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STRUCTURE, OWNERSHIP AND REGISTRATION OF THE WORLD FLEET

The world fleet in terms of dwt grew by 3.5 per cent in the 12 months to 1 January 2016. This is the lowest growth rate since 2003, yet still higher than the 2.1 per cent growth in demand, leading to a continued situation of global overcapacity.

The position of countries within global container shipping networks is reflected in the UNCTAD liner shipping connectivity index. In May 2016, the best-connected countries were Morocco, Egypt and South Africa in Africa; China and the Republic of Korea in Eastern Asia; Panama and Colombia in Latin America and the Caribbean; Sri Lanka and India in South Asia; and Singapore and Malaysia in South-East Asia.

Different countries participate in different sectors of the shipping business, seizing opportunities to generate income and employment. As at January 2016, the top five shipowning economies in terms of dwt were Greece, Japan, China, Germany and Singapore, while the top five economies by flag of registration were Panama, Liberia, the Marshall Islands, Hong Kong (China) and Singapore. The largest shipbuilding countries are China, Japan and the Republic of Korea, accounting for 91.4 per cent of gross tonnage constructed in 2015. Most demolitions take place in Asia; four countries – Bangladesh, India, Pakistan and China – accounted for 95 per cent of ship scrapping gross tonnage in 2015. The largest suppliers of seafarers are China, Indonesia and the Philippines. As countries specialize in different maritime subsectors, a process of concentration of the industry occurs. As each maritime business locates in a smaller number of countries, most countries host a decreasing number of maritime businesses, albeit with growing market shares in the subsectors.

Despite uncertainties, the long-term growth prospects for seaborne trade and maritime businesses are positive (see chapter 1). There are ample opportunities for developing countries to generate income and employment and help promote foreign trade. Policymakers are advised to identify and invest in maritime sectors in which their countries may have a comparative advantage. Supporting the maritime sector “as a whole” is no longer a policy choice. Rather, the challenge is to identify and support selected maritime businesses. Policymakers need to carefully assess the competitive environment for each maritime subsector they wish to develop, and to consider the value added of a sector for the State economy, including possible synergies and spillover effects to other sectors – maritime and beyond. Policymakers should also take into account the fact that the port and shipping business is a key enabler of a country’s foreign trade. Apart from possibly generating income and employment in the maritime sector, it is generally even more important to ensure that a country’s traders have access to fast, reliable and cost-effective port and shipping services, no matter who is the provider.

A. STRUCTURE OF THE WORLD FLEET¹

1. World fleet growth and principal vessel types

The global commercial shipping fleet in terms of dwt grew by 3.48 per cent in the 12 months to 1 January 2016 (figure 2.1), the lowest growth rate since 2003. Yet the world's cargo-carrying shipping capacity still increased faster than demand (2.1 per cent; see chapter 1), leading to a continued situation of global overcapacity.

In total, as at 1 January 2016, the world commercial fleet consisted of 90,917 vessels, with a combined 1.8 billion dwt. The highest growth was recorded for gas carriers (+9.7 per cent), followed by container ships (+7.0 per cent) and ferries and passenger ships (+5.5 per cent), while general cargo ships continued their long-term decline, with the lowest growth rate of major vessel types (table 2.1). Their share of the world's tonnage is currently only 4.2 per cent, down from 17 per cent in 1980 (figure 2.2).

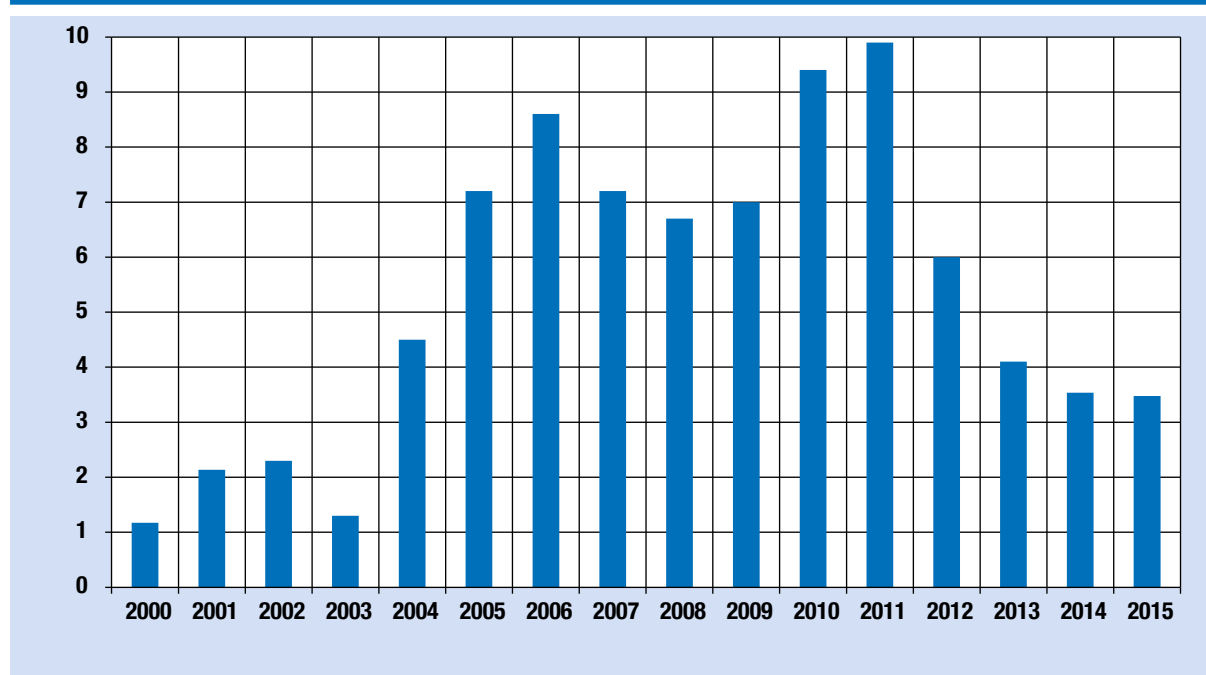
In 2015, there were 211 new container ships delivered, less than half the number (436 ships) delivered in the peak year of 2008. However, as vessel sizes in this

market segment have increased significantly, in terms of container-carrying capacity, 2015 set a historical record in the building of container ships. Globally, shipyards produced 1.68 million TEUs in 2015, an increase of 12.7 per cent over 2014 and 12.4 per cent over the previous peak number of deliveries in 2008. The average size of container ship newbuildings has risen by 132 per cent over the last seven years. Only 5 per cent of TEUs built in 2015 were geared ships (that is, ships that carry their own container-handling equipment), compared with 12 per cent in 2008. Large container ships invariably depend on the availability of ship-to-shore container cranes in terminals, still a challenge for some smaller seaports in developing countries.

2. Age distribution of world merchant fleet

At the start of 2016, the average age of commercial ships had reached 20.3 years, a slight increase over the previous year (table 2.2). Following additions to the fleet over the last 10 years, the current average age remains low, compared with previous decades. There were slightly fewer newbuildings and somewhat reduced scrapping activity, as many ships are too new to be demolished. Among the main vessel types,

Figure 2.1 Annual growth of world fleet, 2000–2015 (Percentage of dead-weight tonnage)



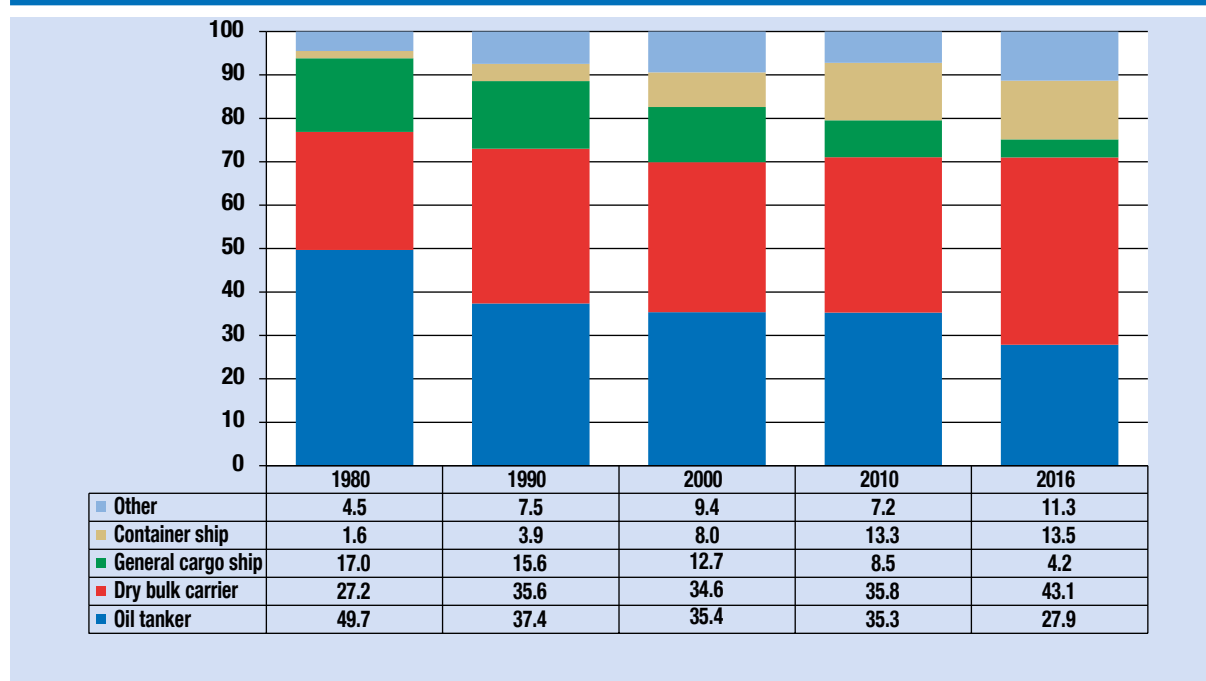
Source: UNCTAD, *Review of Maritime Transport*, various issues.

Table 2.1 World fleet by principal vessel type, 2015–2016 (Thousands of dead-weight tons and percentage share)

	2015	2016	Percentage change, 2015–2016
Oil tanker	488 308	503 343	
	28.0	27.9	3.08
Bulk carrier	761 776	778 890	
	43.6	43.1	2.25
General cargo ship	74 158	75 258	
	4.2	4.2	1.48
Container ship	228 224	244 274	
	13.1	13.5	7.03
Other:	193 457	204 886	
	11.1	11.3	5.91
Gas carrier	49 669	54 469	
	2.8	3.0	9.67
Chemical tanker	42 467	44 347	
	2.4	2.5	4.43
Offshore	72 606	75 836	
	4.2	4.2	4.45
Ferry and passenger ship	5 640	5 950	
	0.3	0.3	5.49
Other (not applicable)	23 075	24 284	
	1.3	1.3	5.24
World total	1 745 922	1 806 650	
	100	100	3.48

Source: UNCTAD secretariat calculations, based on data from Clarksons Research.

Note: Propelled seagoing merchant vessels of 100 gross tons and above, as at 1 January.

Figure 2.2 World fleet by principal vessel type, 1980–2016 (Percentage share of dead-weight tonnage)

Source: UNCTAD secretariat calculations, based on data from Clarksons Research and UNCTAD, Review of Maritime Transport, various issues.

Note: Propelled seagoing merchant vessels of 100 gross tons and above, as at 1 January.

Table 2.2. Age distribution of world merchant fleet by vessel type, 2016

		<i>Years</i>					<i>Average age</i>		<i>Percentage change, 2015–2016</i>
		<i>0–4</i>	<i>5–9</i>	<i>10–14</i>	<i>15–19</i>	<i>20+</i>	<i>2015</i>	<i>2016</i>	
World	Percentage of total ships	42.83	25.46	11.97	9.86	9.89	9.04	8.83	-0.21
Bulk carriers	Percentage of dead-weight tonnage	46.40	25.95	11.48	8.14	8.04	8.06	7.95	-0.11
	Average vessel size (dwt)	78 988	74 330	69 988	60 182	59 281			
	Percentage of total ships	19.47	33.45	19.36	17.15	10.57	10.86	11.21	0.35
Container ships	Percentage of dead-weight tonnage	33.42	33.94	17.94	10.51	4.19	8.23	8.41	0.18
	Average vessel size (dwt)	79 877	7 220	43 141	28 516	8 425			
	Percentage of total ships	9.67	15.93	8.66	8.41	57.33	23.99	24.72	0.73
General cargo ships	Percentage of dead-weight tonnage	18.97	22.10	10.09	10.72	38.12	17.46	17.97	0.52
	Average vessel size (dwt)	7 985	5 659	5 005	5 188	2 620			
	Percentage of total ships	17.12	22.41	14.09	8.26	38.12	18.02	18.49	0.47
Oil tankers	Percentage of dead-weight tonnage	24.93	33.65	23.92	12.57	4.92	8.95	9.54	0.59
	Average vessel size (dwt)	77 324	79 850	90 878	82 949	7 125			
	Percentage of total ships	15.02	18.22	9.72	8.80	48.23	22.12	22.52	0.41
Other	Percentage of dead-weight tonnage	19.06	27.43	12.55	10.47	30.49	15.47	15.60	0.13
	Average vessel size (dwt)	6 853	8 288	7 649	6 912	4 000			
	Percentage of total ships	13.47	17.03	9.11	7.53	52.86	19.92	20.31	0.39
All ships	Percentage of dead-weight tonnage	34.42	29.18	15.89	10.07	10.45	9.55	9.74	0.19
	Average vessel size (dwt)	42 284	32 314	33 772	24 657	5 963			
	Percentage of total ships	18.59	19.54	9.91	8.63	43.33	19.34	19.74	0.40
Developing economies – all ships	Percentage of dead-weight tonnage	37.56	24.68	11.80	10.51	15.44	10.29	10.42	0.13
	Average vessel size (dwt)	35 457	23 339	23 307	22 663	6 571			
	Percentage of total ships	18.21	22.92	13.15	11.24	34.48	18.30	18.67	0.36
Developed economies – all ships	Percentage of dead-weight tonnage	32.98	32.38	18.55	9.68	6.41	10.29	9.06	-1.23
	Average vessel size (dwt)	52 482	41 256	42 608	26 585	6 940			
	Percentage of total ships	6.73	8.41	4.59	3.48	76.79	28.35	29.04	0.69
Countries with economies in transition – all ships	Percentage of dead-weight tonnage	15.92	26.13	16.96	11.84	29.15	15.37	15.75	0.38
	Average vessel size (dwt)	15 029	21 080	24 561	21 427	2 389			

Source: UNCTAD secretariat calculations, based on data from Clarksons Research.

Note: Propelled seagoing merchant vessels of 100 gross tons and above, as at 1 January.

only dry bulk carriers were newer in early 2016 than in early 2015; 42.8 per cent of dry bulk ships are 0–4 years old. The oldest ships are general cargo carriers (24.7 years). The age distribution of the fleet also reflects the growth in vessel sizes over the last two decades. In particular, container ships have increased their average carrying capacity; those built 15–19 years previously have an average size of 28,516 dwt, while those built in the last four years are on average 2.8 times larger, with an average size of 79,877 dwt. In the early 2000s, a typical dry or liquid bulk ship was 2–3 times larger than a container ship newbuilding, while at present new container ships are the vessel type with the largest average tonnage.

B. DEVELOPING COUNTRY PARTICIPATION IN MARITIME BUSINESS

Throughout most of the twentieth century, the maritime business was concentrated in developed countries, with national fleets that were generally built, owned, operated and staffed by nationals of the same countries whose flag the ships flew. Today, few countries maintain their participation in all maritime businesses, but instead specialize in selected maritime subsectors. The process of specialization has provided opportunities for developing countries, which are increasing their participation in practically all maritime businesses. Policymakers have an interest in identifying those maritime sectors in which their countries currently participate or may in future participate.

To assist policymakers in depicting their country's market shares and trends in maritime sectors, UNCTAD, in March 2016, launched a set of maritime country profiles on a dedicated website (<http://stats.unctad.org/maritime>). A total of 230 maritime country profiles are available; each profile consists of six blocks, as follows:

- Basic data: Core data on the economy, trade and maritime sectors
- Market shares: Share in selected maritime sectors (ship registration, owning, building and demolition and container port traffic), population, GDP and coastline and merchandise trade
- Merchandise trade: Commodities traded (all transport modes), trade balance and main partners
- Trade in transport services: Basic trade in services data, including trade in transport services, and trade balance in such services
- Nationally flagged fleet: Trends, and composition with regard to types of ships
- Liner shipping connectivity: Position in global liner shipping network, including timeline of national liner shipping connectivity index, and list of States with greatest bilateral connectivity.

In interpreting the sample maritime country profile shown in figure 2.3, the following may be inferred about Chile: it has a GDP per capita above the world average, and its share of the world's GDP (0.33 per cent) is higher than its share of the world's population (0.24 per cent); it is an open economy, as it has a higher share in international trade than GDP; it has a merchandise trade surplus and its main export markets are China, the United States and Japan; it depends highly on containerized shipping, accounting for 0.55 per cent of the world's container port traffic; its nationally owned fleet is mostly foreign flagged, as its share in fleet ownership (0.14 per cent) is higher than its share in the nationally flagged fleet (0.05 per cent); and there is no significant shipbuilding or demolition taking place.

In comparing the maritime country profiles of different countries, specializations in different subsectors may be noted. It is usually not possible to remain in business in all port and shipping-related activities, and certain choices must be made. Three such choices and possible trade-offs are illustrated in the following paragraphs.

Do policymakers favour national shipowners or national seafarers? To remain competitive, a national shipowner may wish to employ foreign seafarers, due to the lower costs involved, to the detriment of national seafarers. To be allowed to do so, the owner may need to register ships under a foreign flag. Policymakers can make it more or less attractive to register under national flags, for example through the tax system, or through cargo reservation regimes.

Does national policy prioritize the facilitation of international trade or the provision of transport services? In some countries, liner shipping companies are still allowed to engage in conferences, which may include the joint setting of freight rates. Shippers (that is, users of transport services) consider such price fixing as detrimental to their interests, while shipping companies that enjoy such a conference regime state that this helps them

Figure 2.3 Sample UNCTAD maritime country profile: Chile

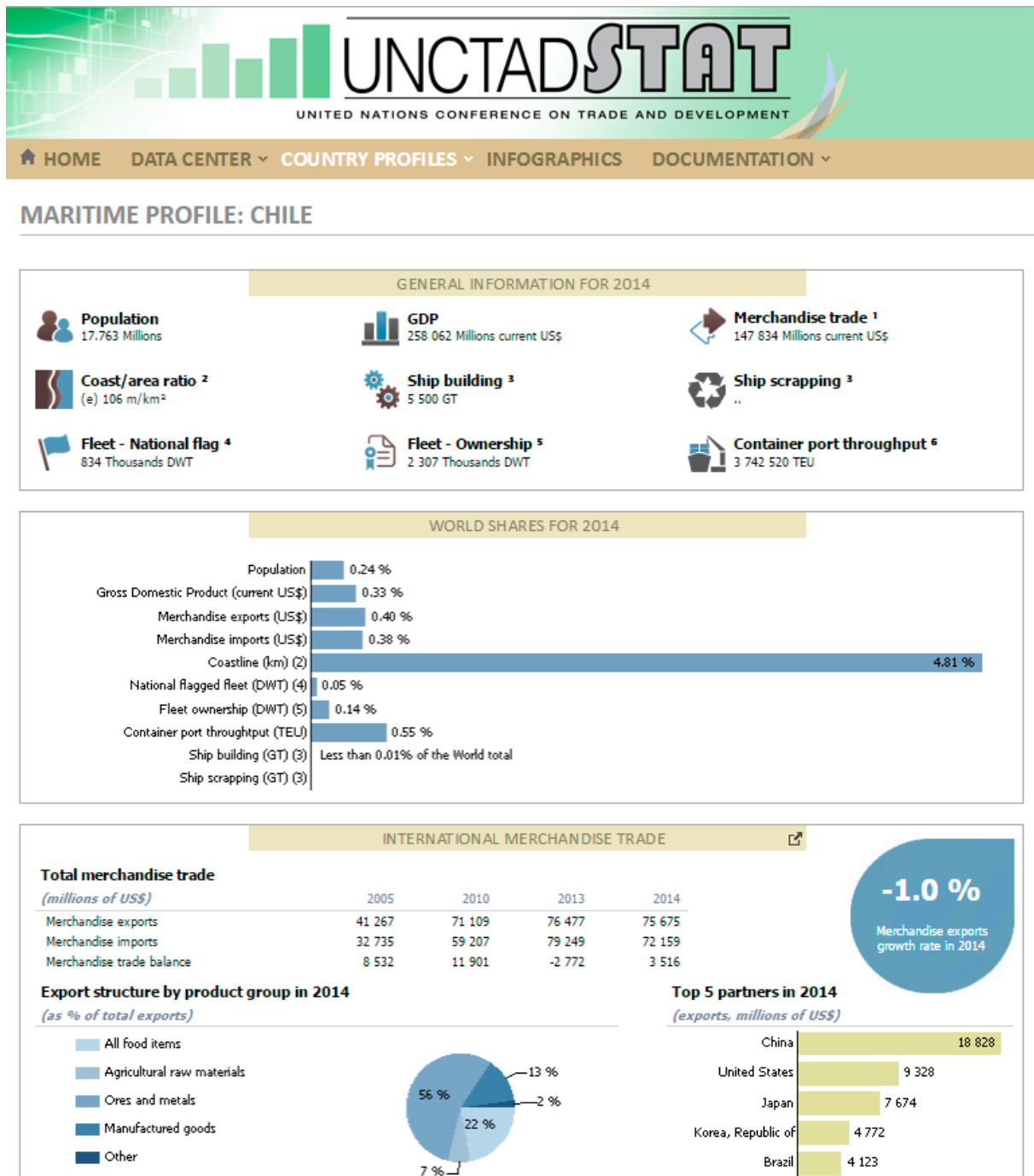
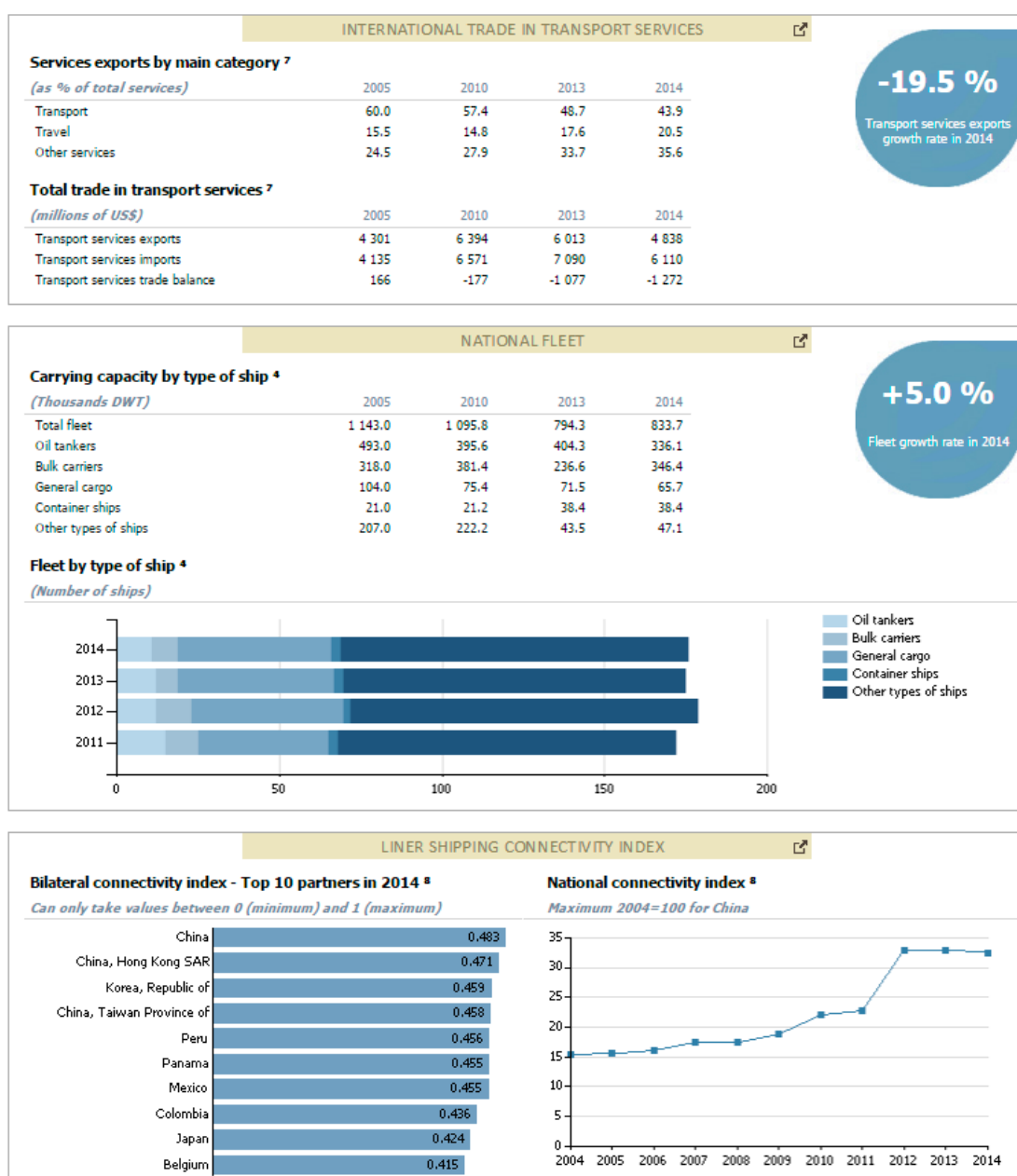


Figure 2.3 Sample UNCTAD maritime country profile: Chile (continued)

Source: UNCTADstat (<http://unctadstat.unctad.org>)**Notes:**

- 1 Sum of exports and imports.
- 2 Coastline length based on data calculated in 2006 from the World Vector Shoreline database at 1:250 000 scale.
- 3 Registered seagoing merchant vessels of 100 GT and above. Source: Clarkson Research.
- 4 Registered seagoing merchant vessels of 100 GT and above, on 1 January. Source: Clarkson Research.
- 5 Registered seagoing merchant vessels of 100 GT and above, on 1 January. Source: Clarkson Research.
- 6 TET: Tonnage Equivalent Unit. Source: UNCTAD Secretariat, derived from various sources including Dynamics SH Publications, terminal operators and port authorities.
- 7 Statistics presented correspond to the 8th edition of the IMF Balance of Payments and International Investment Position Manual, 2009 (BPM4, 2009).
- 8 Source: UNCTAD Secretariat, generated from data provided by Vessels List Intelligence.
- 9 Estimated.

Symbols for missing values:

- 0 Zero means that the amount is nil or negligible
- Not available or not separately reported
- .. Not applicable
- Not available, including no quotation
- ± Non-relevant calculation
- Not estimable
- *** Rejected accumulation of flows; values included in regional and global totals

Note: GT, gross tons.

provide better services at a more stable freight rate. In the European Union, for example, the anti-trust immunity of liner shipping conferences has been abolished, with a view to increasing competition and reducing freight rates, bearing in mind the interests of shippers.

Are policymakers more concerned about the nationally flagged fleet or the attractiveness of national seaports? In many countries, maritime cabotage (shipping between two national seaports) remains reserved for nationally flagged ships, at times for reasons of national security. Such a cargo reservation regime also protects national shipowners and seafarers employed on nationally flagged ships from foreign competition, and may help generate business for national shipyards, if legislation includes an obligation to deploy nationally built vessels on cabotage services. At the same time, such a limitation puts national ports at a disadvantage when competing for trans-shipment services. For example, cabotage restrictions in Argentina, India, Malaysia and the United States have effectively enhanced the competitiveness of trans-shipment services in, respectively, Uruguay, Sri Lanka, Singapore and the Bahamas.

In the following sections, the participation of developing countries in ship registration, owning, building, demolition and operation and in seafaring are addressed in greater detail.

C. OWNERSHIP AND OPERATION OF WORLD FLEET

1. Shipowning countries

The leading shipowners among developing countries are in Asia, led by China and Singapore (table 2.3). Developed countries still account for almost 60 per cent of global vessel ownership (figure 2.4), although the share of developing countries has been increasing. Among the top 35 shipowning economies, 18 are in Asia, 13 in Europe and 4 in the Americas. By subregion, the largest shipowning countries in Africa are Angola (5.4 million dwt), Nigeria and Egypt; in South America, Brazil (15.8 million dwt), the Bolivarian Republic of Venezuela and Chile; in South Asia, India (21.7 million dwt), Bangladesh and Pakistan; and in South-East Asia, Singapore (95.3 million dwt), Indonesia and Malaysia (for details of all shipowning countries and a complete listing of nationally owned fleets, see <http://stats.unctad.org/fleetownership>).

Different shipowning countries also specialize in different vessel types (figure 2.5). Countries with economies in transition have the highest share of oil tankers, many of which are owned by the Russian Federation. A high share of offshore supply vessels is owned by developing countries in Africa and the Americas, notably Angola, Brazil, Mexico and Nigeria.

2. Container ship operators

Among the different vessel types, container ships are the most frequently operated by companies that do not own the ships. Ship deployment and services are decided not by a shipowner but by a liner shipping company that may charter ships from owners and managers. Charter-owning companies, such as Anglo-Eastern, NSB and V.Ships, are often less well known by the public compared with liner operators, such as Maersk and Evergreen, whose names are visible on the ships they operate and who offer their services to traders. Liner companies decide on service patterns and vessel deployment, and an analysis of container shipping services thus needs to focus on operators rather than on owners.

As at end-July 2016, Maersk was the largest liner shipping company (table 2.4) in terms of operated container ship capacity by TEU, with a market share of 15.1 per cent, followed by Mediterranean Shipping Company (13.4 per cent), CMA CGM (9.2 per cent),² China Ocean Shipping (Group) Company (7.8 per cent) and Hapag-Lloyd (4.8 per cent). Four of the top five carriers are European, with the majority of the remaining top 20 based in Asia, and none in Africa or the Americas (as Compañía Sud Americana de Vapores, based in Chile, has merged with Hapag-Lloyd).

In 2016, the average size of ships in the order book is 8,508 TEUs, more than double the existing average vessel size. That is, ships entering the market in the coming months and years will be far larger than those currently in use. In total, the order book is at 18 per cent of existing capacity (as at July 2016).

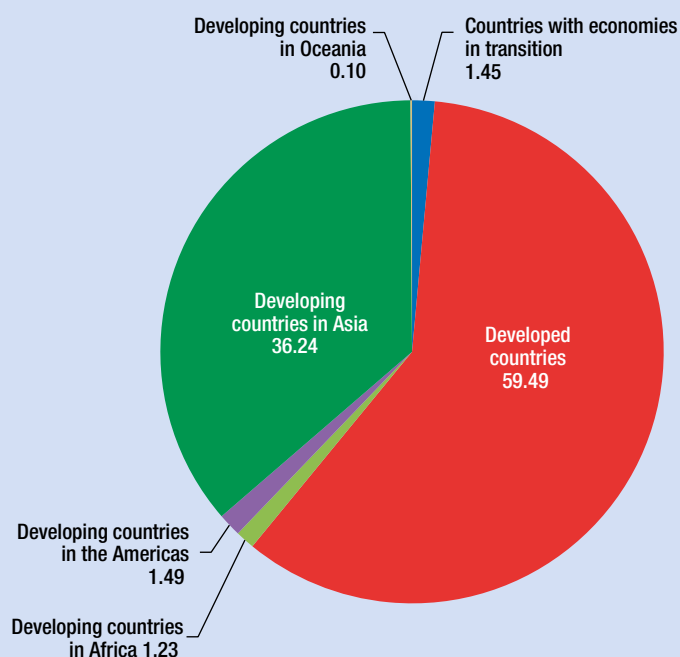
Since 2015, there has been a further process of concentration among container ship operators. Recent and expected mergers include those between China Ocean Shipping Company and China Shipping Container Lines (both from China) and between Hapag-Lloyd (Germany) and United Arab Shipping Company (Kuwait), and the acquisition by CMA

Table 2.3 Ownership of world fleet, 2016

Country or territory	Number of vessels			Dead-weight tonnage			Foreign flag as percentage of total	Total as percentage of world
	National flag	Foreign flag	Total	National flag	Foreign flag	Total		
1 Greece	728	3 408	4 136	64 704 141	228 383 091	293 087 231	77.92	16.36
2 Japan	835	3 134	3 969	28 774 119	200 206 090	228 980 209	87.43	12.78
3 China	3 045	1 915	4 960	74 106 227	84 778 140	158 884 367	53.36	8.87
4 Germany	240	3 121	3 361	11 315 790	107 865 615	119 181 405	90.51	6.65
5 Singapore	1 499	1 054	2 553	61 763 603	33 548 770	95 312 373	35.20	5.32
6 Hong Kong (China)	854	594	1 448	67 522 162	19 853 100	87 375 262	22.72	4.88
7 Republic of Korea	795	839	1 634	16 107 565	62 726 629	78 834 194	79.57	4.40
8 United States	782	1 213	1 995	8 155 717	52 123 421	60 279 138	86.47	3.36
9 United Kingdom	332	997	1 329	5 247 009	46 194 091	51 441 100	89.80	2.87
10 Bermuda	14	404	418	503 077	47 950 084	48 453 161	98.96	2.70
11 Norway	858	996	1 854	17 576 954	30 610 893	48 187 847	63.52	2.69
12 Taiwan Province of China	122	776	898	5 094 232	41 047 112	46 141 345	88.96	2.58
13 Denmark	398	562	960	16 079 319	22 235 206	38 314 525	58.03	2.14
14 Monaco	-	320	320	-	29 892 471	29 892 471	100.00	1.67
15 Turkey	562	978	1 540	8 311 987	19 639 445	27 951 433	70.26	1.56
16 Italy	575	227	802	15 427 422	7 311 946	22 739 369	32.16	1.27
17 Belgium	93	156	249	7 522 451	14 575 301	22 097 752	65.96	1.23
18 India	815	132	947	15 699 868	5 977 855	21 677 723	27.58	1.21
19 Switzerland	47	320	367	1 523 873	18 956 258	20 480 131	92.56	1.14
20 Russian Federation	1 325	355	1 680	6 727 958	11 415 747	18 143 705	62.92	1.01
21 Islamic Republic of Iran	168	65	233	4 051 601	13 786 700	17 838 301	77.29	1.00
22 Netherlands	771	458	1 229	6 682 312	10 758 780	17 441 092	61.69	0.97
23 Indonesia	1 607	105	1 712	15 141 943	2 145 145	17 287 088	12.41	0.96
24 Malaysia	466	155	621	8 450 122	8 341 174	16 791 296	49.68	0.94
25 Brazil	236	151	387	3 695 541	12 087 869	15 783 410	76.59	0.88
26 United Arab Emirates	103	712	815	483 733	15 006 924	15 490 657	96.88	0.86
27 Saudi Arabia	100	146	246	2 905 434	11 084 021	13 989 455	79.23	0.78
28 France	179	283	462	3 484 683	8 707 221	12 191 904	71.42	0.68
29 Canada	208	154	362	2 582 779	7 283 792	9 866 571	73.82	0.55
30 Kuwait	43	37	80	5 318 686	3 902 986	9 221 672	42.32	0.51
31 Cyprus	128	144	272	3 332 921	5 717 105	9 050 026	63.17	0.51
32 Viet Nam	797	99	896	6 791 347	1 507 502	8 298 849	18.17	0.46
33 Oman	6	33	39	5 850	7 104 727	7 110 577	99.92	0.40
34 Thailand	327	62	389	5 066 934	1 659 327	6 726 261	24.67	0.38
35 Qatar	53	77	130	768 614	5 829 361	6 597 975	88.35	0.37
Total of top 35 shipowning countries	19 111	24 182	43 293	500 925 974	1 200 213 898	1 701 139 872	70.55	94.95
All others	2 727	2 495	5 222	30 447 669	51 631 975	82 079 644	59.70	4.58
Total with known country of ownership	21 838	26 677	48 515	531 373 643	1 251 845 873	1 783 219 516	70.20	99.53
Others of unknown country of ownership	-	-	708	-	-	8 364 884	-	0.47
World total	-	-	49 223	-	-	1 791 584 400	-	100.00

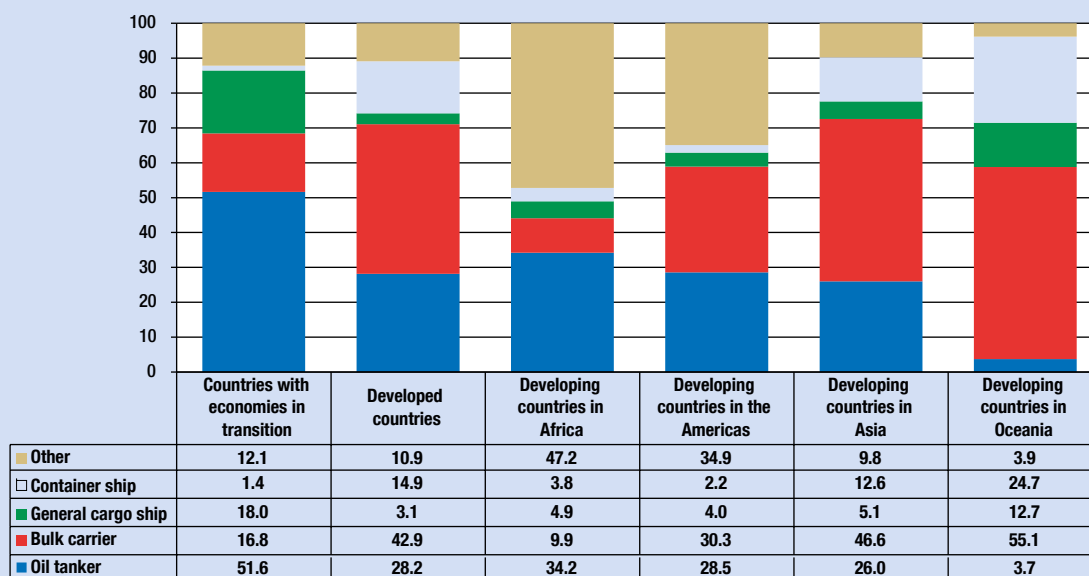
Source: UNCTAD secretariat calculations, based on data from Clarksons Research.

Note: Propelled seagoing merchant vessels of 1,000 gross tons and above, as at 1 January, ranked by dwt.

Figure 2.4 Share of vessel ownership by country grouping, 2016 (Percentage)

Source: UNCTAD secretariat calculations, based on data from Clarksons Research.

Note: Propelled seagoing merchant vessels of 1,000 gross tons and above, as at 1 January.

Figure 2.5 Nationally owned fleets by principal vessel type and country grouping, 2016 (Percentage share of dead-weight tonnage)

Source: UNCTAD secretariat calculations, based on data from Clarksons Research.

Note: Propelled seagoing merchant vessels of 1,000 gross tons and above, as at 1 January.

CGM (France) of Neptune Orient Lines (Singapore). In addition, the main operators continue to extend their collaboration in the form of alliances. During the most recent adjustments, the top 16 carriers joined forces in three global alliances, down from four at the beginning of the year, and Hyundai Merchant Marine will reportedly join the alliance between Maersk and Mediterranean Shipping Company (Murphy, 2016). Sanchez and Mouftier (2016) estimate that the level of concentration, with the most recent mergers and alliance arrangements taken into account, as captured by the commonly used Herfindahl Hirschman index, increased by more than 70 per cent in 2014–2016. Despite this increase, the index level suggests a moderately concentrated market. An alternative way to consider the level of concentration is by market share in terms of actual container carryings rather than container ship capacity. DynaLiners (2016) reported the following figures for 2015: Maersk was the leading carrier, with 19,044,000 carryings, giving it a market share of 12.3 per cent; China Ocean Shipping Company and China Shipping Container Lines (separate companies in 2015) together ranked second, with 17,637,100 carryings (a market share of 11.4 per cent); Mediterranean Shipping Company ranked third, with 15,311,600 carryings. In 2015, the top 25 companies increased carryings by 4 per cent over 2014, while those of smaller companies declined by 27 per cent. This also reflects a global process of concentration.

3. How big is too big?

Container ships have never been bigger than at present, and container freight rates have rarely been lower (see chapter 3). In March 2016, the idle container ship fleet stood at 1.6 million TEUs (see <http://www.alphaliner.com>). In June 2016, for example, a shipper could pay less than \$800 for a forty-foot container shipped from Shanghai to the west coast of North America (Clarksons Research, 2016). In addition, in 2016, the largest bankruptcy ever to take place in container shipping unfolded, after the board of Hanjin Shipping voted unanimously to file for court receivership (*The Load Star*, 2016).

The oversupply of tonnage is the result of past investment decisions and slower-than-expected demand growth. When the ships currently entering the market were ordered, the owners placing the orders had expected the economy in 2016 to be stronger. Individual carriers typically respond to such a situation by trying to reduce costs and raise

market shares, often by investing in modern large container ships to save fuel costs and achieve economies of scale, and seeking mergers to better control the market, which is necessary to fill the new large ships. This makes sense from an individual company perspective, yet a bigger picture outlook also shows three further considerations, as addressed in the following paragraphs.

First, old ships may be replaced, but do not exit the market. Overcapacity usually remains, unless scrapped, and most of the container ship fleet is too new to be demolished. In the end, all carriers are confronted with historically low freight rates. Overinvestment is not in the interest of the liner business.

Second, larger ships may cut unit costs for carriers, but total system costs are not reduced and might actually rise. The costs of mega-ships to the logistics system may outweigh the benefits. The additional costs for ports, insurance companies, onward transport providers and the overall network structure (that is, with more transshipments but fewer direct services) lead to higher total system costs as vessel sizes grow. This applies not only to those ports and routes that have to accommodate the largest ships but, due to a cascading effect, is also relevant in many smaller and developing country markets. Overinvestment is not in the interest of carrier logistics partners.

Third, as ships get bigger they need be filled with cargo. As a result, there is space for fewer carriers in individual markets, leading to a continued process of concentration. While lower freight rates may be beneficial for shippers in the short term, in the long term there is a danger of more markets with oligopolistic market structures. Overinvestment is not in the long-term interest of shippers, at least in smaller markets.

These reasons for not investing in more and larger container ships are not relevant for individual carriers. As a commercial entity, such a carrier must consider its returns and will not accept staying behind competitors. Still, for some carriers, diseconomies of scale have certainly been reached, as they cannot cover their fixed costs if ships are not reasonably full.

In the long term, there is scope for further consolidation. Logistics partners (ports and rail and trucking service providers) will do their best to adapt to growing vessel sizes, and the optimal vessel size for the logistics system will become larger. In the meantime, the pressure on maritime freight rates will continue, and the resulting low trade costs may help the global economy recover.

Table 2.4 Leading 50 liner shipping companies by number of ships and total shipboard capacity deployed in twenty-foot equivalent units

Ships	End-2014		End-2015		End-2016		Average vessel size	Market share (percentage)
	Ships	Capacity	Ships	Capacity	Ships	Capacity		
1 Maersk	592	2 792 124	619	3 059 984	616	3 007 392	4 882	15.1
2 Mediterranean Shipping Company	477	2 495 439	479	2 703 404	465	2 661 135	5 723	13.4
3 CMA CGM	454	1 691 290	459	1 873 439	435	1 829 951	4 207	9.2
4 China Ocean Shipping (Group) Company	272	1 524 588	283	1 608 456	268	1 554 434	5 800	7.8
5 Hapag-Lloyd	186	974 430	182	978 663	174	956 194	5 495	4.8
6 Evergreen	199	947 159	194	949 492	189	937 957	4 963	4.7
7 Hamburg Süd	126	584 944	138	670 029	132	651 549	4 936	3.3
8 Hanjin Shipping	98	595 056	110	648 043	101	617 665	6 115	3.1
9 Orient Overseas Container Line	103	527 827	109	571 429	111	589 476	5 311	3.0
10 Neptune Orient Lines – American President Lines	99	604 073	90	567 635	89	564 028	6 337	2.8
11 Mitsui Osaka Shosen Kaisha Lines	106	560 678	98	542 909	93	531 376	5 714	2.7
12 Yang Ming Marine Transport	85	389 614	100	542 127	97	520 580	5 367	2.6
13 United Arab Shipping Company	53	338 532	51	452 510	54	510 296	9 450	2.6
14 Nippon Yusen Kaisha	104	508 801	101	493 443	100	500 165	5 002	2.5
15 Hyundai Merchant Marine	63	385 753	56	381 728	57	401 152	7 038	2.0
16 Kawasaki Kisen Kaisha Limited – K Line	69	340 347	71	397 557	68	380 851	5 601	1.9
17 Zim Integrated Shipping Services	83	350 255	85	368 884	79	343 598	4 349	1.7
18 Pacific International Lines	171	410 512	135	336 699	129	332 403	2 577	1.7
19 Wan Hai Lines	85	195 481	92	217 847	98	255 124	2 603	1.3
20 X-Press Feeders	81	127 021	75	116 709	82	131 686	1 606	0.7
21 Republic of Korea Marine Transport Company	65	103 130	65	109 012	66	112 659	1 707	0.6
22 Islamic Republic of Iran Shipping Lines	28	93 372	27	92 674	27	92 674	3 432	0.5
23 Shandong International Transportation Corporation	65	76 254	76	98 573	73	90 909	1 245	0.5
24 Arkas Container Transport	40	58 498	45	67 237	45	68 388	1 520	0.3
25 T S Lines	38	70 245	44	91 308	33	61 512	1 864	0.3
26 Simatech Shipping	15	36 269	20	55 984	20	58 802	2 940	0.3
27 Regional Container Lines	30	52 096	30	54 771	30	56 790	1 893	0.3
28 Sinokor Merchant Marine	29	41 656	36	45 121	40	56 636	1 416	0.3
29 Nile Dutch	30	95 296	16	48 867	15	49 866	3 324	0.3
30 Transworld Group of Companies	23	34 730	24	40 256	28	46 379	1 656	0.2
31 Heung-A Shipping	33	41 263	35	49 199	34	39 777	1 170	0.2
32 Matson	24	52 223	20	40 952	19	39 484	2 078	0.2
33 Unifeeder	56	57 856	40	43 395	37	39 259	1 061	0.2
34 China Merchants Group	27	39 471	29	37 238	29	38 508	1 328	0.2

Table 2.4 Leading 50 liner shipping companies by number of ships and total shipboard capacity deployed in twenty-foot equivalent units (*continued*)

Ships	End-2014		End-2015		End-July 2016			
	Ships	Capacity	Ships	Capacity	Ships	Capacity	Average vessel size	Market share (percentage)
35 Emirates Shipping Line	3	7 867	9	41 611	8	36 267	4 533	0.2
36 Samudera	23	22 116	26	31 480	28	33 280	1 189	0.2
37 Seaboard Marine	23	27 096	25	35 767	20	27 121	1 356	0.1
38 Salam Pacific Indonesia Lines	33	23 404	34	24 162	34	25 687	756	0.1
39 Namsung Shipping Company	32	28 275	29	26 437	28	24 857	888	0.1
40 Meratus Line	26	24 067	25	22 504	26	24 613	947	0.1
41 Shipping Corporation of India	8	25 574	7	23 252	6	22 517	3 753	0.1
42 Quanzhou Ansheng Shipping Company	8	22 307	8	21 721	8	21 721	2 715	0.1
43 Tanto Intim Line	31	20 329	31	20 485	31	20 485	661	0.1
44 Zhonggu Shipping	1	4 113	6	19 912	6	19 912	3 319	0.1
45 Western European Container Lines	17	15 782	17	16 018	21	19 693	938	0.1
46 Log-in Logistica Intermodal	8	19 399	8	19 005	8	19 005	2 376	0.1
47 Turkon Line	11	15 492	10	15 509	10	15 509	1 551	0.1
48 Temas Line	18	11 194	18	11 194	23	14 849	646	0.1
49 Dole Fresh Fruit	7	8 829	9	11 465	10	14 776	1 478	0.1
50 Far Shipping	15	19 783	13	19 085	10	14 499	1 450	0.1
Top 50	4 273	17 491 910	4 309	18 715 181	4 210	18 483 446	4 390	93.1
All others	838	761 375	921	1 020 292	1 014	1 371 289	1 352	6.9
World total	5111	18 253 285	5 230	19 735 473	5 224	19 854 735	3 801	100.0

Source: UNCTAD secretariat calculations, based on data from Clarksons Research.

Note: Includes all container ships known to be operated by liner shipping companies ranked by total TEUs. Source: UNCTAD secretariat calculations, based on data from Clarksons Research.

Note: Includes all container ships known to be operated by liner shipping companies ranked by total TEUs.

D. CONTAINER SHIP DEPLOYMENT AND LINER SHIPPING CONNECTIVITY

1. Country-level connectivity

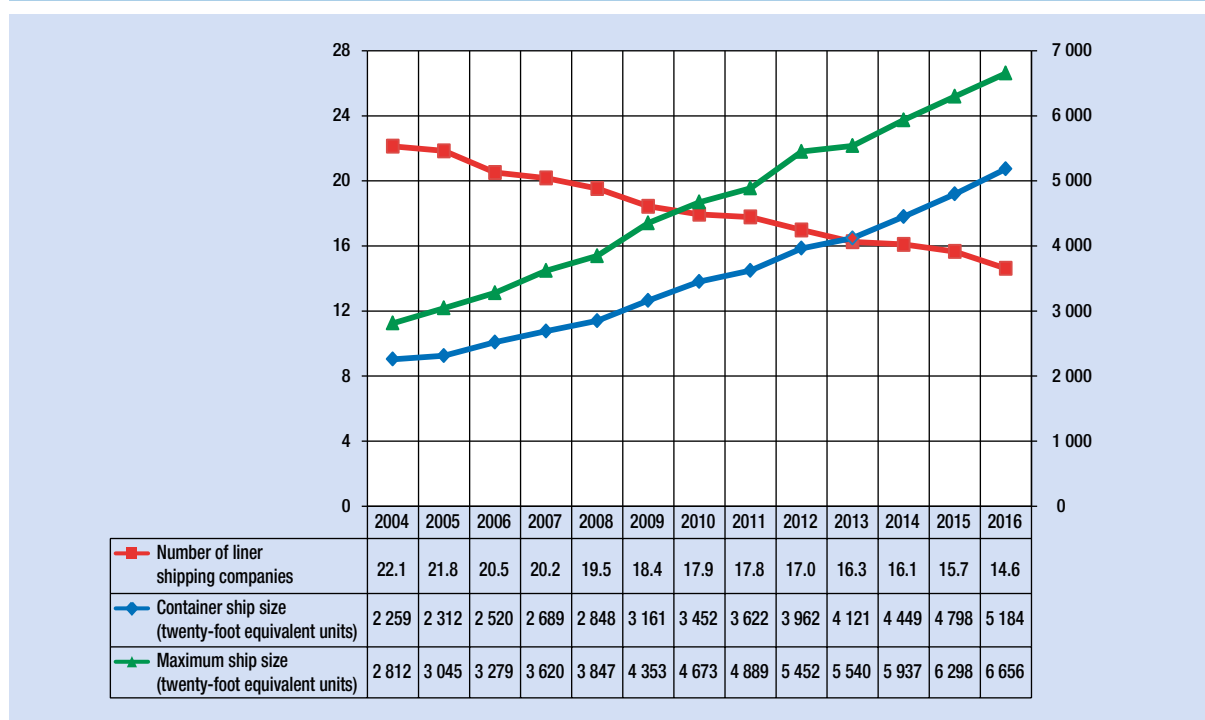
The trend towards consolidation in the industry is also reflected in the data on fleet deployment. Container ship sizes per country – both average and maximum – are rising, while the number of companies providing services to and from the average country's seaports is falling (figure 2.6).

The number of carriers competing for the average country's cargo has declined by 34 per cent in 12 years, from 21.1 carriers in 2004 to 14.6 carriers in 2016. While 14.6 companies per country would usually suffice to guarantee a competitive market, the average does not reveal the growing number of countries in which there are only a few providers offering container services, leading to potentially oligopolistic markets. In 2004, there

were 44 countries with five or fewer providers, compared with 56 such countries in 2016; an increase of 27 per cent. In the same period, UNCTAD recorded a doubling in the number of countries with only one provider, from 5 countries in 2004 to 10 countries in 2016.

The overall position of a country in global container shipping networks is reflected in the liner shipping connectivity index. In May 2016, the best-connected countries, that is, those with the highest index LSCI, were Morocco, Egypt and South Africa in Africa; China and the Republic of Korea in Eastern Asia; Panama and Colombia in Latin America and the Caribbean; Sri Lanka and India in South Asia; and Singapore and Malaysia in South-East Asia (for the index for all coastal countries in 2004–2016, see <http://stats.unctad.org/maritime>). While the average index LSCI has increased continuously since first generated in 2004, several countries have not improved their connectivity over the last decade. Experience suggests that there are three main policy areas that, if focused on, can help to improve a country's index LSCI, as detailed in the following paragraphs.

Figure 2.6 Averages per country, 2004–2016: Number of liner shipping companies, container ship size and maximum ship size



Source: UNCTAD secretariat calculations, based on data from Lloyd's List Intelligence.

Note: Data represent averages per country based on vessel deployment in 160 countries.

The first policy area is increasing the volume of cargo in port hinterlands. To widen the hinterland (that is, expand the market for a port's services), it is important to facilitate international trade and transit, in order that cargo from clients from neighbouring countries may more easily reach the port. For example, in Western Africa, the ports of Benin, Côte d'Ivoire, Ghana, Nigeria and Togo compete for cargo from neighbouring landlocked countries. However, inland transport is expensive, and inefficient border-crossing procedures combined with roadblocks make it difficult to expand the hinterland. One way to improve shipping connectivity in countries in Western Africa would be by improving intermodal inland transport and trade connectivity.

The second policy area is ensuring that markets are competitive. Ideally, shippers should have a choice among different terminals and trucking and shipping companies. Any restriction on transport services, such as cargo reservation regimes in trucking or cabotage restrictions in shipping, leads to lower maritime connectivity.

The third policy area is fulfilling liner company demand for efficient and modern seaports. This includes

physical infrastructure to accommodate ever-larger vessels, with the necessary water depth and ship-to-shore container handling cranes. Modern port operations and customs are also necessary to avoid delays and uncertainties, which in turn help to improve transport connectivity.

2. Bilateral connectivity

The highest bilateral connectivity is found in intraregional services, notably intra-Asian and intra-European. Among the top 10 routes in terms of TEU-carrying capacity, only one is intercontinental, namely, China–United States (table 2.5). The largest ships are deployed on Asia–Europe services, including the corresponding intraregional connections. North America is not yet served by the largest mega-vessels, either on the North Atlantic route or services from China. This is not likely to change in the foreseeable future as, even after the opening of the expanded Panama Canal, the new neo-Panamax ships carry only up to 13,000–14,000 TEUs, less than the 19,224 TEUs of the largest existing container ships.

Table 2.5 Container ship deployment on top 10 routes, 1 May 2016

<i>Direct services</i>	<i>Total twenty-foot equivalent units deployed</i>	<i>Number of companies (vessel operators)</i>	<i>Largest vessel (twenty-foot equivalent units)</i>
China–Republic of Korea	5 408 608	43	19 224
China–Singapore	5 277 023	34	19 224
China–Hong Kong (China)	4 289 451	43	16 652
China–Malaysia	4 270 653	29	19 224
Germany–Netherlands	3 645 488	35	19 224
Germany–United Kingdom	3 598 791	31	19 224
Netherlands–United Kingdom	3 311 277	40	19 224
China–United States	3 095 080	25	14 036
Malaysia–Singapore	2 787 121	47	19 224
Belgium–Germany	2 717 078	30	19 224
China–Taiwan Province of China	2 694 478	34	14 080

Source: UNCTAD secretariat calculations, based on data from Lloyd's List Intelligence.

3. Connecting through the Panama Canal

In June 2016, successfully concluding a nine-year project estimated to have cost \$5.4 billion, the Panama Canal inaugurated an expanded set of longer and deeper locks. Before the expansion, vessels with a beam exceeding 32.3 m could not pass; the new locks allow the passage of ships with a beam of up to 49 m. Several services on the Asia–United States East Coast route via the Panama Canal have already been upsized to neo-Panamax vessels (Clarksons Research, 2016). As a result, as at June 2016, 85 per cent of the global fleet of container ships in terms of TEUs is neo-Panamax or smaller and can thus offer services through the Canal. This is a significant increase compared with the situation before the expansion, when only 37 per cent of the global container ship fleet was Panamax or smaller (Clarksons Research, 2016). The change in the order book is similar, that is, before the expansion, only 15 per cent of the ships in the order book were small enough to pass through the former Canal, and this share has now increased to more than 50 per cent. There are also plans for the conversion of existing ships. NSB (2016) has reported plans to widen container ships by enlarging ships of 4,880 TEUs to 6,330 TEUs, to match the dimensions of the new Panama Canal; cargo capacity may thereby be increased by 30 per cent, and fuel consumption per 14-ton average container load decreased by 50 per cent.

The expansion provides opportunities, both for Panama and for the countries whose international trade passes through the Canal. For Panama, there are three main benefits. First, the additional capacity will generate additional direct transit fees and open up additional markets, for example, by allowing for the passage of large gas carriers for the first time. Second, ports in Panama will generate additional trans-shipment business. Third, importers and exporters from Panama will benefit from additional connectivity and lower trade costs, as larger ships and more competition may help ensure that carrier savings due to economies of scale are passed on to clients in the form of lower freight rates. For clients of the Canal, in absolute terms, the largest impact will be the improved competitiveness of services between Asia and the east coast of North America. The all-water route through the Panama Canal gains in competitiveness against its main rivals, namely, the land bridge across North America and the Suez Canal. From a client perspective, importers and exporters on the west coast of South America may be among the major beneficiaries, as they will have more options to connect with Europe and North America through the Canal. Finally, further opportunities also arise for Caribbean and Latin American ports, which may expect to attract some of the trans-shipment business as far larger ships will be employed on routes passing near Colombia, Cuba, Jamaica and other countries. As the difference in size between the largest and smallest container ships widens, so does the economic incentive to trans-ship cargo, with a

view to ensuring that the optimal size of vessel is used on each leg of a trade route.

E. REGISTRATION

The tonnage registered under a foreign flag (that is, where the nationality of an owner differs from the flag flown by a vessel) is 70.2 per cent of the world total (table 2.3). The system of open registries (that is, where the owner and flag are from different countries) has been an opportunity for many developing countries – including many small island developing States, such as the Marshall Islands, and least developed countries, such as Liberia – to provide the services of vessel registries. At the same time, the majority of shipowners remain in developed countries, and it is due to the system of open registries that they may remain competitive against fleets owned by companies based in developing countries. For example, under the flags of Liberia, the Marshall Islands or Panama, an owner from Germany or Japan can employ third-country seafarers, for example from Indonesia or the Philippines, who work for lower wages than their German or Japanese colleagues. As at 1 January 2016, Panama, Liberia and the Marshall Islands continued to be the largest vessel registries, together accounting for 41.0 per cent of world tonnage, with the Marshall Islands recording the highest growth among major registries, at 12 per cent over 2015 (table 2.6). The top 10 registries account for 76.8 per cent of the world fleet in terms of dwt.

More than 76 per cent of the world fleet is registered in developing countries (including many open registries), a further increase over 2015 (table 2.7). Some nationally flagged fleets are also nationally owned. Notably, in countries with long coasts and important cabotage and interisland traffic, national legislation often limits the options of shipowners to flag out. For example, many of the ships flying the flags of China, India, Indonesia and the United States are deployed on cabotage services (for a complete list see <http://stats.unctad.org/fleet>). With regard to the share of regional groups among the national flags of the world fleet, 11.42 per cent of the 12.97 per cent of tonnage registered in Africa flies the flag of Liberia and 11.07 per cent of the 11.49 per cent of tonnage registered in Oceania flies the flag of the Marshall Islands (table 2.7). Put differently, 88 per cent of the African-registered fleet flies the flag of Liberia and more than 96 per cent of the Oceania-registered fleet flies the flag of the Marshall Islands.

Different registries focus on different vessel types. Antigua and Barbuda has the largest market share of general cargo multipurpose vessels, while Liberia is the most important registry for container ships, the Marshall Islands for oil tankers and Panama for dry bulk carriers. One reason for such specialization is traditional linkages with shipowning countries. Japan – with a large share of dry bulk carriers – often registers its ships in Panama. Germany – specializing mostly in container ships – has a close relationship with Liberia; the two States have an income tax treaty or double taxation agreement, which is beneficial for German officers employed on ships flagged in Liberia (German Federal Ministry of Finance, 1975).

F. SEAFARERS

The world fleet provides approximately 1,545,000 jobs for seafarers in international shipping (Baltic and International Maritime Council and International Chamber of Shipping, 2016). Approximately 51 per cent of positions are for officers, compared with 49 per cent for ratings, that is, non-officer sailors such as able seafarer or ordinary seafarer (in 2005, the ratio was 45 per cent officers compared with 55 per cent ratings). For the first time in history, the proportion of officers is higher than that of ratings, reflecting technological advances and lower demand for manual on-board work. On-board employment provides an example of the importance of economies of scale in shipping. For example, a crew of 14 or 15 seafarers is required for a container ship or dry bulk carrier of 10,000 gross tons. A ship of 10 times the size (100,000 gross tons) does not require 10 times more seafarers, but can operate well with 19 or 20 seafarers.

In 2005–2015, global demand for seafarers increased by 45 per cent, roughly in line with the growth of the world fleet in the same period. The highest numbers of seafarers are provided by China (243,635), followed by the Philippines (215,500), Indonesia (143,702), the Russian Federation (87,061), India (86,084) and Ukraine (69,000) (Baltic and International Maritime Council and International Chamber of Shipping, 2016). Taking into account population sizes, remittances from seafarers working abroad are significantly more important for the Philippines than for the other major suppliers. For example, as a share of the population, almost 2 of every 1,000 nationals of the Philippines work on board a ship, compared with fewer than 1 of every 10,000 nationals of India. In the Philippines, seafarer remittances in 2015 reportedly amounted to \$5.8 billion, an increase of 5.3 per cent over 2014 (*The Seafarer Times*, 2016). The Government pursues its overseas employment programme with the general objective of

Table 2.6 Flags of registration with largest registered fleets, 2016

	Number of vessels	Vessel share of world total (percentage)	Thousands of dead-weight tons	Share of world total dead-weight tonnage (percentage)	Cumulated share of dead-weight tonnage (percentage)	Average vessel size (dead-weight tons)	Dead-weight tonnage growth, 2015–2016 (percentage)
Panama	8 153	8.97	334 368	18.51	18.51	42 768.99	-0.53
Liberia	3 185	3.50	206 351	11.42	29.93	64 869.88	2.21
Marshall Islands	2 942	3.24	200 069	11.07	41.00	68 073.98	12.03
Hong Kong (China)	2 515	2.77	161 787	8.96	49.96	65 553.85	7.63
Singapore	3 605	3.97	127 193	7.04	57.00	37 028.53	7.50
Malta	2 101	2.31	94 992	5.26	62.26	45 867.66	8.90
Bahamas	1 450	1.59	79 541	4.40	66.66	55 545.18	7.61
China	4 052	4.46	75 850	4.20	70.86	19 845.66	-0.96
Greece	1 386	1.52	73 568	4.07	74.93	63 640.19	-2.49
Cyprus	1 053	1.16	33 313	1.84	76.77	32 405.97	0.46
Japan	5 320	5.85	31 869	1.76	78.54	7 435.49	3.55
Isle of Man	389	0.43	22 539	1.25	79.79	57 940.94	-8.36
Norway	1 561	1.72	20 697	1.15	80.93	15 308.45	3.00
Indonesia	7 843	8.63	18 117	1.00	81.93	3 858.78	3.41
Denmark	671	0.74	17 185	0.95	82.88	27 540.26	4.57
Republic of Korea	1 906	2.10	16 820	0.93	83.82	9 899.83	-5.42
Italy	1 376	1.51	16 470	0.91	84.73	14 296.63	-2.14
India	1 625	1.79	16 338	0.90	85.63	10 439.41	4.58
United Kingdom	1 167	1.28	15 192	0.84	86.47	15 360.50	7.59
United Republic of Tanzania	265	0.29	13 255	0.73	87.21	54 771.44	6.84
United States	3 570	3.93	11 841	0.66	87.86	5 773.27	4.16
Antigua and Barbuda	1 080	1.19	11 506	0.64	88.50	10 723.20	-7.38
Germany	618	0.68	11 402	0.63	89.13	21 675.88	-8.37
Bermuda	156	0.17	10 610	0.59	89.72	69 346.29	-3.17
Malaysia	1 662	1.83	9 612	0.53	90.25	6 787.80	2.19
Turkey	1 276	1.40	8 635	0.48	90.73	8 271.34	2.37
Belgium	200	0.22	8 479	0.47	91.20	45 103.65	-3.24
Portugal	373	0.41	8 398	0.46	91.66	25 295.14	65.12
Russian Federation	2 546	2.80	8 390	0.46	92.13	3 364.06	5.94
Netherlands	1 245	1.37	8 252	0.46	92.58	7 387.92	-2.80
Viet Nam	1 786	1.96	7 670	0.42	93.01	4 488.03	7.24
France	543	0.60	6 856	0.38	93.39	15 870.14	6.84
Philippines	1 462	1.61	6 390	0.35	93.74	5 263.61	4.82
Thailand	782	0.86	5 397	0.30	94.04	7 787.59	0.38
Kuwait	165	0.18	5 364	0.30	94.34	36 995.92	0.08
Top 35 total	70 029	77.03	1 704 316	94.34	94.34	27 697.39	3.70
Rest of world	20 888	22.97	102 334	5.66	5.66	4 899.19	-0.18
World total	90 917	100.00	1 806 650	100.00	100.00	22 757.36	3.48

Source: UNCTAD secretariat calculations, based on data from Clarksons Research.

Note: Propelled seagoing merchant vessels of 100 gross tons and above, as at 1 January, ranked by share of dwt.

Table 2.7 Vessel type capacity by registration country grouping, 2016 (Percentage)

		<i>Total fleet</i>	<i>Oil tankers</i>	<i>Bulk carriers</i>	<i>General cargo</i>	<i>Container ships</i>	<i>Other</i>
Developed countries	Share of dead-weight tonnage	22.75	18.70	27.05	28.20	25.09	25.25
	Annual growth	-0.30	-0.09	-0.14	0.11	-1.07	0.12
Countries with economies in transition	Share of dead-weight tonnage	0.69	0.18	0.04	5.34	0.89	1.24
	Annual growth	-0.02	-0.03	0.00	-0.08	0.03	-0.05
Developing countries	Share of dead-weight tonnage	76.30	81.08	72.87	65.44	73.93	72.00
	Annual growth	0.30	0.11	0.12	-0.08	1.02	-0.08
Of which:							
Africa	Share of dead-weight tonnage	12.97	9.91	19.47	5.87	17.03	9.52
	Annual growth	-0.45	-0.22	-1.37	-0.09	-0.52	-0.56
Americas	Share of dead-weight tonnage	25.01	29.74	18.95	21.38	19.01	30.35
	Annual growth	-0.71	-1.07	-0.52	-0.51	-0.24	-0.51
Asia	Share of dead-weight tonnage	26.82	29.80	28.78	35.00	22.79	20.05
	Annual growth	0.30	0.05	0.51	0.46	0.55	0.53
Oceania	Share of dead-weight tonnage	11.49	11.64	5.66	3.19	15.10	12.08
	Annual growth	0.83	1.09	0.53	0.08	0.88	0.47
Unknown and other	Share of dead-weight tonnage	0.26	0.04	0.05	1.02	0.08	1.51
	Annual growth	0.02	0.01	0.02	0.05	0.03	0.01

Source: UNCTAD secretariat calculations, based on data from Clarksons Research.

Note: Propelled seagoing merchant vessels of 100 gross tons and above, as at 1 January.

Table 2.8 Delivery of newbuildings by principle vessel type and country of build, 2015 (Thousands of gross tons)

	China	Japan	Republic of Korea	Philippines	Rest of world	World total
Oil tankers	2 872	892	4 781	—	425	8 970
Bulk carriers	13 310	10 767	1 588	869	226	26 760
General cargo ships	697	200	329	—	388	1 614
Container ships	4 982	188	9 331	995	639	16 135
Gas carriers	119	667	3 426	—	14	4 227
Chemical tankers	150	193	185	—	116	644
Offshore	860	48	1 488	—	996	3 391
Ferries and passenger ships	103	28	6	—	790	926
Other	47	392	838	—	193	1 470
Total	23 140	13 375	21 971	1 865	3 787	64 137

Source: UNCTAD secretariat calculations, based on data from Clarksons Research.

Note: Propelled seagoing merchant vessels of 100 gross tons and above.

achieving social and economic benefits for migrants from the Philippines, their families, communities and the country as a whole. Remittances have become a constant source of income, superseding even foreign direct investment and overseas development assistance funds received by the Philippines (De Vries, 2011). In some smaller countries, employment as seafarers is even more important. In Kiribati, for example, more than 1 of every 50 nationals works on board a ship.

Countries also differ with regard to the proportion of officers and ratings that work on board ships. Nationals from Greece and Japan that work as seafarers, for example, largely do so as officers, while seafarers from Indonesia, Pakistan and the Philippines are more likely to be employed as ratings (UNCTAD secretariat calculations, based on Baltic and International Maritime Council and International Chamber of Shipping, 2016).

Overall, the market for employment on board is increasingly separate from the country of vessel ownership. Once a ship is registered in one of the major open registries, such as Liberia, the Marshall Islands and Panama, the shipowner may employ foreign nationals at wage levels that depend more on seafarer nationality than on country of ownership or registration.

G. SHIPBUILDING, DEMOLITION AND NEW ORDERS

1. Deliveries of newbuildings

In 2015, 91.3 per cent of shipbuilding by gross tonnage took place in only three countries, namely, China (36.1 per cent), the Republic of Korea (34.3 per cent) and Japan (20.9 per cent) (table 2.8; for more detailed data on other countries see <http://stats.unctad.org/shipbuilding>). These shares are similar to those in 2014, with a slight increase in the share of China and a slight decline in the share of Japan.

China had its largest shares in dry bulk carriers and general cargo ships, the Republic of Korea was strongest in container ships, gas carriers and oil tankers and Japan mostly built dry bulk carriers. The rest of the world – including shipbuilders in Europe – maintained a lead in the construction of ferries and passenger ships, including cruise ships. The Philippines further established its share in the market for container ships.

2. Demolitions

Most demolitions of old ships take place in Asia (table 2.9). Four countries – Bangladesh, China, India and Pakistan – accounted for approximately 95 per cent of known ship scrapping in 2015 (for more detailed data on other countries see <http://stats.unctad.org/shipscraping>). In 2015, the most tonnage demolished was of dry bulk carriers (73 per cent of gross tonnage). Among the other vessel types, Pakistan had the highest share of oil tankers, India of container ships and Bangladesh of offshore.

Table 2.9 Tonnage reported sold for demolition by principle vessel type and country of demolition, 2015 (Thousands of gross tons)

	Bangladesh	China	India	Pakistan	Unknown South Asia	Turkey	Other or unknown	World total
Oil tankers	311	92	110	540	—	24	93	1 169
Bulk carriers	5 758	2 895	3 136	3 559	671	235	563	16 816
General cargo ships	202	134	259	5	—	138	80	818
Container ships	640	415	1 008	—	—	188	35	2 285
Gas carriers	10	203	61	—	—	7	8	289
Chemical tankers	26	—	98	15	—	23	4	166
Offshore	386	26	147	24	—	131	229	943
Ferries and passenger ships	19	—	86	—	—	91	15	212
Other	67	204	34	—	—	16	17	338
Total	7 419	3 970	4 940	4 143	671	852	1 044	23 037

Source: UNCTAD secretariat calculations, based on data from Clarksons Research.

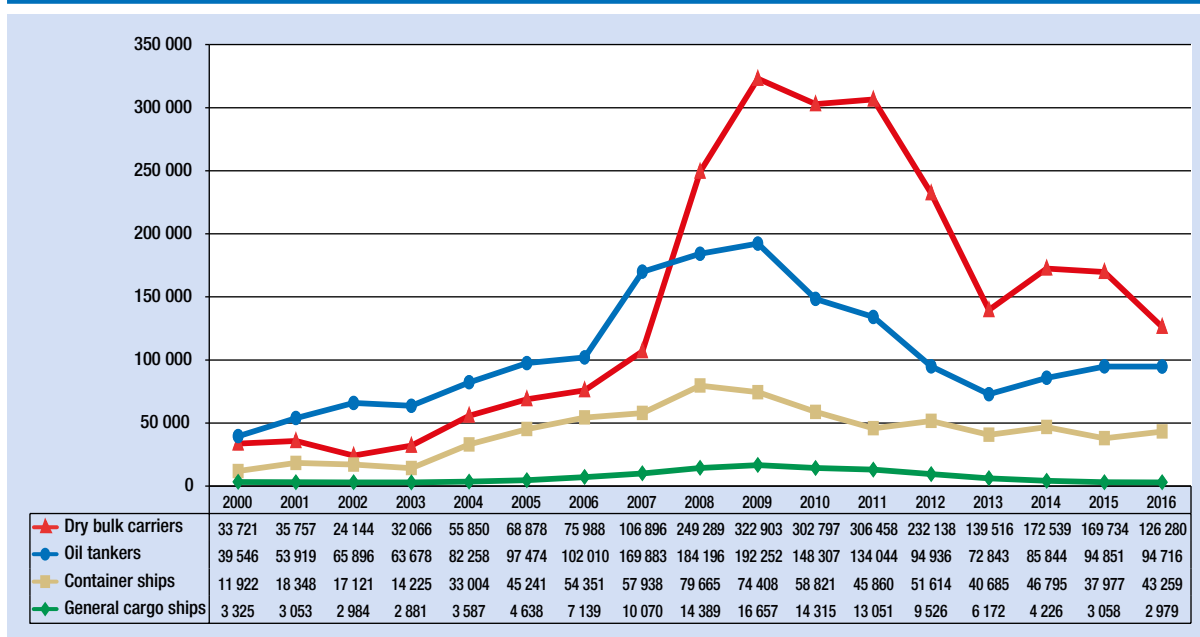
Note: Propelled seagoing merchant vessels of 100 gross tons and above.

3. Tonnage on order

In line with falling shipyard capacity and the stretched finances of owners and banks, the world order book continued to decline for most vessel types in 2015–2016, with the exception of container ships (figure 2.7). Compared with their peak values in 2008 and 2009, the order book for container ships declined by 46 per cent, for oil tankers by 51 per cent, for dry bulk carriers by 61 per cent and for general cargo vessels

by 82 per cent (the largest decline recorded). To date in 2016, demolitions have increased and there has been a slowdown in new orders. However, this has not sufficed to reduce existing overcapacity. With low oil prices, there is less pressure for operators to apply slow steaming to save fuel, and if ships are faster, additional vessels are potentially released from service, increasing overcapacity. Another effect of low oil prices is that there is less incentive to scrap old, inefficient capacity.

Figure 2.7 World tonnage on order, 2000–2016 (Thousands of dead-weight tons)



Source: UNCTAD secretariat calculations, based on data from Clarksons Research.

Note: Propelled seagoing merchant vessels of 100 gross tons and above, as at 1 January.

H. OUTLOOK

Countries may specialize in different maritime subsectors, and this leads to a process of concentration of industries in a reduced number of countries. In other words, individual countries participate in different sectors of the shipping business, thereby seizing opportunities to generate income and employment in selected maritime subsectors. In shipbuilding, the top three countries together account for more than 90 per cent of global production, and in ship scrapping, the top four countries have a combined market share of 95 per cent. In shipowning, registration, port traffic and seafarer supply, about two fifths of world totals are provided by three countries in each area.

In past centuries, maritime nations benefited from synergies between different maritime businesses. Shipowners flew national flags and generally employed their compatriots; they called at home ports and had their ships built and repaired in national shipyards. An experienced captain could find land-based employment close to home, in maritime and port administrations or through a classification society that certified national shipbuilding. Later on, steel from recycled ships could be reused for new constructions.

In principle, such synergies remain valid. However, other aspects have gained in importance. There may

be more synergies between shipbuilding and other industrial activities such as car manufacturing than between shipbuilding and shipowning. Labour costs and qualifications are of differing levels of importance in different sectors. Vessel registration is often provided by countries that may also be active in offshore financial and non-maritime services, while the clustering of insurance-related and legal services may be beneficial for trading and ship operations. Often, different types of clusters are not found in the same country.

Without the system of open registries, shipowners from, for example, Germany, Greece or Japan would be less competitive, as they would often have to pay higher taxes, and pay wages in line with national income levels. The system thus provides opportunities for newcomers – often developing countries – to enter maritime sectors such as shipbuilding, registration or staffing, while at the same time assisting traditional shipowners from developed countries remain competitive. Those who have lost market share are above all in labour-intensive sectors, such as shipbuilding and seafaring, in developed countries.

Shipping will continue to be the most important mode of transport for international trade, with the lowest environmental impact per ton-mile of transported cargo. The long-term perspectives for seaborne trade and

maritime businesses are good. Policymakers are advised to identify and invest in maritime sectors in which their countries may have a comparative advantage.

In conclusion, it is no longer a policy choice to support the maritime sector “as a whole”. The challenge is, instead, to identify and support selected maritime businesses. In order to identify opportunities for their countries in the port and shipping business, policymakers need to carefully assess the competitive environment for each of the maritime subsectors they wish to develop. New opportunities may arise in specific sectors, such as ship repair; as new mega-container ships have entered service,

they will need to be dry-docked after 7.5 years. Policymakers need to consider the value added of a sector for a country’s economy, including possible synergies and spillover effects to other sectors, whether maritime or not. Policymakers also need to consider that the port and shipping business is a key enabler of a country’s foreign trade. Apart from opportunities to generate income and employment as a provider in the maritime sector, it is often even more important to ensure opportunities for a country’s importers and exporters, as traders need access to fast, reliable and cost-effective port and shipping services, no matter who is the provider.

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ENDNOTES

- ¹ Underlying data on the world fleet based on Clarksons Research. The vessels covered in the UNCTAD analysis include all propelled seagoing merchant vessels of 100 gross tons and above, including offshore drillships, floating production, storage and offloading units and the Great Lakes fleets of Canada and the United States, which for historical reasons were excluded in earlier issues of the *Review of Maritime Transport*. Military vessels, yachts, inland waterway vessels, fishing vessels and offshore fixed and mobile platforms and barges are excluded. Data on fleet ownership cover only ships of 1,000 gross tons and above, as information on true ownership is often not available for smaller ships. For more detailed data on the world fleet (registration, ownership, building and demolition), as well as other maritime statistics, see <http://stats.unctad.org/maritime>.
- ² Compagnie maritime d'affrètement–Compagnie générale maritime.