OECD Council Working Party on Shipbuilding (WP6)

The Shipbuilding Industry in Turkey

September 2011

Summary

This report on the shipbuilding industry in Turkey is one of a series studies covering various OECD countries and non-OECD economies, and has been prepared to inform OECD's Council Working Party on Shipbuilding (WP6) on the status and future prospects of that industry. This report is the first to cover an OECD member country.

The report benefited from extensive comments from the Delegation of Turkey but the views expressed in the report are those of the OECD Secretariat, and do not necessarily reflect the views of the Government of Turkey.

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THE SHIPBUILDING INDUSTRY IN TURKEY

INTRODUCTION[1]

1. Shipbuilding in Turkey has evolved from an old traditional activity in Anatolia to an internationally recognised industry, especially since the early 1990s. The industry has modern, quality certified shipyards that can build ships, yachts, mega-yachts, and sailing boats, as well as carrying out extensive repair and conversion works. Turkey's shipyards are mainly located in the Marmara Region, namely Tuzla, Yalova, and İzmit, which have developed into dynamic shipbuilding centres. Also, in recent years the emerging Black Sea and Mediterranean Regions have increasingly attracted shipyard investments.

2. Turkish shipyards have a tradition spanning eight centuries. At the time of the Ottoman Empire, shipyards were able to build large, powerful naval vessels, and yards continued their modernisation following the foundation of the Republic of Turkey. After 1983, yards began to move from Haliç İstanbul (Golden Horn) to the Tuzla Shipyards Region. Having started to operate in this region, Turkish shipyards struggled to complete their infrastructure investments to comply with advancing shipbuilding technology and so initially performed shipbuilding and repair works simultaneously.

3. In the last decade, in parallel with developments in the global market, Turkish shipbuilding experienced a several-fold increase in its shipbuilding and export capacity, including a significant product diversification. According to order books, this resulted in Turkey being regularly placed in the top ten countries on the basis of its deadweight (dwt) production, and in the top five countries by the number of ships.

4. In recent years Turkey has increasingly tapped into niche markets, which in turn has led to a growing participation by Turkish shipyards in the international trade in new ships. In parallel, there has also been strong growth in the marine equipment manufacturing sector, which could increasingly also tap the export market. These developments reflect in part the strategic location of the yards, the experienced workforce, the quality of production and Turkey's significant role as a political, cultural and economic bridge between Europe and Central Asian and Middle Eastern economies.

SNAPSHOT OF THE TURKISH SHIPBUILDING INDUSTRY

5. The shipbuilding and repair industry is considered to be one of the most promising industrial sectors in Turkey, and there have been significant developments in recent years. At present, there are 70 active shipyards in Turkey, while another 56 (most of which might be described as a medium size) are reported to be in the process of being built, although this number may be affected by the reduced demand for shipbuilding following the 2008 world economic slowdown. The economic slowdown also affected exports, which peaked at USD 2.7 billion in 2008, but had declined to just over USD 1 billion in 2010 (Undersecretariat for Maritime Affairs-UMA, 2011).

[1] Note: maps in this report are for illustrative purposes and are without prejudice to the status of or sovereignty over any territory covered by the maps.

6. While Turkish yards have traditionally specialised in yachts and smaller commercial vessels, in recent years they have significantly increased their capabilities and competitiveness in the construction of larger ships. As a consequence, there are now yards that are capable of building a wide range of commercial vessels, such as petroleum and product tankers, heavy freighters and multipurpose container ships. In addition the yards can produce other niche market vessels, such as fishing boats, research vessels, tugs, mega yachts, supply vessels and offshore boats.

7. The growth of the Turkish shipbuilding sector is evident in the rapid growth of the shipbuilding industry workforce, which grew from just 2 800 employees in 1998, to a peak of 33 500 in 2008 (see Chart 6). However, as elsewhere in the world, the recent global economic downturn significantly affected the industry in Turkey, and the workforce was estimated to have fallen to around 21 000 in mid-2010 (UMA, 2010). However, the growing output of those shipyards since 2007 also suggests that those shipbuilding facilities have also become significantly more efficient.

8. The specialisation of the industry is also evident in recent production statistics. Turkish shipyards are considered to be highly ranked in the world in the production of small tonnage chemical/oil tankers (up to 10 thousand dwt), and this is certainly supported by the order book held by Turkish yards, which in January 2011 showed 62 orders for this class of vessel, second only to the 74 orders held by yards in China (Clarkson, 2011). Turkish yards are also quite highly regarded in the production of mega yachts.

9. In addition, Turkey's support industries (that is, ship repair and conversion and the marine equipment manufacturers) contributed an estimated additional USD 1.5 billion to the Turkish economy in 2009, making the sector a significant component of the overall economy in its own right (UMA, 2011).

10. Domestic shipowners are strong supporters of the Turkish shipyards, and for a long time newbuilding output was largely directed at the domestic market. In some cases, shipowners own the yards and build vessels for their own fleets, as well as building vessels for other buyers.

11. This focus is understandable as the Turkish shipyards, in their early stages of development, specialise in the types of vessels, and the tonnage ranges, that most suit the freight tasks in the Mediterranean, Black, Marmara and Aegean seas. As a consequence, most of the clients of the Turkish shipyards are shipowners that operate in these areas, where Turkish and Russian flagged ships are strongly represented in the merchant shipping activities, and are ranked as first (16%) and second (13%) respectively. In particular, Turkish owned ships account for a 32% share of the associated shipping tasks.[2]

12. While there may be some limitations with this model to penetrate the broader world market, the specialization of Turkish shipyards have gained considerable strength through it, as evidenced by Turkey's growing expertise in the construction of small-medium chemical tankers, and the significant growth in the export of those types of vessels, especially since 2005.

SHIPBUILDING AND THE TURKISH ECONOMY

The Turkish economy

13. In parallel with experience around the world, the Turkish economy enjoyed an exceptional period of growth between 2002 and 2007. An abundance of liquidity in the Turkish financial system encouraged investments, which in turn drove significant economic growth in all sectors of the economy. However, the latter half of 2007 heralded a very significant and protracted global recession, from which the global economy is still emerging.

[2] *Source*: UMA 2011 and İstanbul Freight Index (ISTFIX) www.istfix.com.

14. Turkey did not escape the effects of the global financial crisis, but the restructuring of the banking sector in 2001, and a significant decline in both the rate of public borrowing and in the budget deficit in the period leading up to the crisis, assisted Turkey to minimise its impact on its economy, and prevented financial problems from becoming unmanageably large.

15. Despite this partial insulation from the effects of the global financial downturn, Turkey did not completely escape the effects of the recession, and its GDP dipped sharply in 2009 (see Charts 1 and 2), although preliminary data for 2010 shows a strong economic rebound. As elsewhere in the world, this decline in economic activity progressively affected investment, consumer demand, trade, shipping and ultimately shipbuilding, which although affected later than most industrial sectors because of the cascading effect, eventually experienced a very sharp decline in new orders.

16. The effects of the decline in shipbuilding activity are quite significant, as this is a sector that has been identified by the Turkish government as having the potential for considerable growth, and which makes a very significant contribution to the Turkish economy. According to figures from the Turkish Shipbuilders Association (GISBIR) in 2008 (latest available figures) the Turkish shipbuilding industry contributed around USD 2.7 billion to Turkish exports, while repair and maintenance operations added around USD 1.5 billion (UMA, 2011).

17. While this represents a relatively small proportion of the overall Turkish GDP, its importance should not be underestimated, because it represents the output of an industry sector that not only employs a large number of workers, but also contributes to the country's industrial capacity and technological know-how. In addition, the growing export performance of the shipbuilding sector means that it also makes a significant contribution to Turkey's balance of payments and foreign currency reserves.

Chart 1 – Turkey GDP 2000-2010 (USD million)

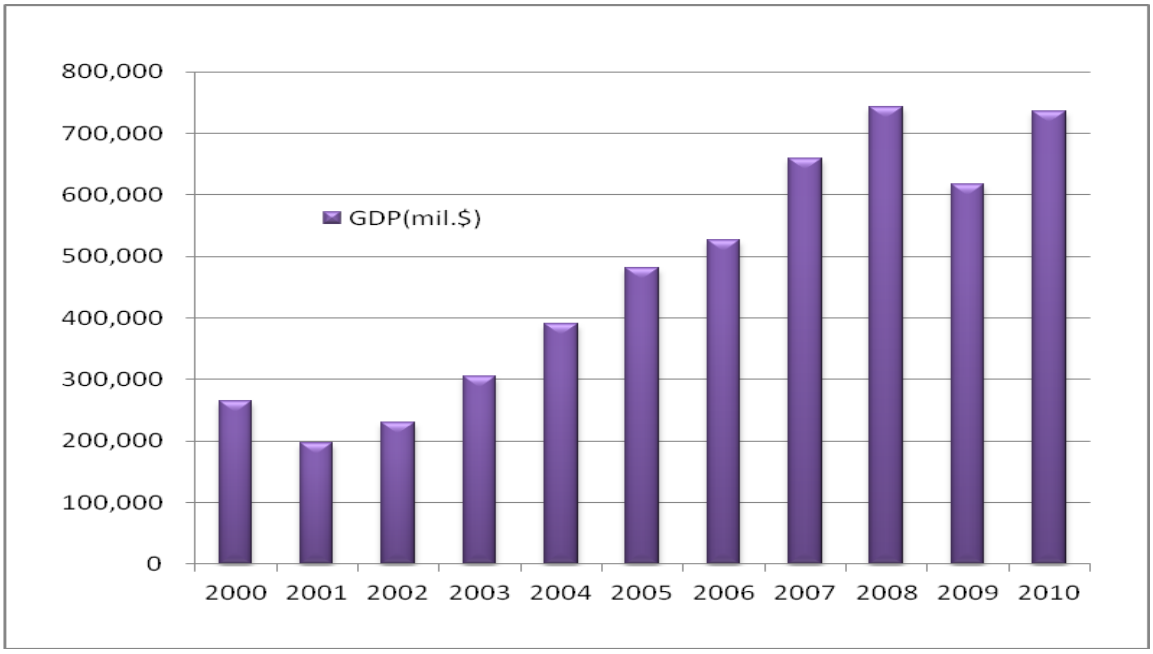
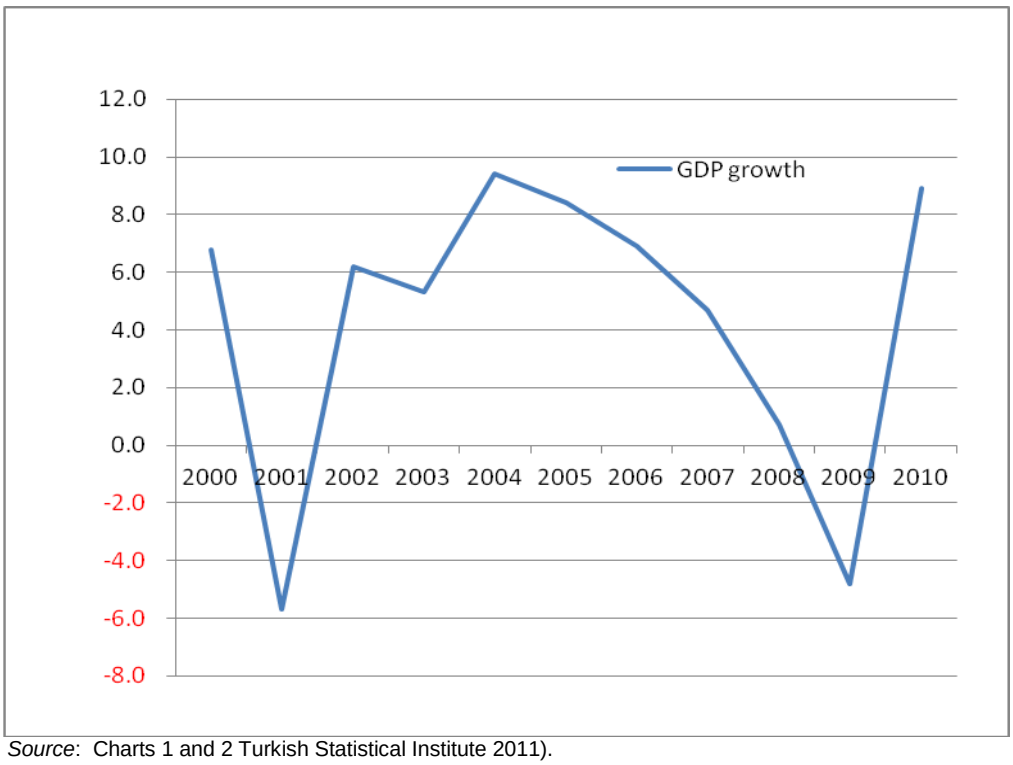


Chart 2 – Turkey GDP growth (%) 2000-2010



Source: Charts 1 and 2 Turkish Statistical Institute 2011).

Role of shipbuilding in the Turkish economy

18. The role of shipbuilding in a broad economic context was examined as part of a 2007 WP6 study that looked at factors that affected the structure of the world shipbuilding industry [*"Factors Affecting the Structure of the World Shipbuilding Industry"*]. That study looked at how governments perceived their shipbuilding industries, especially given that most OECD members had fully privatised their shipbuilding sectors, even though, one way or another, most WP6 governments continue to provide support measures of some kind to shipbuilding.

19. That study identified attributes of shipbuilding that could be linked to national economic performance, and WP6 members (and some non-OECD partner economies) were asked to indicate their perception of the importance of those attributes to their economies. The response by the Government of Turkey to the survey is shown in Table 1 below.

20. The response by the Government of Turkey indicated that shipbuilding was perceived as being a very important generator of employment, a contributor to industrial capacity and a vehicle to attract investment. This view was consistent with the views of other governments that participated in the survey, most of whom saw a need to preserve some industrial capacity (even if it was an "old economy" sector), in case that capacity (and associated skills and expertise) was ever required. This is a particularly important consideration from the perspective of shipbuilding as a "strategic industry", which carries with it not only economic but also security and defence connotations.

Table 1 – Survey response by the Government of Turkey

How important is shipbuilding as an economic activity?			
Item	***Very important***	***Important***	***Not important***
Strategic industry		X	
Employment generator	X		
Support of depressed regions		X	
Contributor to industrial capacity	X		
Technical/technological capability	X		
Vehicle to attract investment	X		
Public sector policy delivery			X
Profit/taxation potential		X	

21. The interests of governments to ensure that such capabilities are retained are frequently evident through their support of local shipbuilding facilities to build naval (defence) vessels, often as joint ventures with foreign partners, frequently with associated technology transfers (which can occur in both directions). While naval activities are outside of the mandate of the WP6, the fact remains that in many yards military and commercial vessels can be built using the same facilities, so that government supported military shipbuilding can create and/or retain shipbuilding capacity. This capacity could later on be available for commercial activities, so that decisions by government for defence or security reasons could in some cases impact the commercial shipbuilding sector.

22. There are presently five private yards awarded naval contracts which also engage in commercial shipbuilding, a practice that exists in other countries. Advice from UMA is that these shipyards have not increased their existing available capacity formerly used for building merchant ships.

23. Nevertheless, there is some evidence that there are informal linkages between naval and commercial yards. For example, this is how these linkages were described in a Press Release leading up to the Shipbuilding, Machinery & Marine Technology Trade Fair held in Istanbul on 26 to 28 January 2011:

> *"The Turkish shipbuilding industry is also helped by massive support from the Turkish Government, which is making a big effort in naval shipbuilding. It has, for example, placed an order for six submarines of a new type from HDW, and this is likewise intended to boost the business of Turkish suppliers. It is also having a number of surface naval ships built at Turkish shipyards. The Undersecretariat for Defence Industries is driving these projects forward, and is now also showing increased commitment to merchant shipbuilding. All of this gives a bright outlook for the shipbuilding market in Turkey."*[3]

[3] Extract from the SMM Press Release *"SMM Istanbul 2011 has plenty of support from the Turkish Government"* available at: http://www.hamburg-messe.de/presse/presse_smm_istanbul/entryengl.htm?menu=Press

24. This point is recorded simply here to emphasise the importance of the shipbuilding sector (in its broadest context) to the Turkish economy, whether engaged in commercial or naval construction. This point was also recognised by the Istanbul Trade Fair, where the theme for one of its Conference sessions was "Our Future - Joint Forces, Naval Shipbuilding and Commercial Shipbuilding".

25. Focusing again on commercial shipbuilding, the Undersecretariat for Maritime Affairs of Turkey noted that development plans initiated by the Turkish government over the last four years, aimed at increasing the capacity and efficiency of the country's shipyards, have started to bear significant fruit. UMA noted that the sector has made significant investments over the last few years to modernise facilities and improving their technological capabilities (UMA, 2010).

26. The Turkish government is also taking into consideration the possibility of boosting the domestic production of basic materials used in ship and yacht building, in order to reduce dependence on imported components and increase the flexibility and capability of domestic support industries. Such a symbiotic relationship, if it can be fostered to develop complementary capabilities, would certainly strengthen the ability of the Turkish shipbuilding sector to compete effectively on the open market.

27. While outside the mainstream commercial shipbuilding activity, leisure yachts have been a particular niche market that has developed significantly over the last 20 years, and which has now become a promising activity for Turkey. Turkish yards have recognised the significant potential market for yachts built to a high standard, and a number of those yards have reorganized their facilities in order to tap into this potentially very lucrative export market. A well respected boating magazine recently ranked Turkey in 3rd place in the world, with respect to orders received for yachts over 25 metres (69 projects). Like naval construction, this niche activity will also have wider ramifications for the broader shipbuilding sector, especially with the continuing blurring of construction techniques and materials used for very large yachts and smaller passenger vehicles (such as fast ferries).

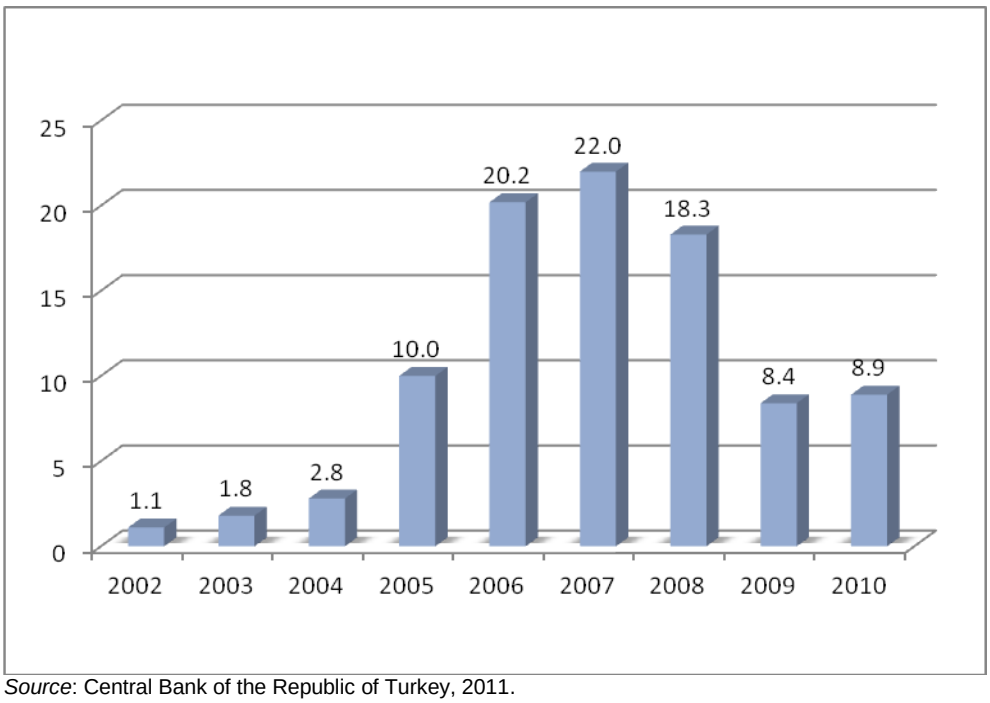
Foreign Direct Investment (FDI)

28. The openness of the Turkish economy has encouraged greater participation by foreign enterprises, and as a result Foreign Direct investment (FDI) has played an increasingly important role in Turkey's recent economic growth. FDI grew strongly, from a very small base until 2007, when the looming economic crisis adversely affected that capital inflow, as it did in most parts of the global economy (see Chart 3).

29. For its part, the Turkish Government has been active in encouraging FDI into Turkey's economy, and since 2001, the "Improvement of the Investment Environment Program" has been the policy vehicle used to encourage investment in Turkey, and to promote public/private co-operation. Within the broad concept encapsulated in this Program, the main legal instrument regulating foreign investment is the Direct Foreign Investment Law (No. 4875 of 2003) which provides for a relatively liberal treatment of foreign investors in Turkey, and which by restructuring registration procedures brought about a measure of equality between foreign and local companies.

30. This was achieved principally by removing the necessity for foreign companies to obtain preliminary permission for direct investment projects, and by giving foreign companies the same status as local companies when bidding for public tenders. Additionally, procedures for the employment of foreign personnel, and for foreign real and legal bodies to purchase real estate were simplified. Investors were also allowed to make use of various general government incentives available for eligible projects, such as low income region incentives, locating in free trade and technology development zones and access to incentives available for Small and Medium Enterprises (SME's) and for Research and Development (DGPI, 2010).

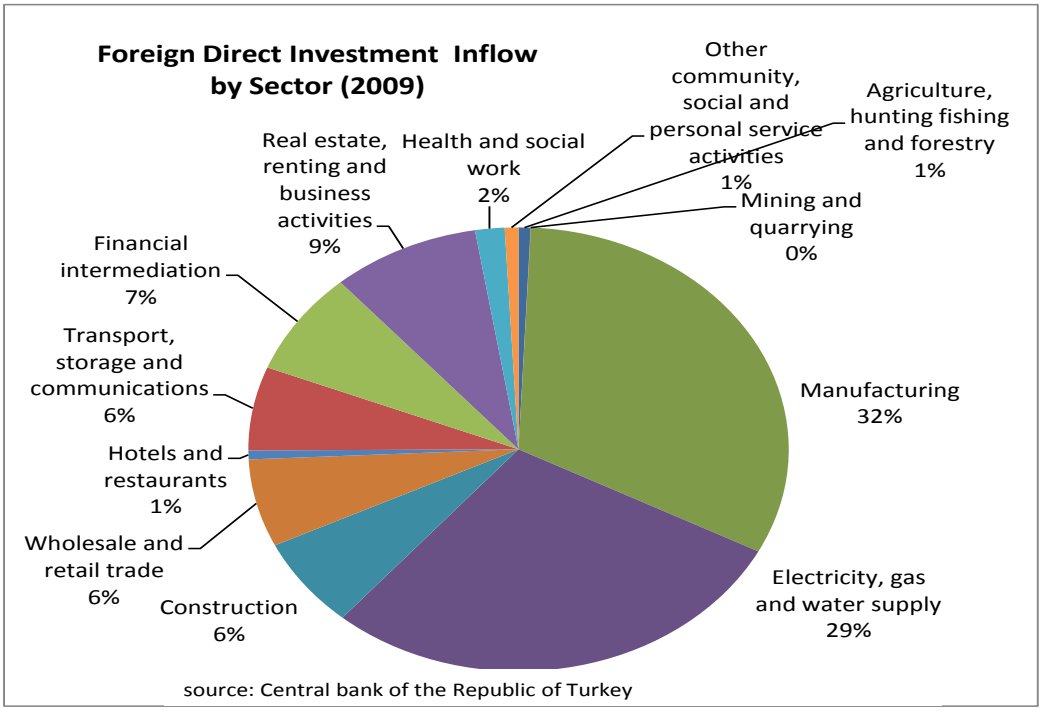
Chart 3 – Turkey, FDI Inflows (USD billion)



Source: Central Bank of the Republic of Turkey, 2011.

31. In 2009, the manufacturing sector (which includes shipbuilding) attracted 32% of capital inflows from FDI (see Chart 4). However, there are no specific figures available with respect to the share of that inflow (if any) attracted by shipbuilding within the broader "manufacturing' category.

Chart 4 – Turkey Foreign Direct Investment (FDI) 2009



RELATIONSHIP WITH OTHER INDUSTRY SECTORS

32. According to the Undersecretariat for Maritime Affairs (UMA, 2011), the overall competitiveness and strength of the Turkish shipbuilding industry is gradually growing due to the greater participation of local support industries, which increasingly allows Turkish shipyards to source a wide range of materials and equipment locally, rather than relying on imports. This is considered to be an important development by the Turkish Government, which has the objective of strengthening the capabilities of the local manufacturing industries, and increasing the proportion of domestic products used in local ship construction.

Steel industry

33. In the case of upstream industries, Turkey is a significant world player in the production and exportation of steel and steel products, and has established a sound reputation for producing quality products to meet market needs, including those of shipbuilding, where steel is a major input.

34. The impetus for this investment in steel production came from the liberalisation of the economy during the 1980s, which was a turning point, not only for the Turkish economy as a whole, but for the iron and steel industry in particular. The 1980s inaugurated a period of significant growth for the Turkish iron and steel industry, which began with the establishment of the first electric arc furnace mills. This provided the platform for the industry to become one of the most developed sectors in Turkey, and today counts as the third largest contributor to the Turkish economy.

35. Today all steel production companies in Turkey are privately held following the privatisation of state owned facilities, and Turkish steel makers now rely on private capital markets to fund technological developments to enhance the long-term viability of the industry in the global marketplace.

36. Currently, Turkey has 18 electric arc furnaces with capacities ranging from 0.5 to 2.5 million tons, while its integrated plants (that is, plants that combine both steel making and rolling processes) in Erdemir, Isdemir and Kardemir - have capacities ranging from 1.1 to 3.0 million tons. Its melting capacity in 2010 was around 43.4 million tons, composed of 34.0 million tons arc furnace capacity and 9.4 million tons capacity of the older, basic oxygen furnaces. This capacity is expected to grow to beyond 50 million tons by 2015, with the majority of this growth coming through newer and more efficient electric arc furnaces (TISPA, 2010).

37. However, while Turkey is a regular net exporter of steel products, with respect to the production of finished flat steel products (which are used in the production of ships), it has only been able to produce around half of its needs, with the balance being made up through imports (see Table 2).

Table 2 – Production/Consumption Finished Flat Steel Products (million tons)

	2005	**2006**	**2007**	**2008**	**2009**	**2010***
Consumption	9.4	10.7	11.7	11.2	8.3	9.9
Production	3.8	4.1	4.3	4.5	4.4	5.1
	40.4%	38.3%	36.8%	40.2%	53.0%	51.5%

***** Ten months to end October 2010.
Source: TISPA, 2010.

38. This dependence on imported flat steel products means that, at least with respect to this important input, the Government's ambitions to increase the proportion of locally produced materials still has some way to go before it is accomplished. However, according to the Turkish Iron and Steel Producers Association (TISPA, 2010) recent, significant investments in flat steel production capacity will mean that locally produced flat steel with gradually replace imported products, and that by 2015 Turkey can expect to be a net exporter of these products. This investment in new, modern capacity should also greatly enhance the local steel industry's ability to produce suitable steel for new generation commercial ships.

Marine equipment industry

39. While commercial shipyards in Turkey still rely heavily on imported materials and components (especially the more sophisticated and high technology items such as main engines and navigation equipment) the Turkish marine equipment industry has proved itself capable of supplying a wide range of components, such as deck equipment, windlasses, rudder machinery, electrical equipment, hydraulic units, ship chains and anchors.

40. These basic, low to medium technology items of equipment are just as crucial to shipbuilding (as well as ship repair and conversion) as the upper end items that are still beyond the capability of the Turkish marine equipment manufacturers, and require considerable capital investment.

41. Indeed, the workforce employed by the marine equipment sector (with a peak employment of over 100 000 workers in 2007, up from 30 000 in 2002), considerably exceeds that of the shipbuilding industry itself, demonstrating quite graphically the importance of this support sector to the national economy.

42. Inevitably, the global economic downturn affected the marine equipment industry, where employment fell from its peak in 2007 to around 64 400 by the end of 2010, a decline of around 36% (see Chart 5).

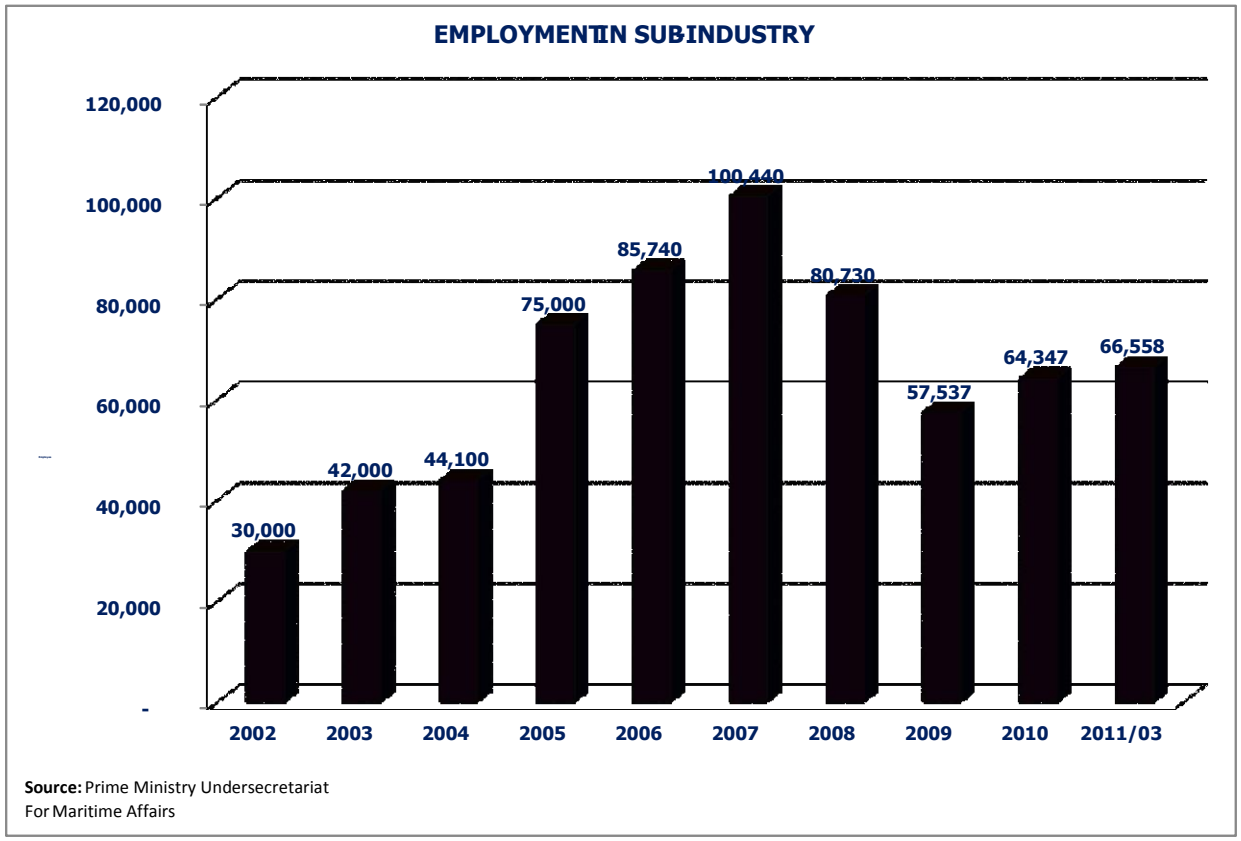
43. The advantage to Turkey of a viable and competitive marine equipment manufacturing sector is twofold. First, the sector contributes directly to the Turkish economy by employing labour and attracting investment. It also diversifies the economy into an area where, despite the "old industry" tag attached to shipbuilding, there is still a need for technological development and innovation (environmentally sustainable materials and equipment to promote "green ships" is an example), and which also offer commercial and export opportunities.

44. Second, by producing domestically a greater proportion of the equipment and material required by the mainstream shipbuilding industry, the marine equipment manufacturers help local yards to be more self-sufficient and competitive, and therefore better able to compete for export orders.

45. To facilitate this development, marine equipment manufacturers in Yalova commenced a joint study to build the Yalova Ship Specialised Organised Industrial Zone, the first project of its kind in Turkey focusing on marine equipment.

46. If there is a problem associated with this sector, it is that it is primarily composed of small, local enterprises, which although nimble and flexible, and capable of producing a wide-range of basic, low to medium tech equipment, struggle with the production of more complex items, especially when international certification requirements include the standardisation and approval of parts and components. However, this remains a sector that could provide future growth and greater support to shipbuilding itself, hence the strategic role that is being taken by the Undersecretariat for Maritime Affairs to strengthen the capabilities of the marine equipment manufacturers in order to reduce the dependency of the shipbuilding industry on foreign suppliers (UMA 2011).

Chart 5 - Employment in Turkey's marine equipment industry



Source: UMA, 2011.

Ship recycling

47.

48. It is relatively rare that shipbuilding and ship recycling (which are, after all at the opposite ends of a ship's working life) can impact each other, not the least because in many instances the construction and dismantling of vessels takes place in different countries.

49. However, Turkey is somewhat different in this respect because as well as being a significant ship producer, it is also the world's fifth largest ship recycler, and the largest outside South-Asia and China.

50. Most of the ships that are recycled in Turkey are foreign flagged, primarily from European Union members, and especially smaller vessels that may not be economic to sail to recycling yards in South Asia. Turkey is frequently chosen for recycling because it complies with ship recycling standards, and its recycling yards comply with international practices promulgated by the IMO, the ILO and the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, as well as with national legislation.

51. Turkey's recycling yards are internationally recognised as setting a high standard in the recycling of vessels; for example it recently commenced the dismantling of the UK aircraft carrier HMS Invincible,

which attracted positive comments about the yard's green credentials.[4] Turkey's ship recycling industry has also taken the lead to rewrite ship recycling guidelines; an effort that is gaining acceptance and support from the international community.

52. The recycling facilities in Turkey benefited from the 2008 financial crisis, which saw Turkish owners (in parallel to owners around the world) opt to recycle some of their older vessels rather than laying them up, when demand for shipping services fell dramatically in 2008 and 2009. Table 3 clearly highlights the significant increase in recycling activities that took place in all of the major recycling centres in 2009, including Turkey, where recycling rose from 0.14 million gt in 2008 to 0.56 million gt in 2009.

53. These recycling activities also fit in well with the Turkish steel industry, which is a comparatively heavy user of scrap steel, which is re-melted in electric arc furnaces and re-used for construction and other purposes (including the building of new ships). It was estimated that in 2010 Turkey consumed around 24.5 million tons of ferrous scrap, of which 18 million tons were imported, and 6.5 million tons were produced domestically (TISPA, 2010).

54. Given this significant base it is possible that Turkey's 21 ship recycling facilities (located largely in the Aliaga area, near Izmir) could be an alternative to the facilities in South Asia and China, especially if they can offer a more environmentally acceptable way of disposing of vessels at the end of their working lives. Such recycling facilities could be particularly competitive if they were able to work with local shipyards to produce "greener" ships, designed with a whole-of-life approach, and using materials that would facilitate their eventual dismantling, and reduce their overall impact on the environment and on natural resources.

Table 3 - World Ship Recycling Activities (GT million)

Location	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Bangladesh	2.41	4.99	4.89	2.89	3.36	2.11	2.88	1.84	4.18	6.61
China	2.64	2.51	3.14	5.58	1.54	0.15	0.25	0.34	0.93	7.74
India	5.99	4.77	6.75	5.89	1.62	1.12	0.85	1.33	2.46	7.56
Pakistan	0.79	1.74	1.00	0.82	0.21	0.05	0.19	0.38	0.27	2.10
Turkey	0.29	0.16	0.39	0.28	0.20	0.14	0.15	0.12	0.14	0.56
Rest of the World	0.22	0.12	0.21	0.47	0.27	0.20	0.27	0.14	0.31	0.39
Total	**12.34**	**14.29**	**16.38**	**15.93**	**7.20**	**3.77**	**4.59**	**4.15**	**8.29**	**24.96**

Source : IHS-Fairplay "World Casualty Statistics"

TURKISH GOVERNMENT POLICIES

Role of government

55. The Turkish Undersecretariat for Maritime Affairs (UMA) is the principal government institution dealing with issues related to the maritime and shipbuilding sectors, and is the main agency that co-ordinates national maritime policy and other matters related to the broad maritime sector. With respect to

[4] Lloyd's List 21 April 2011 – *Turkey shines out as green recycling pioneer.*

shipbuilding, UMA has the strategic goal of taking measures for the improvement of the ship and boat building, repair and recycling sectors, and to take measures to reduce foreign dependency by the shipbuilding industry.

56. In general, the Turkish government takes a relatively non-interventionist approach to shipbuilding, even though it still produces regular economic "Development Plans", which suggests a certain degree of state involvement in the Turkish economy.

57. These Development Plans are used by the Turkish government to frame its guidelines for the development of different sectors of the economy, in order to ensure their long term sustainability and competitiveness. According to the 9th Development Plan (SPO, 2007) which covers the period 2007-2013, the objective for shipbuilding, is:

> *"With the aim of designing and manufacturing military and commercial vessels in Turkish shipyards with high domestic contribution and renewing the Turkish Maritime Fleet, new shipyards will be established, primarily in the Ceyhan region, based on the Turkish Shipyards Master Plan."*

58. In addition, a Government Action Plan, dated January 2008, requires that the Turkish shipbuilding industry should be improved, and that *"in order to increase the local contribution in shipbuilding, necessary steps will be taken to improve the local supply industry, including through R&D infrastructure"*.

59. More specifically, in accordance with the objectives of the 9th Development Plan, and in line with the Turkish Shipyards Master Plan, the construction of breakwaters at some shipyards has been funded through an annual public investment programme, which is prepared under the coordination of the State Planning Organization (SPO). Among those projects, breakwater construction at the Sürmene-Yeniçam Shipyard was completed in 2009, and breakwater constructions at the Karadeniz Ereğli and Samsun Tekkeköy Shipyards were completed in the first quarter of 2011.

60. With the exception of a small number of military facilities and two small commercial shipyards [Haliç and Camialti, on the coast of Haliç (Golden Horn) in the centre of İstanbul], Turkish shipyards have been wholly owned by the private sector for some time. The Haliç and Camialti shipyards have been in the process of privatisation since the mid-1990s, and they no longer build ships, as only minor repair and maintenance work is carried out there.

61. In addition, following a decision by the Higher Committee of Privatization, Haliç Shipyard was transferred to the Istanbul Metropolitan Municipality in 2008, and in 2010 was handed over to a Municipal subsidiary, the Istanbul Citylines Company. The yard now provides some repair & maintenance services for the vessels of Istanbul Seabuses Inc. (IDO), and the Turkish State Railways (TCDD).

62. Camialti Shipyard supplies repair & maintenance services for various boats and tugs of the Ministry of Transport, Directorate-General of Coastal Safety (KEGM).

Support given to the industry[5]

63. The Undersecretariat for Maritime Affairs (UMA, 2011) noted that Turkish shipbuilding activities are subject to some restrictive obligations to government support, due to the relevant provisions of the Customs Union between Turkey and EU.

64. The Undersecretariat of Treasury carries responsibility for the Investment Encouragement Program, which contains various support measures. Within the objectives and the scope of this program, eligible investment projects can be granted investment encouragement certificates to allow them to benefit from the measures listed on the certificate.

65. The program is multi-dimensional, and combines support for different sub-groups of investment activities all in one package. Each dimension has its own set of parameters such as scope, objectives and encouragement measures to be provided, and these are clearly defined in the supporting Decrees. These sub-groups include support of investments for the production of goods and services, support of investments for environmental protection and support of investments for R&D activities.

66. The measures contained in the Investment Encouragement Program are mainly tax-based, and each project has its own characteristics and time periods for completion. Because of the unique characteristics of these types of measures, it is very difficult to calculate their cost to the budget.

67. The Investment Encouragement Program does not provide sector-specific support measure aimed specifically at the shipbuilding sector, which only benefits from some of the support measures shown below when their activities meet eligibility criteria.

68. In particular, shipyard investments must have a minimum fixed investment value of Turkish Lira (TL) 500 000 if it is planned to be established in a province that has a GDP per capita of less than USD 1 500 (few shipyard investments have benefited from these measures so far), and of TL 1 million if it is planned to be established in a province that has a GDP per capita of more than USD 1 500. These types of investments can benefit from exemptions from customs duties and Value Added Taxes. However, according to UMA, within the overall implementation of the Program, these measures have limited importance.

69. In the case of ship investments, provided that vessels operate under the Turkish Flag for a minimum of 5 years, and comply with minimum investment amounts, investors can benefit from exemptions from customs duties, Value Added Tax and tax reductions. In the event of investments commencing before the end of December 2010, investors can also benefit from social security premium support.

Exemption from Customs Duties

70. These exemptions are offered as part of the Government's mechanism to encourage investment in Turkey, and means that imports of machinery and equipment to be used in shipbuilding production would be eligible for the Customs Duty Exemption, once those investment projects have been evaluated and found eligible by the Undersecretariat of Treasury. Once the exemption is listed on the Investment Encouragement Certificate, the investor can import the machinery and equipment indicated on the approved "Machinery and Equipment List" without paying any customs duties.

5 The source material for this section was drawn from private correspondence to the OECD from the Turkey Undersecretariat of the Treasury, and from information provided by Turkey for the WP6 Inventory of Subsidies and Other Support Measures.

71. Also, as Turkey is in a Customs Union with the EU, all customs duties and charges having equivalent effect have been nullified between the parties, and tariffs are determined on rates defined as common customs tariffs for the third countries. Therefore, the above mentioned exemptions are only implemented for imports from third countries.

Exemption from Value Added Tax (VAT)

72. The Undersecretariat of Treasury is also the granting authority for exemptions from the payment of Value Added Tax. If this measure is listed on the Investment Encouragement Certificate, imports and domestic purchases of machinery and equipment within the scope of the approved machinery and equipment lists attached to the certificate are exempted from the Value Added Tax.

73. The legislative instruments covering both the Customs Duties and VAT exemption are the "Decrees Concerning State Encouragements to Investments" (Decree No: 2009/15199, dated July 17th, 2009).

Social Security Premium Support

74. The social security premium to be paid by employers, which corresponds to the amount to be paid on the minimum wage cost, is funded from the budget for time periods ranging from 2 to 7 years, depending on the different national regions.

Tax Reductions

75. According to Article 32/A of Corporate Tax Law No.5520, corporate or income tax will be reduced by 60%, until the contribution rate to investment reaches 30%, for investments started before 31 December 2010, and reduced by 40% until the contribution rate to investment reaches 15% for investments started after 31 December 2010.

Energy Support

76. The Undersecretariat of Treasury is the implementing institution for the measure called "energy support" that can be provided to commercial undertakings under certain conditions. This measure is implemented in accordance with the provisions of Communiqué No:2008/1 within the context of "Law No: 5084 on Encouragement of Investments and Employment and Amendment of Certain Laws", which has been amended by Law No: 5350 and Law No: 5615.

77. Energy support is provided in provinces that have a GDP per capita equal to, or less than, USD 1 500 as of 2001, and provinces which had a negative socio-economic development index value for 2003 as calculated by the State Planning Organization.

78. In order to benefit from this measure, undertakings should have at least a certain number of employees, and energy support is applied at the rate of 20% of the energy cost of the undertaking. The support rate increases by 0.5 points for each additional employee above the minimum required number.

79. Energy support is not to exceed 50% of the electricity costs of undertakings operating in Organized Industrial Zones or Industry Zones, and 40% of these costs for undertakings operating in other areas. UMA has advised that since there have been no eligible shipyards that could benefit from this measure (except for one negligible case), in practice this support measure does not apply to the shipbuilding sector.

Financing and guarantee schemes

Officially Supported Export Credits

80. Within the OECD, governments generally provide officially supported export credits in accordance with the OECD's Arrangement on Officially Supported Export Credits. More specifically, ship financing transactions are also subject to the Sector Understanding on Export Credits for Ships (SSU), which is itself annexed to the general OECD Arrangement.

81. The OECD Arrangement provides a framework for the orderly use of officially supported export credits, and it seeks to foster a level playing field for official support that encourages competition amongst exporters based on quality and price of goods and services that are exported, rather than on the most favourable officially supported financial terms and conditions.

82. In addition, the Arrangement on Officially Supported Export Credits is recognised under item k) of Annex I of the WTO's Agreement on Subsidies and Countervailing Measures (ASCM) as an international undertaking on official export credits. In turn, this article provides that an export credit practice which is in conformity with the provisions of that international undertaking shall not be considered as an export subsidy prohibited by the ASCM. Also, Item k) provides that any WTO member, even if not party to that undertaking, can benefit from the ASCM clause if in practice it applies the interest rates provisions of the undertaking.

83. Turkey is not a party to either the Arrangement on Officially Supported Export Credits, or the Sector Understanding on Export Credits for Ships, but is an observer to both, and is understood to generally provide export credit assistance in accordance with the relevant provisions of both instruments.

Activities of Türk Eximbank (Export Credit Bank of Turkey)[6]

84. Türk Eximbank is a fully state-owned bank acting as the Turkish government's major export incentive instrument in Turkey's sustainable export strategy. As Turkey's official export credit agency, Türk Eximbank has been mandated to support foreign trade and Turkish contractors/investors operating overseas.

85. Türk Eximbank's main objectives are to promote Turkey's exports through diversification of exported goods and services by increasing the share of Turkish exporters in international trade, finding new markets for traditional and non-traditional export goods and providing exporters and overseas contractors with support to increase their competitiveness and to ensure a risk-free environment in international markets. As a means of aiding export development, Türk Eximbank offers specialized financial services through a variety of credit, insurance and guarantee programs.

86. Most developed economies operate export credit agencies (ECAs) like Türk Eximbank to promote exports, and generally these represent a joint effort between official ECAs on the one side, offering insurance and guarantee programs to facilitate exports (in preference to direct credits), and commercial banks on the other side, responsible for financing export operations. However, according to its website, Türk Eximbank is different, in that it is one of the few ECAs in the world which engages in direct lending activities, as well as implementing insurance and guarantee schemes within the same institution.

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6 The material for this section was drawn from the WP6 Inventory of Subsidies and Other Support Measures, the Türk Eximbank web site (www.eximbank.gov.tr) and private correspondence between Türk Eximbank and the OECD,

87. The Turkish government utilises Türk Eximbank programmes as the main tool to facilitate exports, whereby the Turkish Treasury is Türk Eximbank's main source of funds (which would also cover losses incurred by Türk Eximbank in its credit, insurance and guarantee transactions as a result of political risks). However, the indemnification by the Turkish Treasury is not meant to be used for the shipbuilding programmes of the Bank with regards to the export credit system in Turkey, since no political risk is to be borne by Turk Eximbank under this programme. In other words, the expectation is that the loans extended to, or the guarantees issued in favour of, Turkish borrowers/exporters should not turn into political risk that would trigger an indemnification by the Treasury (Türk Eximbank 2011).

88. Türk Eximbank, as the official export credit agency of Turkey, began supporting shipbuilding projects with direct loans in 1990, following a report that explored the structure of the Turkish shipbuilding industry, the effects of the government policies on the sector and the relationship between the national and international ship building industries.

89. Since 1995 Türk Eximbank has also supported companies involved in shipbuilding through advance payment guarantees provided in accordance with the Financing Program for Ship Construction and Exportation. Under this programme the Bank provides direct loans that can be extended to Turkish shipbuilders or exporters to finance shipbuilding expenditures related to a specific contract that is linked to a construction project.

90. In addition, Letters of Guarantees within the limits determined by Turk Eximbank can be issued in favour of Turkish firms involved in shipbuilding and/or the exporting of ships, and these can be provided to the:

i) Buyer's bank (as a Refund Guarantee for advance payments),

ii) Buyer (as a Refund Guarantee for advance payments),

iii) Supplier's bank (for Letters of Credit), and

iv) The supplier.

91. To support the Turkish shipbuilding sector, between 1990-2009 loans totalling USD 179.3 million, and letters of guarantees totalling USD 60.8 million, were issued by Turk Eximbank under several programs to help to finance 37 separate projects. In addition, starting from June 2009, USD 87.7 million was disbursed within the Fourth Export Finance Intermediary Loan (EFIL-IV) of the International Bank for Reconstruction and Development - IBRD (Türk Eximbank 2011).

92. The Export Finance Intermediary Loan (EFIL IV) program aims to provide medium to long term funds for investment finance, and medium term working capital needs, of companies involved in shipbuilding and yacht building sectors. This will help reputable shipbuilding companies to overcome the effects of the global crisis on the maritime industry. The support of Türk Eximbank for the shipbuilding sector is expected to continue in the future.

93. This program has some eligibility criteria for borrowers in order to comply with financial ratios, environmental and occupational health and safety procedures and procurement procedure of the IBRD for goods and works financed under the EFIL-IV.

Private financing

94. With respect to private ship financing, Turkish banks have generally been most interested in short term loans, typically bringing loans in new shipbuilding transactions, rather than the traditional, longer

term ship mortgage loans. However, as Turkish banks have paired up with foreign partners, this perspective is changing (Lloyd's List Dec 2010). From this it seems that private Turkish financial institutions are now more likely to enter into traditional ship financing arrangements, and this appears to be supported by the increasing ship financing business being written by Turkish banking groups, as reported in the Lloyd's list article.

R&D and innovation

95. While the Turkish Government supports the shipbuilding sector, and provides a number of measures to encourage its development (as well as the development of supporting industry sectors), and that R&D support is specifically mentioned in the 2008 Government Action Plan, there do not appear to be any mechanisms in place to assist the shipbuilding industry.

96. This is relatively unusual in the OECD context, where a significant proportion of the members of the Council Working Party on Shipbuilding provide financial support for R&D activities, which totalled more than USD 100 million in 2009 (the latest year for which full figures are available) [OECD 2010].

97. However, in Turkey, R&D support is implemented as a general measure and there is no direct R&D support for the shipbuilding industry. Instead, R&D support is provided to the manufacturing sector horizontally through the Ministry of Industry, and the Trade, Small and Medium Industry Development Organization (KOSGEB), and the Scientific and Technological Research Council of Turkey (TÜBİTAK), which provides input for the shipbuilding industry.

98. Within the context of Turkey's R&D programmes, the development of the shipbuilding industry and the establishment of offshore technology in Turkey necessitated the parallel development of scientific and technical research to support the industry. The Ata Nutku Ship Model Testing Laboratory (ANSMTL), operating within the Faculty of Naval Architecture and Ocean Engineering at Istanbul Technical University, plays an important role for the marine technology in Turkey, and operates through the support of various public and private institutions and industrial interests.

99. The laboratory is the largest and most active facility of the faculty, and as well as providing education, research, and development activities for the faculty it also provides consultancy services for the marine industry in Turkey. It has also established technical co-operation between the university and the industry, and due to its increasing research capabilities and the expertise its consultancy service was recently extended overseas.

100. The activities of the laboratory are centered on ship resistance and propulsion, offshore technology, ship design and transportation. The Ata Nutku Ship Model Testing Laboratory is a member of the International Towing Tank Conference (ITTC).

101. An example of the R&D output of the Istanbul Technical University (ITU) is the project named MARTI, which entails the design and construction of Turkey's first hydrogen powered boat. The boat is powered by fuel cell technology that generates electrical energy by combining pressurized hydrogen gas with oxygen. The only emission from the system is pure water. With a length of 8.13 meters and a breadth of 3.2 meters, the boat will carry 6 passengers and two crew members. The boat will have two 174-litre hydrogen tanks, and an 8 kW fuel cell that will provide 10 hours of uninterrupted power, enabling the boat to operate at a service speed of 7 knots without any noise pollution.

102. An associated project is the Hydrogen Production Offshore Structure project, also developed by Istanbul Technical University. In 2008, this project was placed first among 23 projects at the "Future Ships and Offshore Structures" competition organized by Community of European Shipyards Associations (CESA) and the European Maritime Equipment Council. The project aims at producing hydrogen from

hydrogen sulphide (H_2S), which exists amply, particularly in the Black Sea, and water (H_2O) utilizing solar and wave energy. This will enable the production of hydrogen from seawater, which is strategically important.

INDUSTRY STRUCTURE

Broad structure of the Turkish shipbuilding industry

103. According to the Undersecretariat for Maritime Affairs there were 37 shipyards operating in 2002, but that number had increased to 70 by 2011. There were reportedly an additional 56 yards under construction, but it remains to be seen how many of these will be completed given the impact of the 2008 financial crisis on global shipbuilding industry generally, and the Turkish shipbuilding sector specifically.

104. Even though the Turkish shipbuilding industry is a sector that was subject to late privatisation, with the exception of yards specialising in naval (military) construction, and two small yards that are still in the process of being privatised, all other commercial shipyards are privately owned.

Ownership structure, joint ventures, foreign participation

105. The Government of Turkey has a taken a relatively "foreign investment" friendly approach with respect to foreign participation in Turkey's economy, in order to stimulate Foreign Direct Investment. These investment friendly rules extend to the shipbuilding sector, and there are several Turkish shipyards seeking possible joint ventures as a way of diversifying their products and entering niche markets, such as LPG and LNG carriers, cruise ships or capesize vessels; ship types where the Turkish shipbuilding has so far had very little or no penetration.[7]

106. However, while there have been reports of some relatively small scale joint venture arrangements (for example, a joint venture between the Turkish Association of Ship Industrialists and the Dutch firm IHC Metalix for a possible Turkish pre-processing plant for steel and aluminium parts used in shipbuilding[8]) there has been no evidence of any significant foreign investments in shipyards in Turkey. Nor has there been any evidence of investment by Turkish interests in foreign yards.

Geographic distribution of principal construction facilities

107. The epicentre of shipbuilding activities in Turkey is Tuzla Bay, situated some 50 km east of İstanbul. The general location of Turkish shipyards and ship recycling facilities are shown in Figure 1 below [Note: Tuzla yards are included in Istanbul, and shipyards established in the Kocaeli Free Zone (KOSBAŞ) are included in İzmit].

108. However, as the overcrowded Tuzla area can no longer offer suitable places to set up new yards, some entrepreneurs have focused on nearby inland locations, such as Yalova-Altınova and İzmit (Kocaeli Free Zone-KOSBAŞ). In particular, some enterprises in these nearby facilities specialise in the manufacture of individual hull blocks that are then transported to other shipyards, where they are assembled.

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7 Information drawn from the Cicek Shipyard web site: www.cicekshipyard.com/News

8 At web site www.metalix.nl

Figure 1 Location of shipyards in Turkey

Source: The Undersecretariat for Maritime Affairs of Turkey (UMA) .

109. In addition, the industry has recently been expanding beyond its traditional zone, and diversifying into new areas throughout Turkey, including at Yalova, İzmit, the Black Sea and the Mediterranean Regions.

110. After Tuzla, the second largest shipbuilding location the Yalova-Altınova Shipyard Region, was founded in 2004 by a number of entrepreneurs, selected by, and under the leadership of, the Yalova Governorship, in order to increase the capacity of Turkish yards to meet the growing demand for new vessel both in Turkey and internationally.

111. The project is located at a 1.35 million m^2 site in a former swampy area located on the seaward edge of the shore of Marmara Sea, in Yalova town, where there are plans to build shipyards, social facilities and a sub-industrial zone. To date, investment in the projects has reached at least USD 365 million[9].

112. The area is considered to be well located, as it is on the crossroads of Istanbul, Bursa and Izmit, as well as close to a number of industrial areas. When completed, the Hersek bridge project will connect Gebze and Altınova, which will facilitate collaborate with industrial firms in Tuzla.

113. The Yalova-Altınova Shipyard Region, which will consist of 50 shipyards (38 of which belong to Yalova-Altınova Shipyard Enterprise Co.), is a national project that will be funded by private equity capital, without the use of public sector funds.

114. The main shipyards in Turkey are listed in Table 4. The largest yards are located in the Tuzla area, with the largest yard having annual maximum construction capacity of 650 000 dwt. The construction capabilities of all operating yards in Turkey are shown in Annex A.

[9] See http://www.altinovatersane.com.tr/index.php?lang=en

Table 4 – Main shipyards in Turkey

NO	SHIPYARD NAME	Shipbuilding capacity (DWT/YEAR)	SHIPYARD NAME	Deliveries 2009 (DWT)	SHIPYARD NAME	Deliveries 2008 (DWT)
1	SEDEF (KALKAVAN) SHIPYARD	650.000	SEDEF (KALKAVAN) SHIPYARD	131.250	SEDEF (KALKAVAN) SHIPYARD	88.500
2	UM SHIPYARD	180.000	ADIK ANADOLU SHIPYARD	59.200	DENİZ INDUSTRY CO. CİCEK SHIPYARD	76.350
3	ALTINTAŞ SHIPYARD	140.000	TUZLA SHIPBUILDING INDUSTRY S.A.	48.000	ADIK ANADOLU SHIPYARD	59.900
4	TUZLA SHIPBUILDING INDUSTRY S.A.	130.000	ÇİMTAŞ SHIPYARD	45.600	TUZLA SHIPBUILDING INDUSTRY S.A.	40.900
5	BEŞİKTAŞ SHIPYARD	120.000	DENİZ INDUSTRY CO. CİCEK SHIPYARD	42.000	TÜRKTER SHIPYARD (YARDIMCI CORPORATION)	30.389
6	DENİZ INDUSTRY CO. CİCEK SHIPYARD	90.000	USTAOĞLU SHIPYARD	40.600	GİSAN SHIPYARD	26.800
7	TERSAN-BOSPHORUS SHIPYARD	80.000	TVK SHIPYARD	30.400	USTAOĞLU SHIPYARD	25.900
8	ÇİMTAŞ SHIPYARD	75.000	RMK MARINE SHIPYARD	28.800	ÇİMTAŞ SHIPYARD	19.900
9	NACİ SELİMOĞLU SHIPYARD	70.000	GİSAN SHIPYARD	25.800	UMO SHIPYARD	18.600
10	SELTAŞ SHIPYARD	70.000	UMO SHIPYARD	23.500	GELİBOLU SHIPYARD	14.100

Source: UMA, 2011.

Workforce (including training and education)

115. The number of workers employed by the Turkish shipbuilding industry increased from around 2 800 in 1998 to over 34 000 in 2008, as the industry experienced a period of significant growth (Chart 6). In 2007 a report by the IMEAK DTO (IMEAK Chamber of Shipping), prepared before the impact of the world economic recession was felt by the shipbuilding sector, assumed that by 2013, if all of the yard construction projects proposed at that time were undertaken, the shipbuilding industry could support the employment of 200 000 workers (IMEAK DTO 2008).

116. However, the shipbuilding industry in Turkey was significantly affected by the 2008 economic downturn, and instead of continuing to grow as expected, employment fell significantly, so that by 2010 the industry employed around 21 000 workers, and there must be significant doubt as to whether the ambitious plans to construct new facilities will be realised in the near term.

117. The education and training of workers for the shipbuilding sector are activities coordinated by the Undersecretariat for Maritime Affairs. UMA attaches great importance to all kinds of education and vocational training activities including at high schools, on-the-job training and so on, and it has organized

and supported various training programs. In this context, the Use of Asbestos (with the participation of UMA, the Turkish Ship-recyclers' Association and Germanischer Lloyd), in April 2011 in Tuzla/İstanbul, Performance Standards for Protective Coatings (Tuzla, 2009-2010), Market Surveillance (Ankara, February 2011) and Degasification seminars (Tuzla, 2009 and 2010) are the most recent examples of those courses and seminars (UMA, 2011).

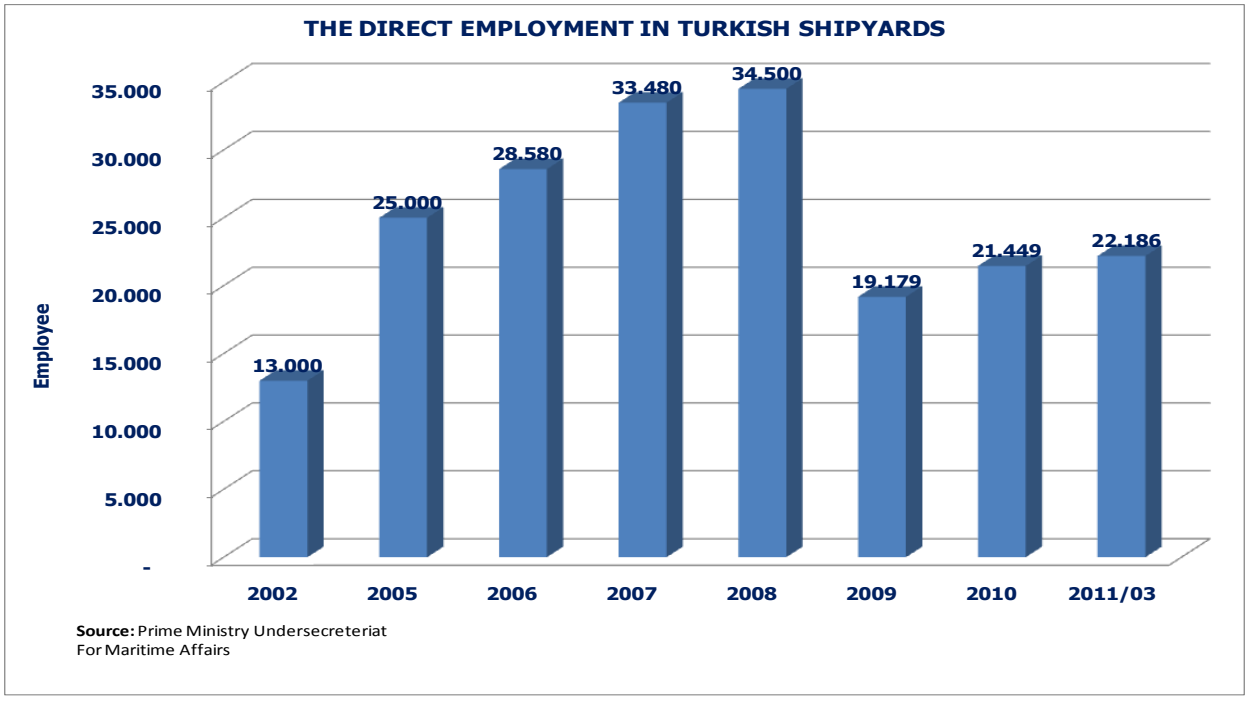
118. In part this training is achieved through high schools operating ship construction departments to facilitate a future career in the shipbuilding sector. UMA advised that the number of schools with ship construction departments had increased from 17 in 2004, to 31 in March 2011. It noted that the Tuzla Maritime High School commenced courses in 2008, and that the Yalova-Altınova Anatolian Vocational High School of Maritime started its training courses in 2010-2011. The Tuzla (Istanbul) and Yalova-Altınova regions are first and second respectively in the number of yards that are located there.

119. In addition, there are four universities in Turkey with shipbuilding departments:

– Istanbul Technical University (Istanbul) - Yıldız Technical University (Istanbul)

– Piri Reis University (Istanbul) - Karadeniz Technical University (Trabzon).

Chart 6 - Turkey shipbuilding industry employees



ROLE OF NATIONAL ASSOCIATIONS

Turkish Shipbuilders' Association[10]

120. The Turkish Shipbuilders' Association (Turkish abbreviation - GISBIR), established in 1971, is the principal shipbuilder association in Turkey. It is a professional organization representing ship and yacht builders as well as repair and maintenance companies, and acts as the spokesman and representative of the private shipbuilding industry. The Association has 50 members, which are located in the Tuzla Shipyard Zone, as well as in Korfez (Izmit), Karadeniz Ereglisi, Gelibolu, and Canakkale.

121. The objective of the GISBIR is to develop the Turkish shipbuilding sector to enable it to effectively participate in the world market, and to play a role in the domestic and foreign representation of shipyards. The organisation also manages the relationship between government and the industry, and works with related industry bodies to address common problems experienced by those industry sectors. The Association's specific goals are as follows:

i) To represent the industry at national and international platforms and to develop marketing and promotion programs;

ii) To provide assistance to its members in the development of marketing plans and strategies, including through the provision of market data and information;

iii) To further develop industry networks and relations with the Government; and

iv) To assist in the enhancement of existing technologies and facilities for design, construction and delivery.

Turkish Association of Ship Industrialists[11]

122. The Turkish Association of Ship Industrialists (GESAD) was established with its own statute under the Laws for Associations of the Republic of Turkey, and is a member of the European Marine Equipment Council (EMEC). In this context, ship industrialists are the equivalent of marine equipment manufacturers in other parts of the world, and they manufacture and fabricate many of the components that are used by shipyards to produce new vessels.

123. The Turkish Association of Ship Industrialists was established to:

i) Enhance the cooperation of ship industrialists and shipyards;

ii) Introduce and promote new technologies and innovations with safe and environmentally sound solutions;

iii) Facilitate active relations between ship industrialists and education-training-research institutions as well as international entities; and

iv) Represent the Turkish ship components industry in national and international for a with respect to occupational health, safety and environment issues.

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10 See http://www.gisbir.com/en/default.aspx for more information.

11 http://www.gesad.org.tr/site/hakkimizda.php.

IMEAK Chamber of Shipping of Istanbul and Marmara, Aegean, Mediterranean and Black Sea Region

124. The IMEAK Chamber of Shipping (IMEAK DTO) is a professional organization of the Turkish maritime sector, with its headquarters in Istanbul and main branch offices in Izmir, Bodrum, Marmaris, Antalya, Iskenderun, Fethiye and Karadeniz Ereğlisi, (West Black Sea Region).

125. The IMEAK DTO has representation in Ankara as well as representation at all coastal towns and cities in Turkey. It was first established as the Istanbul Chamber of Shipping in 1982, but subsequently its activities were gradually extended so as to cover the region of the Sea of Marmara, the Aegean Sea coast and the Mediterranean coast of Turkey, and finally the Black Sea coast. Members of the IMEAK Chamber of Shipping include shipowners, shipyards, ship operators, shipping agents and marine insurance companies.

126. The most important aim of the IMEAK Chamber of Shipping is to try to develop commercial shipping in the public interest and in accordance with the national transportation and shipping policies. The Chamber also promotes the interests of its members, arranges professional development within the sector, establishes common rules and informs the authorities on shipping matters.

127. The major activities of the IMEAK DTO are to:

i) Establish rules and practices as regards shipping;

ii) Research and collect information on shipping;

iii) Ensure that sea trade develops in accordance with national policies on transportation;

iv) Supply information to foreign organizations on the facilities, services and tariffs of Turkish ports; and

v) Become a member and follow the activities of the international organisations concerned with shipping, and to perform other functions as stated in the law.

128. The IMEAK Chamber of Shipping is a member of the Union of Chambers and Commodity Exchanges of Turkey and the International Chamber of Commerce. Apart from these two national organisations, the IMEAK DTO is also a member of the International Chamber of Shipping (ICS), the International Maritime Bureau (IMB), the Federation of National Associations of Ship Brokers and Agents (FONASBA), the Baltic and International Maritime Council (BIMCO), the European Community Association of Ship Brokers and Agents (ECASBA), the International Association of Independent Tanker Owners (INTERTANKO), the Baltic Exchange, the International Council of Marine Industry Associations (ICOMIA), the European Boating Association (EBA) and The Yacht Harbour Association (TYHA).

Mersin Chamber of Shipping

129. The Mersin Chamber of Shipping was established in 1989, and is subject to the provisions of the Union of Chambers and Commodity Exchanges of Turkey. The Chamber was established to;

- Meet the needs of members of the Chamber and facilitate their occupational activities;
- Develop maritime sector in accordance with the general interests of members; and
- Provide standards for occupational discipline and ethics.

130. The Chamber has a wide range of members drawn from the maritime sector, including:

- Ship owners and ship operators, and shipping agents;
- Freight brokers and forwarders;
- Stevedores;
- Ship classification societies, marine insurance institutions and marine surveyors;
- Marine equipment, marine chandlers and fuel supply providers;
- Marine and port operating companies;
- Fishing vessel operators; and
- Yacht builders, submarine water services, tour boats, environmental cleanup companies, and other associated activities.

Turkish Lloyd

131. Turkish Lloyd is an impartial, independent third party organisation having expertise in the inspection, classification and certification of vessels. It was established in 1962 by the Chamber of Naval Architects and Marine Engineers to with the aim of assisting the shipbuilding industry.

132. This role includes the survey of hulls, machinery and electric components of new vessels in accordance with IMO requirements, the control and certification of marine equipment, material and products used in the construction of ships, as well as the application of other international requirements such as the ILO Conventions.

The Chamber of Turkish Naval Architects & Marine Engineers (GMO)

133. Following the entry into force of the Union of Chambers of Turkish Engineers and Architects Act, the Chamber of Turkish Naval Architects & Marine Engineers (GMO) was established in December 1954 in İstanbul, as the first professional engineering chamber of the Turkish Naval Architects Association. Its members are composed of naval architects, marine mechanical engineers and ocean engineers. Its objectives are mainly the protection of government and member interests, developing all areas of naval architecture services and helping to improve the naval architecture profession.

134. GMO is a member of The Confederation of European Maritime Technology Societies (CEMT) and the IMO Naval Architecture Group, and also it has co-operation agreements with The Royal Institution of Naval Architects (RINA) and the German Society of Marine Technology (STG).

CONSTRUCTION CAPABILITY AND PERFORMANCE

Construction/production capabilities

135. As of May 2011 there were 70 operational yards in Turkey (see Table 5 below). Before the economic global downturn of 2008 there were ambitious goals set by investors to increase shipbuilding capacity in Turkey in order to take advantage of the boom in new orders experienced by most of the world's shipyards since the early 2000s. At one stage there was an assumption made by IMEAK DTO that by 2013 there would be up to 140 yards operating in Turkey, employing almost 200 000 workers - from a peak of around 35 000 in 2008 (IMEAK DTO, 2008 –page 43).

136. However, Turkish shipyards were severely affected by the global economic downturn, so that by 2010 employment stood at around 21 500 workers (from a peak of over 35 000). While the global economy is showing some signs of recovery (as is the shipbuilding sector), there is still a concern that the high level of global newbuilding output since 2008 (as yards continue to construct and deliver vessels already on their order book) has kept the oversupply of ships high. The implication is that it is unlikely that the shipbuilding industry will see boom conditions again for some time, especially as new entrants in the market (especially China) have also taken the opportunity of the downturn to make further gains in their share of world shipbuilding demand.

Table 5 – Turkey Operating Shipyards May 2011

Province/Region	**Number of Shipyards**
Istanbul (Tuzla)	27
Yalova	19
Zonguldak	8
Izmit	6
Canakkale	2
Trabzon	2
Ordu	1
Samsun	1
Kastamonu	1
Sakarya	1
Hatay	1
Adana	1
Total	**70**

Source: UMA, 2011.

137. Therefore, it is likely that Turkey's existing facilities (with perhaps some minor capacity extensions from improved productivity) are likely to define its capacity over the short to medium term. Turkey's main strength in the past has been in small to medium size oil and chemical tankers, and Turkish yards are likely to utilise this expertise as a competitive safe haven until economic conditions around the world improve. The likelihood of this outcome has been strengthened by recent orders received by the Turkish yards (see later in this section) which are principally composed of these types of vessels.

Role of minor yards and ship conversion/repair facilities

138. Turkish yards tend to be multi-purpose, and most offer conversion, repair and maintenance services as well as newbuildings, so that with some minor exceptions there are no significant shipyard facilities in Turkey dedicated specifically to conversion and/or repair maintenance. This multi-purpose approach facilitates the provision of repair/maintenance services for international and domestic shipowners, and can also assist the yards themselves, as conversion and repair/maintenance activities can keep facilities in use even if there is a fall in the number of orders received for new vessels (as was the case in 2009 and 2010 after the economic downturn).

139. The importance of this facet of the shipbuilding sector has been recognised by the Undersecretariat for Maritime Affairs, which includes the ship repair sector as part of its strategic goal. This recognition is in part based on Turkey's geographical location, which is on, or near, some of the world's main shipping routes, and which provides considerable potential for ship repair and maintenance services that are not limited to local demand.

Industry Performance

Production record and types of vessels built

140. From a general perspective, in recent years the Turkish shipbuilding industry has shown itself capable of being quite competitive in the world market (see Table 6). While in 2002 its share of world output had dropped to a low point of 0.51%, this gradually reversed as the yards became more competitive and capable of attracting orders from both domestic and foreign buyers, so that it share of world output had quadrupled by 2008 to reach 1.93%, a record high for Turkey. On this basis, there was some justification for the very optimistic outlook forecast by both the Turkish government and the IMEAK DTO, which (as noted earlier) mapped out a very significant growth by 2013.

Table 6 - Total completions by Turkish yards – (cgt[12] million)

Year	1999	2002	2004	2005	2006	2007	2008	2009	2010
cgt (million)	0.17	0.11	0.26	0.34	0.42	0.66	0.82	0.68	0.47
World share (%)	0.91	0.51	1.00	1.17	1.28	1.88	1.93	1.52	0.90

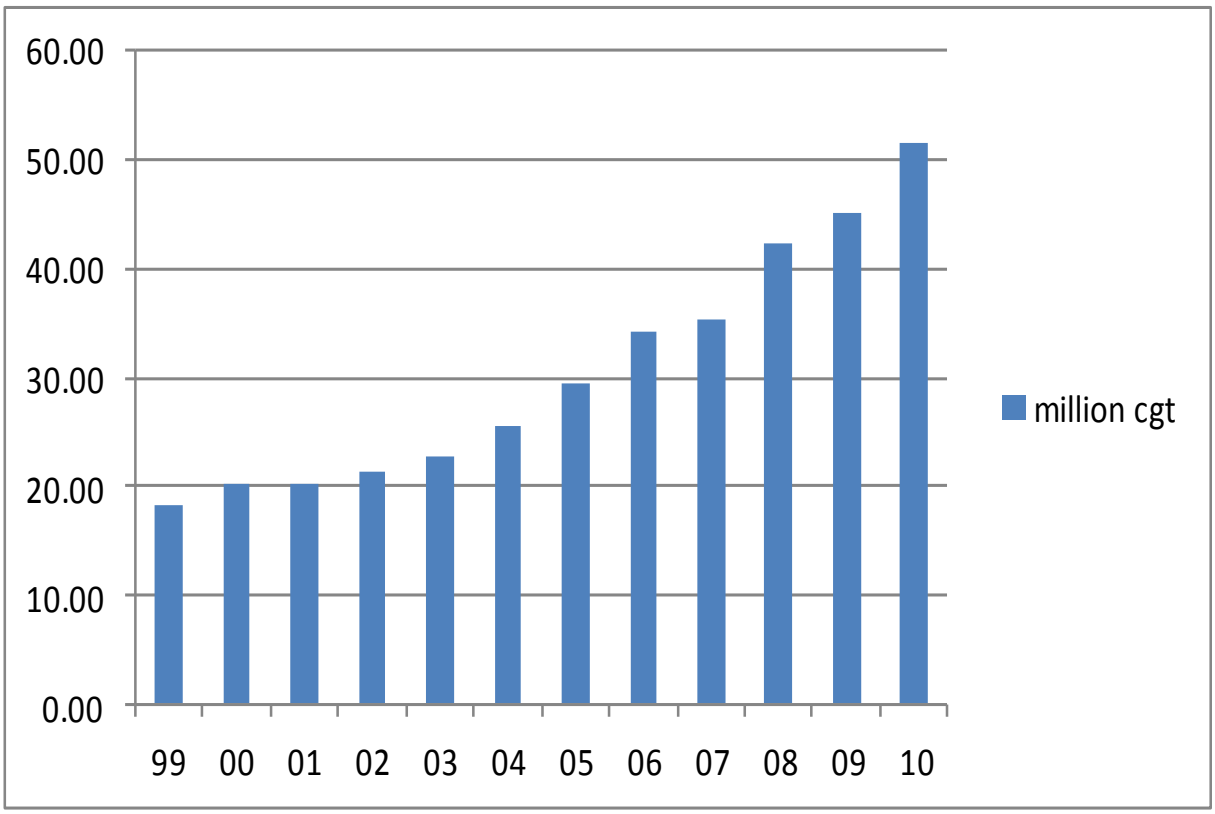
Source: Lloyd's Register-Fairplay, and IHS-Fairplay 'World Fleet Statistics' (several editions)

141. On the basis of its 2010 production performance, when Turkey delivered 0.47 million cgt of new ships, its output accounted for 0.90% of the world output for that year (of 51.6 million cgt). This made Turkey the eighth largest producer in the world in 2010. However, there are some significant issues associated with the decline in production in Turkey in both 2009 and 2010 which may carry future repercussions for the industry in Turkey over the short to medium term.

142. The first issue is that while the 2008 global economic downturn affected all world economies to some degree, it in fact barely affected shipbuilding production, which globally has grown significantly over the last several years, and which in 2010 saw the highest production level in recent memory (see Chart 7).

[12] cgt = Compensated Gross Tons, an OECD measure of shipyard activity widely used in shipbuilding.

Chart 7 – Total world newbuilding completions 1999-2010



Source: IHS – Fairplay World Shipbuilding Statistics, various editions.

143. The reason for this growing output, even in the midst of one of the most severe global recession seen in many decades, is that at the time the recession started in late 2007, virtually all of the world's shipyards had full order books, the result of very high ordering patterns since the turn of the century.

144. With full order books, and a contractual obligation to deliver the new vessels at specific dates, yards around the world continued production at record levels, even though ship buyers were frequently struggling to finance the new ships as capital markets around the world dried up. While some orders were cancelled (or defaulted on) and the delivery of other orders postponed, the majority of orders were completed, and continue to be completed.

145. These market conditions affected shipbuilders in different ways, with some shipbuilding economies apparently grasping the opportunity to increase their share of world production, while others saw outputs fall, virtually in contradiction of the rapidly growing global production. Turkey's yards were part of the latter group, and the impact on them seemed to be greater than shipyards in other parts of the world.

146. The second issue is that the world's economic downturn also fostered a significant structural change in world shipbuilding, as shipbuilding economies with formerly modest outputs greatly increased their participation in the industry, and appear to have positioned themselves to make further inroads into the shipbuilding activities of established shipbuilding economies.

147. China is the most obvious example, as it moved from being the world's third largest, to the world's largest producer, in the space of two years (see table 7 below which shows the top 10 producers in

the world for 2008 and 2010). However, there were also other economies that one way or another seemed to benefit from the economic downturn, particularly the Philippines and Vietnam.

Table 7 – World's Top 10 producers of new ships – by cgt

RANK	2010		2008	
		%		%
1	China	35.56%	Korea	34.59%
2	Korea	28.94%	Japan	23.08%
3	Japan	19.04%	China	21.88%
4	Germany	1.66%	Germany	2.77%
5	Italy	1.50%	**Turkey**	**1.93%**
6	Philippines	1.19%	Italy	1.77%
7	Vietnam	1.09%	Poland	1.37%
8	**Turkey**	**0.90%**	Romania	1.26%
9	Romania	0.88%	Chinese Taipei	0.91%
10	Chinese Taipei	0.72%	Croatia	0.87%

Source: IHS Fairplay World Fleet Statistics 2009 and 2011.

148. However, because of the exceptionally strong growth of China's production between 2008 and 2010, Table 7 only tells part of the story, because while it clearly shows the relativities between the top 10 producers, it does not provide any guidance on the individual changes that occurred in the individual production outputs, and further analysis is necessary to gain a better appreciation of the dynamics of the industry over that period.

149. Table 8 shows detailed production data for both 2008 and 2010, and compares the rate of change of output for the top 16 producers in 2008 over that period.

Table 8: Outputs and rates of change between 2008 and 2010

Economy	2010	2008	Change cgt	Change
	cgt '000s	cgt '000s	2008-2010	%
China	18.91	9.25	9.66	104.43%
Korea	15.00	14.60	0.40	2.74%
Japan	9.85	9.76	0.09	0.92%
Germany	0.85	1.17	-0.32	-27.35%
Italy	0.77	0.75	0.02	2.67%
Philippines	0.61	0.31	0.30	96.77%
Vietnam	0.56	0.26	0.30	115.38%
Turkey	0.47	0.82	-0.35	-42.68%
Romania	0.47	0.53	-0.06	-11.32%
Chinese Taipei	0.37	0.39	-0.02	-5.13%
Poland	0.29	0.58	-0.29	-50.00%
Croatia	0.24	0.37	-0.13	-35.14%
USA	0.34	0.36	-0.02	-5.56%
Malaysia	0.31	0.31	0.00	0.00%
Finland	0.19	0.30	-0.11	-36.67%
Denmark	0.17	0.26	-0.09	-34.62%
World Output	51.87	42.30	9.57	22.62%

Source: HIS-Fairplay World Fleet Statistics, 2008 and 2010.

150. Table 8 clearly shows the extraordinary growth of China, which more than doubled in production over that two year period. This outcome was matched by both the Philippines and Vietnam, although from a much smaller base. Clearly, these three shipbuilding economies had accumulated large order books before the 2008 financial crisis, which greatly boosted their production over that two year period. It remains to be seen whether this output performance can be maintained, but their order books at the end of 2010 (see Table 9 below) suggest that they can, at least in the short term. They may be joined by India, which also had a large order book at the end of 2010, but this has yet to be reflected in the production data.

151. For the remainder of the top producers, the period between 2008 and 2010 was very difficult in the face of the rapid growth of China (in particular), and their production was either stagnant or fell (even in the case of Korea and Japan), and in some cases the falls were significant,. It is also very significant that these stagnations and contractions in production occurred at a time when world production increased by over 20% (see Table 8).

152. While in 2008 Turkey was the fifth largest producer, in 2010 it had fallen to eighth, and its production fell by over 40%. It was not alone in finding itself in this situation, with virtually all other producers experiencing similar stagnation or fall in production. On the basis of the end of 2010 order books it is likely that all with continue to experience pressure from China, the Philippines and Vietnam.

153. While the situation with respect to China was not unexpected (as it had been growing strongly for some time) the surge by the Philippines and Vietnam not quite so obvious, as in 2008 they were in 12th and 15th place respectively. To a large extent this growth was due to significant investments made by Korean,

Japanese and European shipbuilders in facilities in those economies, to take advantage of the lower cost of inputs and government support for industrial development.

154. These developments strengthen the already evident trend of shipbuilding activity moving increasingly eastward and further steps may need to be considered by both the Turkish government and the shipyard managements (as well as other economies that experienced a stagnation or fall in their production) to increase the efficiency and competitiveness of yards, so that they can better position themselves in the world shipbuilding market.

Analysis of order books

155. So far the analysis has focused on production, which to a large degree is a reflection of past ordering trends. However, just as important with respect to future prospects, is the state of the current order books, which reflect the success or otherwise of yards in capturing new orders.

156. The order books held by Turkish shipyards at the end of December 2010 totalled around 1 million cgt, which was the 11th largest in the world (Table 9). The order book data represents the accumulation of orders received by yards for delivery at a future date, and define the amount of work in hand at a specific point in time, therefore constituting a surrogate measurement of how successful yards have been in capturing new orders. Finally, order books are also a good pointer (subject to cancellations and deferments) of future output performance.

Table 9 - Total World Newbuilding Orderbook - December 2010

Rank		No of ships	CGT (000s)	
1	China	2 967	48 922	38.22%
2	South Korea	1,357	39,145	30.58%
3	Japan	1,105	19,856	15.50%
4	Philippines	108	2,686	2.10%
5	India	257	1,927	1.51%
6	Vietnam	252	1,877	1.47%
7	Germany	55	1,449	1.13%
8	Italy	47	1,386	1.08%
9	Brazil	116	1,278	1.00%
10	Chinese Taipei	42	1,050	0.82%
11	***Turkey***	***162***	***963***	***0.75%***
12	Romania	80	832	0.65%
13	Indonesia	136	563	0.44%
14	Spain	83	541	0.42%
15	The Netherlands	70	461	0.36%
	Rest of the World	985	5,167	3.97%
	Total	**7 822**	**128 013**	**100.00%**

Source: IHS Fairplay "World Shipbuilding Statistics" (December 2010).

157. On the basis of the data shown in Table 9, the situation at the end of 2010 must be of some concern to Turkish yards, because it points a possible change in the position of the Turkish industry compared to those of its closest competitors. While in 2010 Turkey was in 8th place in terms of output, in the context of the order book it had slipped to 11th place, as other shipbuilding economies (India, Brazil and Chinese Taipei) also moved ahead of it.

158. Looked at from a different perspective, on past output performance the orders held by Turkish shipyards are equivalent to about two years work. This is consistent with the situation for the major producers (China, Korea and Japan) whose yards hold orders that would keep their yards operating for between two and three years at 2010 output levels.

159. However, a more interesting comparison is with the Philippines and Vietnam, two economies that recently moved ahead of Turkey in the production tables. In these cases, the Philippines holds around 4.5 years of work, and Vietnam over 3 years of work in their respective order books. This implies a very significant recent inflow into their order books, captured at a time when traditional shipbuilders (including Turkey) saw very significant falls in new orders.

160. What this implies for many shipbuilding economies (including Turkey) is that unless there are some significant changes in existing order books (through cancellations in some economies) and recent ordering patterns (which, like production seem to be heading eastward) then it is difficult to anticipate significant changes in overall world output performance in the near future.

Specialisation of Turkish yards

161. The traditional focus of commercial shipyards in Turkey has been in smaller vessels, especially in chemical/oil tankers of up to 10,000 dwt, and this pattern is certainly evident in the latest order books, which are dominated by small tankers and general cargo ships (see Table 10).

Table 10 – Turkey - Composition of order books (December 2010)13

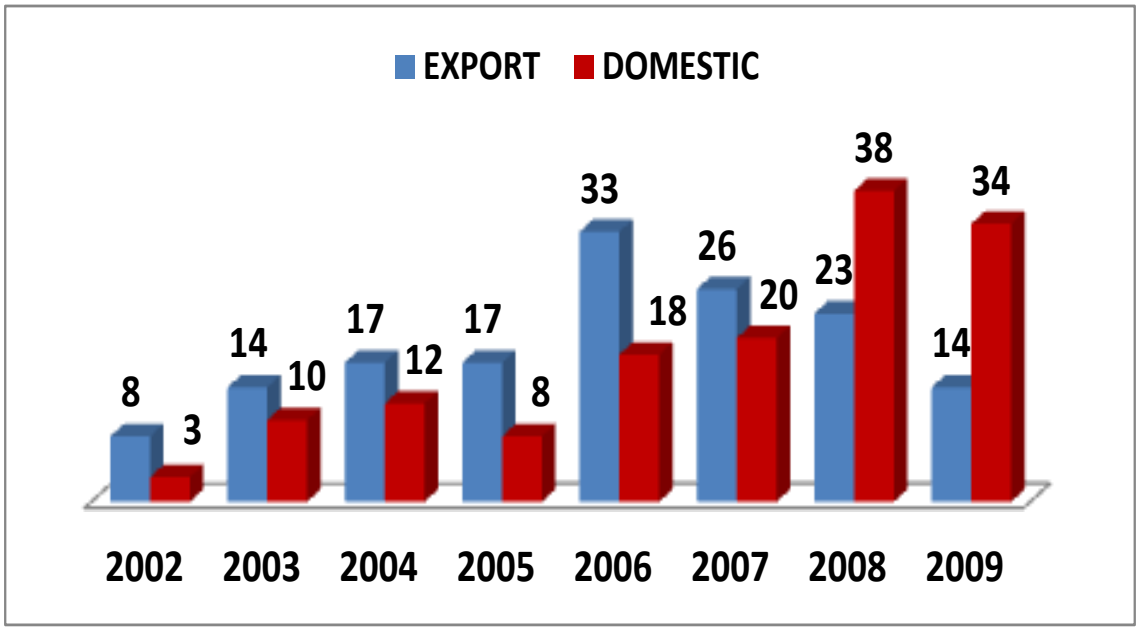
Type of Vessel	No	gt	cgt	dwt
Bitumen carrier	1	8,652	8,442	15,000
Bulk carriers	2	23,000	17,065	38,000
Chemical tankers	5	36,927	48,586	57,500
Chemical/Oil products tankers	68	402,624	447,336	592,776
Container ships	10	129,231	116,863	158,500
General cargo ships	21	108,575	131,248	152,469
LPG tankers	3	12,760	21,569	13,700
Oil products tankers	7	15,536	23,858	19,800
Passenger ships	6	3,595	10,162	1,942
Total	**123**	**740,897**	**825,109**	**1,049,687**

Source: IHS-Fairplay "World Shipbuilding Statistics" (December 2010).

13 Note: order book data differs between different data sets, perhaps indicating differences in the way that information is collected and collated.

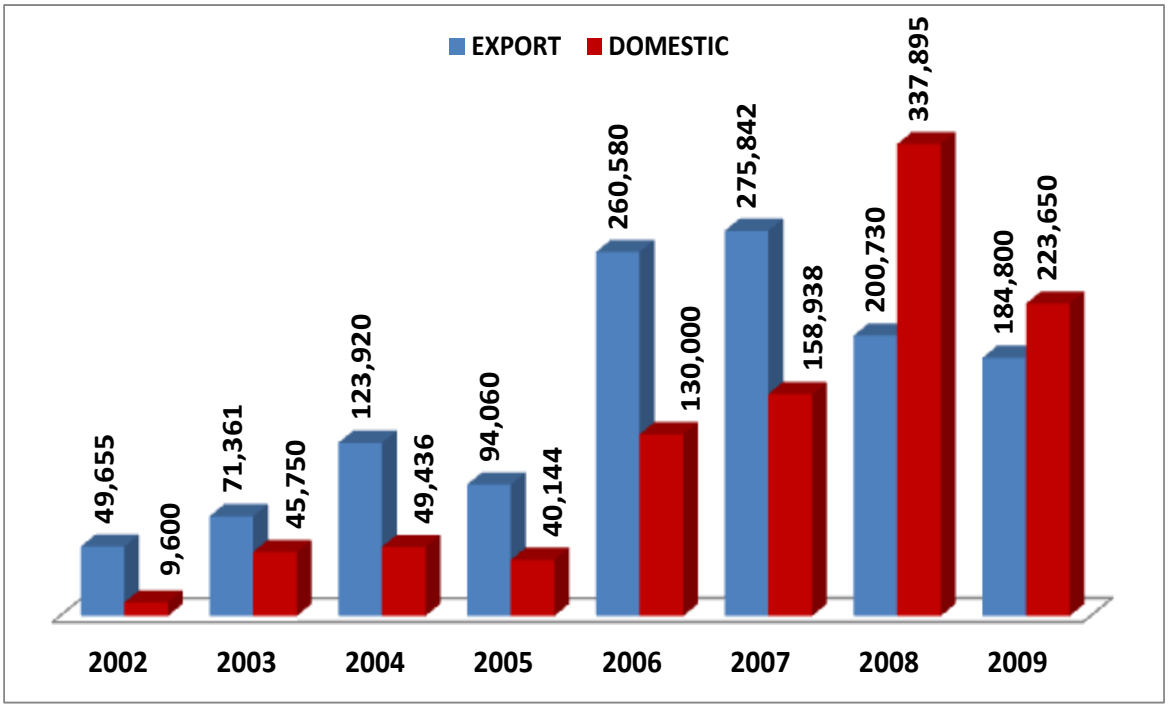
162. This recent performance of Turkish shipyards with respect to tankers is shown in Charts 8 and 9, which track the delivery of tankers by number and dwt respectively.

Chart 8 – Delivery of tankers by Turkish shipyards (number)



Source: UMA, 2011.

Chart 9: Turkish Shipyards' Tanker Deliveries (dwt)



Source: UMA, 2011.

163. This specialisation by the Turkish yards has meant that they have successfully developed a niche market in these vessels, which could provide a useful buffer at times when new orders might be hard to win due to reduced ship-buyer interest. The strength of the Turkish yards in these niche-markets is evident in the composition of the current order books, which shows a distinct bulge in the small tanker category.

164. More important for Turkish yards is the fact that at the moment there are a limited number of competitors in the category in which they are the strongest. According to detailed data for January 2011 (Clarkson, 2011) Turkish yards held orders for 62 chemical/oil tankers of less than 10 000 dwt. This number was second only to China, which held orders for 74 vessels of this category, but more significantly was that the next largest was Korea, which held only 24 orders. No other producing economy came close to double figures for these types of vessels.

165. This must give some comfort to Turkish yards, as they appear to be holding on to their "natural advantage" for small tankers, which may give those yards a reliable base load of work to keep the yards working, even when other orders might be hard to find. Whether or not this situation will continue cannot be deduced from currently available information.

Export performance

166. Traditionally, and in their early stages of development, Turkish shipyards have principally constructed vessels to meet domestic demand, and as explored above the yards have specialised in particular types of vessels to meet that domestic demand. However, beginning from the early 2000s their production pattern changed in favour of export deliveries, and this continued until the 2008 worldwide economic crisis. Despite this growing orientation towards the export market, the latest data show a strong domestic base for the industry, which could be considered to be both a strength, and a weakness.

167. It is a strength because domestic demand reflects the performance of the Turkish economy, which in recent years has been quite strong. In turn, because domestic buyers have shown considerable loyalty to Turkish shipyards, the yards have enjoyed a relatively stable domestic work load. This domestic focus also means that Turkish yards have been able to specialise and develop skills in a market sector where they have been relatively isolated from external competition.

168. On the other hand this domestic focus could also be considered a weakness, as this relative insulation from competition has meant that Turkish yards have taken some time to develop their products to successfully bid for orders on the open market, and will have to work hard to compete with new, aggressive players in the market (refer to the discussion regarding Tables 7 to 10). However, on the positive side this situation started to change from the early 2000s, as Turkish yards expanded their facilities, and moved into the construction of different ships, so that by the end of 2010, while smaller chemical and product carriers still dominated the order book, there were a number of other different vessel types represented, including container ships (see Table 10 above).

169. This diversification and more outward orientation by the Turkish yards meant that they were better able to compete on the international market, so that the middle of the 2000s there was a much greater balance between domestic and export demand, including some years where exports exceeded buildings for the domestic market, both in the number of vessels and in terms of dwt (see Charts 10 and 11).

Chart 10 - Delivery of vessels by Turkish shipyards for the export and domestic markets

(number of vessels)

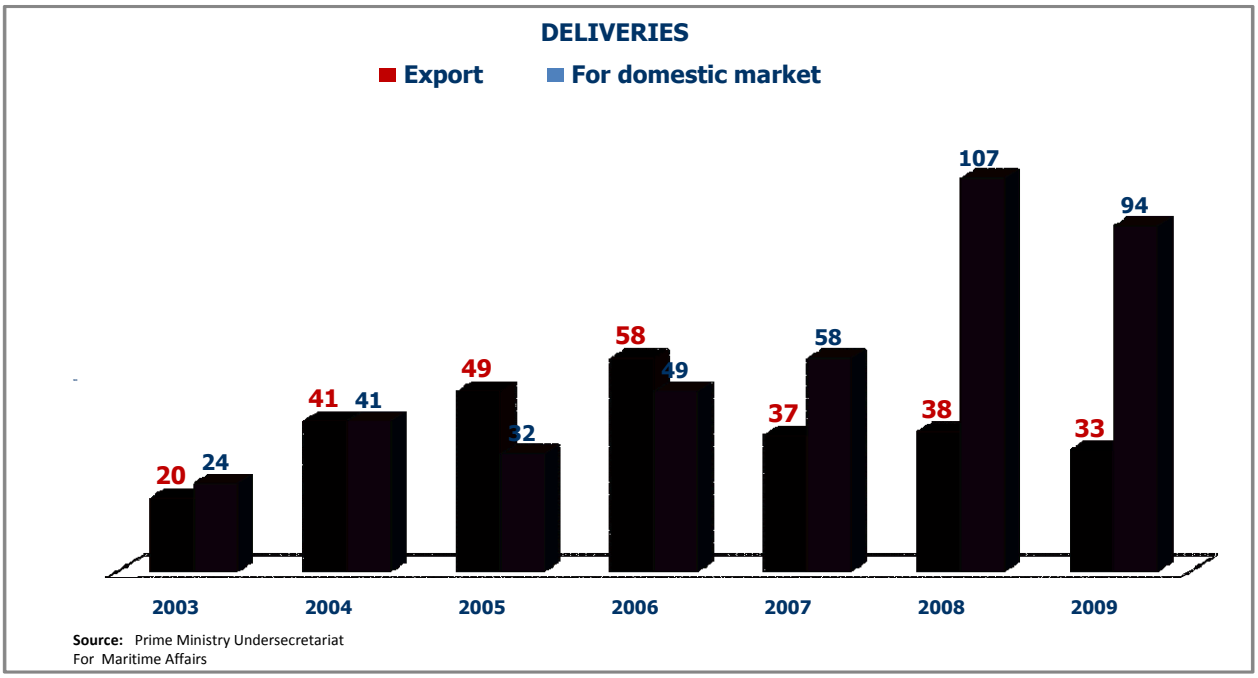
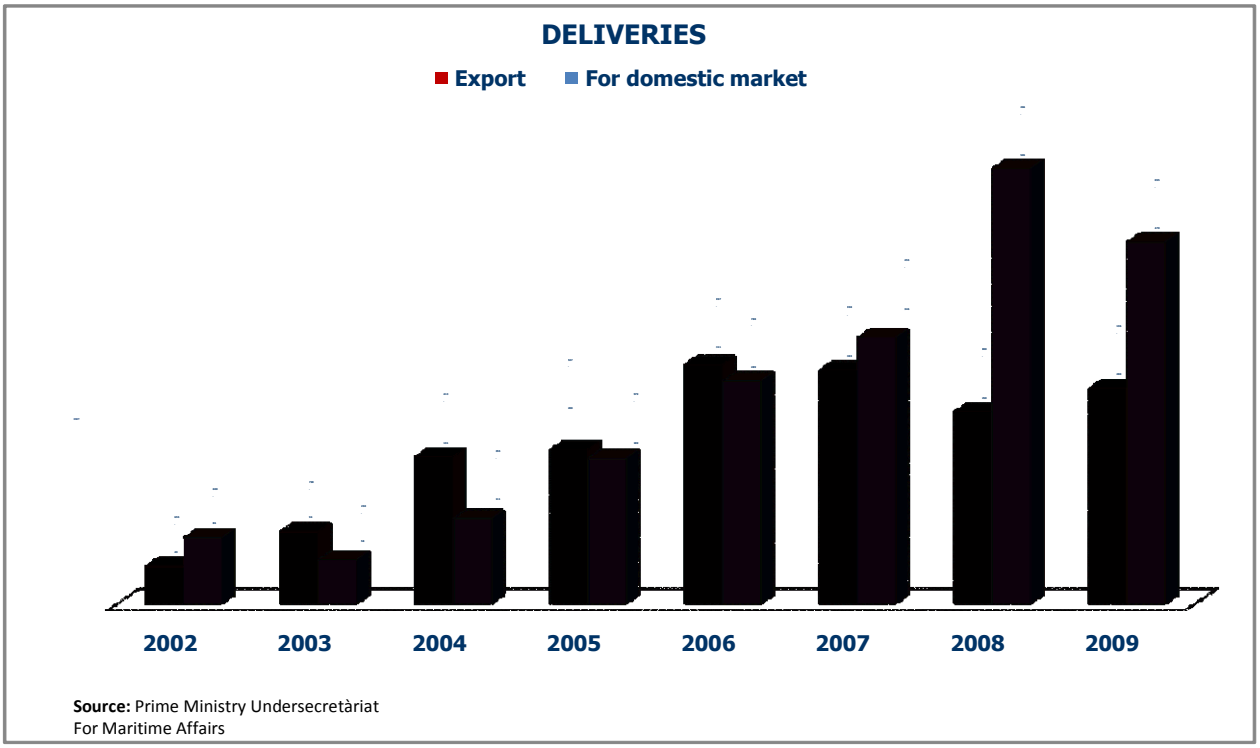


Chart 11 – Delivery of vessels by Turkish shipyards for the export and domestic markets

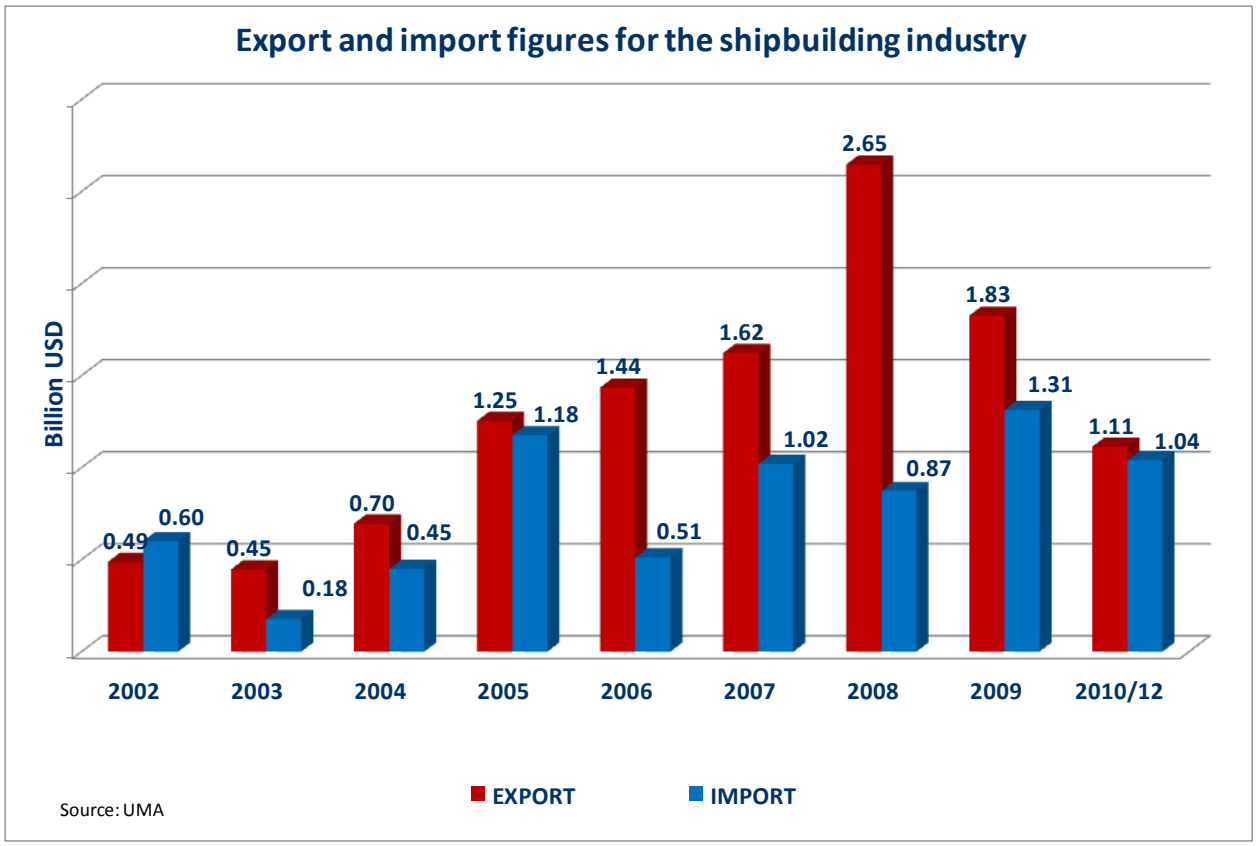
(dwt delivered)



170. Both of these charts show the growing importance of exports to the Turkish yards, but also highlight the serious impact of the 2008 economic crisis, which caused global trade to shrink, and the demand for shipping services to decline. In turn this caused a very significant number of order cancellations and a collapse of new orders, which fell by around 80% between 2007 and 2009 (IHS-Fairplay 2007, 2009a). This contraction in new orders also affected petroleum and chemical tankers which are staple products for Turkish yards.

171. In this framework, the export performance of Turkey's shipbuilding and yacht industry, which had performed well until 2008, started to deteriorate in 2009 (see Chart 12). As a result, Turkey's exports fell from a high of USD 2.6 billion in 2008 to USD 1.8 billion in 2009, a fall of 31%. It fell a further 39% to USD 1.1 billion in 2010.

Chart 12 – Turkey – Shipbuilding Industry Exports and Imports (USD billion)



172. The Undersecretariat for Foreign Trade (UFT) has provided a more detailed breakdown of the destination of Turkish exports of new ships and yachts, and these data are shown in Table 11. It is assumed from this table that exports are recorded as deliveries to registers other than the Turkish register, as the list of destinations in Table 11 includes a number of open registers (for example the Virgin Islands, the Marshall Islands and Panama), where vessels could be owned by Turkish owners, but registered in that open register.

Table 11 – Ship and yacht exports by Turkey – by destination

		EXPORTS BY TURKEY (USD m)			Change % 2009 to 2010	Share % in 2010
No	**Destination**	**2008**	**2009**	**2010**		
1	Malta	686.44	517.97	272.17	-47.5	24.4
2	Italy	178.63	174.02	118.60	-31.8	10.6
3	Norway	125.36	158.65	71.06	-55.2	6.4
4	Virgin Islands	76.68	192.82	69.48	-64.0	6.2
5	Marshall Islands	265.79	91.26	65.25	-28.5	5.9
6	Panama	139.34	32.45	58.68	80.8	5.3
7	USA	46.59	52.15	54.90	5.3	4.9
8	Emirates	11.02	2.56	41.79	1,534.5	3.8
9	Germany	186.16	11.78	39.99	239.4	3.6
10	Singapore	0.41	0.03	38.25	138,460.7	3.4
11	The Netherlands	147.15	66.71	31.16	-53.3	2.8
12	Cayman Islands	13.01	42.93	30.26	-29.5	2.7
13	Liberia	128.52	146.10	25.10	-82.8	2.3
14	Greece	49.07	22.88	18.12	-20.8	1.6
15	Syria	3.95	4.20	18.04	329.5	1.6
16	Netherlands Antilles	-	0.35	15.50	4292.9	1.4
17	Romania	13.38	30.92	13.22	-57.3	1.2
18	UK	44.42	63.28	11.66	-81.6	1.0
19	Gibraltar	-	5.15	11.35	120.6	1.0
20	Brazil	-	4.30	11.12	158.8	1.0
	Rest	531.94	205.74	98.63	-52.06	8.9
TOTAL EXPORTS		2,647.86	1,826.25	1,114.33	-39.0	100.0
First 10 destinations					830,17	74.5
First 20 destinations					1,015.69	91.1
EU 27		1,568.29	930.02	519.10	-44.2	46.6

Source: UFT, 2011.

173. Table 11 shows changes in exports to the 20 top destinations for ships and yachts built in Turkey. While the WP6 focuses on commercial shipping, the data collected by Turkish authorities aggregates both commercial vessels and yachts (which is a major activity for yards in Turkey) and it is not possible to disaggregate that information. However, the majority of the exports contained in the table would cover commercial ships, so that the inclusion of yacht data is unlikely to significantly skew the data presented

there. However, some care needs to be taken in assessing the data, because of the value of individual ship transactions, whereby a single vessel could result in very large changes in the data from one year to the next (for example, see the entry for Singapore). Therefore, care needs to be taken in making extrapolations on individual export destinations based on these data.

174. On a broader scale, a significant change that has occurred over the last three years has been the sharp reduction in exports to the EU 27, which accounted for almost 60% of Turkish shipbuilding and yacht exports in 2008, but accounted for only 46.6% in 2010. Whether this is temporary change, or a more significant structural change in the EU members as destinations for vessels built in Turkey, is not clear from these data.

175. However, according to recent trade statistics from the Exporter's Unions[14], export data for the first four months of 2011 show that shipbuilding and yacht industry exports over that period totalled USD 526 million, whereas the exports figure of the same period of 2010 was only USD 286 million.

176. During this period 54.4% of Turkey's shipbuilding and yacht exports were directed towards the EU 27, which could indicate a recovery in this market. Other significant final destinations of Turkey's exports in this sector were: Malta (38.2%), Panama (13.6%), the Marshall Islands (10.7%), France (8.3%), USA (6.5%) and Germany (5%). In the first four months of 2011 Turkey's exports have increased to almost all countries, with the exception of the Middle-East and some Asian destinations.

177. Besides the EU 27, the other major regional groupings for Turkish ship exports in the first four months of 2011 were the Americas (17.7%) and Oceania (11.1%).

178. In its comments, the UFT noted the importance of the EU market for Turkish shipyards. While Turkey had captured around 1.9% of the EU's total shipbuilding and yacht industry imports in 2009, this has declined to 0.65 % in 2010, even though the EU remained Turkey's biggest market. The issue of concern was that this decline occurred at a time when – according to UFT - the EU's total yacht and ship imports increased by 54 % (UFT 2011).

179. UFT in part attributed this loss of market share to China, which according to UFT increased its share of EU shipbuilding and yacht imports from 17% in 2009 to 26% in 2010. However, while UFT considers that China will increasingly dominate the large vessel market, it also expects that Turkey's yards will be able to exploit their natural advantage in mega-yachts, and will retain their market share.

180. UFT also commented that due to decline in orders due to the 2008 economic crisis, there was a severe loss of employment (this was covered in some detail in the sections covering employment in the shipbuilding and related industries). In addition, there was also a loss of competitive advantage because of the rise in the cost of production, and the impact of this has been evident in Turkey's inability so far to benefit from the resurgence (albeit slow) in world-wide demand for new ships (see Tables 7 to 9 for more information).

181. From these data it appears that Turkish shipyards are still largely geared to meet domestic demand, with 23 vessels listed for export and 101 listed for the domestic market (Table 12). According to the available data, only 18 are listed as unconfirmed, which will have little impact on the domestic/export mix shown in that table.

[14] http://www.tim.org.tr/tr/ihracat-ihracat-rakamlari-tablolar.html#, 2011 Nisan-Sektör Bazında Ülke Rakamları - data can be found as "gemi ve yat". Turkish site reference provided by UMA.

Table 12 - Domestic/export mix of Turkish yard order books

May 2011

Type of vessel	export	domestic	unconfirmed
	vessels no.	vessels no.	vessels no.
Dry Bulk	-	2	-
Chemical tanker	2	59	9
Container ship	4	4	2
General cargo ship	4	17	1
LPG tanker	3	-	-
Oil tanker	1	2	1
Passenger ship	-	11	1
Off-shore vessel	7	1	1
Fishing vessel	2	-	3
Passenger Ro/Ro	-	4	-
Other	-	1	-
Total	23	101	18

Source: Fairplay Solutions May 2011

182. While the recent dip in export earnings can probably be attributed to the effects of the 2008 global economic downturn, it is not clear for the available data whether the rises (and subsequent falls) in export revenue attributed to shipbuilding simply reflects overall changes in production levels, or whether there were changes in the relativities between domestic and export production. A casual examination of the data suggests that increases in export revenue since 2004 grew at a slightly faster rate than overall production, suggesting that exports increased faster than overall production, but this cannot be verified with any degree of certainty.

183. In any event, it would seem that the efforts by the Turkish yards to diversify their products in order to attract more export orders are very appropriate, especially given the recent dips in export earnings, but it may be that in times of depressed demand (such as is the case at present), the yards may need to look towards their areas of strength (smaller vessels, especially tankers) in order to consolidate their position in the world market.

Productivity and competitiveness

184. Productivity is a significant factor that drives competitiveness in the shipbuilding industry. However, comparative productivity is difficult to measure and would require a very detailed study to produce a reliable assessment, which is not possible in this study of the Turkish shipbuilding industry.

185. The discussion that follows is based on the assumption that total industry output, compared to total industry employment, provides some indication of the productivity of the shipbuilding industry. On one level this can be a relatively robust analysis, as it is based on two sets of relatively reliable data sets, as employee numbers are provided by the industry, while output (on a cgt basis) is collected from shipyards worldwide.

186. However, this rather simplistic analysis is unable to differentiate between productivity that could be attributed to low cost, efficient manual workers, and that which could be attributed to extensive investment in automation. In other words, by simply using employment as the sole measure of productivity, then a business operation (or indeed an entire industry) that relies heavily on employees,

would be likely to be considered "less productive' than one that is highly automated (and therefore employs fewer workers), when in practice their "actual" productivity might be very similar.

187. This limitation is understood, and it is accepted that this analysis provides an indication of yard/industry productivity, and is not a definitive or absolute measure.

Table 13 – Turkey: Output per employee

	Employees	Output in cgt	cgt/employee
1999	3,681	166,207	45.15
2000	5,250	103,986	19.81
2001	5,750	124,185	21.60
2002	13,000	106,687	8.21
2003	14,150	207,843	14.69
2004	14,750	255,487	17.32
2005	25,000	344,328	13.77
2006	28,580	446,674	15.63
2007	33,480	662,720	19.79
2008	34,500	817,982	23.71
2009	19,179	675,642	35.23
2010	21,449	465,462	21.70

Source: UMA, 2011 and IHS-Fairplay World Fleet Statistics (various editions).

188. Table 13 provides data on the number of employees in Turkish shipyards, and total output by the industry. The first observation that can be made is that the yearly "productivity" over this period is very uneven, ranging from a low of 8.21 cgt/employee, to a high of 45.15 cgt/employee, with the average being just over 21 cgt/employee.

189. The only pattern that can be discerned, is that from time to time the shipyards appear to have made the judgement that demand was expected to rise significantly, and adjusted their work forces accordingly (for example in 2002 when the workforce more than doubled). However, at times the expected increase in demand did not eventuate, resulting in a workforce that might have been too high, leading to a corresponding fall in the implicit productivity (in that case from 21.60 cgt/employee to 8.21 cgt/employee).

190. On the other hand, yards also appear to have become much more effective in judging demand, and reacting much more quickly to adjust employment (in particular in 2009 and 2010), which has led to significant productivity increases in recent years. If these productivity gains also produced commensurate efficiency gains and lower costs, then this could be expected to make those yards more competitive in both the domestic and international market. This would appear to be an effective response to the declining competitiveness of Turkish yards as illustrated by their slippage in the world output and order book rankings.

191. While internal movements in productivity are useful, even more potentially useful is the comparison between the implicit productivity of Turkey's yards with those of some of its international competitors.

192. The data in Table 14 shows employee, output and imputed output per employee data for a number of shipbuilding economies/regions. The data is for 2007 because this is the most recent year for

which comparable data are available, and it is recognised that recent developments (especially China's very rapid growth) could affect this analysis. Also, from Turkey's perspective, it is also recognised that 2007 was not a year which necessarily reflected its highest productivity, but this is the same for all the other economies.

Table 14 – Comparative Employment/Output Data (2007)

Economy	Shipbuilding Employees	Output ('000 cgt)	Output Cgt/employee
Japan	50,000	8,965	179.3
Korea	119,000	11,91	94.9
European 14[15]	114,000	4,620	40.5
Chinese Taipei	11,000	369	33.6
Turkey	33,000	663	20.1
China	260,000	6,766	18.8

Sources: USDDC, Chinese Taipei; Shipbuilders' Association of Japan; CANSI, Korean Shipbuilders' Association; Community of European Shipyards' Association; UMA, 2011, Clarkson World Shipyards Monitor, December, 2008, Lloyd's Register Fairplay World Fleet Statistics, 2007.

193. First of all, there is no intention of examining this table in order to draw fine judgements regarding the relative productivity of the respective economies and regions; neither the data nor the methodology utilised is robust enough to permit that. However, looking at broader indicators, it seems that Turkey is in the same general productivity range as China, Chinese Taipei and the European 14, which would allow the conclusion to be drawn that on this measure, while Turkey is not in the top league, neither is it relegated to the lowest productivity ranks.

194. It is stressed again that this assessment is indicative only, but it may indicate an area where additional analysis would be useful, as well as pointing to an aspect of the industry where there could be some room for improvement to strengthen its competitiveness.

195. If productivity is not as high as in some other shipbuilding economies, then this could in part be explained by the generally small scale and diffused nature of the shipbuilding enterprises in Turkey, which as noted earlier have specialised on the construction of small commercial vessels, mainly small oil/chemical tankers. Gearing shipyard facilities around this niche market may have made more difficult, for example, to exploit economies of scale available to larger scale operations.

196. High wages, labour shortages, lack of experience in the construction of non-traditional ship types and the high cost of imported marine equipment could also be factors that could impede competitiveness and growth, and certainly some of these have been identified in this study. On the positive side, efforts to strengthen the ability of the local support industries to reduce the dependence of shipyards on imported materials, and the efforts made through the school system to increase the availability of skilled labour, will address some of these factors.

[15] The 14 European countries include Croatia, Denmark, Finland, France, Germany, Greece, Italy, the Netherlands, Norway, Poland, Portugal, Romania, Spain and the U.K.

197. A potentially important development to increase both productivity and work safety in Turkey is the 2008 Regulation issued by UMA, that requires shipyards to meet the standards TS EN ISO 9001 - quality, TS EN ISO 14001 - environment and OHSAS 18001 - occupational health and safety.

SUMMARY AND CONCLUSIONS

198. The shipbuilding industry in Turkey is considered to be a very significant industrial sector by the Turkish government, which has set targets and objectives for the sector through the 9th Development Plan (covering the period 2007-2013). However, the shipbuilding industry is largely privatised, and there is very little government involvement in the sector. There are some government support measures available to the shipbuilding industry, but few are directly targeted to shipbuilding, representing very limited importance in practice.

199. As well as providing an industrial and technological base for Turkey, the shipbuilding sector and the associated support industries are also significant employers of labour, and make substantial contributions to both the Turkish economy and its exports.

200. The shipbuilding sector in Turkey has grown significantly in recent years, and it has established itself as one of the most significant ship producers outside of the dominant producers (China, Korea and Japan). In 2008 Turkey was the fifth largest producer in the world, but was seriously affected by the world economic downturn, and by 2010 it had slipped to eighth spot.

201. Perhaps of greater concern was that at the end of 2010 it was only in eleventh position with respect to the size of the order books held by its yards, as some of its closest competitors took advantage of the downturn to significantly increase their participation in the world market.

202. In part, this outcome could be attributes to very low level of government support for the industry in Turkey, which means that on occasions its yards might not be able to match prices and other conditions offered by builders in countries that may enjoy a greater level of government support. In addition, Turkey's yards target niche markets that are quite different from those of other producers, and this may be reflected in some fluctuations in overall production, without necessarily implying a lack of competiveness by Turkish yards in their specialised market.

203. In Turkey, the shipbuilding industry, particularly with its niche small tanker market, has geared itself to meet export demand, and this strong export orientation was reflected in data since the early 2000s. While the figures for industry output were relatively balanced between export and domestic markets, production for the industry's niche small tanker market was largely for export. This changed significantly with the onset of the 2008 economic crisis, which saw deliveries to domestic buyers start to dominate see (Charts 8, 9, 10 and 11). While recent data suggests that export are increasing again, only time will tell whether this reversal will be sustained.

204. Since the economic crisis, the Turkish shipbuilding industry's focus has been on a limited niche market (the small tanker sector, which in December 2010 constituted over 60% of the Turkish shipyards' order books – see Table 10) to largely meet domestic demand (in May 2011 less that 20% of the order book was identified for export). This situation could be considered as both a weakness and a strength for the industry.

205. On the one hand, this focus on a particular category of vessel can provide a steady base for the yards while they strive to broaden their product base, and in this they have been quite successful as they have captured a very significant market share for small to medium tankers, in fact second only to China (see paragraph 163).

206. On the other hand, the domestic orientation of the industry means that it has a strong reliance on a relatively limited market, hence the need for the yards to broaden their product base and further improve their competitiveness in order to attract a greater number of export orders, which the yards are certainly working towards. It is suggested that this is an important issue for the yards in Turkey, which are relatively small compared to the size of some of their competitors, and may therefore not be able to exploit economies of scale in the production process.

207. The immediate near future could be crucial as the global economy moves (slowly and hesitantly at this stage) towards full recovery following the 2008 downturn, and as new orders eventually move towards more normal patters. When that happens, the product mix of new orders placed by shipowners could be very important, especially with respect to future orders for small to medium tankers, which remain the core business of Turkey's shipyards.

208. There appears to be a strong relationship between the shipbuilding sector and related industries (such as the marine equipment sector), which can supply a wide range of low to medium technology components to shipbuilding yards. However, the equipment manufacturers are not yet able to supply high-end items such as engines and navigation equipment. Advancements in this sector may require a considerable investment in R&D, manufacturing capability and higher end skills. However, this sector has considerable potential, and already employs more labour than the shipbuilding sector.

209. The Turkish shipbuilding industry faces the same problems of scale as other mid-sized economies, and while expanding its product range it may still need to rely on its core niche markets to expand its industry. As part of an expansion strategy to increase its participation in the world market and improve its export performance, Turkish yards may also consider:

- Focusing on its traditional areas of strength, while continuing to expand its product market;
- Searching for other niche markets where it can bring its expertise to bear (for example container ships, where it already has a growing presence, or special purpose ships such as offshore support vessels);
- Strengthening their technological base through greater R&D, and perhaps by promoting and seeking joint ventures and other foreign participation;
- Rationalisation of the industry to seek economies of scale in operations, and strengthen technological capabilities to improve productivity; and
- Continue current efforts to improve the skill base of the workforce through education at vocational high schools and at higher education establishments such as universities - yards could assist this process by actively participating in those education initiatives, for example through apprenticeship schemes.

ANNEX A

TURKISH SHIPYARDS						
SHIPYARD NAME	**LOCATION**	**E-MAIL**	**PROJECTED SHIPBULDING CAPACITY (DWT/YEAR)**	**FLOATING DOCK CAPACITY (DWT)**	**DRY DOCK CAPACITY (DWT)**	**SLIPWAY LENGHTS (m)**
ADA DENIZCILIK VE TERSANE ISLT. A.S.	İSTANBUL	info@ada-shipyard.com	40.000			140
AKDENIZ GEMI INSA SAN. VE TIC. A.S.	ADANA	info@akdenizshipyard.com	45.000			180 / 160
ALTINOVA TERSANELERI IMALAT ITHALAT VE IHRACAT LTD.STI.	YALOVA	info@vbgshipping.com	66.000			160
ALTINTAS MERMER VE TERSANECILIK A.S.	YALOVA	info@altintasshipyard.com	140.000			180
ANADOLU DENIZ INSAAT KIZAKLARI SAN. VE TIC. LTD.STI	İSTANBUL	info@adik.com.tr	45.000			135 / 85
ARIF KALKAVANOGULLARI GEMICILIK A.S. (NECDET KALKAVAN YALOVA TERSANESI)	YALOVA	ako@ako.com.tr	70.000			150
AYKIN TERSANECILIK TASIMACILIK IS. SAN. TIC. LTD. STI.	YALOVA	aykin.denizcilik@hotmail.com	70.000			170 / 170
AZIM OTEL TURIZM DENIZCILIK METAL INSAAT SAN. VE TIC. LTD.STI	ZONGULDAK	azimshipyard@hotmail.com	8.600			60
BASARAN GEMI SANAYII RIFKI BASARAN	TRABZON	info@basarangemi.com.tr	5.000			40 / 10

BERK GEMI TERSANESI	KASTAMONU	berk.gemi@hotmail.com	50.000			185 / 165 / 175
BESIKTAS GEMI INSA A.S.	YALOVA	info@besiktasshipyard.com	120.000	94.000	88.000	170 / 170 / 170 / 150 / 120 / 120
BOGAZIÇI TERSANECILIK GEMI INSA SAN. VE TIC. A.S.	YALOVA	info@bogazicitersanecilik.com.tr	80.000			170
CEMRE MÜHENDISLIK GEMI INS SAN TIC LTD STI	YALOVA	cemre@cemreshipyard.com	40.000			110 / 120 /160
ÇEKSAN GEMI INSA ÇELIK KONS. SAN. VE TIC.A.S.	İSTANBUL	info@ceksan.com.tr	16.000	15.000		132 / 96
ÇELIK TEKNE SANAYI VE TICARET A.S.	İSTANBUL	info@celiktekne.com.tr	60.000			120 / 147 / 150
ÇINDEMIR MAK. GEMI ONARIM VE TERSANECILIK A.S.	İSTANBUL	info@cindemir.com	7.500	8.960		
ÇİMTAŞ GEMİ İNŞA SANAYİ VE TİCARET A.Ş.	KOCAELİ	info@cimtasshipyard.com	75.000			180 / 106
DALSAN LIMAN INSAATI LTD.STI 2 NOLU PARSEL	İSTANBUL	dalsan@dalsangrup.com	15000			
DEARSAN GEMI INSAAT SAN. A.S.	İSTANBUL	personel@dearsan.com	32.000			106
DENIZ ENDÜSTRSI A.S.	İSTANBUL	atoksoz@cicekshipyard.com	90.000		60.000	100 / 150
DEN-TA DENIZCILIK TIC. VE SAN. LTD. STI.	YALOVA	info@denta.com.tr	70.000			120
DENTAS GEMI INSAA VE ONARIM SANAYI A.S.	İSTANBUL	info@dentassipyard.com	22.000	6.000		140
DESAN DENIZ INSAAT SANAYII A.S.	İSTANBUL	info@desan-shipyard.com	14.400	25.000		140
				80.000		
DÜZGIT YALOVA GEMI INSA SANAYI A.S.	YALOVA	shipyard@duzgit.com	70.000			125 / 165
EREGLI GEMI INSA SAN. VE TIC. A.S.	ZONGULDAK	info@ereglishipyard.com	58.000			150 / 150 / 220
ERHAN GEMİ SANAYİ KENAN ERHAN	TRABZON	cihan_erhan@hotmail.com	25.000			20 / 100

ERKAL ULUSLARARASI NAKLIYAT VE TICARET A.S	İSTANBUL	info@tktuzlashipyard.com		250.000		
GELIBOLU GEMI INSAAT SAN. VE TIC. A.S.	ÇANAKKALE	info@aksoyship.com	34.000			130 / 130 / 136
GEMAK GEMI INSA SAN. VE TIC. A.S.	İSTANBUL	gemak@gemak.com	12.000	25.000		
				50.000		
GEMSAN GEMI VE GEMI ISLT. SAN. VE TIC. LTD.STI.	İSTANBUL	gemsan@gemsannet.com	6.000	35.000		70
GISAN ALTINOVA GEMI INSA SAN. VE TIC. A.S.	YALOVA	info@gisangemi.com.tr	30.000			61
GISAN GEMI INSA SAN. VE TIC. A.S.	İSTANBUL	info@gisangemi.com.tr	70.000			150 / 150
GÜNDOGDU GEMI YAN SAN VE DENIZ LTD.STI. KARASU	SAKARYA	info@gundogdugroup.com	26.200			190 / 130
HIDRODINAMIK GEMI SAN.VE TIC. A.S.	İSTANBUL	info@hidrodinamik.com	8.100	4.000		90 / 110 / 120 / 120
IÇDAS ÇELIK ENERJI TERSANE VE ULASIM SAN. A.S.	ÇANAKKALE	icdas@icdas.com.tr	68.121			
ISTANBUL DENIZCILIK GEMI INSA SAN. VE TIC. A.S.	İSTANBUL	info@istanbulshipyard.com	15.000	6.000		130 / 110
ISTER GEMI INSA SAN. VE TIC. A.S.	HATAY	ister@istershipyard.com	5.400			
INEBOLU DENIZCILIK SAN. VE TIC. A.S.	KASTAMONU	karavelioglu@karavelioglu.com	56.000	8.000		
KANLAR DENİZCİLİK İNŞ.NAK.GEMİ SAN.TİC.LTD.ŞTİ.	SAMSUN	info@karadenizshipyard.com	35.000			
KARADENIZ GEMI INSA SAN. VE TIC. A.S.	ORDU	info@karadenizshipyard.com	32.000			130 / 130 /100
KOCATEPE DENIZCILIK VE GEMI INSA SAN.TIC.LTD.STI.	YALOVA	alikocatepe@gmail.com	70.000			170
KURBAN GEMI INSA INST. TAAH. TUR. ORMAN ÜRÜN. SAN. VE TIC. LTD.STI.	YALOVA	kurbanshipyard@hotmail.com	40.000			150 / 150

MADENCI GEMI SAN. LTD.STI	ZONGULDAK	madencigemi@superonline.com	50.000			130 / 130 / 130 / 135
MARMARA TERSANESI ANONIM SIRKETI	KOCAELİ	contact@marmarashipyard.com	22.000			
MED YILMAZ GEMI INSA SAN. VE TIC. A.S.	ZONGULDAK	medyilmaz@medyilmaz.com.tr	7.000			175 /100
NACI SELIMOGLU DENIZ ISL. VE TIC. A.S.	YALOVA	chartering@nslm.net	70.000			135
ÖZATA TERSANECİLİK SAN. VE TİC. LTD. ŞTİ.	YALOVA	info@ozatayat.com.tr	3.000			150 / 120
RMK MARINE GEMI YAPIM SAN. VE DENIZ TAS. ISLT.A.S.	İSTANBUL	info@rmkmarine.com.tr	40.000			170 /60
SAHINÇELIK SAN. A.S.	İSTANBUL	info@sahincelik.com.tr	30.000			114
SEDEF GEMI INSA A.,S.	İSTANBUL	sedef@kalkavanshipyard.com	650.000		300.000	132 / 252
SEFINE DENIZCILIK TERSANECILIK TURIZM SAN. VE TIC. A.S.	YALOVA	otanir@sefine.com.tr	50.000		90.000	160
SELAH MAKINE VE GEMILCILIK END. TIC. A.S.	İSTANBUL	info@selahshipyard.com	42.000			137 / 137
SELTAS DENIZCILIK SAN. VE TIC. A.S.	YALOVA	s.aslan@selchart.com	70.000			170 / 150
TERME TERSANESI A.S.	SAMSUN	info@termeshipyard.com	51.000			187 / 187
TORGEM GEMI INSAAT SAN. VE TIC. A.S.	İSTANBUL	info@torgem.com	28.000			150 / 110
TORLAK DENIZCILIK SAN.VE TIC.A.S.	İSTANBUL	info@torlakshipyard.com	32.000	40.000		130 / 110
TUZLA GEMI END. A.S.	İSTANBUL	tuzlagemi@tuzlagemi.com	130.000			200
TÜRKER GEMI YAPIM SANAYI VE TICARET A.S.	KOCAELİ	info@turkershipyard.com	50.000			170
TÜRKOGLU GEMI INSAA SAN.VE TIC. LTD.STI.	YALOVA	turkoglushipyard@gmail.com	40.000			

TÜRKTER TERSANE VE DENIZ ISLT. A.S.	İSTANBUL	info@yardimci.gen.tr	50.000			193
TVK GEMI YAPIM SANAYI VE TICARET A.S.	KOCAELİ	e.sonmez@tvkshipyard.com.tr	40.000			160
UM DENIZ SANAYI A.S.	KOCAELİ	info@umdeniz.com	180.000			300 / 150
UMO GEMI SAN. TIC. LTD. STI.	ZONGULDAK	umogemi@gmail.com	20.000			150 /120
USMED GEMI INSA SAN. VE TIC. A.S.	ZONGULDAK	info@ereglishipyard.com.tr	20.000			140
USTAMEHMETOGLU GEMI TERSANESİ	ZONGULDAK	umogemi@gmail.com	3.000			100
USTAOGLU YAT GEMI SAN. TIC. LTD.STI	ZONGULDAK	avni.bicer@ustaoglugemi.com	36.500			185 / 163 / 180 /175
UZMAR GEMI INSA SAN. A.S.	İZMİT	info@uzmar.net	2.000	7.500		
YARDIMCI GEMI INSA A.S.	İSTANBUL	info@yardimci.gen.tr	30.000	18.000		
YASARSAN GEMI INSAA SAN TIC.LTD.STI	YALOVA	info@yasarsanshipyard.com	70.000			120 / 150
YILDIRIM GEMI SAN. A.S.	İSTANBUL	info@yildirimgemi.com	12.500			105 / 80 / 60 / 60
YILDIZ GEMI VE MAKINE SAN. TIC. A.S.	İSTANBUL	info@yildizgemi.com.tr	10.000			
URSA GEMICILIK BAKIM ONARIM TERSANECILIK SAN. VE TIC. A.S.	İSTANBUL	info@dunyayachts.com	10.000		1.500	

Source: UMA, 2011

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