1,040.4	1,113.2	1,216.7	1,379.3

The above table also reveals significant expansion of the road network, from 6,229 km to 6,359 km between 2005 and 2006, which relates to the creation of a stretch of 130 kilometres of motorway between Beirut and Sidon. The number of road vehicles for freight transport increased significantly between 2008 and 2009 before declining in 2010. The number of vehicles for passenger transport also rose considerably between 2007 and 2010, increasing from around 1 million vehicles to nearly 1.4 million between the two years.

[4] Large companies are companies with 250 employees or more.

[5] This was the case at least prior to the recent events in Lebanon.

The technical performance of road transport in Lebanon

The development of the road network in Lebanon over the analysed period was greatly influenced by the commissioning of the coastal motorway Beirut- South Lebanon in 2006. As shown in table 4 below, the commissioning of the new 130-kilometre section of road approximately doubled the national motorway network. It also meant that the total figure for motorways and the paved network grew as a proportion of the total network, as shown in chart 1 below.

Table 4 - Performance of the networks

	2000	2005	2006	2007	2008	2009	2010
Length of motorway network *(km)*	170	170	300	300	300	300	300
Length of paved network *(km)*	6,229	6,229	6,359	6,359	6,359	6,359	6,359

However, both the motorway network and paved network stagnated from 2006 to 2010.

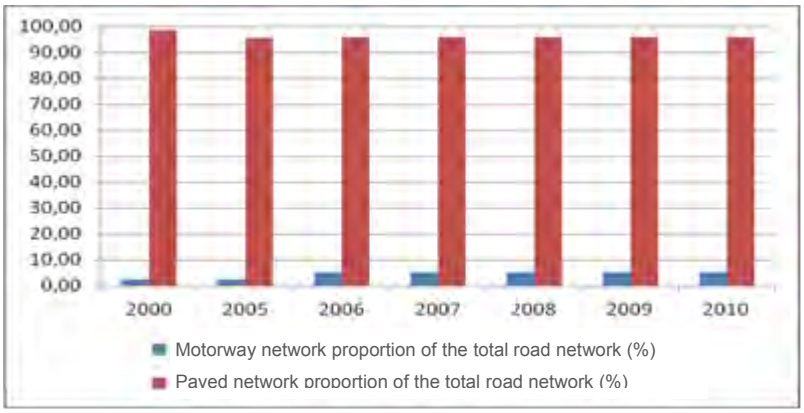


Chart 1 - The motorway network and the paved network as proportions of the total road network of Lebanon

The environmental performance of road transport in Lebanon

Once again, the only available indicator which can be used to evaluate the environmental impact of road transport in Lebanon is the density of the paved road network and of the motorway network. Given the expansion of the road network detailed above, there was, as one would expect, an increase in density of both the paved network and the motorway network in 2006, followed by stagnation until 2010 (see chart 2 hereinafter).

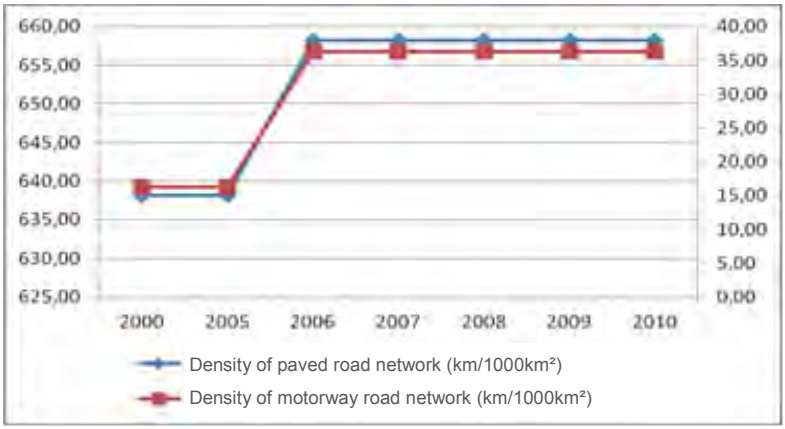


Chart 2 - Density of paved road network and motorway network

The density of the paved road network increased from around 640 km per 1,000 km² in 2005 to around 660 in 2006, while the density of the motorway network increased from 16 to over 35 between the same two years.

With regard to the environmental performance of road vehicles, it should be noted that diesel vehicles are not permitted in Lebanon[66]. They therefore do not factor at all as a proportion of privately owned vehicles.

The economic, technical and environmental performance of sea transport in Lebanon

Lebanon is a major crossing point for freight between Europe, Asia and the Arab countries. Its geographical location as the meeting point of three continents, Europe, Asia and Africa, and its 220 km coastline on the Mediterranean Basin, mean that sea transport plays a vital role.

The country has six ports (Beirut, Tripoli, Jounieh, Jieh-Zahrani, Sidon and Tyre), of which two are principal ports in a statistical sense: the port of Beirut and the port of Tripoli which exceeded a million tonnes of freight processed in 2008.

Beirut's developed infrastructure and the high quality of its services places it among the most competitive ports in the Mediterranean Basin or even worldwide.

The continuing work to extend the quays and the development of equipment to enhance the capacity of specialist platforms in sea transport in general and intermodal transport in particular, are sure to strengthen this competitiveness in years to come.

This also applies to the port of Tripoli where work is under way to extend the quays in two stages, each providing an additional capacity of 600 metres.

Table 5 hereinafter presents the key figures for sea transport in Lebanon.

6 This ban does not include lorries or buses for more than 24 passengers.

Table 5 – Key figures for sea transport

	2000	2005	2006	2007	2008	2009	2010
Infrastructure							
Number of principal ports	1	1	1	1	2	2	2
Equipment							
Number of freight merchant ships	70	36	34	32	27	24	:
Number of merchant ships for passenger transport	0	0	0	0	0	0	0
Traffic							
Number of arrivals of ships	3 054	2 708	2 223	2 975	2 838	3 234	:
Number of passengers embarking and disembarking	0	0	0	0	0	0	0
Total volume of freight *(thousands of tonnes)*	5 593	5 094	4 823	7 315	7 740	7 857	:

It should be noted that sea traffic is limited to the flow of freight, since the movement of passengers was halted by the outbreak of war in 1975.

The figures shown in the above table reflect the impact of the incidents in 2005 and the war of 2006 on the flows of transport, the number of vessels arriving and the volume of freight processed dropping considerably over this period. In 2007 these flows almost returned to their 2000 levels for the number of vessels arriving, and even surpassed them for the volume of freight processed.

The technical performance of sea transport in Lebanon

As shown in the previous table, the Lebanese fleet was in steep decline between 2000 and 2009, dropping from 70 to 24 recorded vessels operating under national flag between these two years. This reduction is a result of the global trend towards freight containerisation using specialist vessels, and also the absence of passenger transport by sea in Lebanon, an absence which can put the national companies at a disadvantage compared to their foreign competitors. The composition and the tonnage of this fleet are detailed in table 6 below.

Table 6 - Performance of equipments

	2000	2005	2006	2007	2008	2009	2010
Total number of merchant ships with a gross tonnage of 1,000 tonnes or more	70	39	34	23	27	24	24
Number of oil tankers with a gross tonnage of 300 tonnes or more	2	1	0	0	0	1	1
Number of bulk carriers with a gross tonnage of 300 tonnes or more	9	4	4	3	3	3	3
Number of general freight carriers with a gross tonnage of 300 tonnes or more	78	38	30	22	25	20	20
Number of container ships with a gross tonnage of 300 tonnes or more	2	0	0	0	0	0	0
Number of roll-on/roll-off cargo ships with a gross tonnage of 300 tonnes or more	5	6	5	5	0	1	1
Carrying capacity of merchant ships with a gross tonnage of 1,000 tonnes or more *(tonnes)*	387,152	147,976	135,997	102,415	102,415	107,308	107,308
Carrying capacity of oil tankers with a gross tonnage of 300 tonnes or more (tonnes)	4,347	240	0	0	0	373	373
Carrying capacity of bulk carriers with a gross tonnage of 300 tonnes or more (tonnes)	173,871	50,221	34,349	34,349	34,349	34,456	34,456
Carrying capacity of general freight carriers with a gross tonnage of 300 tonnes or more (tonnes)	199,284	90,275	76,577	54,975	63,331	66,391	66,391
Carrying capacity of container ships with a gross tonnage of 300 tonnes or more (tonnes)	6,602	0	0	0	0	0	0
Carrying capacity of roll-on/roll-off cargo ships with a gross tonnage of 300 tonnes or more (tonnes)	18,897	14,061	12,462	8,950	0	6,461	6,461

This shows that the fleet is almost completely made up of general freight carriers, a category which saw the biggest reduction in the fleet between 2000 and 2010 (from 78 to 20 vessels of 300 tonnes or more).

Bulk carriers and roll-on/roll-off cargo ships represent much smaller fleets, and also saw their numbers fall over this period. In addition, it is notable that Lebanon had two container vessels in 2000 and no one in 2010.

In capacity terms, the total tonnage of the Lebanese fleet decreased by a factor of more than 3.5 between 2000 and 2010. Two categories of vessels accounted for the majority of this capacity in 2010: carriers for general freight (nearly 62% of the total) and bulk carriers (around 32%)[7] .

As previously discussed, one of the main technical developments in sea transport over the last few years has been the development of intermodal transport and the transport of containers in particular. Chart 3 below illustrates the progression of this activity in Lebanon.

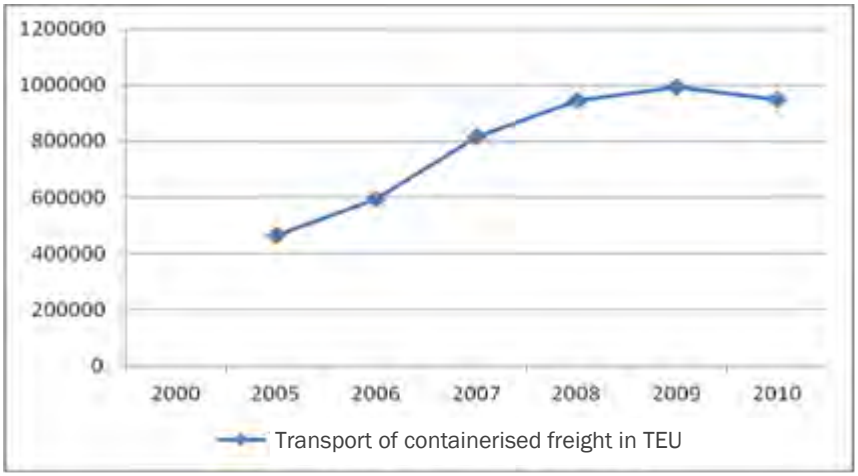


Chart 3 - Performance of intermodal freight transport: Transport of containerised freight in TEU

As shown in this chart, the volume of containers handled in Lebanese ports rose continuously until 2009, before declining in 2010. The volume of containerised freight reached a peak of 994,601 TEU in 2009 then fell to 949,155 TEU in 2010.

The environmental performance of sea transport in Lebanon

The first indicator of the environmental performance of sea transport in Lebanon is the number of damages, leaks or discharges of unauthorised liquid or gas effluents in territorial waters, which remained at zero for the whole period. This absence of sea pollution is further evidence of the competence and the good logistical management of this sector in Lebanon.

Freight mobility, which is measured by the ratio between the total volume of freight loaded and unloaded and the gross domestic product, is also a key indicator of the environmental performance of transport, and

[7] It should be noted that the data on the numbers and tonnage of vessels focuses on units of over 300 tonnes with regards to different types of vessels, and units of more than 1,000 tonnes with regards to all vessels. This explains how the sum of the numbers and of the capacities of the various categories can be higher than the number and capacity of the total.

can be used to evaluate the intensity of economic growth in transport. The development of this indicator for sea transport is shown in chart 4 below.

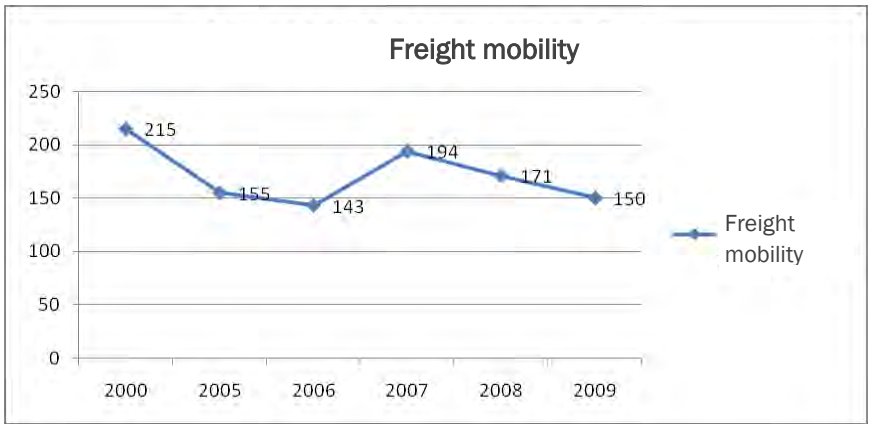


Chart 4 - Freight mobility

This chart shows a drop in mobility of freight transported by sea between 2000 and 2006 (− 33%). After a noticeable increase in 2007 (+ 36%) due to the very low level of activity recorded in 2006, the mobility of freight transported by sea resumed its downward slope until 2010 (− 23% compared with its peak in 2007). Overall, the whole period saw a clear downward trend.

The economic, technical and environmental performance of air transport in Lebanon

Lebanon has only one airport, the international airport of Beirut (Beirut - Rafic Hariri International Airport). This infrastructure forms a solid base for the country's economy, especially for the development of the tourism sector.

Air transport activity has experienced strong growth in Lebanon, in aircraft movements and in the number of passengers transported, as shown by the key figures on air transport collated in table 7 below.

The number of aircraft arriving and leaving from Beirut's international airport exceeded 50,000 in 2009. In terms of passenger traffic, there have been more than 3 million passengers each year since 2007.

Four airline companies shared the Lebanese fleet of aircraft in 2011: Middle East Airlines (MEA), Med Airways (charter airline launched in 2000), TMA Cargo (a freight transport company) and Wings of Lebanon (charter airline which started up in 2008).

Table 7 – Key figures for air transport

	2000	2005	2006	2007	2008	2009	2010
Infrastructure							
Number of main airports	1	1	1	1	1	1	1
Total length of runways longer than 2,438 m	10 445	10 445	10 445	10 445	10 445	10 445	10 445
Equipments							
Number of passenger aircraft	:	:	:	18	:	:	:
Number of freight aircraft	:	0	0	0	0	0	1
Traffic							
Total number of aircraft movements	46 375	53 160	44 088	49 964	45 278	57 543	66 122
Total number of passengers *(thousands)*	2 343	3 285	2 825	3 409	4 085	4 987	5 551
Total volume of freight and mail *(tonnes)*	59 243	63 365	57 570	63 850	68 590	72 600	78 200

In 2010, Beirut airport recorded traffic exceeding 5.5 million passengers, a significant increase on the previous year (5.0 million) and an even greater increase compared with 2000 (2.3 million), an increase of nearly 140% over the whole period. Traffic did drop by 14% in 2006, however, when war broke out with Israel.

The total length of the runways at the airport, each of them exceeding 2,438 m in length, has not changed over the past decade.

The number of commercial aircraft movements rose considerably over the period analysed, rising from 46,375 movements in 2000 to 66,122 movements in 2010, an increase of around 43% over the whole period.

The total volume of freight and mail transport processed at Beirut airport experienced similar progression to that of passenger transport. This volume reduced by around 9% between 2005 and 2006, and then increased sharply, by more than 35%, between 2006 and 2010.

The economic performance of air transport in Lebanon

The only indicator available to evaluate the economic performance of air transport is related to the demographics of the sector, and, indirectly, to the creation of companies. This is displayed in chart 5 below.

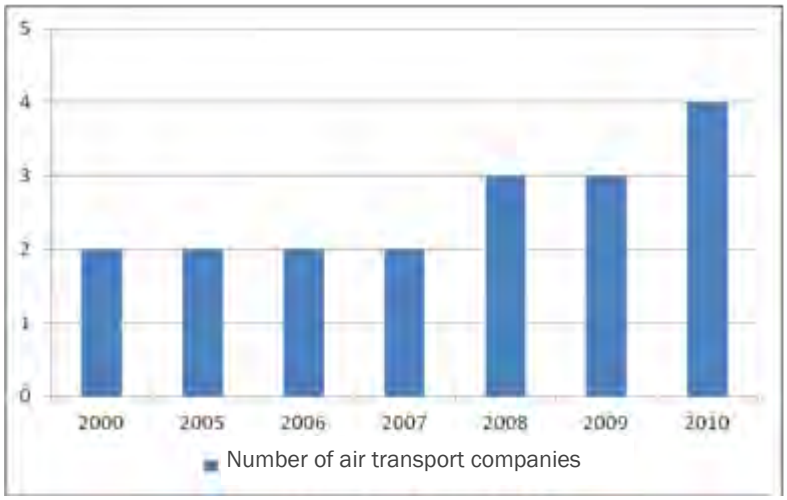


Chart 5 - Number of air transport companies

This shows that the number of air transport companies rose significantly between 2000 and 2010. Two air transport companies, MEA and Med Airways, were active between 2000 and 2007. This figure rose to three in 2008 when the company Wings of Lebanon entered the market, then to four in 2010 with the return of the TMA company, after more than a decade of suspended activity.

The technical performance of air transport in Lebanon

Data on the passenger aircraft fleet is the only indicator that can shed light on the technical performance of air transport in Lebanon. Furthermore, this data, presented in table 8 below, is only available for 2007.

It shows that the Lebanese fleet consisted of 18 aircraft, which were mostly medium capacity aircraft of 151 to 250 seats.

Table 8 - Number of passenger aircraft according to capacity

	2000	2005	2006	2007	2008	2009	2010
Total number of passenger aircraft	:	:	:	18	:	:	:
50 seats or less	:	:	:	1	:	:	:
51 to 150 seats	:	:	:	4	:	:	:
151 to 250 seats	:	:	:	13	:	:	:
251 seats or more	:	:	:	0	:	:	:

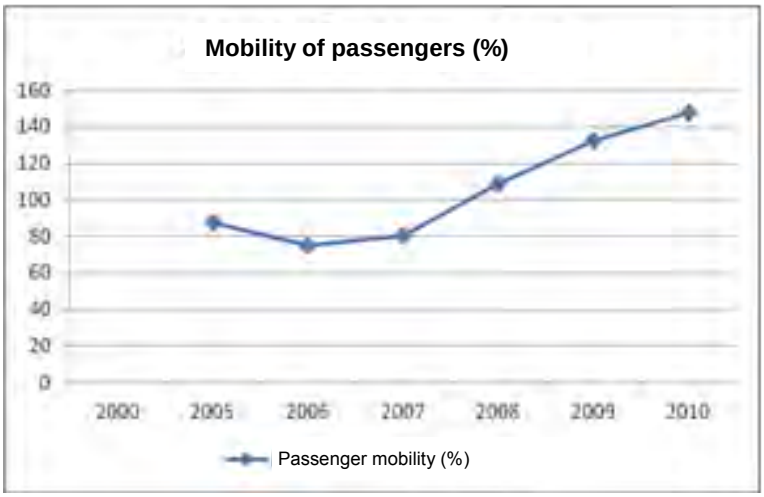
The environmental performance of air transport in Lebanon

The environmental performance of air transport in Lebanon can be determined using two types of indicator: coverage of the airport infrastructure over the whole country, and the mobility of people and freight.

The surface area of Beirut's international airport has not changed at all over the last decade. The coverage of airport infrastructure therefore remained the same over the country as a whole.

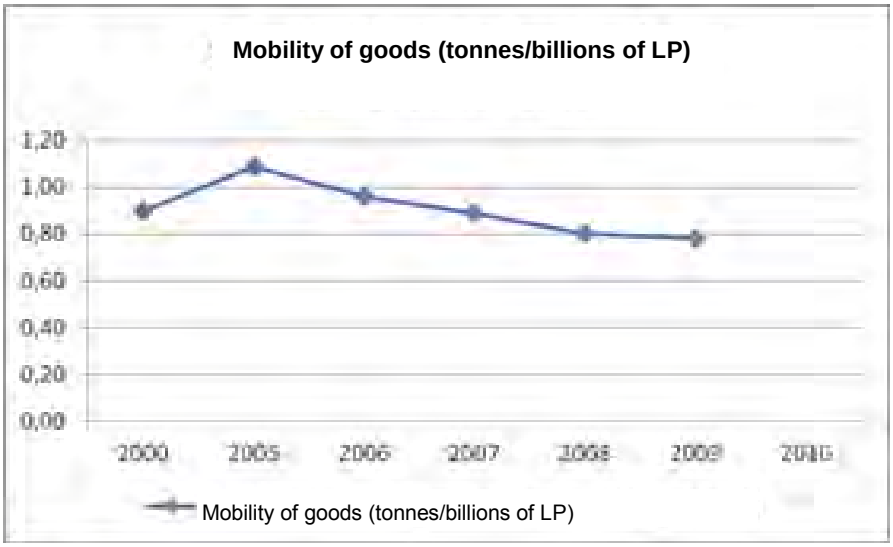
As shown in chart 6 below, passenger mobility increased considerably between 2006 (75.2%) and 2010 (147.7%), having decreased during the first year.

Chart 6 – Mobility of passengers



Conversely, freight mobility rose significantly between 2000 (0.90 t/LPB) and 2005 (1.09 t/LBP) before declining consistently between 2005 and 2009, reaching 0.78 t/LPB over this last year.

Chart 7 – Mobility of goods



Conclusion

Comparing the main performance indicators for the 2000-2010 period between the different modes of transport in Lebanon allows a cyclical trend to be observed in the technical performance of transport in the country, especially in sea and air transport. This cyclical trend appears to be directly related to the 2008 financial crisis and the war with Israel in 2006.

These opposing activity trends should not overshadow the significant improvements to infrastructure and equipment within the sector, particularly in sea and road transport.

Conclusion

The preceding analyses highlight a number of shared characteristics and changes in the transport systems of all the countries in the region.

In economic terms, the last decade has been marked by a fairly clear cyclical change in activity in the different modes of transport. The global crisis of 2008 and its consequences were felt across all the countries in the region, and to different degrees, across all modes of transport. The number of road transport companies, however, is generally still on the increase. This is particularly true in Palestine.

More generally, this analysis proves the crucial role that transport systems and activities play in economic development and social cohesion in the Mediterranean countries, even if this role does not necessarily prompt growth in the transport sector's contribution to gross domestic product.

Road transport clearly emerges as the dominant mode of transport internally, both for people and freight, while sea transport is the dominant means for the international transport of freight, and air transport for the international transport of passengers.

Rail transport volumes are generally rising in terms of passenger transport, but growth is far more irregular when it comes to freight transport. This is particularly true of Morocco.

In other modes of transport, the traffic and passenger and freight transport volumes have experienced mostly cyclical changes, in line with the economic activity of the sectors in question, reflecting the effects of the 2008 financial crisis, although an increase has generally been seen across the period as a whole.

In spite of the financial crisis, many of the countries in the region have significantly improved their transport infrastructure and equipment. This is particularly true of rail infrastructure and equipment in Algeria, infrastructure and equipment of road transport in Egypt, sea transport in Lebanon, and air transport infrastructure and equipment in Tunisia.

Despite environmental concerns, it seems that, at an internal level, the development of infrastructure and equipment for road transport was prioritised over that of rail transport.

Indeed, the general momentum of transport systems and activities in the region does have a flip side. Greenhouse gas emissions linked to these activities rose steeply over the period, a direct consequence of the major increase in the traffic and volumes of passenger and freight transport, with no re-balancing between the different modes of transport or significant improvement to the environmental performance of the transport systems.

Sources

All data presented in this publication is official data produced by national statistical institutes, transport ministries or other official bodies responsible for specific sub-sectors within the Mediterranean partner countries.

The national chapters have been drafted by the following institutions:

- Algeria: National Office of Statistics and Ministry of Transport (Office National des Statistiques et Ministère des Transports)
- Egypt: Central Agency for Public Mobilization and Statistics (CAPMAS) and Transport Planning Authority (Ministry of Transport)
- Morocco: Statistics Office of the High Commissioner for Planning (Direction de la Statistique du Haut Commissariat au Plan)
- Tunisia: National Institute of Statistics and Ministry of Transport (Institut National de la Statistique et Ministère du Transport)
- Israel: Central Bureau of Statistics and Ministry of Transport
- Jordan: Department of Statistics and Ministry of Transport
- Lebanon: Central Administration of Statistics
- Palestine: Palestinian Central Bureau of Statistics and Ministry of Transport

Methodological references and definitions

All national accounting variables are defined based on the United Nations System of National Accounts of 1993 (SNA 93).

All technical transport variables are defined based on the fourth edition of the Glossary for Transport Statistics (see main definitions below).

Greenhouse gas emissions are calculated according to the methodology of the IPCC.

Sector coverage and classifications

Unless otherwise specified, the National Accounts data is based on the international classification of economic activities (ISIC Rev.3) or the national classification drafted on this basis.

The classifications used when analysing the technical transport data are from the third edition of the Glossary for Transport Statistics.

Main definitions

Rail transport definitions

Railway track: A pair of rails over which railway vehicles can run.

Line: One or more adjacent running tracks forming a route between two points. Where a section of network comprises two or more lines running alongside one another, there are as many lines as routes to which tracks are allotted exclusively.

Locomotive: Tractive railway vehicle with a power of 110 kW and above at the draw hook equipped with prime mover and motor or with motor only used for hauling railway vehicles. Light rail motor tractors are excluded.

Passenger railway vehicle: Railway vehicle for the conveyance of passengers, even if it comprises one or more compartments or spaces specially reserved for luggage, parcels, mail, etc. These vehicles include special vehicles such as sleeping cars, saloon cars, dining cars and ambulance cars. Each separate vehicle of an indivisible set for the conveyance of passengers is counted as a passenger railway vehicle. Included are railcars if they are designed for passenger transport.

Coach: Passenger railway vehicle other than a railcar or a railcar trailer.

Freight transport wagon: Railway vehicle normally intended for the transport of goods. Railcars and railcar trailers fitted only for the conveyance of goods are included.

Carrying capacity of a wagon: The carrying capacity of wagon is the maximum authorized weight it can carry.

Road transport definitions

Road: Line of communication (travelled way) using a stabilized base other than rails or air strips open to public traffic, primarily for the use of road motor vehicles running on their own wheels. Included are bridges, tunnels, supporting structures, junctions, crossings and interchanges. Toll roads are also included. Excluded are dedicated cycle paths.

Motorway: Road, specially designed and built for motor traffic, which does not serve properties bordering on it, and which:

(a) is provided, except at special points or temporarily, with separate carriageways for the two directions of traffic, separated from each other, either by a dividing strip not intended for traffic, or exceptionally by other means;
(b) does not cross at level with any road, railway or tramway track, or footpath;
(c) is specially sign-posted as a motorway and is reserved for specific categories of road motor vehicles.

Entry and exit lanes of motorways are included irrespectively of the location of the sign-posts. Urban motorways are also included.

Lorry: Rigid road motor vehicle designed, exclusively or primarily, to carry goods. This category includes vans which are rigid road motor vehicles designed exclusively or primarily to carry goods with a gross vehicle weight of not more than 3 500 kg. This category may also include "pick-ups".

Load capacity of road vehicles for freight transport: Maximum weight of goods declared permissible by the competent authority of the country of registration of the vehicle.

Passenger car: Road motor vehicle, other than a motor cycle, intended for the carriage of passengers and designed to seat no more than nine persons (including the driver). The term "passenger car" therefore covers microcars (need no permit to be driven), taxis and hired passenger cars, provided that they have fewer than ten seats. This category may also include pick-ups.

Motor-coach or bus: Passenger road motor vehicle designed to seat more than nine persons (including the driver). Statistics also include mini-buses designed to seat more than 9 persons (including the driver).

Sea transport definitions

Port: A place having facilities for merchant ships to moor and to load or unload cargo or to disembark or embark passengers to or from vessels, usually directly to a pier.

Principal port: port handling more than 1 million tonnes of cargo or recording traffic of more than 200,000 passengers per year.

Merchant ship: Ship designed for the carriage of goods, transport of passengers or specially fitted out for a specific commercial duty.

Tanker: a ship designed with a single-deck and an arrangement of integral or independent tanks specifically for the bulk carriage of liquid cargo.

Bulk carrier: a ship designed with a single deck and holds the bulk carriage of loose dry cargo of a homogenous nature.

Bulk/oil carrier: a bulk carrier arranged for the carriage of either dry cargoes or liquid cargoes, in the same cargo spaces but not simultaneously.

General freight transporter: Ships designed to carry a wide range of goods. This category includes reefer, ro-ro passenger, ro-ro container, other ro-ro cargo, combination carrier general cargo/passenger and combination carrier general cargo/container.
This category should be subdivided into

(a) High speed general cargo non-specialised meeting the requirements set out in the IMO HSC Code paragraph 1.4.30
(b) Other general cargo non-specialised.

Container ship: Ship fitted throughout with fixed or portable cell guides for the exclusive carriage of containers.

RO-RO cargo ship: a RO-RO ship fitted out for the carriage of goods alone.

Passenger ship: Ship designed specifically to carry more than 12 fare-paying passengers whether berthed or unberthed.
This category should be subdivided into

(c) High speed passenger ship specialised meeting the requirements set out in the IMO HSS Code paragraph 1.4.30
(d) Other passenger ships

A ship designed with one or more decks specifically for the carriage of passengers, and where there is either no cabin accommodation for the passengers (un-berthed) or not all of the passengers are accommodated in cabins where cabins are provided, is sometimes referred to as a "ferry". Ro-Ro passenger ships are excluded.

RO-RO passenger ship: a ro-ro ship fitted out for the carriage of passengers and goods.

Cruise ship: A passenger ship intended to provide passengers with a full tourist experience. All passengers have cabins. Facilities for entertainment aboard are included. Ships operating normal ferry services are excluded, even if some passengers treat the service as a cruise. In addition, cargo carrying vessels able to carry a very limited number of passengers with their own cabins are also excluded. Ships intended solely for day excursions are also excluded.

Deadweight: maximum permissible weight, expressed in tonnes, which a ship may carry according to the ship's documents.

Number of arrivals of vessels: Number of arrivals of any merchant ship making a port call in the territory of the reporting country.

Number of departures of vessels: Number of departures of any merchant ship after making a port call in the territory of the reporting country.

Volume of inbound cargo: The volume of cargo unloaded from a merchant ship. Transhipment from one ship to another is counted as unloading before reloading. Unloaded cargo includes national cargo, transhipped cargo (national or foreign cargo leaving a port by sea) and cargo in overland transit (foreign cargo leaving a port by road, rail, air or navigable waterway).

Volume of outbound cargo: The volume of cargo loaded on a merchant ship to be transported by sea. Transhipment from one ship to another is counted as unloading before reloading. Unloaded cargo includes national cargo, transhipped cargo (national or foreign cargo leaving a port by sea) and cargo in overland transit (foreign cargo arriving at a port by road, rail, air or navigable waterway).

Air transport definitions

Airport: a defined area of land or water (including any buildings, installations and equipment) intended to be used either wholly or in part for the arrival, departure and surface movement of aircraft and open for commercial air transport operations.

Principal airport: airport recording more than 1.5 million passenger-equivalents per year (a passenger-equivalent is a passenger or 100 kilograms of freight or mail).

Passenger aircraft: an aircraft configured for the transport of passengers, their baggage and freight, including mail.

Cargo aircraft: an aircraft configured solely for the carriage of freight and/or mail.

Air traffic: Any movement of goods and/or passengers using an aircraft landing or taking off at/from an airport. Commercial and general aviation flights are included. State flights, landings and touch and goes, unsuccessful approaches or overshoots are excluded.
Total number of aircraft movements through airports: An aircraft movement consists of a take-off or landing.

Total number of inbound passengers: An inbound passenger is one terminating his journey by arriving by air at the airport concerned or an inbound passenger transferring or in indirect transit at that airport.

Total number of outbound passengers: An outbound passenger is one commencing his journey by leaving by air from the airport concerned or one transferring or in indirect transit outbound from that airport.

Volume of inbound freight and mail: Volume of freight and mail unloaded from an aircraft. Express service freight and mail and diplomatic bags are included but passenger luggage and direct transit freight and mail are excluded.

Volume of outbound freight and mail: Volume of freight and mail loaded onto an aircraft. Express service freight and mail and diplomatic bags are included but passenger luggage and direct transit freight and mail are excluded.

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Adetef - Medstat III
120, rue de Bercy, 75572 Paris – France
Tel: +33 (0)1 53 18 36 64 / 37 07 / 37 85
Fax: +33 (0)1 53 18 38 59
info@medstat3.eu

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