

International Journal of Management and Sustainability

2015 Vol. 4, No. 4, 89-103.

ISSN(e): 2306-0662

ISSN(p): 2306-9856

DOI: 10.18488/journal.11/2015.4.4/11.4.89.103

© 2015 Conscientia Beam. All Rights Reserved.



THE INTERNATIONAL LOGISTICS CENTER OF TURKEY: SITUATIONAL ANALYSIS OF MERSIN PORT'S SEAWAYS LOGISTICS

Ahu COŞKUNTUNCEL¹ --- Sevgi TÜZÜN RAD^{2†}

¹Business Information Management Department

²Mersin University Erdemli Applied School of Technology and Management Mersin, Turkey

ABSTRACT

In these days, the convergence of economies and the extension of manufacturing and marketing to international levels increase the importance of the safely transporting of goods along with logistics and the related activities. Today, as in the world trade, an important portion of Turkey's trade is being carried via marine transportation whose domain of activities carries international significance. Mersin Province, with its potential of logistics and the logistics services it provides, makes valuable contributions to both the international trade and the domestic market of Turkey. In this context, this study aims at examining the current situation of seaways logistics of Mersin Province, which is viewed as the largest port of Turkey and the logistics base of Mediterranean Region, as well as the fundamental problems of the sector. In this study, the research material is made up of data obtained through the face-to-face interviews with the representatives of the firms which operate in Mersin Province in the sector of international transportation. Descriptive statistical analyses have been utilized in the evaluation of the data. With this study, it has been established that the province's geographical position is being viewed to be a great advantage, but also that the employment of unqualified work force affects the sector negatively, that there are deficiencies in the port's infrastructure, and that the firms do not yet have institutionalized frameworks.

Keywords: Logistics, Marine transportation, Port, Trade, Turkey, Mersin.

JEL Classification: R regional, Real estate and transportation economics R4 transportation systems.

Received: 26 February 2015/ **Revised:** 11 April 2015/ **Accepted:** 8 May 2016/ **Published:** 18 May 2016

Contribution/ Originality

This study is one of very few studies which has investigated the strength and weakness of Mersin Province in terms of maritime logistics through SWOT analysis, interview with local logistic companies and benchmarking with other national ports.

[†] Corresponding author

1. INTRODUCTION

In these days, logistics has become an important factor for the businesses both due to the cost factor and also because of the desire to be in the market in the right time. Distances have increased and time is now a prominent competitive factor; thus it has become necessary for the businesses to move towards integrating various transportation systems. For these reasons, logistics now carries a strategic importance for businesses (Yardımcıoğlu *et al.*, 2012).

As logistics sector has been developing in all the developed countries, it has also moved forwards in Turkey, where the infrastructure for combined transportation over land, sea and airways have been laid down in 1980s and 1990s. In the 2000s, logistics has become a sector where the service quality has continually increased and investments have increased (Tutar *et al.*, 2009). For domestic transportation in Turkey, the share of highways is 87.5%, while the shares are 4.4% for railways, 7.3% for seaways and 7.0% for pipelines. For international transportation, on the other hand, the seaways' share is 94.9%, while pipelines take on 5.1% and the share of railways is just 1.0% (The Union of Chambers and Commodity Exchanges of Turkey, 2012).

The positions of transportation and trade over seaways have been strengthening in countries' economies and in world trade. Marine transportation plays a significant role in world trade and the position of trade and travel over seaways in countries' economies have been strengthening. In the E.U., marine transportation and ports are especially important for international trade and exchange of goods; 90% of the E.U.'s international trade and 40% of its domestic trade is being carried out over seaways (Port of Rotterdam, 2013). Turkish sea trade also represents a significant share of the economic activities of Turkey (Korkmaz, 2012). Marine transportation is being preferred for large volumes of goods for which the transportation costs are high but the urgency is low. Ports make up infrastructure of marine transportation and they are the foremost elements of global networks of logistics (Wilmsmeier *et al.*, 2006). Mersin Province of Turkey's Mediterranean Region, with the largest port in terms of import-export volumes, is in the position of the region's center for trade and logistics. With its high trade volume, Mersin Port makes significant contributions to Turkey's economy in international markets, as well as in domestic markets.

This study aims at

- Establishing the current situation of Turkey on seaways trade, and
- Compiling the problems of Mersin Port and the logistics sector.

2. MATERIALS AND METHOD

Listing of the firms operating in seaways transportation: For composing a list of the firms operating in this sector, the authorities in Mersin Chamber of Sea Trade have been interviewed.

Determining the sample volume: In the sector, 445 firms were named. However, it was determined that, 278 among these firms do not operate in seaways transportation. Of the 167

firms which do operate in seaways transportation, some avoided answering the questions. For this reason, a snowball sampling method was applied and 36 firms were contacted. Of the questionnaires, 50% were given to the firms which act as shipping agents, and the other 50% were given to the firms which serve as freight forwarders.

Form of questionnaires: Questions consisted of four sections. These are:

- Determining the firm's sector of operations.
- Determining the importance of Mersin Province for the sector.
- Determining the problems of the sector and the port.
- Determining the suggested solutions for the problems of the sector and the port.

Analysis of data: In analyzing of the data, Descriptive Statistics module of a spreadsheet program was utilized. The data obtained through questionnaires were augmented by the observations made during the interviews.

3. THE CURRENT SITUATION IN THE LOGISTICS SECTOR IN TURKEY

Along with the rapid changes occurring all over the world, countries have been getting closer to each other and the volume of the flow of goods has been increasing by a great deal. In other words, the trade volume over the world, in general, has been improving among countries which possess efficient infrastructures for global logistics networks (Coşkuntuncel, 2014). For that reason, logistical services now have increased in importance, and it has become essential that logistics operations become more effective and more efficient (Gebresenbet and Bosona, 2012).

According to the Global Logistics Performance Index (LPI) prepared by the [The World Bank \(2014\)](#), Sweden (with 3.96 points), Norway (3.96 points) and Luxembourg (3.95 points) are deemed to possess a level of perfection in logistics. Singapore (4 points), Germany (4.12 points) and Holland (4.05 points) have regularly topped the list. Turkey, on the other hand, is the 30th in the index, with its 3.5 points. Nevertheless, among its neighbors, Turkey's LPI point is the highest. The biggest hurdle to Turkey's advancing to higher points is the deficiencies in its infrastructure and the insufficiency of its investments on the knowledge technologies (LODER, 2014). Turkey possesses a highly important position on the world, due to its strategic location. Turkey's bridging position between the West and the East makes logistics a highly critical sector for the surrounding region's economic development (Yardımcıoğlu *et al.*, 2012). However, logistics sector has become a dynamical sector in Turkey only since the first decade of 2000s (Babacan, 2003).

In the evaluation of the logistics sector, the modes of transportation within the country carry significance. In Turkey, a large portion of international freight is carried over seaways. For domestic transportation, however, highways carry significant weight (see Table 1).

Table-1. Freight Transport Volumes across Transportation Modes over the years

	Year	Freight volume (million tons-km)	
		International	Domestic
Railways	2009	855	9,308
	2010	1,018	10,282
	2011	1,040	10,560
Seaways	2009	828,500	11,410
	2010	936,200	12,583
	2011	1,027,000	13,464
Airways	2009	-	-
	2010	-	-
	2011	-	-
Highways	2009	-	176,455
	2010	-	190,365
	2011	-	201,787
Pipelines	2009	56,038	2,743
	2010	54,242	2,520
	2011	57,028	1,766

Source: UC CET (2012)

In regard to the standing of an exporting countries from the viewpoint of logistics operations, the important parameters are the freight modes of choice for the exports, as well as the overall freight volume and value (Tanyaş and Arıkan, 2013). In Turkey, both imports and exports are largely being transported over the seaways; 55% of the total imports and exports are carried over the seaways (see Table 2).

Table-2. Turkey's Imports/Exports Values across Transportation Modes

	Export (millions USD)	Share	Imports (millions USD)	Share
Seaways	73,607,918	55%	133,436,108	% 55
Railways	1,243,110	1.0%	3,185,490	% 1
Highways	50,284,840	37%	44,513,254	% 18
Airways	8,583,259	6.0%	21,514,992	% 9
Other	1,252,419	1.0%	38,184,548	% 17
Total	134,971,545	100%	240,834,392	%100

Source: UC CET (2012)

4. MARINE TRANSPORTATION AND PORTS IN TURKEY

There is a close relationship between marine freight transportation and the development of international trade (Grossmann *et al.*, 2006). Today, about 80% of the world trade is carried over seaways (Tutar *et al.*, 2009). Marine transportation, due to its lost costs of freight, is being preferred over other transportation modes (Saban and Güğərçin, 2009). Sea freight is 3.5 times less expensive than rail freight and 7 times less expensive than land freight. Another advantage of it is that, it provides for the transport of large volumes of goods between locations (Tutar *et al.*, 2009). Being a low-pollution method has also made marine transportation the most preferred mode of transport.

The shore length of Turkey is 8,333 kilometers (Büyükbaş and Ünlü, 2011). Being surrounded by seas on three sides and possessing the straits connecting those seas provide Turkey with a competitive advantage on marine transportation. With its absence of borders and intensely felt competitiveness, the most important elements of transportation over seaways are the ports. In domestic, international and transit freight, the contributions of ports to a country's economy are significant (Talley, 2009; Şengel, 2012). For this reason, it is essential that contemporary port facilities be built. The biggest hurdle to that is the problem of financing. Turkish ports still lack the appropriate storage, warehousing and preservation capacity for hazardous goods at par with the international standards. The personnel staffing the ports are also found lacking, in terms of training and qualifications (Korkmaz, 2012). In Turkey, there are 176 commercial ports and piers; of these, 48 possess the port status (Boğa, 2012). Istanbul, Izmir and Mersin seaports also serve as international logistics bases. However, when these ports are compared to others over the rest of the world, they are seen to be left far behind. For Turkey to be able to compete with the outside world, these ports should be brought to higher levels of trade potential (Korkmaz, 2012). Some ports and port cities with high trade volumes have been listed in Table 3.

Table-3. Some Important Ports and Port Cities in Turkey

Bandırma	Marmara Ereğlisi	Nemrut
Çelebi Port	Botaş Terminal	Çukurova Port
Bağfaş Fertilizers Pier	Martaş Port	Habaş Port
Çanakkale	Tekirdağ	Limaş Pier of Nemrut Port
Akçansa Cement Pier	Tekirdağ Port	Nemtaş Pier of Nemrut Port
İçdaş Port-Biga	Yarımca	Aliğa
Dilovası	AygazLpg Terminal	Petkim Terminal
Poliport Port	Petkim Terminal	Total Terminal
Solventaş Terminal	Yalova	Tüpraş Refinery Port
Yılport Port	Aksa (Akkim) Chemicals Pier	İzmir
Gemlik	Mediterranean Region	İzmir Port
Borusan Bortrans Port	Antalya	Bodrum Port-Güllük
BP Pier	Antalya Port	Dikili Port –Dikili
Gemport	Ceyhan	Seka Göcek Fethiye Port
Hereke	Botas Petrol Terminal	
Nuh Cement Pier	Toros Gübre Terminal	Bartın Port
İstanbul	İskenderun	Erdemir Port
Ambarlı Port-Ambarlı	Ekinciler Port	Giresun Port
Çekisan Terminal –Haramidere	İsdemir Port	Hopa Port
Poaş Port-Çubuklu	TCDD Port	Ordu Port
TCDD Port-Haydarpaşa	Mersin	Rize Port
Zeyport Zeytinburnu Port	Mersin International Port Authority, Inc.	Samsun TCDD Port
İzmit	Mersin International Port Authority, Inc.	Trabzon Port
Gulf Port	Mersin Free Trade Zone Port	Zonguldak TTK Port
İğdaş Fertilizers Pier	Poaş/Nato+Ataş Petrol Terminal	
Tüpraş Refinery Port	Taşucu - Seka Port	

Source: Boğa (2012). Ports and port management in Turkey. Magazine of Mersin Sea Trade, Mersin Chamber of Shipping, (21) 247: 27-29

As the most prominent seaport and customs gate of not only of Turkey, but also of Eastern Mediterranean, Mersin Port takes the 5th place with its share of 7.94% (see Table 4). Among the port authorities where highest numbers of containers are handled, Mersin Port takes the 2nd place with its share of 17.4% (see Table 5).

Table-4. 10 Port Authorities Where the Largest Volumes of Materials are Handled (in Tonnes)

Line	Harbour Presidency	2012			2011		
		Total Handling (Tonnes)	Percentage (%) in Total Handling	Increase % compared to Previous Year	Harbour Presidency	Total Handling (Tonnes)	Percentage (%) in Total Handling
1	IZMIT	61.458.478	15,86	11,74	BOTAS	65.523.028	18,03
2	BOTAS	61.225.832	15,80	-6,56	IZMIT	55.001.840	15,14
3	ALIAGA	43.167.047	11,14	13,87	ALIAGA	37.907.516	10,43
4	AMBARLI	39.544.364	10,21	15,84	AMBARLI	34.137.507	9,40
5	MERSIN	30.746.922	7,94	21,35	MERSIN	25.338.009	6,97
6	ISKENDERUN	28.719.919	7,41	15,64	ISKENDERUN	24.835.969	6,84
7	TEKIRDAG	19.758.745	5,10	22,76	TEKIRDAG	16.095.479	4,43
8	GEMLIK	13.712.317	3,54	-6,88	GEMLIK	14.726.067	4,05
9	IZMIR	9.545.331	2,46	-8,85	IZMIR	10.471.890	2,88
10	EREGLI, BLACK SEA	9.068.892	2,34	-10,19	EREGLI, BLACK SEA	10.097.413	2,78
TOTAL		316.947.847	81,81	7,76		294.134.718	80,95
OTHER HARBOURS		70.478.385	18,19	1,83		69.212.005	19,05
TOTAL HANDLING		387.426.232	100	6,63		363.346.723	100

Source: Turkish Ministry of Transport, Maritime Affairs and Communications, 2013

Table-5. 10 Port Authorities Where the Highest Numbers of Containers are Handled – TEU

Line	Harbour Presidency	2012			2011		
		Total Handling (TEU)	Percentage (%) in Total Handling	Increase % compared to Previous Year	Harbour Presidency	Total Handling (TEU)	Percentage (%) in Total Handling
1	AMBARLI	3.023.960	42,04	15,21	AMBARLI	2.624.711	40,23
2	MERSIN	1.250.873	17,39	11	MERSIN	1.126.866	17,27
3	IZMIR	695.798	9,67	3,08	GEMLIK	757.128	11,61
4	GEMLIK	686.245	9,54	-10,54	IZMIR	672.486	10,31
5	IZMIT	630.152	8,76	24,09	IZMIT	507.837	7,78
6	ALIAGA	413.573	5,75	9,66	ALIAGA	377.147	5,78
7	ANTALYA	179.351	2,49	6,73	ISTANBUL	206.082	3,16
8	ISTANBUL	158.702	2,21	-28,63	ANTALYA	165.474	2,54
9	ISKENDERUN	83.207	1,16	143,21	TRABZON	40.251	0,62
10	TRABZON	28.742	0,4	-45,02	ISKENDERUN	25.564	0,39
TOTAL		7.150.603	99,42	9,95		6.503.546	99,69
OTHER HARBOURS		41.793	0,58	109,9		19.960	0,31
TOTAL HANDLING		7.192.396	100	6,63		6.523.506	100

Source: Turkish Ministry of Transport, Maritime Affairs and Communications, 2013

4.1. Mersin Port as a Prominent Seaport and Customs Gate of Eastern Mediterranean

Mersin Port has been privatized in the year of 2007 through the “Transfer of Management Rights.” The port has continued its services under the title of “Mersin International Port Management INC. (MIP)” (URL, 1).

Currently, Mersin Port is a prominent port of Turkey with its land area of 110 hectares and with its capacity to handle 1 million tons of general freight and 150,000 Ro-Ro and vehicles (Table 6). In addition to being a prominent port of Eastern Mediterranean, Mersin Port is also an ideal transit port for the trade over Middle East. Through its expansive hinterland, Mersin Port is well connected to the inner regions of the country (URL, 2).

Table-6. Specifications of Mersin Port

Total Port Area	110 Hectares
Total Number of Docks	21
Depth	15,31 yards – 10,94 yards
Container Capacity	1,800,000 TEU / Year
General Freight Handling Capacity	1,000,000 Tons / Year
Bulk Solid Handling Capacity	8,000,000 Tons / Year
Bulk Liquid Handling Capacity	750,000 Tons / Year
Ro-Ro Capacity	150,000 vehicles /Year
Container Docks (Total Length 1.607,61 yards)	
Dock Count / Length / Depth	8-11 / 675 m / 14 m-10 m
Dock Count / Length / Depth	12-13 / 300 m / 12 m
Dock Count / Length / Depth	17-19 / 495 m / 12,5 m
Other Docks (Total Length 1.785 m)	
Other Docks (Depth)	8,5 m – 14 m
Maximum Capacity for Ships	Length 333,55 yards
Planned Capacity for Ships – 18k TEU	
Ship Length 437,45 yards	Width 56,4 m Draft 16,5 m
Gantry Cranes	7
Mobile Cranes (MHC)	7
Pilotage / Towage Services	7/24 hours

Source: Mersin International Port, *Port Specifications*. <http://en.mersinport.com.tr/port-specifications/detail/Port-Location/192/454/0>, Access Date: 10.01.2014

Among the freight loaded in Mersin Port, ores, cement, food stuff, mixed goods and chemicals take up the most volume. For the unloaded materials, oil derivatives, mixed goods, chemicals, food stuff and grain are prominent. With respect to coasting trade, there is no significant freight movement other than cement, oil derivatives, fertilizers and grains (Table 7).

Table-7. Mersin Port Freight Tons in 2012

Type of Freight	Loading				Unloading			
	Cabotage / Domestic	Export	Transit	Total	Cabotage / Domestic	Export	Transit	Total
Cement	54,876	1,098,370	45,884	1,199,130	-	1,599	1,162	2,761
Grains	23,140	147,540	12,237	182,917	245	880,776	4,034	885,055
Chemicals	7,757	769,734	34,786	812,277	35,798	2,066,945	42,210	2,144,953
Citrus Fruits	-	44,463	9,700	54,163	-	43,195	3625	46,820
Containers	-	-	304,767	304,767	-	-	301,480	301,480
Construction Equipment	-	13,235	171	13,406	12	20,299	16,092	36,403
Cotton	-	61,685	18,233	79,918	532	264,287	1,549	266,368
Fertilizers	29,551	7,848	626	38,025	79,923	245,051	1,021	325,995
Food Stuff	645	1,191,483	37,951	1,229,434	438	943,516	43,998	987,952
Frozen Meat	-	11,054	453	11,507	-	19,243	137,800	157,043
Fruits	-	137,986	5,000	142,986	393	128,002	389,122	517,517
Mixed Goods	5,272	1,799,346	224,657	2,029,275	91,543	2,410,574	339,593	2,841,710
Glass	2,843	138,683	771	142,297	23	17,103	1087	18,213
Beans	123	139,329	4,352	143,681	96	274,294	9,274	283,664
Machines	-	51,558	4,697	56,255	205	88,098	7,741	96,044
Ores	67,266	2,416,154	6,092	2,489,512	6,018	571,923	1,298	579,239
Oil Derivatives	38,518	64,492	158	103,168	617,872	3,242,025	22,579	3,882,476
Rice	-	69,899	9,372	79,271	-	174,161	21,554	195,715
Sodium Carbonate	-	490,907	24	490,931	-	15,041	51	15,092
Sugar	12	6,110	11,119	17,241	-	2,250	9,538	11,788
Textiles	98	343,261	15,369	358,728	646	911,256	35,641	947,543
Lumber	-	8,814	4,884	13,698	1,035	129,537	7,009	137,581
Vegetable Oils	-	73,303	12,450	85,753	-	777,423	52,962	830,385
Livestock	-	40	20	60	-	58,122	663	58,785
Vehicles	1	20,435	6,487	26,922	-	66,570	108,868	175,438
Total	230,102	9,105,729	770,260	10,106,103	834,779	13,351,290	1,559,951	15,746,020

Source: Delibaş, 2013. Mersin Port Closed 2012 with Records. *Mersin Maritime Trade Magazine*, 249, 24-28.

4.2. SWOT Analysis of Seaways Logistics in Mersin Province

<p>Strengths</p> <ul style="list-style-type: none"> • Proximity to international sea routes • Patronage of the port by surrounding areas where the agricultural and industrial production is high • Suitability of the climate for year-round operations in the port • Presence of a free-trade zone with its own docks along with an internationally prominent seaport • Suitability of the city's railway and highway connections for nation-wide mixed mode transportation • Uniqueness of Mersin Port as a port offering all the services • Absence of another significant port • Presence of business organizations like Mediterranean Exporters Association and Turkish Standards Institute 	<p>Weaknesses</p> <ul style="list-style-type: none"> • Scarcity of qualified personnel in the sector • Scarcity of mid- and upper-level managers trained for the logistics sector • Deficiencies of the port's railway infrastructure • Absence of firms with expertise to provide consulting and technical support services to existing logistics firms • Level of institutionalism in the majority of the logistics firms
<p>Opportunities</p> <ul style="list-style-type: none"> • Logistics campus planned for the region • Investments on the port after its privatization • Availability of training programs which will provide qualified personnel to the sector • The fact that logistics sector has been selected to be one of the three priority areas for RIS-Mersin, which has been launched as a part of the Strategic Innovation for Mersin Province 	<p>Threats</p> <ul style="list-style-type: none"> • Volatility of fuel prices and its ever-upwards trend • Negative outlook of Mersin's logistics sector resulting from low-quality, undocumented and unregulated services of some firms • Untrained workforce accumulated due to influxes of domestic and foreign immigrants

5. RESULTS AND DISCUSSION

5.1. Advantages of Mersin Province for the Logistics Sector

The firms which have been evaluated have listed the city's advantages as follows:

Mersin's Location: 80.5% of the firms views the geographical location of the city as a great advantage. This is how they explained their view:

- The city's proximity to provinces with high industrial and exporting potential and the ease of access from these provinces to the port over the highways decrease the transportation costs.
- Cities of Central, Eastern and the Southeastern Regions employ Mersin as their port.
- Mersin is in a bridging position in the Middle East.
- Mersin's agricultural potential is high.

Its geographical location enhances Mersin's attractiveness. With its characteristics that could make it a center for collection, distribution and transit, it is an extremely suitable location in terms of international logistics. Mersin possesses the capacity to help it serve not only its region, but also its whole surroundings.

The Presence of the Port in Mersin: Among the evaluated firms, 47.2% views the presence of the port in Mersin as an important advantage. The facts that

- The port is for both imports and exports,
- The port has an expansive, contiguous area,
- The port has highway and railway connections,
- The port handles a great variety of goods and open for further improvement, all make the presence of the port especially important.

Some important criterions in determining the level of development of countries is the number and capacity of their ports. Ports play prominent roles in global logistics networks. Now, all over the world, large ports tend to become the distribution centers for trade (Doğru, 2009).

Mersin port is a prominent trading port and a great variety of goods are handled in it. Rotterdam port of Holland is another port where a variety of goods are handled. In the port of Rotterdam, as solid bulk goods, coal, metals in the forms of scraps and ores, especially iron and steel, and as liquid bulk goods, crude oil, oil derivatives and chemicals can be counted. In fact, this port serves as a global center for imports and exports, by enabling fast access to all prominent industrials and economy centers within 24 hours (URL, 3).

Free-Trade Zone: The presence of a free trade zone within and adjacent to the port is an another significant advantage. Free trade zones, though they are within political borders of a country, they are exempt from the customs and, compared to other regions, they benefit from greater incentives for the improvement of industrial and trading activities. A free trade zone is usually established in close proximity to sea or airports. The goods entering the zone are not only exempt from customs, but they can also be stored, processed and used in manufacturing within the zone. As long as these goods do not cross customs gates, taxes need not be paid. Mersin Free-Trade Zone is in an adjacent location to Mersin International Port (MIP) and connects to a road that passes through corridor zone within the port area (URL, 4). The proximity of MIP to the zone affects the freight traffic positively and saves time for the freight owners. Among the evaluated firms, 11.1% stated that free trade zone provides significant added value to the firms logistically. Raw materials are brought from overseas and exported again after being processed within the zone. This implies increased business volumes for logistics firms. The combination of the logistics advantages presented by Mersin Free Trade Zone and the natural advantages of the city helps build a very important, low-cost investment venue. Other Advantages: Of the evaluated firms, 2.7% have stated that another advantage is the strength of the communication with their loyal customers. In Mersin the presences of organizations like Mediterranean Exporters

Association and Turkish Standards Institute make it possible to carry out certain operations fast and conveniently.

5.2. Problems in the Sector and Suggestions

The firms interviewed have listed the fundamental problems in the sector as insufficiency of qualified personnel, problems in the port's infrastructure, and inability of the firms in institutionalizing themselves (Table 8).

Table-8. Problems of the Logistics Sector According to the Firms

Problems	Ratio
Qualified Personnel	63.8 %
Port Specifications	61.1 %
Institutionalization	44.4 %
Customs	16 %
Storage Use	13 %
Competition	13 %
Taxes	8 %

Qualified Personnel: Of the firms considered in this study, 63.8% noted that employment of personnel lacking expertise affects the sector negatively and sector-related training is insufficient. Those who noted the problem detailed their suggestions about training as follows:

- Priority should be given to university graduates who majored in logistics
- Vocational training programs must be increased
- The infrastructure of the logistics training must be built by improving on the training programs in firms and in professional associations
- The drain of trained to personnel to metropolises like Istanbul and Izmir should be prevented by improving the pay scales.
- Participations in fairs should be encouraged.

The level of education of the firms' personnel responsible for export trading, except for the exporters of iron and steel, are at the level of primary or secondary school. From a broad viewpoint, the firms are small-sized family operations and they produce goods with low added value, such as fresh fruits and vegetables, dried food stuff, furniture, etc. On the other hand, the need for sizeable investment capital, an environment of institutionalization, and a multitude of partners require that iron and steel producers employ highly educated personnel, because they produce goods with high added value which require technical knowledge and abilities (Kara *et al.*, 2007).

The preference of the firms will lean towards the people who know about logistics in theory, like those who undertook academic education in the field at the levels of bachelors, graduate or doctorate. The standards in professions related to maritime transportation, the skills needed in those jobs and the standardization of the abilities have a special importance (Dođru, 2009). In

Turkey, in the field of logistics, there are about 75 2-year vocational programs, 25 4-year schools, 10 or 15 masters and 3 PhD programs. However, Turkey still lacks the staffing positions for teaching about logistics. Current educators have come from other departments and the training that they provide does not match the level of education demanded by the sector. For this reason, the problem of logistics trainers must be solved urgently (Tanyaş, 2014).

Port Specifications: Among the firms evaluated, 61.1% viewed the infrastructure deficiencies of the port as a prominent problem. The problem is itemized as follows:

- Because of the insufficient dock equipment and the workforce needed to handle goods, loading operations cannot be completed in specified times.
- The port authority offers no cleaning services for the ships which arrive empty or those unloaded at the docks. Shipping agents outsource these services at an increased cost.
- Water depth is not suitable for large ships.
- Strikes are frequent at the docks.
- The presence of only one storage in the port raises costs.
- Costs are generally high all over the port.

Efficiency of a port is a prominent determinant in logistics costs. Raising port activities from 25% to 75% decreases logistics costs by 12% (Clark *et al.*, 2004).

The interviewed firms have listed their suggestions as follows:

- Necessary investments should be made to bring the equipment and the workforce at par with the needed levels.
- The quality of the outsourced services should be improved by increasing the workforce in the contracting firms.
- The depths should be increased to allow larger ships to dock without problems.
- Certain investments should be made to improve working conditions and strikes should be prevented through appreciation of the employees.
- Pay scales should be rearranged in proportion to the services rendered.
- In order to improve on the service quality, cooperation should be established among the firms in the sector.

Institutionalization: Of the firms interviewed, 44.4% focused on the problems with institutionalization. Institutionalization is a crucial need for the firms in the sector. The biggest hurdles to institutionalization are the facts that most firms are of family businesses and insufficient use of skilled professionals. Firms lack professional principles and the employees lack clearly defined authorizations and responsibilities.

Suggested solutions for these problems are:

- Firms should put down self-customized principles and assign authorizations and responsibilities to those who can handle them.
- Firms should provide for the training of the employees.

- Greater care should be given to brand management and employees should be more conscious of the importance of this.
- Firms should train employees not for the region, but for the customers; employees should also be classified according to the sector of activity.

Storage Use: 41.6% of the firms meet their storage needs from their own resources, while the remaining firms outsource the storage services. The firms which outsource for storage encounter problems with finding vehicles. Among the evaluated firms, 13.8% note that these problems can be handled by investing on vehicles and organizing the storages better. In fact, similar problems exist also in Izmir. Although there are many multi-purpose storage facilities in Izmir, most of the existing depots are not officially registered. The total storage needs of the firms which produce or trade in Izmir exceeds the total capacity of the existing depots. Indeed, this situation creates an opportunity for entrepreneurs planning on investing in opening new depots ([Izmir Economy University Department of Logistic Management, 2009](#)).

Customs: One of the problem areas that need to be urgently addressed is the easing of trading procedures. Currently, existing customs procedures prevent the ports from processing quickly. 16.6% of the firms viewed the customs processing delayed during periods of frequent transits as a problem. For streamlining the processing, it is necessary that the reliance of paper documentation be reduced and a transition should be made to digital environment.

Incomplete infrastructure of the ports and ungainly bureaucracy that slow down the customs processing reduce the chances of the province to be a center for transit trade. The work hours of customs, complications of the customs procedures and arbitrary actions during transits adversely affect the competitiveness of the sea trade ([Darby, 2008](#)).

Competition: Among the firms, 13.8% noted the prevalence of unfair competition. Overly flexing the prices and payment terms in transactions of some firms results in unfair competition. Hence certain guidelines should be established for the firms in the sector to follow, and certain standards should be defined, especially for pricing.

The firms which have been interviewed for this study emphasized that reviews of the transactions should be more frequent, because tracing of the documentation and their controls is necessary, if they are legally required, but not enforced. In this context, there is a need for an independent oversight organization to eliminate discrepancies in the system.

Taxes: The exemption from value added tax (VAT) reserved for the foreign firms in the sector results in unfair competition. Consequently, domestic firms should also benefit from the allowance of billing without VAT, as foreign firms can.

6. CONCLUSION

In these days, world trade is transacted mostly over the seaways. Turkey, as its three sides are surrounded by seas and it possesses the straits, has great advantages in competing in maritime transportation. Ports make up the most important elements of the system of sea trade.

Mersin port, is the most important sea port and customs gate not only of Turkey, but also of Eastern Mediterranean. With its railway and highway connections, it is at an extremely convenient location from the logistics viewpoint. It is ideal transit gate for the trade over Middle East. In addition, Mersin port is the only port in Turkey that can offer all the port services. It is at the 5th place among the port authorities which handle the most freight, and it is the 2nd one in handling the greatest number of containers.

The foremost hurdles to the development of the sector in Mersin are

- insufficiency of combined transportation,
- incompleteness of the port's infrastructure,
- lack of institutionalized in the firms,
- insufficiency of the qualified workforce, and
- procedures applied in customs processing.

In this context,

- existing railway infrastructure must be modernized. Railway connections should be provided for the continuance of the transportation after the port. Furthermore, a modern logistics campus should be built for co-housing the interrelated operations.
- investments should be made to improve the service quality of the port.
- For transactions of international trade, port-level activities are important. These are not only the activities related to port's infrastructure (such as, guidance, backups, transporting of supporting tugboats, packing, storage, etc.), but they also depend on the activities related to needs at the customs.
- Trainers with the subject expertise should be provided for meeting the needs of qualified personnel in the sector.
- Investment decisions of the sector should be taken in coordination with civil organizations, professional associations and the relevant branches of the central authority.

Funding: This study received no specific financial support.

Competing Interests: The authors declare that they have no competing interests.

Contributors/Acknowledgement: All authors contributed equally to the conception and design of the study.

REFERENCES

- Babacan, M., 2003. Improvements and competition vision of logistic sector in Turkey. *Ege Ekonomik Bakış Magazine*, 3(1): 8-15.
- Boğça, M., 2012. Harbours in Turkey and harbour operations. *Mersin Sea Commerce Magazine*, 247(21): 27-29.

- Büyükbaş, Ö. and A. Ünlü, 2011. Profile of logistic sector in Turkey, kahramanmaraş sütçü. İmam University Social Sciences Magazine, 8(2): 103-118.
- Clark, X., D. Dollar and A. Micco, 2004. Port efficiency, maritime transport costs, and bilateral trade. Journal of Development Economics, 15th Inter American Seminar on Economics, 75(2): 417-450.
- Coşkuntuncel, A., 2014. Defining the advancement of logistic sector of mersin. Master's Thesis, Mersin University Institute of Social Sciences, Mersin.
- Darby, Ö.D., 2008. Evaluating Istanbul as a logistic center. İstanbul Metropolitan Municipality. Available from http://katalog.ibb.gov.tr/kutuphane2/YordamVt/projem_istanbul/pi_00029.pdf.
- Doğru, R., 2009. Improvements of sea transportation in black sea economic cooperation organization member countries: Problems and perspectives, interviewer: Reşat Doğr(Turkey), Doc.:GA33/EC32/REP/09/tr REPORT, Economy, Commerce, Technology and Environment Office Commissions` Document which was Discussed and Approved in Thirty Eighth Meeting on 18 March 2009, Belgrade and Approved in Thirty Third Board Meeting on 12 June 2009, Brussels.
- Gebresenbet, G. and T. Bosona, 2012. Logistics and supply chains in agriculture and food, pathways to supply chain excellence. Dr. Ales Groznik (Eds), ISBN: 978-953-510367-7, InTech: 125-146. Available from <http://www.intechopen.com/books/pathways-to-supplychain-excellence/logistics-chains-in-food-andagriculture-sector>.
- Grossmann, H., A. Otto, S. Stiller, J. Wedemeier, C. Koller, W. Pflüger and A.A. Roestel, 2006. Maritime trade and transport logistics, strategy 2030. Hamburg, Germany: Berenberg Bank HWWI.
- Izmir Economy University Department of Logistic Management, 2009. Current State of Izmir's logistic sector and analysis on its improvement potential. Project of Izmir Development Agency. Available from http://www.izka.org.tr/files/lojistik_rapor.pdf.
- Kara, M., M. Duruel, L. Tayfur and H. Demirer, 2007. Problems in transportation and solution suggestions for exporters in hatay. Cukurova University, Institute of Social Sciences Magazine, 16(1): 395-412.
- Korkmaz, O., 2012. The effect of maritime transport on some economic indicators in Turkey. Business and Economics Research Journal, 3(2): 97-109. ISSN: 1309-2448. Available from www.berjournal.com.
- LODER, 2014. World bank logistic performance index published 2014, logistic organization. Available from <http://www.loder.org.tr/announces.php?id=278>.
- Port of Rotterdam, 2013. Port statics 2010-2011-2012. Erişim Tarihi, 28: 12. Available from <http://www.portofrotterdam.com/en/Port/port-statistics/Documents/Port-statistics-2012.pdf>.
- Saban, M. and G. Güğçerçin, 2009. Factors affecting cost in sea transportation business and voyage costs. Dokuz Eylöl University Marine Magazine, 1(1): 1-16.
- Şengel, S., 2012. Evaluating performance in logistic businesses the importance of logistic ratio and a research. Ankara: Detay Publishing. 1st Issue
- Talley, W.K., 2009. Port economics. USA: Routledge.
- Tanyaş, M., 2014. We may lose the logistic sector, an interview, Green Logistics, 27 November 2014. Available from <http://yesillojistikciler.com/lojistik-sektorunu-kaybedebiliriz/> [Accessed 29.05.2014].

- Tanyaş, M. and F. Arıkan, 2013. City of Bursa logistic center pre-feasibility Report. Bursa Business Association Organization (BUSİAD), Bursa.
- The Union of Chambers and Commodity Exchanges of Turkey, 2012. Sector Report on transportation and logistics committee in Turkey, Ankara. Available from http://www.tobb.org.tr/Documents/yayinlar/TOBB_usturma_kitap_2012.pdf.
- The World Bank, 2014. Logistics performance index. Global Rankings. Available from <http://lpi.worldbank.org/international/global>.
- Tutar, E., F. Tutar and H. Yetişen, 2009. Analysis on the comparison between Turkey and chosen EU countries (Romania and Hungary) on improvement levels. Karamanoğlu Mehmetbey University Department of Economics Magazine, 11(17): 191-216. Available from <http://dergi.kmu.edu.tr/userfiles/file/ara%C4%B1k2009/190-216.pdf>.
- URL, 1. Republic of Turkey state railways mersin harbour operations control management, history of the harbour, (03.08.2012). Available from <http://www.tcdd.gov.tr/home/detail/?id=276> [Accessed 10.05.2013].
- URL, 2. Sea route, ministry of transportation. Available from http://www.ubak.gov.tr/BLSM_WIYS/UBAK/tr/Ana_Plan_Stratejisi/3Rapor/20100518_1712_0_204_1_64.pdf.
- URL, 3. International transportation and logistic service providers organization, lands of harbours the Netherlands (21.07.2009). Available from <http://www.utikad.org.tr/haberler/?id=3428> [Accessed 29.06.2013].
- URL, 4. Mersin international port. Location of a Harbour/Free Zone. Available from <http://www.mersinport.com.tr/liman-ozellikleri/detay/LIMANOZELLIKLERI/23/27/0> [Accessed 27.12.2013].
- Wilmsmeier, G., R.J. Hoffmann and Sanchez, 2006. The impact of port characteristics on international maritime transport costs. Research in Transportation Economics, 16: 117-140. Available from <http://202.114.89.60/resource/pdf/2093.pdf>. DOI 10.1016/S0739-8859(06)16006-0.
- Yardımcıoğlu, M., H. Kocamaz and Ö. Özer, 2012. Transportation systems in logistic management and cost methods, II. Regional Problems and Turkey Symposium, Kahramanmaraş. pp: 245-259.

Views and opinions expressed in this article are the views and opinions of the author(s), International Journal of Management and Sustainability shall not be responsible or answerable for any loss, damage or liability etc. caused in relation to/arising out of the use of the content.