Standing Committee
for Economic and Commercial Cooperation
of the Organization of Islamic Cooperation (COMCEC)

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COMCEC TRANSPORT OUTLOOK 2015

COMCEC COORDINATION OFFICE
October 2015

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The COMCEC Transport Outlook is a contribution of the COMCEC Coordination Office to enrich the discussions during the Transport and Communication Working Group Meetings.

COMCEC Strategy, adopted during the 4th Extraordinary Islamic Summit held in Makkah on 14-15 August 2012, envisages Working Group Meetings as one of the instruments for its implementation. Through the Working Groups, country experts get the chance of elaborating the issues thoroughly in the respective cooperation areas and sharing their good practices and experience. The Working Groups are established for each cooperation area defined by the Strategy, namely (i) Trade, (ii) Transport and Communication, (iii) Tourism, (iv) Agriculture, (v) Poverty Alleviation, and (vi) Finance.

The COMCEC Outlooks are prepared in each cooperation area of the Strategy with a view to explore the global trends and current situation in the OIC Member States in the respective area and enrich discussions during the Working Groups Meetings by providing up-to-date data.

The COMCEC Transport Outlook 2015 is a revised and updated version of the Transport Outlook 2014 published by the COMCEC Coordination Office. The Outlook has been prepared by Mr. Ekrem KARADEMİR and Mr. Nihat AKBALIK, experts at the COMCEC Coordination Office, with the objective of providing general information on the status of transport sector in the Organization of the Islamic Cooperation (OIC) Member States. It dwells on the major issues with regard to transport sector development and makes comparisons with the different country groupings to demonstrate the situation in the Member States and thus cooperation potentials. The authors would like to extend their thanks to Dr. İsmail Çağrı ÖZCAN for his valuable contributions to the previous editions.

The views expressed and conclusions reached in this publication do not necessarily reflect the official views of the COMCEC Coordination Office, COMCEC or the governments of OIC Member Countries.

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1. INTRODUCTION

There is a strong emphasis on transportation sector within the OIC (Organization of Islamic Cooperation) framework. First of all, one of three principles of the COMCEC Strategy, which is enhancing mobility, is directly related to transport. Secondly, transportation is explicitly affirmed as one of the three priority sectors by the COMCEC along with agriculture and tourism. Thirdly, it is one of the six cooperation areas specified by the COMCEC Strategy besides trade, tourism, agriculture, poverty alleviation, and finance.

Such an emphasis on the transport sector is not surprising, since it is crucial for economic and social development of the nations. From the point of view of households, people spend considerable time and money for traveling to fulfil a wide variety of purposes such as business, education, shopping, vacation, and socializing. According to Eurostat statistics, transportation activities account for 4.6% of the EU's gross domestic product (GDP) and 4.5% of its total employment (European Commission 2013). In addition, transport expenditures correspond to 13.2% of a household's budget on average within the EU as of 2012 (Eurostat 2012).

Problems and challenges associated with the transport industry are just as big as the transport industry itself. Regarding transportation infrastructure, developed countries try to maintain and improve their transportation network while developing and the least developed countries aim at developing a transport infrastructure to meet their basic needs. With respect to transportation finance and privatization, almost all countries suffer from insufficient public budgets and inefficient provision of transport services through public ownership and management. From environmental point of view, transportation is one of the biggest sources of greenhouse gas emissions and the rate of increase in transport emissions is quite high. In addition to these problems, other outstanding challenges like increasing traffic congestion, problems associated with the transportation safety and security, the lack of transit services are also noteworthy. Revealing these current challenges facing transportation sector, this brief Outlook, through a focused approach, attempts to provide an overview on how OIC countries are performing in terms of five major areas, i.e., (1) transport infrastructure, (2) transport, logistics, and trade, (3) transport movements, (4) privatization of transport, and (5) transport and environment.

The analyses within this Outlook include comparisons between the OIC countries and other regions such as the European Union (EU), Latin America and the Caribbean, East Asia and Pacific, and the Organization for Economic Co-operation and Development (OECD). For more detailed analysis, the OIC countries were divided into geographical regions such as OIC-MENA (Middle East and North Africa), OIC-Asia, and OIC-Sub-Saharan Africa when deemed necessary. Further information on this geographical classification is available at Table A.1 in the Appendix.

2. THE OUTSTANDING CHALLENGES FOR TRANSPORT INDUSTRY

The increased per capita income and mobility needs of the households, trade globalization, deregulation and privatization trends in transportation infrastructure and services, and the technological progress in vehicle technology have all contributed to the high growth rate of the transportation industry.

ITF estimates that the trade related international freight will grow by a factor of 4.3 by 2050. Maritime transport is more characterized by movement of freights as almost 85% of global trade is carried by sea in terms of weight. Therefore, increasing international trade will result in unprecedented challenges for the transport infrastructure, especially for ports. According to ITF projections, port volumes are expected to increase nearly fourfold by 2050 (OECD/ITF, 2015). In fact, Infrastructure to 2030 (OECD, 2012) argues that worldwide container throughput could quadruple even by 2030.

With regard to the surface transport, worldwide road and rail passenger travel is expected to grow around 120% to 230% until 2050, whereas this growth is expected to range from 240% to 450% for non-OECD economies. Besides, the global road and rail freight transport is projected to increase by 230% to 420% (OECD/ITF, 2015).

Infrastructure to 2030 concludes that global transport and distribution infrastructure investment needs, i.e., airports, ports, rail, and oil and gas, may exceed USD 11 trillion over 2009-2030 period. As major infrastructure can take around 10 to 20 years to plan and implement, countries that want to develop their infrastructure at the right time and location will need to get two crucial things right, i.e., national policy frameworks and assured funding (OECD, 2012).

This Outlook focuses on five major aspects of transport, i.e., (1) transport infrastructure, (2) transport, logistics, and trade, (3) transport movements, (4) of privatization of transport, and (5) transport and environment, and attempted to provide an overview of them.

Table 1: Notable developments and trends in transport industry

Transport Mode	Notable challenges and trends
Transport in general	Increasing international trade Lack of national policy frameworks Lack of assured public funding Need for increased private-sector investments Aging infrastructure Environmental effects of transportation Deregulation and privatization Oil dependency Terrorism and security concerns
Maritime transport	Containerization Increasing vessel sizes Rise of international and regional hub ports Operations of major ports by major shipping lines Trade with China Global crisis Increase of LNG and LPG trade
Air transport	Airline alliances Inclusion of aviation into EU ETS Airport privatizations and rise of global airport companies Air cargo: fast, reliable, and cheaper than before Rise of low cost carriers Mergers and acquisitions Fall of state-owned airlines
Road transport	Increasing greenhouse gas emissions Congestion in big cities Emphasis on road safety Car dependency
Rail transport	Deregulation of rail industry Implementation of high-speed railway network Multimodal trade corridors through rail network

2.1. TRANSPORT INFRASTRUCTURE

Transport infrastructure is crucial for both economic and social development of the nations and "quality infrastructure is a key pillar of international competitiveness" (OECD, 2012). It is therefore not surprising to see that developing transport infrastructure is assessed as a powerful instrument for a wide variety of policy goals such as reducing logistics costs, poverty (through enhancing rural road infrastructure) and congestion, and enabling the mobility of the workforce, etc. The problems associated with the transport infrastructure vary across the nations. For developed nations, for example, the major transportation problem is to sustain the aging infrastructure in the most cost-effective way and to maintain their competitive power through efficient transport networks. For least developed nations, the major concern is to establish a transportation infrastructure by meeting at least the basic needs.

The variation in the needs of transportation infrastructure across the OIC countries is in parallel with the situation outlined above. On the one hand, there is a group of oil producing gulf countries with high income per capita and relatively smaller areas (except Saudi Arabia). On the other hand, there is a large pool of OIC countries with low income per capita and relatively larger areas, mostly from Sub-Saharan Africa. The Global Competitiveness Report 2015–2016 (WEF, 2015) of the World Economic Forum provides evidence on this gap. Five of the seven best performing OIC countries (i.e. UAE, Malaysia, Qatar, Bahrain, Saudi Arabia, Turkey, and Oman) in terms of quality of transport infrastructure are oil producing gulf countries. On the other hand, seven out of eight worst performing OIC countries (i.e. Guinea, Lebanon, Sierra Leone, Mauritania, Chad, Nigeria, Benin, and Mozambique) in the same measure are from Sub-Saharan Africa.

Table 2 presents the variation in the quality of transport infrastructure in terms of indexes among the 37 OIC countries (i.e. 13 countries from OIC-Sub-Saharan Africa, 15 from OIC-MENA, and 9 from OIC-Asia). The indexes range from 1 to 7, where 1 represents the extremely underdeveloped infrastructure and 7 stands for extensive and efficient infrastructure by international standards.

Second column of Table 2 shows the indexes for the quality of overall infrastructure (e.g. transport, telephony, and energy) whereas the rest of the columns provide comparable indexes for road, railroad, port, and air transport infrastructure, respectively. One implication of Table 2 is that all of the OIC and OIC-Sub-Saharan Africa averages fall below world averages in every measure. Secondly, OIC-MENA performs better than world average in every measure except the quality of railroad infrastructure. Finally, OIC-Asia underperforms world averages in every measure except the quality of railroad infrastructure.

Table 2: The indexes for the quality of transport infrastructure

Region	Quality of overall infrastructure	Quality of roads	Quality of railroad infrastructure	Quality of port infrastructure	Quality of air transport infrastructure
World Average	4.13	4.03	3.32	4.03	4.36
OIC Average	3.77	3.75	2.72	3.78	4.03
OIC-Sub Saharan Africa	2.98	3.05	2.02	3.19	3.23
OIC-MENA	4.35	4.43	2.84	4.47	4.66
OIC-Asia	3.93	3.61	3.48	3.48	4.14
OIC Maximum	6.4 (UAE)	6.6 (UAE)	5.1 (Malaysia)	6.4 (UAE)	6.7 (UAE)
OIC Minimum	2.0 (Guinea)	1.9 (Guinea)	1.3 (Albania)	1.3 (Chad)	2.4 (Sierra Leone)

Source: Author from the Global Competitiveness Report 2015–2016 (WEF, 2015)

2.2. TRANSPORT, LOGISTICS, AND TRADE

Transport infrastructure, logistics services, and trade go hand in hand and nations that are able to deliver their products in the cheapest, fastest, and the most reliable way through their efficient logistics infrastructure and services gain competitive advantage in the global trade. That is why, as a historical fact, trade capitals of the world have been those cities and countries with better accessibility and connectivity. The rapid growth of world trade after World War II as a result of decreasing transportation costs (Hummels, 2007) is another implication of the linkage between trade and logistics.

As underlined above, quality of logistics infrastructure and services is a major determinant in terms of shares of countries in the global trade. In this section some important measures with respect to trade and logistics will be analysed to better understand the current situation of the OIC countries.

The most widely used measure for logistics performances of the countries is the World Bank Logistics Performance Index (LPI). As can be seen in Table 3 showing the latest (2014) LPI scores, the OIC countries such as Malaysia, United Arab Emirates, Qatar, and Turkey come on top of the rankings; while Somalia, Afghanistan, and Djibouti come at the bottom. With regard to the LPI components of customs and timeliness, one implication of Table 3 is that there are varying levels of performance even across top performing OIC countries. For instance, Oman and Jordan do not score well for both indicators whereas Saudi Arabia scores badly in timeliness (Bichou, 2015).

Table 3: 2014 LPI scores and ranks of the OIC countries

	Overall LPI		Customs		Infra-structure		Int. Shipment		Logistics Comp.		Tracking & Tracing		Timeliness	
Country	**score**	**rank**	**score**	**rank**	**score**	**rank**	**score**	**rank**	**score**	**rank**	**score**	**rank**	**score**	**rank**
Germany	**4.12**	**1**	**4.10**	**2**	**4.32**	**1**	**3.74**	**4**	**4.12**	**3**	**4.17**	**1**	**4.36**	**4**
Malaysia	3.59	25	3.37	27	3.56	26	3.64	10	3.47	32	3.58	23	3.92	31
UAE	3.54	27	3.42	25	3.70	21	3.20	43	3.50	31	3.57	24	3.92	32
Qatar	3.52	29	3.21	37	3.44	29	3.55	16	3.55	28	3.47	32	3.68	41
Turkey	3.50	30	3.23	34	3.53	27	3.18	48	3.64	22	3.77	19	3.55	47
Saudi Arabia	3.15	49	2.86	56	3.34	34	2.93	70	3.11	48	3.15	54	2.80	119
Bahrain	3.08	52	3.29	30	3.04	49	3.04	58	3.04	51	3.29	42	3.53	50
Indonesia	3.08	53	2.87	55	2.92	56	2.87	74	3.21	41	3.11	58	3.39	60
Kuwait	3.01	56	2.69	68	3.16	43	2.76	89	2.96	59	3.16	50	3.29	67
Oman	3.00	59	2.63	74	2.88	57	3.41	31	2.84	73	2.84	80	2.99	99
Egypt	2.97	62	2.85	57	2.86	60	2.87	77	2.99	58	3.23	43	3.46	58
Jordan	2.87	68	2.60	78	2.59	76	2.96	65	2.94	60	2.67	96	2.79	123
Pakistan	2.83	72	2.84	58	2.67	69	3.08	56	2.79	75	2.73	86	3.46	57
Nigeria	2.81	75	2.35	117	2.56	83	2.63	107	2.70	85	3.16	51	3.31	64
Côte d'Ivoire	2.76	79	2.33	120	2.41	101	2.87	75	2.62	95	2.97	67	3.44	59
B&H	2.75	81	2.41	105	2.55	84	2.78	87	2.73	81	2.55	107	2.51	148
Maldives	2.75	82	2.95	49	2.56	82	2.92	72	2.79	74	2.70	92	2.89	108
Lebanon	2.73	85	2.29	124	2.53	89	2.53	118	2.89	67	3.22	44	3.24	69
Kazakhstan	2.70	88	2.33	121	2.38	106	2.68	100	2.72	83	2.83	81	3.04	94
Algeria	2.65	96	2.71	66	2.54	87	2.54	117	2.54	102	2.54	109	3.21	71
Burkina Faso	2.64	98	2.50	88	2.35	111	2.63	105	2.63	94	2.49	115	2.53	146
Senegal	2.62	101	2.61	76	2.30	116	3.03	59	2.53	103	2.65	98	3.18	75
Bangladesh	2.56	108	2.09	138	2.11	138	2.82	80	2.64	93	2.45	122	2.85	115
Benin	2.56	109	2.64	73	2.35	109	2.69	99	2.35	123	2.45	123	3.16	80
Tunisia	2.55	110	2.02	146	2.30	118	2.91	73	2.42	120	2.42	124	3.02	97
Chad	2.53	113	2.46	97	2.33	112	2.33	136	2.34	125	2.71	90	2.74	133
Tajikistan	2.53	114	2.35	115	2.36	108	2.73	92	2.47	113	2.47	119	2.85	114
Libya	2.50	118	2.41	104	2.29	119	2.29	140	2.29	131	2.85	78	2.90	106
Mali	2.50	119	2.08	141	2.20	129	2.80	82	2.20	142	2.70	91	3.10	86
Guinea	2.46	122	2.34	119	2.10	141	2.47	125	2.35	124	2.41	126	2.74	131
Guyana	2.46	124	2.46	99	2.40	105	2.43	128	2.27	133	2.47	117	2.57	143
Azerbaijan	2.45	125	2.57	82	2.71	68	2.57	113	2.14	149	2.14	148	2.73	135
Guinea-Bissau	2.43	127	2.43	101	2.29	121	2.29	141	2.57	101	2.29	139	2.71	136
Comoros	2.40	128	2.58	81	2.30	117	2.51	119	2.26	134	2.37	128	2.37	154
Uzbekistan	2.39	129	1.80	157	2.01	148	2.23	145	2.37	122	2.87	77	3.08	88
Niger	2.39	130	2.49	93	2.08	143	2.38	130	2.28	132	2.36	129	2.76	127
Togo	2.32	139	2.09	139	2.07	145	2.47	124	2.14	150	2.49	116	2.60	140
Turkmenistan	2.30	140	2.31	122	2.06	146	2.56	116	2.07	155	2.32	134	2.45	153
Iraq	2.30	141	1.98	149	2.18	131	2.31	139	2.15	147	2.31	136	2.85	116
Cameroon	2.30	142	1.86	156	1.85	154	2.20	147	2.52	104	2.52	111	2.80	120
Gambia	2.25	146	2.06	143	2.00	149	2.67	101	2.22	138	2.00	154	2.46	151
Mozambique	2.23	147	2.26	126	2.15	135	2.08	154	2.10	153	2.08	152	2.74	134
Mauritania	2.23	148	1.93	152	2.40	103	2.07	155	2.06	157	2.23	142	2.75	130
Kyrgyzstan	2.21	149	2.03	145	2.05	147	2.43	127	2.13	151	2.20	145	2.36	155
Gabon	2.20	150	2.00	148	2.08	142	2.58	112	2.25	135	1.92	157	2.31	157
Yemen	2.18	151	1.63	159	1.87	153	2.35	134	2.21	141	2.21	144	2.78	124
Sudan	2.16	153	1.87	155	1.90	152	2.23	144	2.18	144	2.42	125	2.33	156
Djibouti	2.15	154	2.20	134	2.00	150	1.80	158	2.21	140	2.00	155	2.74	132
Afghanistan	2.07	158	2.16	137	1.82	158	1.99	156	2.12	152	1.85	159	2.48	149
Somalia	1.77	160	2.00	147	1.50	160	1.75	159	1.75	160	1.75	160	1.88	160

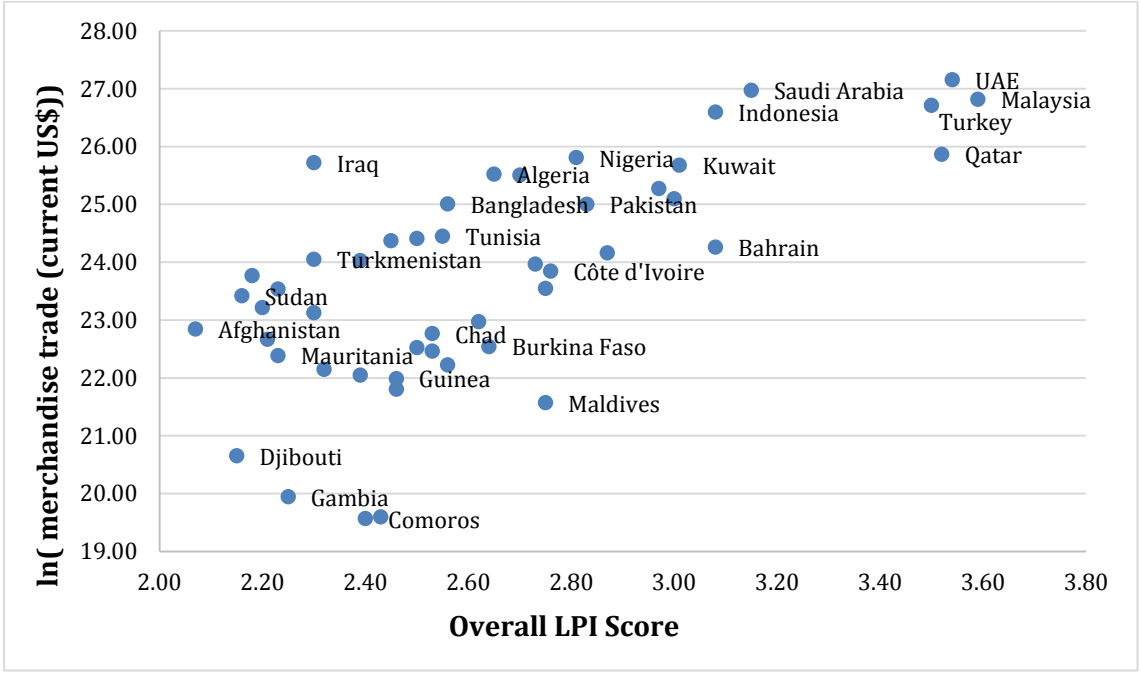
Source: Compiled by the author from the World Bank World Development Indicators

Logistics costs have become more important over time for two main reasons. Firstly, the tendency to shift the production facilities abroad to enjoy lower labour costs necessitates more movement of goods (e.g., raw materials and final products). Secondly, with decreasing tariffs, logistics costs increase in ad valorem terms and turn into an important factor in the prices of products. That is why, the nations which have the aim of increasing their international trade should improve their logistics capabilities.

The OIC countries with higher LPI scores tend to engage more in international goods trade. Countries with high LPI scores are more likely to gain competitive advantage over those with lower LPI scores as they can facilitate their international trade through their enhanced logistics infrastructure and services.

As an evidence of this fact, Figure 1 shows the LPI scores of the OIC countries and their respective international merchandise trade for the year 2014. The figure documents that there is a positive correlation – with a coefficient of 0.69 - between the LPI scores and total merchandise trade of the 48 OIC countries whose data are available for 2014. This implies that the OIC countries with higher LPI scores tend to engage more in merchandise trade or vice versa.

Figure 1: Total merchandise trade and LPI scores in OIC countries (2014)



Source: Author from the World Bank World Development Indicators

The second measure is the World Bank's Liner Shipping Connectivity Index (LSCI) which aims at capturing a country's level of integration into the existing liner shipping network. As can be seen in Table 4, the 2014 LSCI scores show that Malaysia (104), UAE (66.5), Morocco (64.3), and Egypt (61.8) are well connected to the global shipping network whereas Qatar (3.9), Guinea

Bissau (4), and Albania and Guyana (4.1) are least connected. It is also noteworthy to mention that there is a general correlation between LSCI and LPI rankings.

One implication of Table 4 is that the best performing countries have large transhipment ports (e.g. Malaysia, Morocco, and Egypt) and gateway ports (e.g. Malaysia, Saudi Arabia, and Turkey). Secondly, the least performing countries are either not located on the main liner shipping services or lack the physical and operational capacity to serve large container ships as it is the case for the Maldives and Guyana (Bichou, 2015).

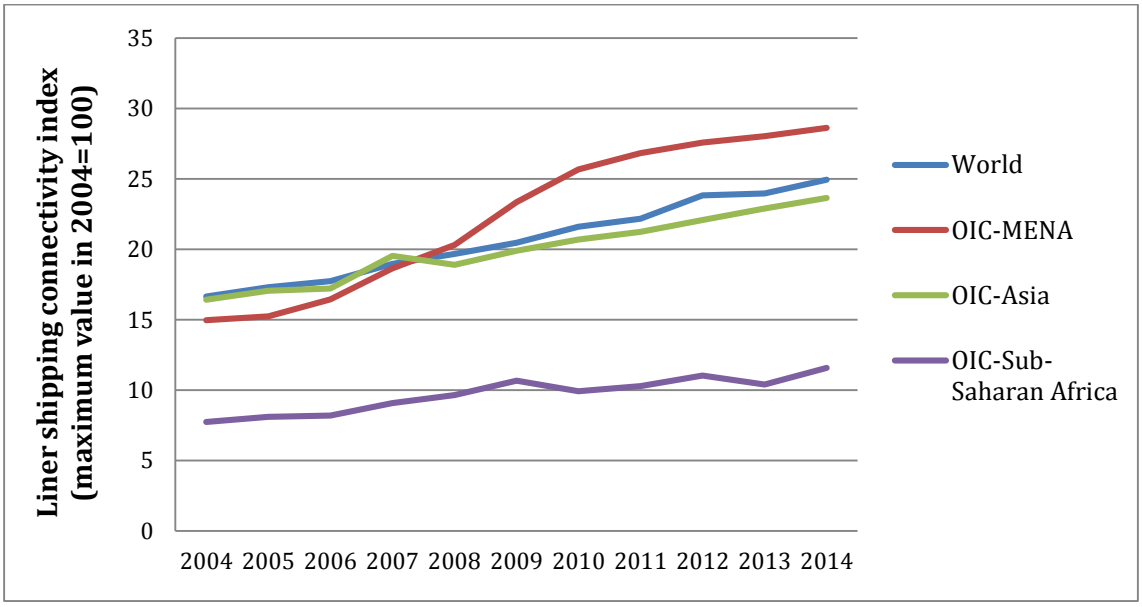
Table 4: LSCI scores for OIC member states, exc. landlocked countries

Country	2009	2010	2011	2012	2013	2014
Malaysia	81.21	88.14	90.96	99.69	98.18	104.02
UAE	60.45	63.37	62.50	61.09	66.97	66.48
Morocco	38.40	49.36	55.13	55.09	55.53	64.28
Egypt	51.99	47.55	51.15	57.39	57.48	61.76
Saudi Arabia	47.30	50.43	59.97	60.40	59.67	61.25
Turkey	31.98	36.10	39.40	53.15	52.13	52.37
Oman	45.32	48.52	49.33	47.25	48.46	49.88
Indonesia	25.68	25.60	25.91	26.28	27.41	28.06
Pakistan	26.58	29.48	30.54	28.12	27.71	27.50
Bahrain	8.04	7.83	9.77	17.86	17.90	27.01
Bahamas	19.26	25.71	25.18	27.06	26.41	26.70
Nigeria	19.89	18.28	19.85	21.81	21.35	22.91
Jordan	23.71	17.79	16.65	22.75	22.68	22.63
Côte d'Ivoire	19.39	17.48	17.38	16.45	17.55	21.87
Djibouti	17.98	19.55	21.02	16.56	20.29	20.22
Togo	14.42	14.24	14.08	14.07	14.76	19.09
Yemen	14.61	12.49	11.89	13.19	19.00	18.45
Benin	13.52	11.51	12.69	15.04	14.28	17.21
Sudan	N/A	N/A	N/A	12.75	8.42	13.14
Senegal	14.96	12.98	12.27	13.59	11.08	12.90
Cameroon	11.60	11.34	11.40	13.44	10.85	12.74
Mozambique	9.38	8.16	10.12	9.82	10.23	8.96
Bangladesh	7.91	7.55	8.15	8.02	7.96	8.39
Kuwait	6.54	8.31	5.60	6.60	7.12	8.22
Maldives	5.43	1.65	1.62	1.60	8.12	7.79
Tunisia	6.52	6.46	6.33	6.35	5.59	7.52
Algeria	8.37	31.45	31.06	7.80	6.91	6.94
Comoros	5.00	5.74	7.14	5.17	5.21	6.83
Libya	9.43	5.38	6.59	7.51	7.29	6.82
Mauritania	7.50	5.61	5.62	8.20	6.53	6.00
Iran	28.90	30.73	30.27	22.62	21.30	5.85
Guinea	8.32	6.28	6.21	7.42	8.06	5.78
Somalia	2.82	4.20	4.20	4.34	4.20	5.45
Iraq	5.11	4.19	4.19	7.10	5.69	5.17
Brunei	3.94	5.12	4.68	4.44	4.61	4.30
Guyana	4.34	3.95	3.96	4.06	4.31	4.13
Albania	2.30	4.34	4.54	0.53	4.43	4.11
Guinea-Bissau	3.54	3.50	4.07	4.31	4.00	3.97
Qatar	2.10	7.67	3.60	6.53	3.35	3.86

Source: Compiled by the author from UNCTAD Statistical Database

Figure 2 provides, on average, the LSCI changes for the OIC-groupings between 2004 and 2014. As the figure suggests, in terms of average LSCI scores, OIC-MENA region performed better than OIC-Asia region as well as the world starting from 2008. On the other hand, average LSCI scores for OIC-Sub-Saharan Africa region remained well below the world averages throughout the same period.

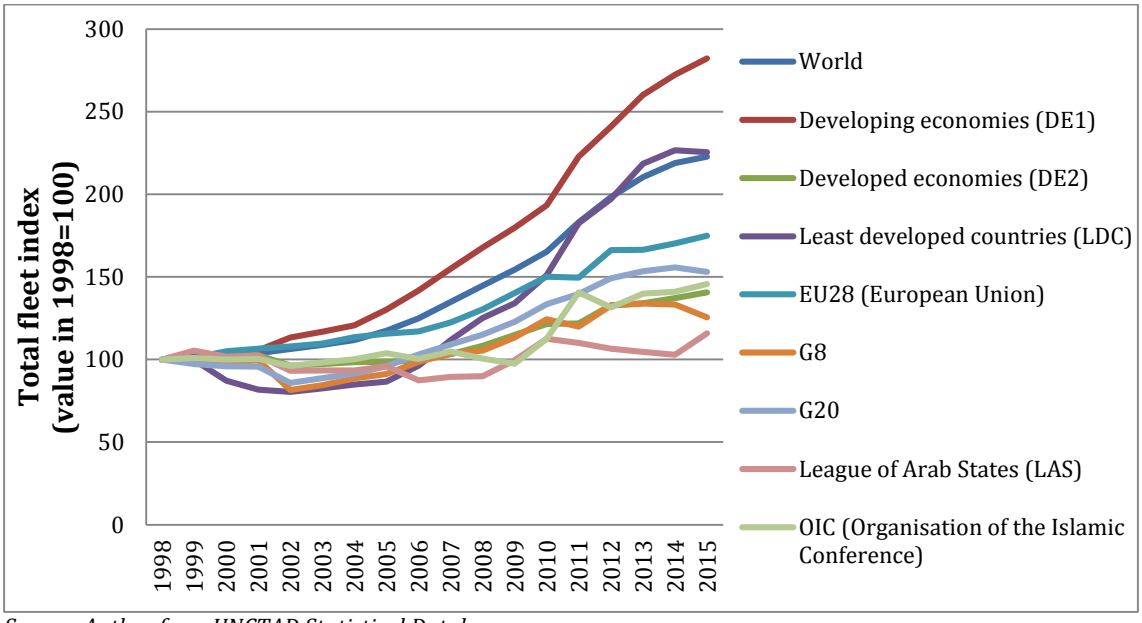
Figure 2: Average liner shipping connectivity scores by OIC regions (2004-2014)



Source: Author from UNCTAD Statistical Database

Another measure that can be used as a proxy for the international trade is the change in global fleet. Figure 3 shows, using UNCTAD data, the change in the total fleet, in dead weight tons in thousands, by flag of registration for the 1998-2015 period. During this 18-year period, world fleet has increased 123% while only two subgroups, i.e., developing economies and the least developed countries, outperformed this global average. The OIC countries failed to catch up with the world average in fleet growth and increased their fleet only by 45.7%. Similarly, the League of Arab States (LAS) fell below the world average and grew its fleet only by 15.8%.

Figure 3: Change in total fleet by flag of registration (in 1000 dwt) (1998-2015)

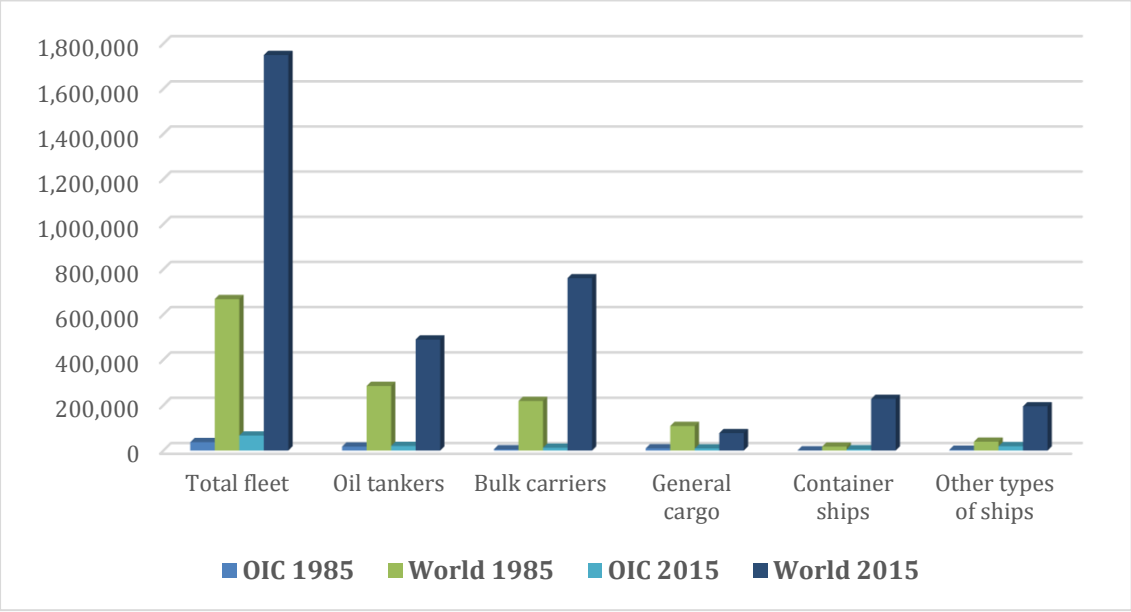


Source: Author from UNCTAD Statistical Database

The increase in the commercial fleet registered under the flags of the OIC member states corresponds to a total capacity of 66.2 million deadweight tons (dwt) in 2015 compared with 37 million dwt in 1985. The majority of the fleet consist of oil tankers and bulk carriers whereas container ships represent only 8.2% of the total fleet. With regard to their share of the world's fleet, the commercial fleet of the OIC countries represents 3.8% in 2015 which was 5.6% 30 years ago. Considering the comparatively higher share of the OIC countries in the world trade, i.e., around 10%, than that of the fleet capacity, it can be concluded that the majority of the OIC's merchandise trade is being carried by foreign shipping companies. Although such a situation is a common trend in today's globalized shipping industry, this often leads to high maritime transport costs and low shipping connectivity particularly for the OIC countries with smaller economies located in remote locations (Bichou, 2015).

Figure 4 compares the share of OIC fleet in the global fleet by ship's type in 1985 and 2015, respectively. The figure reveals that the OIC's share of general cargo ships is currently just above 12% of the world's general cargo fleet, while the OIC share in the global bulk and tanker fleet is only 1.6% and 4.1%, respectively. This is surprising considering the trade in many OIC countries are mainly dominated by bulk and fuel commodities (Bichou, 2015).

Figure 4: OIC and global commercial fleet by type of ship (1985 and 2015)



Source: Compiled by the author from UNCTAD Statistical Database

Between OIC countries, there is a great disparity in ship ownership and operation. In 2015, OIC-MENA countries dominated fleet ownership with holding 72% of the total OIC fleet. Turkey had the largest commercial OIC fleet with a total tonnage of 27.7 million dwt. Other countries with large fleets include Iran (18 million dwt), Indonesia (17 million dwt), Malaysia (16.1 million dwt), and the UAE (15.3 million dwt). At the other end of the scale, some OIC countries have no commercial fleet (i.e. Afghanistan, Benin, Burkina Faso, Côte d'Ivoire, Chad, Comoros, Guinea, Guinea Bissau, Mali, Niger, Tajikistan, Togo, Kyrgyzstan, and Uzbekistan); while others (i.e. Senegal, Gambia, Djibouti, Suriname, Mozambique, and Mauritania) have negligible tonnage despite the importance of their maritime trade related sectors (Bichou, 2015).

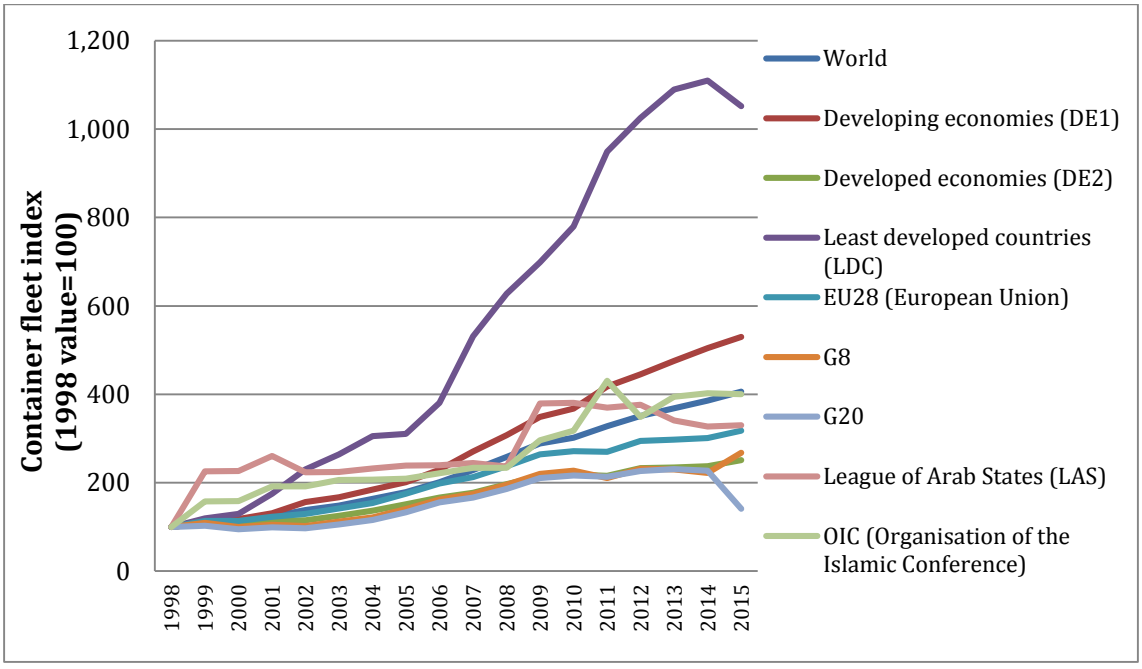
Table 5: Commercial fleet in OIC countries by beneficial ownership (1000 dwt) (2015)

Country	Number of ships	Tonnage
Turkey	1,530	27,688
Iran	227	18,080
Indonesia	1,657	17,030
Malaysia	608	16,138
UAE	779	15,319
Saudi Arabia	241	13,363
Kuwait	69	7,756
Oman	37	7,014
Qatar	126	6,360
Nigeria	256	4,873
Egypt	224	3,314
Libya	32	2,444
Bangladesh	81	1,773
Lebanon	177	1,723
Algeria	49	1,420
Azerbaijan	187	691
Pakistan	14	641
Yemen	20	563
Cameroon	3	429
Kazakhstan	25	375
Tunisia	13	330
Iraq	29	297
Jordan	18	177
Morocco	27	112
Albania	30	101
Gabon	3	76
Turkmenistan	18	73
Bahrain	23	66
Guyana	19	47
Maldives	9	42
Sudan	4	22
Brunei	9	19
Mauritania	1	9
Mozambique	4	9
Suriname	3	5
Djibouti	1	3
Gambia	1	2
Senegal	2	2

Source: Author from UNCTAD Statistical Database

Containerization, which is one of the most influential phenomena in the 20th century that drastically shaped the global trade, has been the main stimulant in increasing container fleet capacity. In parallel with this trend, the growth in container fleet outpaced that of total fleet and the world container fleet has been almost quadrupled in 18 years, between 1998 and 2015. As can be seen in Figure 5, the increase in the OIC container fleet has been similar to that of the world during the same period, which was not the case for total fleet.

Figure 5: Change in container fleet by flag of registration (in 1000 dwt) (1998-2015)



Source: Author from UNCTAD Statistical Database

Nevertheless, the total share of container shipping companies from the OIC countries, which is less than 3% of the global container shipping market, does not mirror OIC's share in world trade. Table 6 shows that major container shipping companies in the OIC countries are mainly from the UAE and Indonesia which are followed by Iran and Turkey. "However, those statistics must be interpreted with caution given the ownership and operational features of the global container shipping industry. For instance, the Turkish conglomerate Yıldırım Group has, as of November 2014, a 24% stake in CMA-CGM, the 3rd largest container shipping line. At the same time, container liners in some OIC countries such as Indonesia and Malaysia are more focused on domestic and regional trade, while other OIC countries still retain high public stakes in national shipping companies." (Bichou, 2015)

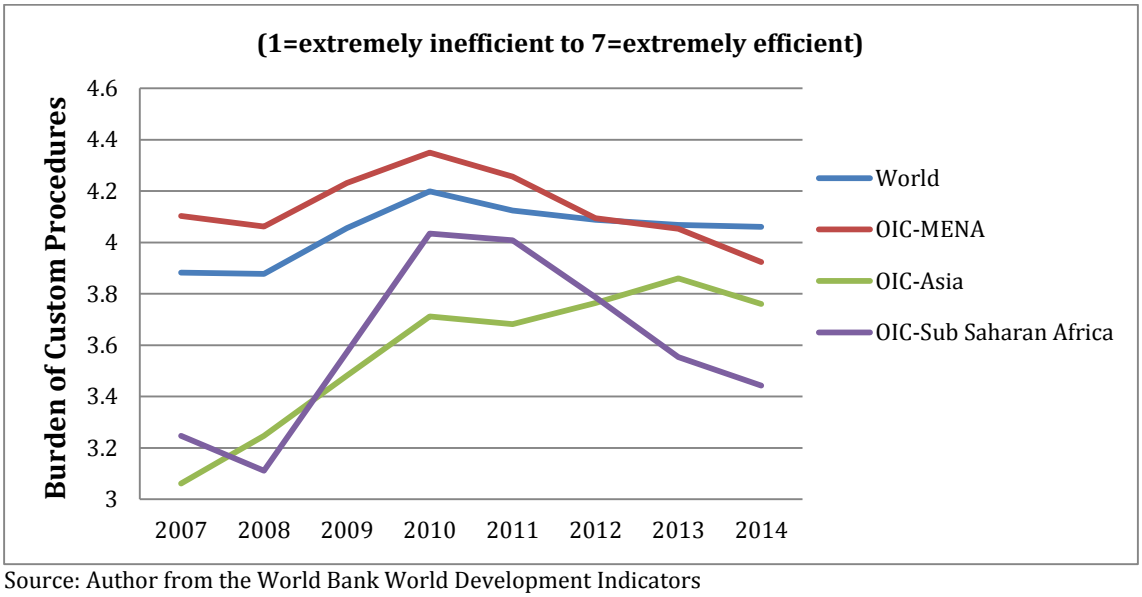
Table 6: Major container shipping companies in the OIC countries

Operator	Global rank	Country	TEU	Ships
UASC	18	UAE	338,872	53
HDS Lines	23	Iran	88,608	22
Arkas Line / EMES	28	Turkey	54,753	37
OEL / Shreyas (Transworld Group)	41	UAE	31,072	22
Salam Pacific	44	Indonesia	29,020	45
Meratus	45	UAE	28,789	49
Tanto Intim Line	46	Indonesia	27,310	47
Emirates Shipping Line	54	UAE	20,917	6
Turkon Line	61	Turkey	13,568	8
Temas Line	62	Indonesia	13,442	23
MTT Shipping	79	Malaysia	7,918	7
Qatar Navigation (Milaha)	88	Qatar	6,651	8
Caraka Tirta Perkasa	93	Indonesia	6,103	9
CNAN	96	Algeria	5,316	9

Source: Bichou (2015) from Alphaliner (2015)

Lastly, custom procedures were analysed for the three OIC regions as they directly affect trade facilitation. For this purpose, burden of custom procedures index, which is provided by the World Bank, were examined on a scale of 1 to 7, where 7 corresponds to the extremely efficient case. Figure 6 reveals that although it fell behind the world averages beginning from 2012, OIC-MENA has been the best performing OIC region for the 2007-2014 period in terms of efficiency of custom procedures. Both OIC-Asia and OIC-Sub-Saharan Africa had custom efficiency scores below the world average throughout this period.

Figure 6: Average burden of custom procedure scores by OIC regions (2007-2014)



Source: Author from the World Bank World Development Indicators

2.3. TRANSPORT MOVEMENTS

As most of the transportation textbooks underline, transportation is a derived demand. People use transportation services to go work, to visit their relatives and friends, to go shopping, etc. That is why, the change in the transportation activities can be used as a proxy for changes in overall economic activities. The rise in the container traffic, for example, is a perfect indicator of the growth in the trade and manufacturing industry. On the other hand, the change in the air passenger traffic can reveal how some high-tech and service based industries, which rely more on air travel, are performing.

The changes in the transport and traffic figures may also signal some other aspects of the transportation system. The continuously growing traffic figures at an airport, for example, may imply that a capacity expansion may be needed in the near future. On the other hand, relatively stable traffic figures of a port may reveal a physical bottleneck which becomes a barrier for further traffic growths.

The invention of the container was arguably the most important transportation advance of the 20th century. The container has revolutionized the global trade like the semiconductor has changed information and communication systems. Thanks to the deployment of freight containers in multimodal chains of transport, efficiency of logistics are increased, logistics costs are reduced, less goods are damaged, and security of shipments is strengthened. (KombiConsult, 2014) "The container has made the world smaller as the transit time between origins and destinations of cargo flows has declined, and it made the world larger as the container ensures to integrate even the remotest region into world trade. It is therefore no wonder that the container has become the icon of globalism." (KombiConsult, 2013)

Ports are critical logistics infrastructure facilities and play a key role in the international trade. While all modes of transport are important, maritime transport needs special attention given that almost 85% of global trade is carried by sea in terms of weight and thus ports can account for a significant proportion of trade logistics and transport costs. (Bichou, 2015) Among other categories of cargo, the container transport deserve particular attention and is the major maritime focus in this report.

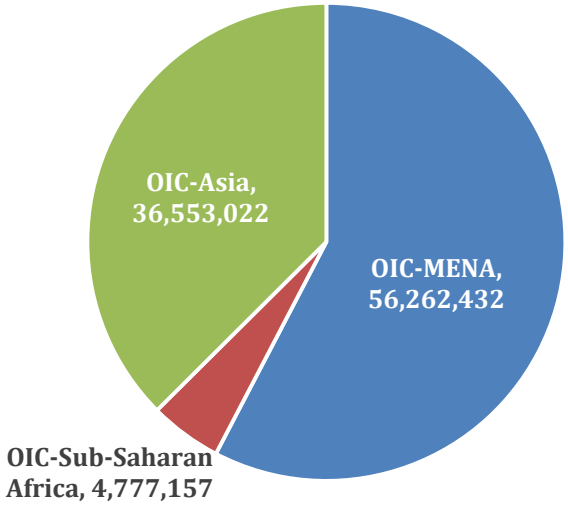
In the following sections, the traffic changes among the OIC geography will be provided with regard to three modes of transport, i.e., maritime, rail, and air transport. Due to the lack of comparable data, the changes in the road transport traffic could not have been analysed.

Maritime Traffic Movements[1]

There are over 200 OIC ports that serve as either gateway or transhipment facilities, and sometimes as transit points to other landlocked OIC countries. Ports are of critical importance for integration of the OIC countries into global markets as well as among themselves given that some OIC countries have smaller economies located in remote locations. Indeed, some OIC ports have a strategic importance for global trade due to their positions on the international maritime routes or services to large hinterland markets. However, there are also many OIC countries that are landlocked, i.e. Afghanistan, Burkina Faso, Kazakhstan, Mali, Niger, and Uganda; while some others that are Small Island Developing States (SIDS), i.e., Comoros, the Maldives, and Suriname.

Figure 7 provides distribution of the container port traffic among the OIC regions in 2013. As the figure shows, the OIC-MENA region outperforms other regions in terms of container port traffic. In the OIC-MENA region UAE, Turkey, and Egypt were the top performers regarding container throughput. For the OIC-Asia region most of the traffic were handled by a few countries such as Malaysia and Indonesia. It should also be underlined that the scope of the container port traffic is very limited in the OIC-Sub-Saharan Africa.

Figure 7: Container port traffic in the OIC regions (TEU: 20 foot equivalent units) (2013)



Source: The World Bank World Development Indicators

The container throughput of the OIC countries has reached 106.1 million TEU in 2014 up from 79.8 million TEU in 2010. However, the share of OIC countries in the global container throughput has remained flat at around 15% in the 2010-2014 period. Both Malaysia and the UAE show high volume throughput of 22.7 million TEU and 20.9 million TEU, respectively. On the other hand, majority of the OIC countries couldn't even reach the one million TEU threshold. In the Maldives, Mauritania, Albania, and Brunei, very low container throughput volumes reflect the small size of the port sector in those countries.

[1] Drawn largely from Bichou (2015).

Table 7: Container-port throughput in the OIC countries (TEU)

Country	2010	2011	2012	2013	2014
Malaysia	18,267,475	20,139,382	20,873,479	21,168,981	22,718,784
UAE	15,176,524	17,548,086	18,120,915	19,336,427	20,900,567
Indonesia	8,482,636	8,966,146	9,638,607	11,273,450	11,900,763
Egypt	6,709,053	7,737,183	8,140,950	8,248,115	8,810,990
Turkey	5,574,018	5,990,103	6,736,347	7,284,207	7,622,559
Saudi Arabia	5,313,141	5,694,538	6,563,844	6,742,697	6,326,861
Iran	2,592,522	2,740,296	5,111,318	4,924,638	5,163,843
Oman	3,893,198	3,632,940	4,167,044	3,930,261	3,620,364
Morocco	2,058,430	2,083,000	1,826,100	2,558,400	3,070,000
Pakistan	2,149,000	2,193,403	2,375,158	2,485,086	2,597,395
Bangladesh	1,356,099	1,431,851	1,435,599	1,500,161	1,655,365
Kuwait	991,545	1,048,063	1,126,668	1,215,675	1,277,674
Lebanon	949,155	1,034,249	882,922	1,117,300	1,210,400
Nigeria	101,007	839,907	877,679	1,010,836	1,062,389
Yemen	669,021	707,155	760,192	820,247	862,079
Jordan	619,000	654,283	703,354	758,919	797,624
Côte d'Ivoire	607,730	642,371	690,548	745,102	783,102
Djibouti	600,000	634,200	681,765	735,624	773,141
Tunisia	466,398	492,983	529,956	571,823	600,986
Sudan	439,100	464,129	498,938	538,354	565,811
Libya	184,585	195,106	369,739	434,608	456,773
Senegal	349,231	369,137	396,822	428,171	450,008
Qatar	346,000	365,722	393,151	424,210	445,845
Benin	316,744	334,798	359,908	388,341	408,146
Bahrain	289,956	306,483	329,470	355,498	373,628
Cameroon	285,070	301,319	323,917	349,507	367,332
Algeria	279,785	295,733	317,913	343,028	360,522
Mozambique	254,701	269,219	289,411	312,274	328,200
Gabon	153,657	162,415	174,597	188,390	197,998
Brunei Darussalam	99,355	105,018	112,894	121,813	128,026
Albania	86,875	91,827	98,714	109,000	99,000
Mauritania	65,705	69,450	74,659	80,557	84,665
Maldives	65,016	68,722	73,876	79,712	83,778

Source: Author from the World Development Indicators

As of 2013, the container penetration intensity (share of containerisation in break bulk and general cargo traffic) in several OIC countries were many times lower than the rate for the global market (~80 TEU per 1,000 capita), and far lower than that of the EU and US markets (~120 TEU per 1,000 capita). Especially, some OIC countries such as Algeria, Bangladesh, and Nigeria

show very low container volumes in comparison with the size of their economies and populations as Table 8 reveals. On the other hand, a few OIC countries (e.g. UAE and Oman) have very high container penetration levels although their figures should be readjusted to account for their high transhipment traffic.

Table 8: Container trade penetration in the OIC countries (including transhipment)

Country	TEU/1,000 capita	Country	TEU/1,000 capita
Albania	38	Malaysia	721
Algeria	9	Maldives	231
Bahrain	267	Mauritania	21
Bangladesh	10	Morocco	88
Benin	38	Mozambique	12
Brunei Darussalam	292	Nigeria	6
Cameroon	16	Oman	1,082
Côte d'Ivoire	37	Pakistan	14
Djibouti	843	Qatar	196
Egypt	87	Saudi Arabia	234
Gabon	113	Senegal	30
Indonesia	43	Sudan	14
Iran	41	Lebanon	270
Jordan	117	Tunisia	53
Kuwait	361	Turkey	97
Libya	70	UAE	2,069

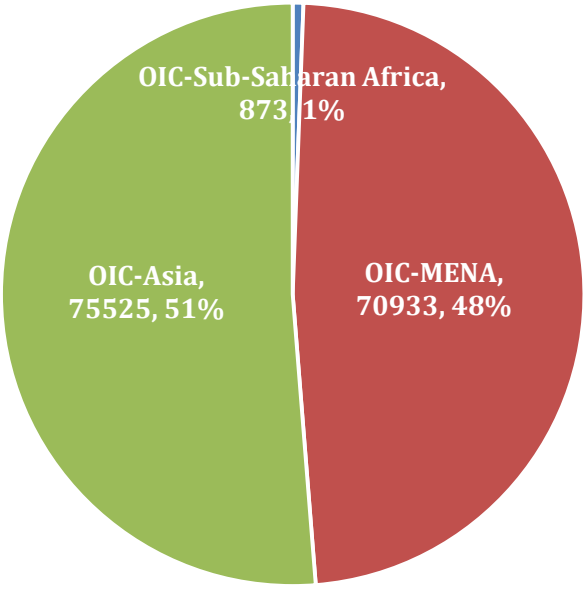
Source: Adapted by the author from Bichou (2015)

Rail Traffic Movements

Rail transportation had been the major transport mode especially for most of inland cities for decades. However, expanding network of roads and improvements in aircraft and road vehicle technology increased the stiff competition from air and road transport. As a result, rail transport has become more freight-oriented over time. Today, rail passenger operations are in general financially viable only at some high-speed and commuter lines whereas other rail passenger lines are generally subsidized by the governments.

Figure 8 reveals that OIC-Sub-Saharan Africa has very low share compared to the OIC-MENA and OIC-Asia regions in terms of rail passengers carried in 2012. Egypt and Iran from the OIC-MENA region and Pakistan, Indonesia, and Kazakhstan from the OIC-Asia are the leading member states with regard to rail passengers.

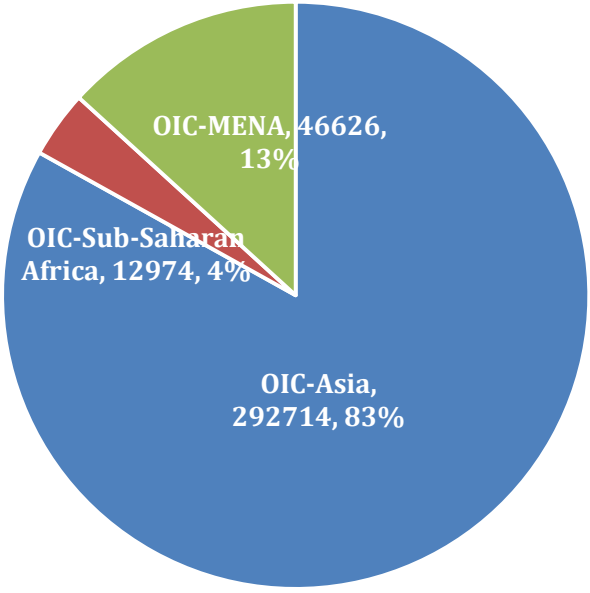
Figure 8: Rail passengers carried by OIC regions (million passenger-km) (2012)



Source: Author from the World Bank World Development Indicators

As Figure 9 shows, rail freight carried in the OIC-Asia region, which predominantly belongs to Kazakhstan, is far above other regions in 2012. In the OIC-MENA region, Iran and Turkey together carried more than two-thirds of region's rail freight.

Figure 9: Rail freight carried by OIC regions (million ton-km) (2012)



Source: Author from the World Bank World Development Indicators

Air Traffic Movements

There is a large variation in the air traffic figures between the OIC member states. On the one hand, several OIC countries achieve highest air traffic globally. According to the 2013 statistics of Airports Council International (ACI, 2015), four airports from the OIC region (i.e. Dubai International Airport of United Arab Emirates, Soekarno-Hatta International Airport of Indonesia, Ataturk International Airport of Turkey, and Kuala Lumpur International Airport of Malaysia) were ranked in the top 30 busiest airports in terms of passenger transport and again four airports (i.e. Dubai and Abu Dhabi International Airports of United Arab Emirates, Doha International Airport of Qatar, and Kuala Lumpur International Airport of Malaysia) were ranked in the top 30 busiest airports in terms of air cargo traffic. On the other hand, several OIC member countries lack an operating airport and accordingly fail to experience any air traffic movement.

As can be seen in Table 9, among all OIC countries, Indonesia, Turkey, and United Arab Emirates (UAE) had the highest air passenger traffic in 2014. In terms of geographical classification, Turkey, UAE, and Saudi Arabia in the MENA, Nigeria, Togo, and Mozambique in the Sub-Saharan Africa, and Indonesia, Malaysia, and Pakistan in the Asia were the top three OIC member countries with highest air passenger movement. Nevertheless, almost two thirds of the air passengers is carried at MENA region while one third is carried at Asia.

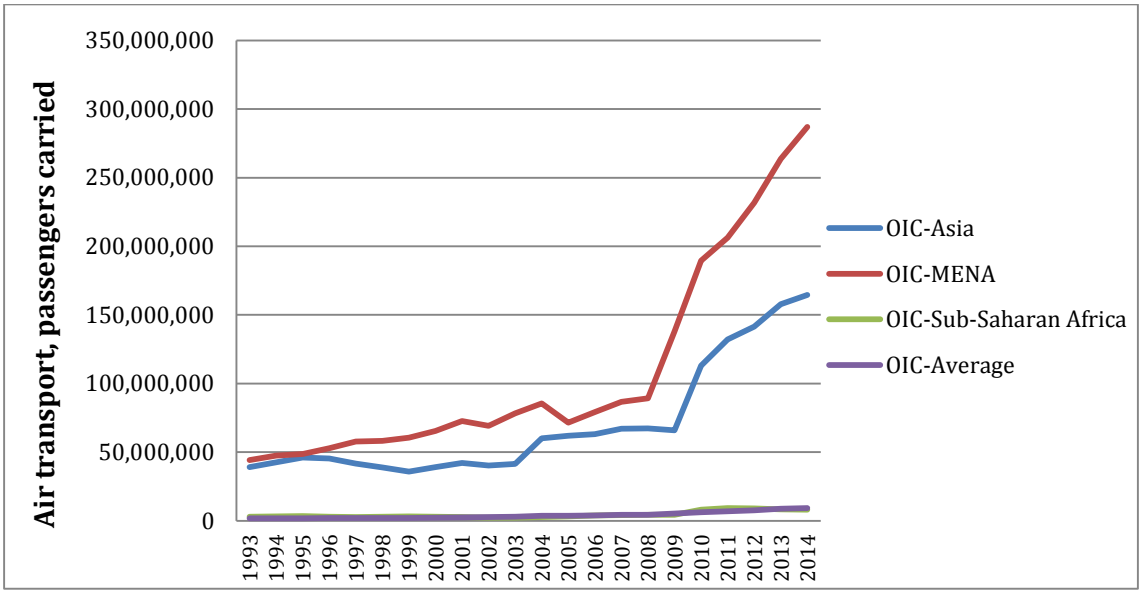
Table 9: Air passengers carried at the OIC Member States (2014)

MENA		Sub-Saharan Africa		Asia	
Turkey	92,624,864	Nigeria	4,289,094	Indonesia	94,504,086
United Arab Emirates	76,309,914	Togo	779,259	Malaysia	47,555,552
Saudi Arabia	31,973,412	Mozambique	751,528	Pakistan	5,559,595
Qatar	21,425,066	Sudan	501,855	Kazakhstan	4,918,574
Iran, Islamic Rep.	15,801,396	Cameroon	275,762	Bangladesh	3,116,217
Egypt, Arab Rep.	9,007,209	Mauritania	271,209	Uzbekistan	2,545,935
Morocco	6,482,274	Somalia	251,649	Afghanistan	2,144,208
Bahrain	5,171,277	Cote d'Ivoire	237,115	Azerbaijan	1,770,192
Oman	5,051,668	Uganda	163,830	Brunei Darussalam	1,087,699
Algeria	4,690,824	Gambia, The	151,777	Kyrgyz Republic	712,285
Tunisia	4,608,369	Senegal	131,966	Tajikistan	312,685
Kuwait	3,408,254	Burkina Faso	117,414	Suriname	253,010
Jordan	3,153,898	Niger	87,932	Turkmenistan	57,281
Libya	2,677,312	Benin	60,259	Guyana	42,835
Lebanon	2,379,997	Chad	28,329		
Yemen, Rep.	1,665,554				
Iraq	476,482				
Albania	151,634				

Source: Author from the World Bank World Development Indicators

Regarding the number of air passengers throughout the 1993-2014 period, Figure 10 reveals that OIC-MENA outperformed other regions since 1995 while OIC-Sub-Saharan Africa remained well below the other regions during this period.

Figure 10: Total air passengers carried in the OIC regions (1993-2014)



Source: Author from the World Bank World Development Indicators

In general, more populous countries tend to have higher air passenger traffic. In addition, the income level, geographical position and the availability of alternative transport modes affect the level of air passenger traffic in that country. For example, higher per capita income countries are more likely to have higher per capita air passenger traffic. Similarly, it is possible to observe that island countries where surface transport linkages are quite limited have higher per capita air passenger traffic figures. To analyse the linkage between population and air passenger movements for the OIC member states, we normalized the air passenger movements of the member states with their populations. In this regard, Table 10 presenting the ratios of air passengers carried to the populations of each member state has several implications. Firstly, in parallel to the theory, the high income gulf countries such as Qatar, UAE, and Bahrain and island states like Brunei Darussalam and Malaysia have higher per capita air passenger traffic figures. Secondly, the OIC countries with dominant network airlines are more likely to experience higher per capita air passenger traffic. Thanks to their well-established hub-and-spoke system, large network airlines such as Turkish Airlines and Emirates can achieve higher economies of scale and thus enjoy higher per capita air passenger traffic.

Table 10: Per capita air passengers carried at the OIC Member States (2014)

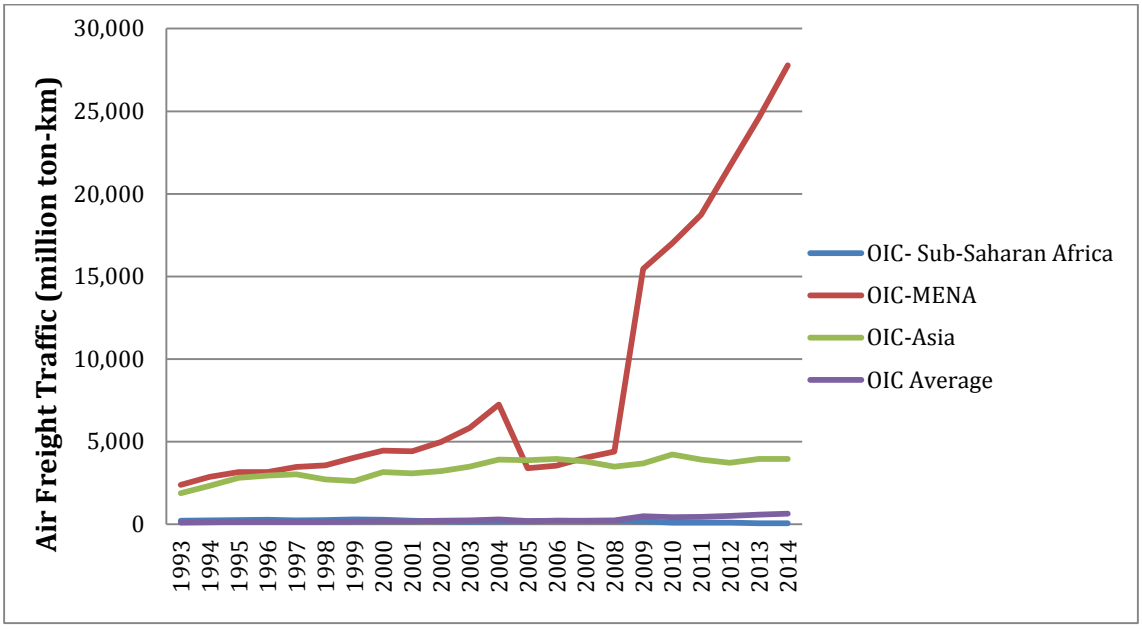
MENA		Sub-Saharan Africa		Asia	
Qatar	9.864	Togo	0.110	Brunei Darussalam	2.606
United Arab Emirates	8.398	Gambia, The	0.079	Malaysia	1.590
Bahrain	3.797	Mauritania	0.068	Suriname	0.470
Turkey	1.220	Mozambique	0.028	Indonesia	0.371
Oman	1.193	Nigeria	0.024	Kazakhstan	0.284
Saudi Arabia	1.035	Somalia	0.024	Azerbaijan	0.186
Kuwait	0.908	Sudan	0.013	Kyrgyz Republic	0.122
Lebanon	0.523	Cameroon	0.012	Uzbekistan	0.083
Jordan	0.477	Cote d'Ivoire	0.011	Afghanistan	0.068
Libya	0.428	Senegal	0.009	Guyana	0.056
Tunisia	0.419	Burkina Faso	0.007	Tajikistan	0.038
Iran, Islamic Rep.	0.202	Benin	0.006	Pakistan	0.030
Morocco	0.191	Niger	0.005	Bangladesh	0.020
Algeria	0.120	Uganda	0.004	Turkmenistan	0.011
Egypt, Arab Rep.	0.101	Chad	0.002		
Yemen, Rep.	0.064				
Iraq	0.014				

Source: Author from the World Bank World Development Indicators

Figure 11 shows the changes in the air freight traffic among the OIC regions between 1993 and 2014. One implication of Figure 11 is that air freight traffic in the OIC-Sub-Saharan Africa has been quite premature and fell well below the other regions during this period. It is also noteworthy that there is a striking boom of air freight traffic in the OIC-MENA region since 2008.

As a result of the boom, OIC-MENA has experienced an about 10-fold increase in its air freight traffic between 1993 and 2014 whereas OIC-Asia has only doubled its air freight traffic during the same period. When the aggregate data is decomposed, it is seen that the boom of air freight traffic in the OIC-MENA region mostly originated from the United Arab Emirates.

Figure 11: Total air freight carried in the OIC regions (million ton-km) (1993-2014)



Source: Author from the World Bank World Development Indicators

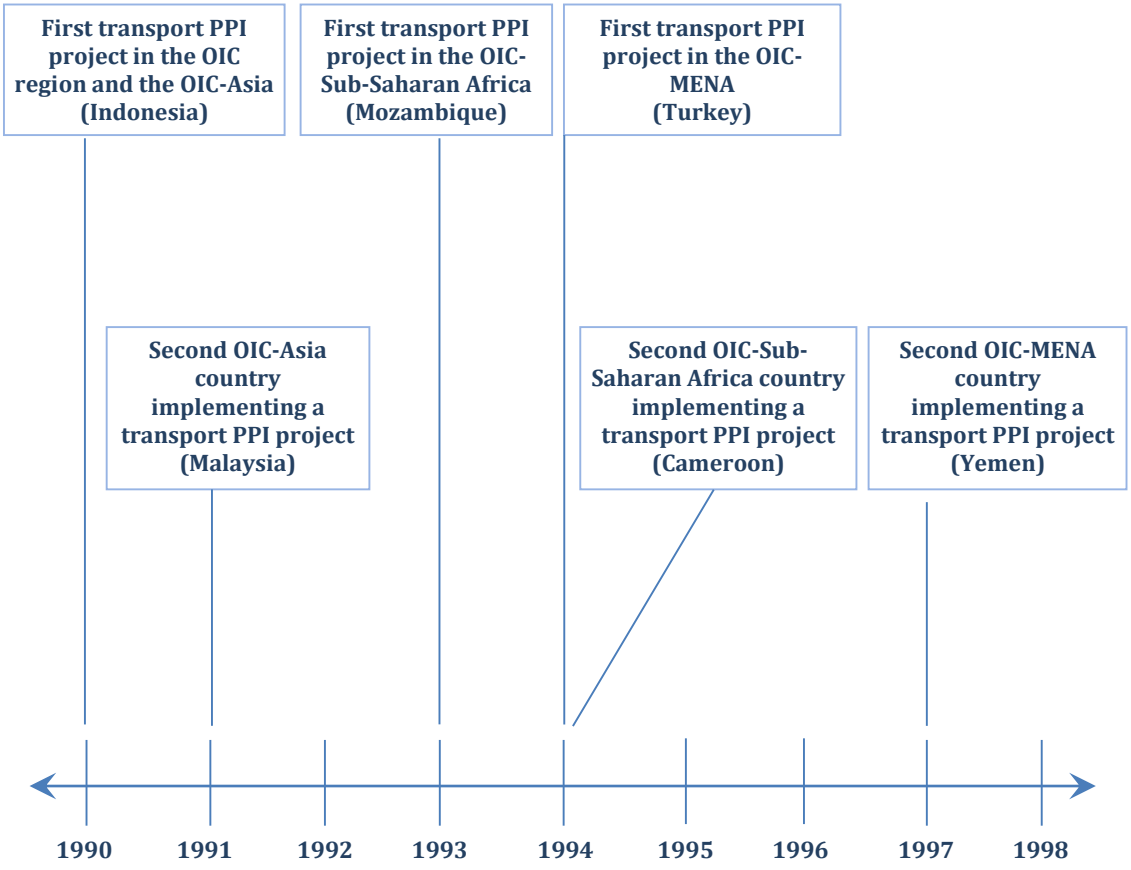
2.4. TRANSPORT PRIVATIZATION

Network industries necessitating big infrastructure investments such as transportation, telecommunication, energy, and water and sewerage have been traditionally state-owned and -operated for two major reasons. Firstly, huge initial investments created a barrier to entry for private investors. Secondly, because of the economic and social importance of such industries, governments preferred to keep them under state ownership. However, poor performances of state ownership and operations, such as low operating efficiency, labour redundancy, politically motivated tariff setting, and underinvestment, initiated a tendency to appeal to private finance and management.

Initially and substantially adopted by the United Kingdom, within the last couple of decades, public-private partnerships (PPPs) - including private participation in infrastructure (PPIs) - today play an important role in provision of public infrastructure and services. It doesn't matter if the country is developed, developing or a least-developed one, governments use various PPP models, ranging from management contracts to Build-Own-Operate model and divestitures, mainly; (1) to attract private finance to their infrastructure projects in face of large budget deficits, (2) to improve efficiency and quality of services provided, and (3) to liberalize their economy.

In fact, the OIC geography has been quite familiar with private participation in large transport infrastructure projects. Opened in 1869, Suez Canal was a typical Build-Operate-Transfer project for which the private operator had obtained a concession to operate the canal for 99 years. Other transportation concessions during the Ottoman Empire era included the Port of Istanbul, Port of Izmir, Istanbul Rail Tunnel, and Istanbul Streetcar (Yılmaz, 1996). Some sources (Tiong, 1990; Handley, 1997; Özdoğan and Birgönül, 2000) cite that even the term Build-Operate-Transfer was coined by Turgut Özal, the former prime minister and the president of Turkey. In the 20th century, the first transport PPI project in the OIC geography was implemented in Indonesia in 1990 and it was followed by a second PPI project in Malaysia in 1991. The first PPI project in OIC-Sub-Saharan Africa and OIC-MENA were implemented in Mozambique in 1993 and in Turkey in 1994. Figure 12 presents the timeline of the initial transport PPI projects in the OIC regions.

Figure 12: Timeline of the initial transport PPI projects in the OIC region



Source: Author from the World Bank PPI Database

However, past experience of the OIC region on PPP applications calls for major improvements. A successful implementation of a PPP project requires; (1) political and economic stability, (2) sound legal framework, (3) institutional capacity, (4) political commitment and support, (5) transparent and competitive tender procedures free from corruption, (6) an organized and developed domestic private entrepreneurship (including financial institutions and construction companies), and (7) public acceptance and support. Unfortunately, the OIC countries generally fail to achieve most of these preconditions.

In this section, a brief analysis on the historical PPP trends and what OIC countries have been doing about transportation PPPs/PPIs will provided.

Distribution of PPI Projects by sector and region

The World Bank PPI database, which covers 139 low and middle-income countries, provides the most comprehensive data on PPI projects and classifies them into 4 main sectors; (1) energy, (2) telecom, (3) transport, and (4) water and sewerage. Table 11 shows that, financial closure of a total of 6,449 PPI projects has been finalized in the world between 1990 and 2014. Energy

sector had the largest share (47.5%) in terms of number of PPI projects and it was followed by transport sector (25.3%).

Table 11: Distribution of PPI projects by infrastructure sectors (1990-2014)

Sectors	Number of PPI projects	Percentage shares
Energy	3,069	47.5%
Telecom	861	13.3%
Transport	1,634	25.3%
Water and sewerage	885	13.7%
Total	6,449	100.0%

Source: Author from the World Bank PPI Database

Table 12, which presents the distribution of PPI projects by their PPI-types during the 1990-2014 period shows that some variations in PPI-type exist depending on the characteristics of individual sectors. Table 12 shows that greenfield projects have been the most frequently used PPI type in energy and telecom sectors whereas transport and water and sewerage sectors mostly adopted concessions. On the other hand, both energy and telecom sectors applied divestitures more frequently than transport and water and sewerage sectors in both absolute and percentage terms. In addition, water and sewerage sector used management and lease contracts more than any other sector did. Among various PPI types, concessions has been the most common form of PPI investment in the transport sector with a share of 59.3% whereas 31% of the transport PPI projects has been implemented through greenfield schemes. Management and lease contracts and divestitures had relatively lower shares, i.e., 5.2% and 4.4%, respectively.

Table 12: Distribution of the transport PPI projects by PPI-types (1990-2014)

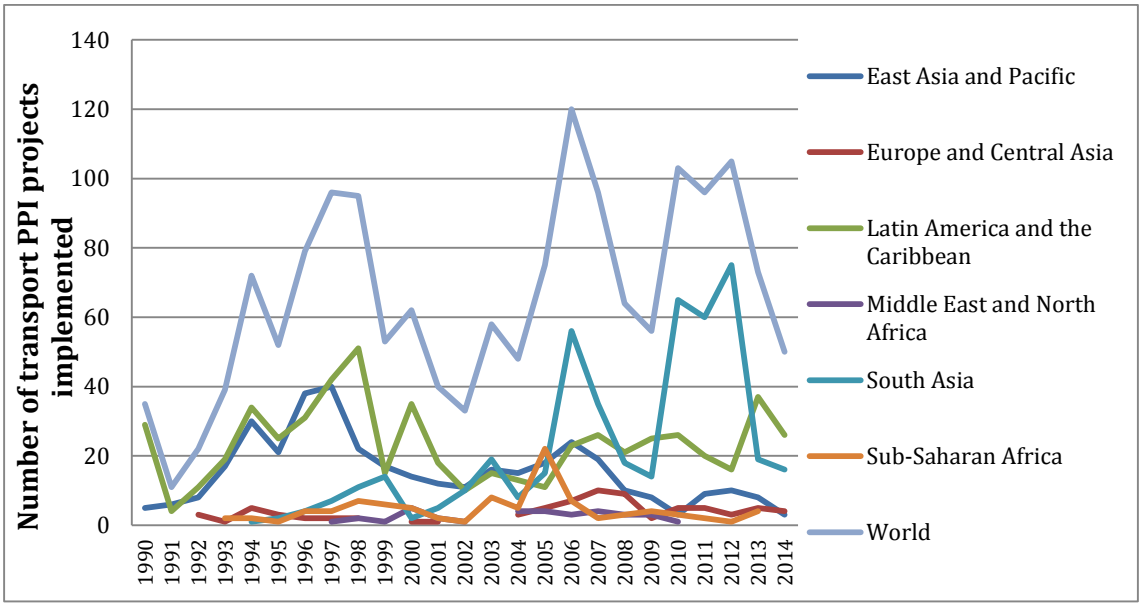
Sector	Concession	Divestiture	Greenfield project	Management and lease contract	Total
Energy	212	442	2,365	50	3,069
Telecom	9	195	649	8	861
Transport	969	72	507	86	1,634
Water and sewerage	360	30	354	141	885

Source: Author from the World Bank PPI Database

The changes in the number of transport PPI projects by geographic regions in the 1990-2014 period are presented in Figure 13. In terms of using PPI models in transport projects, South Asia

- with an increasing trend in recent years - and Latin America and the Caribbean are the two best performing regions whereas Middle East and North Africa and Sub-Saharan Africa remained at the bottom of the figure. Another interesting feature of the figure is its fluctuant pattern as a result of regional and global crises which proves that PPI/PPP implementation has been quite sensitive to economic stability.

Figure 13: Changes in the number of transport PPI projects by regions (1990-2014)



Source: Author from the World Bank PPI Database

With respect to the distribution of transport PPI projects by modes, for roads the PPI projects outnumbered others with a share of 56% while seaports, railroads, and airports had the shares of 26%, 7.6%, and 10.2%, respectively. Table 13 provides the global transport PPI project counts and their respective shares with regard to transport modes.

Table 13: Distribution of global transport PPI projects by modes (1990-2014)

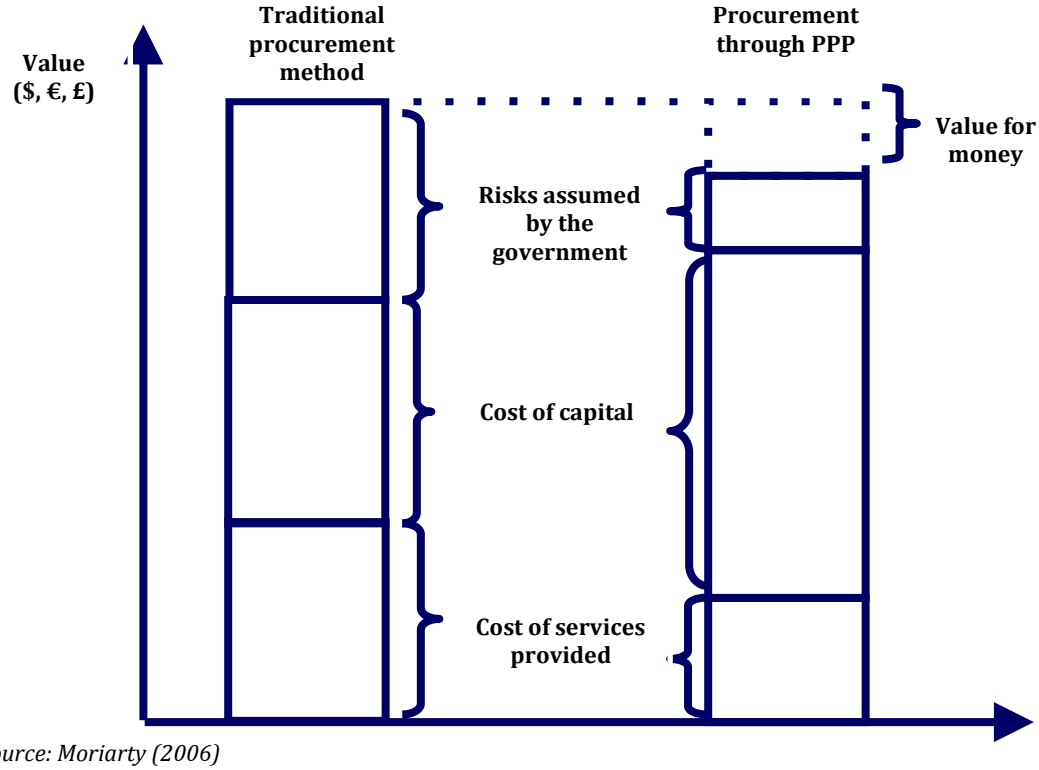
Subsector	Project Count	% Project Count	Total Investment (billion $)	% Total Investment
Airports	168	10.2%	63,593	13.4%
Railroads	125	7.6%	90,945	19.1%
Roads	917	56.0%	242,88	51.2%
Seaports	426	26.0%	76,512	16.1%
Total	*1636*	*100.0%*	*473,93*	*100.0%*

Source: Author from the World Bank PPI Database

Where the real benefit of a PPP project lies?

To make a comparison between the traditional public procurement and public procurement through PPP models, we can divide the total value of a project into three: (1) the cost of services provided, (2) the cost of capital, and (3) the risks assumed by the government (Figure 14).

Figure 14: The comparison of traditional public procurement with PPP procurement



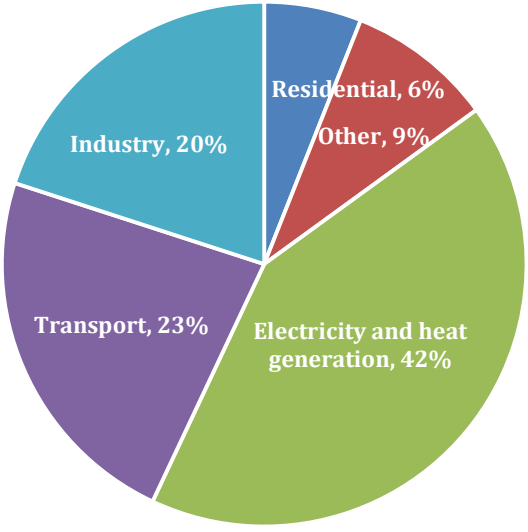
Source: Moriarty (2006)

Regarding cost of capital, state procurement is generally more advantageous than PPP-type procurement because cost of borrowing of a private entity is generally higher than that of public sector, given generally high risks inherently involved in PPP projects. On the other hand, advantages of PPP-type procurement arise by regarding cost of services provided and risks assumed by the government. It is generally expected that private sector can achieve more cost savings during implementation of investments and provide cheaper services than public sector can. In addition, during PPP-type procurement, private sector assumes that some of risks, such as construction, availability, and demand risks associated with projects which public sector assumes in traditional procurement. For a PPP model to be eligible, value of money must be achieved, which means that sum of benefits- from cost savings for services provided and risks transferred from public sector to private one -should exceed costs associated with higher cost of capital of private sector.

2.5. TRANSPORT AND ENVIRONMENT

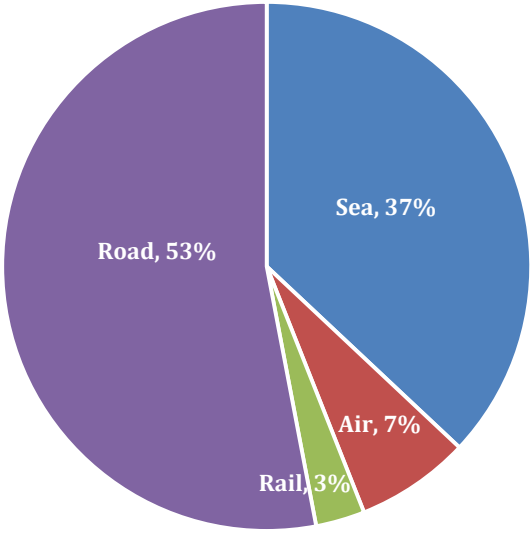
Transport emissions have been rising over time in parallel with the increase in transport demand. As Figure 15 shows, with regard to CO_2, the most emitted GHG, transportation accounted for 23% of global CO_2 emissions, which makes it the second largest CO_2 emitter, proceeded by electricity and heat generation (42%) and followed by industry (20%) in 2012 (OECD/IEA, 2014). Figure 16 reveals that with regard to international trade related CO_2 emissions by transportation mode, road transportation dominates CO_2 emissions by 53% and it is followed by maritime transport (37%), air transport (7%), and rail transport (3%).

Figure 15: World CO_2 emissions by sector (2012)



Source: OECD/IEA (2014)

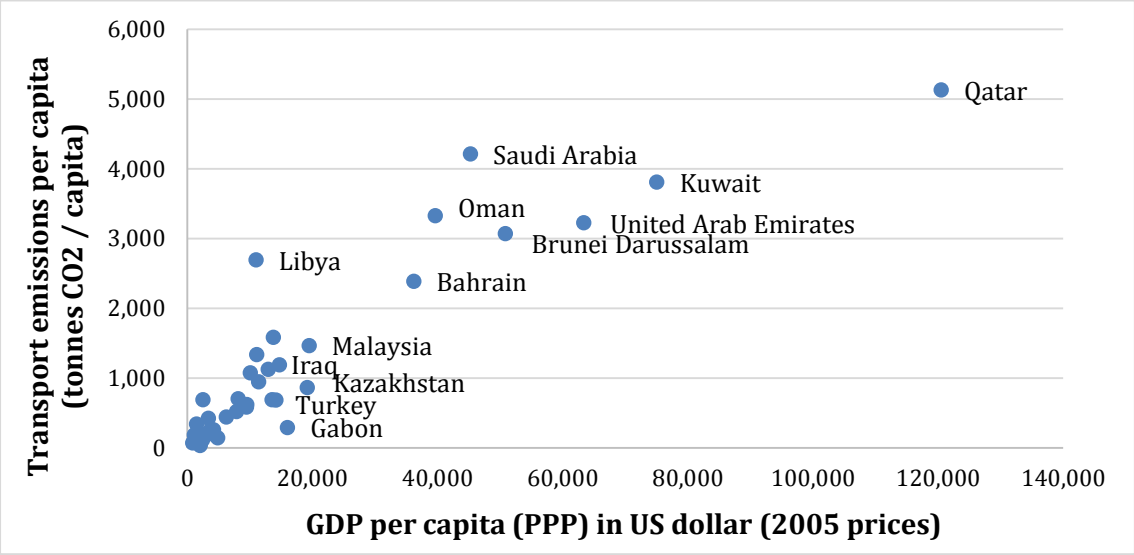
Figure 16: International trade related CO_2 emissions by mode (2010)



Source: OECD/ITF (2015)

Figure 17 shows that there is a positive correlation between transport-related CO_2 emissions and GDP per capita (PPP) in the OIC countries. One reason of this tendency is the increased private car ownership with increasing per capita income, which eventually increases personal trips and accordingly GHG emissions. Another implication of the figure is that the countries with higher GHG emissions are mostly from oil producing countries, which often corresponds to lower pump prices for gasoline and consequently more road sector energy consumption.

Figure 17: Transport CO_2 emissions and GDP per capita (PPP) in OIC Countries (2012)



Source: Author from OECD/IEA (2014)

Options to mitigate transportation-related GHG emissions

Public policy actions aiming at reducing the transportation-related GHG emissions of transport activities involve one or more of the following measures and as any other public policy action, each measure has its own advantages or disadvantages:

- **Enhancing fuel efficiency:** Using less fuel to travel the same amount of distance will help reduce GHG emissions. To achieve this, one option is to use smaller vehicles. Second option is to increase engine efficiency and employing lighter but still safer materials. The drawback of this option is that more fuel-efficient vehicles may stimulate higher vehicle-kilometres which may partially off-set the fuel savings.

- **Using alternative fuels:** This option involves using more environmentally friendly alternative fuels such as biofuels, natural gas, and electricity. However, using more of these alternative energy sources have their own drawbacks. An increase in biofuel (such as ethanol and biodiesel) use will not only threaten food security as it is likely to increase food prices, but also increase water use and contribute to the nitrous oxide (N_2O) emission through fertilizer use. Regarding natural gas and electricity, there is still a large room to develop more efficient, affordable and safer cars using these alternative fuels.

- **Adopting environmental pricing:** Following the polluter pays principle which suggests that a pricing mechanism should be established in a way that the polluters must bear the cost of the pollution they cause, environmental pricing schemes in transportation include some forms of taxing the travellers. The easiest way to implement an environmental pricing scheme is increasing the gasoline taxes. Though mainly aiming at reducing congestion, congestion pricing can also be classified as another form of environmental pricing.

- **Shifting from private car use to environmentally-friendly transport modes:** The most environmentally-friendly transportation mode is non-motorized travel and it does not only help reduce GHG emissions, but also contribute to congestion relief and improve public health and leads to better land use practices. The costs associated with non-motorized travel, on the other hand, are increasing travel times and accident rates. Public transit through buses, light rail system, and metro can also help reduce surface transport GHG emissions. However, especially light rail system and metro require high infrastructure investments, and transit operations may require state subsidy since transit revenues generally fail to cover transit expenses.

- **Adopting traffic restrictions**: While reducing traffic congestion is the major motivation for adopting this option, traffic restrictions are also expected to help handle transport GHG emissions. Traffic restrictions involve driving bans based on number plates, high occupancy vehicle lanes, congestion pricing schemes, and new plate quotas. These policies are difficult to implement politically and may raise equity concerns.

3. CONCLUDING REMARKS

This Outlook aims at providing a brief picture of the transportation sector in the OIC countries and focuses on five dimensions, i.e., (1) transport infrastructure, (2) transport, logistics, and trade, (3) transport movements, (4) privatization of transport, and (5) transport and environment.

Regarding transportation and trade, the analysis reveal that the OIC countries with higher LPI scores tend to engage more in merchandise trade. About total fleet growth, the OIC countries fell below the world average between 1998 and 2015 while container fleet growth has been similar to that of the world during the same period. Nevertheless, the share of shipping companies from the OIC countries, does not reflect OIC's share in global trade. In terms of LSCI scores, from 2007 on, OIC-MENA performed better than OIC-Asia and world averages while the last two kept pace with eachother throughout the 2004-2014 period. With regard to burden of custom procedures, all OIC regions fell below world averages for the 2007-2014 period, with an exception of OIC-MENA between 2007 and 2011.

With respect to transport infrastructure, OIC overall and OIC-Sub-Saharan Africa averages fell below the world averages for every transport infrastructure measure according to the Global Competitiveness Report 2014-2015 (WEF, 2015) while OIC-Asia performed better than world averages only in the quality of railroad infrastructure. OIC-MENA, on the other hand, is the best performing OIC region which outperforms all the world averages except the quality of railroad infrastructure.

Regarding container-port traffic, both Malaysia and the UAE show high volume throughput. For rail freight transport, on the other hand, Kazakhstan dominates the OIC region by carrying almost two-thirds of total freight. The high per capita air passenger movements in the high-income countries, such as Qatar, UAE, and Bahrain, and in the island countries, such as Brunei Darussalam and Malaysia, are also noteworthy.

As for privatization of transportation and PPPs/PPIs, concessions has been the most widely used PPI-type in the world. With regard to both project counts and total project costs, road PPI projects outnumbered other transport modes. Middle East and North Africa and Sub-Saharan Africa were the two regions that implemented the fewest number of transport PPI projects.

For the linkage between transportation and environment, statistics reveal that OIC countries with high per capita income tend to emit more transport-related CO_2. Such situation is not peculiar given that richer countries have more private cars and thus more personal trips. In addition, lower pump prices for gasoline might stimulate more per capita road sector energy consumption in the OIC geography.

As the analysis presented in the Outlook suggest, a great diversification exists among the OIC countries. On the one hand, oil producing countries such as Qatar, Kuwait, and United Arab Emirates are among the top per capita GDP countries. On the other hand, 21 members (out of 56) of the OIC are classified as the least developed and some have a per capita GDP of less than $1 per day. In such a big diversity, adopting a single policy set applicable to all OIC members is almost an impossible task. Therefore, when drafting strategies, policy-makers should also take into account individual needs of members and abstain from adopting "one size fits all" type of policies and strategies.

The diversity of the OIC countries and availability of various experiences within the OIC region also indicate a considerable potential for cooperation in the transport industry. The success of the process heavily depends on the adoption of a sound policy framework, right cooperative approach, institutional capacity and human resources development, and accumulation of expertise. In that context, there is a great scope of cooperation among the OIC countries for sharing their experiences, best practices, and technical assistance especially for policy formulation and capacity development and for attracting more investments from other OIC countries in their transport sector.

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5. APPENDIX

Table A.1: Classification of OIC countries by region

OIC-Sub-Saharan Africa	OIC-MENA	OIC-Asia
1. Burkina Faso	1. Arab Republic of Egypt	1. Guyana
2. Somalia	2. Jordan	2. Pakistan
3. Nigeria	3. Islamic Republic of Iran	3. Afghanistan
4. Mauritania	4. Bahrain	4. Kyrgyz Republic
5. Benin	5. Morocco	5. Malaysia
6. Cameroon	6. Saudi Arabia	6. Bangladesh
7. Chad	7. Libya	7. Azerbaijan
8. Cote d'Ivoire	8. Algeria	8. Indonesia
9. Djibouti	9. Albania	9. Kazakhstan
10. Gabon	10. Iraq	10. Maldives
11. Guinea	11. Lebanon	11. Tajikistan
12. Guinea-Bissau	12. Tunisia	12. Turkmenistan
13. Mali	13. Turkey	13. Uzbekistan
14. Mozambique	14. Republic of Yemen	14. Brunei Darussalam
15. Niger	15. Qatar	15. Suriname
16. Senegal	16. Oman	
17. Sierra Leone	17. Kuwait	
18. The Gambia	18. Palestine	
19. Sudan	19. United Arab Emirates	
20. Togo		
21. Uganda		
22. Comoros		

Table A.2: LPI scores of the OIC countries

Country	LPI score-2014	LPI score-2012	LPI score-2010	LPI score-2007
Malaysia	3,59	3,49	3,44	3,48
United Arab Emirates	3,54	3,78	3,63	3,73
Qatar	3,52	3,32	2,95	2,98
Turkey	3,50	3,51	3,22	3,15
Saudi Arabia	3,15	3,18	3,22	3,02
Bahrain	3,08	3,05	3,37	3,15
Indonesia	3,08	2,94	2,76	3,01
Kuwait	3,01	2,83	3,28	2,99
Oman	3,00	2,89	2,84	2,92
Egypt, Arab Rep.	2,97	2,98	2,61	2,37
Jordan	2,87	2,56	2,74	2,89
Pakistan	2,83	2,83	2,53	2,62
Nigeria	2,81	2,45	2,59	2,40
Côte d'Ivoire	2,76	2,73	2,53	2,36
Maldives	2,75	2,55	2,40	-
Lebanon	2,73	2,58	3,34	2,37
Kazakhstan	2,70	2,69	2,83	2,12
Algeria	2,65	2,41	2,36	2,06
Burkina Faso	2,64	2,32	2,23	2,24
Senegal	2,62	2,49	2,86	2,37
Bangladesh	2,56	-	2,74	2,47
Benin	2,56	2,85	2,79	2,45
Tunisia	2,55	3,17	2,84	2,76
Chad	2,53	2,03	2,49	1,98
Tajikistan	2,53	2,28	2,35	1,93
Libya	2,50	2,28	2,33	-
Mali	2,50	-	2,27	2,29
Guinea	2,46	2,48	2,60	2,71
Guyana	2,46	2,33	2,27	2,05
Azerbaijan	2,45	2,48	2,64	2,29
Guinea-Bissau	2,43	2,60	2,10	2,28
Comoros	2,40	2,14	2,45	2,48
Uzbekistan	2,39	2,46	2,79	2,16
Niger	2,39	2,69	2,54	1,97
Togo	2,32	2,58	2,60	2,25
Turkmenistan	2,30	-	2,49	-
Iraq	2,30	2,16	2,11	-
Cameroon	2,30	2,53	2,55	2,49

Country	LPI score-2014	LPI score-2012	LPI score-2010	LPI score-2007
Gambia, The	2,25	2,46	2,49	2,52
Mozambique	2,23	-	2,29	2,29
Mauritania	2,23	2,40	-	2,63
Kyrgyz Republic	2,21	2,35	2,62	2,35
Gabon	2,20	2,34	2,41	2,10
Yemen, Rep.	2,18	2,89	2,58	2,29
Sudan	2,16	2,10	2,21	2,71
Djibouti	2,15	1,80	2,39	1,94
Afghanistan	2,07	2,30	2,24	1,21
Somalia	1,77	-	1,34	2,16
Morocco	-	3,03	-	2,38
Albania	-	2,77	2,46	2,08
Iran, Islamic Rep.	-	2,49	2,57	2,51
Sierra Leone	-	2,08	1,97	1,95
Uganda	-	-	2,82	2,49

Source: The World Bank World Development Indicators