出國報告（出國類別：國際會議）

OECD 「造船工作小組」
第 120 次會議

服務機關：經濟部工業局
姓名職稱：蔡妙慈科長
派赴國家：法國巴黎
出國期間：中華民國 104 年 6 月 9 日至 6 月 14 日
報告日期：中華民國 104 年 8 月 24 日

摘　　要

OECD 第 120 次「WP6」會議於 2015 年 6 月 11~12 日召開，由「WP6」主席--常駐代表挪威大使 Ms. Elin Østebø Johansen 主持會議。

會議共進行九大議程及個別議題專題之相互討論，包括「政策發展（Policy development）」、「出口信貸造船部門瞭解書--最新發展（SSU- Sector Understanding on Export credits for ships –latest development)」、「綠色船舶（Green ship)」、「造船產業之新金融型態（New forms of finance in the shipbuilding industry)」、「國際運輸論壇之大型貨櫃船報告（Report by the International Transport Forum (ITF) on large container ships)」、「供應與需求分析（Supply and demand analysis)」、「公平競爭之措施回顧（Instrument review)」、「後續造船及離岸產業發展（Follow-up on shipbuilding and the offshore industry)」、「WP6 計畫更新（WP6 project updates)」等議題，邀請各國產、官及組織代表共同討論造船相關產業之發展趨勢、機會及挑戰，瞭解及掌握全球造船市場發展，變化及動態，提供政府、國內產官學研及廠商之國際訊息。

目　　次

壹、目的

經濟合作與發展組織(OECD, Organization for Economic Co-operation and Development)之「造船工作小組」(Council Working Party on Shipbuilding,簡稱WP6）直屬OECD理事會，其位階相當委員會層級，係OECD現存以單一產業為探討主題的兩個委員會之一(註：另一個產業委員會為鋼鐵委員會)。

OECD 理事會於 2002 年 6 月授權成立「OECD 造船特別諮商小組」(Special Negotiating Group,簡稱 SNG)，並正式邀請我國及中國等非會員國（Non-Member Economies）參加新造船協定（new Shipbuilding Agreement）談判（註：所謂新造船協定即是為便利與 1994 年所簽署之造船協定有所區別)。OECD 期望經由多邊談判建立國際造船市場之規範，塑造公平的競爭環境。惟該談判自 2002 年 12 月至 2005 年 9 月歷經 12 次會議，後因各重要國家對於該新造船協定部分條文無法達成共識，談判終告暫停(pause)。

造船工作小組(WP6)簡介

OECD理事會造船工作小組（WP6）旨在逐步建立產業的正常的競爭環境，鼓勵經由數據收集和分析的透明度，尋求擴大全球造船大國與非OECD經濟體間於造船產業政策之溝通討論平台。

造船工作小組的主要優先工作項目為建立全球造船產業之正常競爭環境，消除造船市場扭曲因素，鼓勵藉由產業資訊透明度及各國間之同儕檢視，以避免政府對其造船產業之不適當補貼支持措施。

目前工作小組主席為挪威常駐OECD代表-- Ms. Elin Østebø JOHANSEN 大使，小組成員包含澳大利亞，加拿大，丹麥，芬蘭，德國，希臘，意大利，日本，韓國，荷蘭，挪威，波蘭，葡萄牙，西班牙，瑞典和土耳其，克羅地亞和羅馬尼亞已完全參與工作小組，歐盟委員會代表歐盟，也參與 WP6 會議。

造船工作小組的功能

OECD理事會造船工作小組（WP6）提供各國政府、全球造船產業間相互交流之國際平台，透過祕書處相關專家進行全球新船訂單、訂單簿及交船量之數據追踪、分析，預測世界造船產能供需狀況，提出產能過剩與否等預警訊息，提供各國政府調整其產業政策以協助造船業者新商機之開發。

近 10 年造船工作小組會議

2006 年 7 月召開第 102 次會議，2006 年 12 月召開第 103 次會議與邀請非會員國(包含我國及中國大陸等其他國家)參加 OECD「造船專題研討會」(Shipbuilding Workshop with Non-OECD Economies and Industry)。

2007 年 6 月 11-12 日召開之第 104 次「工作小組」會議，首度邀請我國以專案觀察員(Ad Hoc Observer)參與。由經濟部工業局、國貿局、中華經濟研究院(台灣 WTO 中心) 、船舶中心及台船等代表共同參加會議，討論(一)造船短、中期趨勢(二)修改出口信貸造船部門瞭解書(三)造船融資報告(四)新造船協定談判最終情況報告(五)補貼及其他支持措施檢視之建議案。等重要議題

2008 年 7 月 3-4 日召開之第 106 次會議及同(2008)年 12 月 4 日-5 日召開之第 107 次會議及「造船專題研討會」(主題為:蛻變化中之世界造船產業結構)，我國均派代表參加。

2009 年 7 月 9-10 日召開之第 108 次會議，亦再次邀請我國以專案觀察員(另有巴西、中國、俄羅斯及烏克蘭)參與該次會議。同(2009)年 12 月 3、4 日召開之第 109 次會議及「造船專題研討會」會議(主題為:造船市場扭曲因素) ，我國均派代表參加。

2010 年 4 月 12~13 日召開之「WP6」第 110 次會議，再次邀請我國參加此次會加該次會議，會議之重要共識為重啟自 2005 年暫停之「造船協定談判」。但於同(2010)年 11 月 2 日至 3 日召開之第 111 次「WP6」會議上(我國未受邀參與)，由於歐洲及部份亞洲國家對於重啟談判之處理及看法差異過大，故於同(2010)年 12 月 16 日召開之 OECD 理事會會議中，鑑於上述理由，理事會同意「WP6」主席 Harald Neple 的提議，決定終止(terminate)新一輪之「造船協定談判」，並讓「WP6」專注於其他重要工作，諸如更好地了解市場的扭曲現象、增加政府支持措施之透明度、造船市場現況及影響船舶產業的環境和氣候變化問題上。

2011 年 7 月 7~8 日召開之第 112 次「WP6」會議暨「造船專題研討會」，其中「造船綠色成長研討會」討論主題為”造船產業對綠成長挑戰的反應”(The shipbuilding industry’s response to the Green Growth challenge) 。該會議共有來自 22 國及 13 個海事相關組織，合計 88 人參與會議討論。

2012 年 6 月 21~22 日召開之第 114 次「WP6」會議暨「造船市場扭曲因素研討會」，專題研討會主軸為”造船市場扭曲因素” (Special session on Market Distorting Factors)。會議中由盧文燦科長就「Chinese Taipei’s view on Market Distorting Factors」主題進行論述演說，主要內容為對於船舶市場扭曲確實會造成不公平競爭，包括如船舶鋼板價格與船東貸款問題，與各國分享經驗、進行討論及資訊交流。同年

11 月 29 日及 30 日召開第 115 次「WP6」會議，主題為「造船產業之未來(The Future of Shipbuilding)」，將就全球造船業造船產業的發展趨勢和未來發展進行討論，並進行日本政府造船產業支持措施之同儕檢視。

2013 年 6 月 17~18 日召開之第 116 次「WP6」會議，主要討論有關出口信貸、綠色船舶、國營企業角色等議題，並進行葡萄牙政府造船產業支持措施之同儕檢視。同年 11 月 27~28 日召開第 117 次會議暨「造船全球價值鏈 (Global Value Chain in Shipbuilding) 」專題研討會，會議中各界(各國、組織、公司)對於在造船全球價值鏈對產業、船舶設備、航運、船廠員工等方面之影響進行報告研討。

2014 年 6 月 12~13 日召開之第 118 次「WP6」會議，討論下列議題:造船產業政策發展、產業政策評價、海洋經濟(更新版)、SSU 最新發展、綠色船舶、WP6 計劃更新、造船產業供需分析。同年 11 月 24~25 日召開第 119 次會議暨「造船及離岸產業(Shipbuilding and offshore industries) 」專題研討會，，邀請各國產官學界代表，討論該領域之產業發展趨勢、機會及挑戰，並說明海洋經濟(Ocean Economy)發展情形。

今年(2015)年 6 月 11~12 日召開之第 120 次「WP6」會議，由 OECD「WP6」主席--常駐代表挪威大使 Ms. Elin Østebø Johansen 主持會議之進行。會議共進行九大議程及個別議題專題之相互討論，包括「政策發展（Policy development）」、「出口信貸造船部門瞭解書--最新發展(SSU- Sector Understanding on Export credits for ships –latest development)」、「綠色船舶（Green ship）」、「造船產業之新金融型態（New forms of finance in the shipbuilding industry)」、「國際運輸論壇之大型貨櫃船報告（Report by the International Transport Forum (ITF) on large container ships)」、「供應與需求分析（Supply and demand analysis)」、「公平競爭之措施回顧（Instrument review)」、「後續造船及離岸產業發展（Follow-up on shipbuilding and the offshore industry)」、「WP6 計畫更新(WP6 project updates)」等議題，邀請各國產、官及組織代表共同討論造船相關產業之發展趨勢、機會及挑戰，並進行經驗分享，重要議題內容於後章節說明。

貳、團員及任務分工

一、 本次會議於法國巴黎 OECD 總部舉行

二、 會議地點：2,rue Andre’-Pascal, 75775 Paris Cedex 16, France

三、 會議時間:6 月 11 日及 12 日。全部行程為 6 月 9 日至 6 月 14 日(返抵台灣)，為期 6 天。

四、 我國出席人員及分工如下：

參加團員			任務分工
單位	職稱	姓名	
經濟部工業局	科長	蔡妙慈	全盤綜理 OECD 業務
台灣國際造船股份有限公司	副理	歐永源	有關「出口信貸造船部門瞭解書--最新發展」、「綠色船舶」等事項提出補充、澄清、說明，「造船補貼及支持措施」問卷填覆及一般性業務
財團法人船舶暨海洋產業研發中心	專案經理	鍾昆憲	有關「政策發展」、「供應與需求分析」、「公平競爭之措施回顧」、「後續造船及離岸產業發展」事項提出補充、澄清及說明，進行「造船補貼及支持措施」問卷填覆及一般性業務

此次經合組織造船工作小組會議，經濟部國貿局雖未派員，但在各種財務、行政支援上大力協助，此外駐法國代表處經濟組賴作松組長及梅碧琦小姐，除在各種行政支援上大力協助，並與 OECD 工作小組連繫，其中梅碧琦小姐亦出席本次會議。

參、過程

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Organisation for Economic Co-operation and Development

C/WP6/A(2015)1/REV2

5 June 2015

English - Or. English

COUNCIL
WORKING PARTY ON SHIPBUILDING

C/WP6/A(2015)1/REV2
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Draft Agenda: 120th Session of the WP6

11-12 June 2015
Paris, France

Delegates should note that the meeting will start at 14:00 on Thursday 11 June.

Contact(s):
Mr. Laurent Daniel, Structural Policy Division, Tel.: +33 (0)1 45 24 18 69
E-mail: laurent.daniel@oecd.org

JT03377977

English - Or. English

Draft Agenda: 120th Session of the WP6

11-12 June 2015

Paris, France

	Thursday 11 June 2015	
14:00-14:05	**1. Adoption of the agenda** **Action(s)**: Delegates are invited to ***adopt*** the agenda.	C/WP6/A(2015)1/REV2
14:05-14:10	**2. Approval of the summary record of the 119th session** **Action(s)**: Delegates are invited to ***adopt*** the summary record.	C/WP6/M(2014)2
14:10-14:15	**3. WP6 Bureau** **Action(s)**: Delegates are invited to designate one of the vice-chairs in the WP6 Bureau after the departure of Mr. Rik Zweers.	

14:15-15:45	**4. Policy developments**
	
	This item includes a presentation of the WTO regulation regarding support measures. It also introduces the latest WP6 Inventory and provides an opportunity for delegates to share recent policy information. A proposal for improving the Inventory is also included in this session.
	
	1. Presentation by Ms. Clarisse Morgan (WTO Secretariat) of the WTO regulation regarding support measures.
	2. WP6 Inventory of subsidies and other support measures.
	  ○ Presentation by OECD Secretariat of the 2015 update of the Inventory C/WP6(2015)2.
	  ○ Presentation by OECD Secretariat on possible improvements of the Inventory C/WP6(2015)3.
	  ○ Comments by Japan on Inventory activity.
	3. Roundtable on policy developments: WP6 delegates are invited to report on latest policy and industry developments.
	  ○ Presentation by Mr. Guillaume Decorzent (Directorate General for Enterprise, French Ministry of Economy, Industry and Digital Affairs) on latest policy developments.
	  ○ Presentation by Japan on latest policy developments.
	
	Action(s): Delegates are invited to ***discuss*** the presented policy developments and the Inventory update C/WP6(2015)2. The document C/WP6(2015)3 is for ***consideration*** of the possible options to improve the WP6 Inventory and for ***decision***.
		C/WP6(2015)2
		C/WP6(2015)3

15:45-16:15	**Coffee break**	

16:15-16:30	**5. SSU – latest developments**	Oral presentation

The WP6's Informal Expert Group (IEG) on the Sector Understanding on Export Credits for Ships (SSU) is currently suspended, pending developments in the multilateral export credit discussions taking place under the International Working Group (IWG).

Presentation by the European Commission on the latest IWG's deliberations.

Action(s): Delegates are invited to ***share information*** and ***decide*** whether to continue the suspension of the IEG.

16:30-17:15	**6. Green ships**	Oral presentation

1. Presentation by OECD Secretariat on an initial dataset that allows better understanding of the link between policies and innovation leading to greener ships and of the forthcoming report on this matter.
2. Presentation by Dr. Lisa Ryan, Energy Policy Analyst and Economist, on the issue of "split incentives" in selected sectors.
3. Presentation by Japan on avenues for possible new work on green ships.

Action(s): Delegates are invited to ***discuss*** the ongoing work on green ships and the proposal for new work on green ships.

17:15-17:40	**7. New forms of finance in the shipbuilding industry**	Oral presentation

Presentation by Henri d'Ambrières, financing expert, on preliminary insights on new forms of finance in the shipbuilding industry. An analytical report could be presented at a future meeting.

Action(s): Delegates are invited to ***discuss*** the issues raised in the presentation.

17:40-18:00	**8. Report by the International Transport Forum (ITF) on large container ships**	Oral presentation

Presentation by Mr. Olaf Merk (ITF) of the recent ITF report on large container ships.

Action(s): Delegates are invited to ***discuss*** the issues raised in the presentation.

18:00	**Cocktail**

Friday 12 June 2015		
09:30-12:30	**9. Supply and demand analysis**	C/WP6(2015)4 C/WP6(2015)6

This item focuses on the issue of industry supply and demand and overcapacity.

1. Presentation (videoconference) by Mr. Matthew Flynn (Worldyards) on shipbuilding capacity measurement issues, and on the possibilities to improve measurement and selection of the units used to measure capacity.
2. Presentation by Mr. Takeo Suzuki (Japan External Trade Organisation) of the Shipbuilders' Association of Japan's market forecasts.
3. Presentation (videoconference) by Mr. Yuan Gao (IHS) on the excess capacity situation in Chinese shipbuilding industry.
4. Presentation (videoconference) by Mr. Sieger Sakko (Netherlands Maritime Technology) on ship repair, demand linked to new regulations and on capacity issues with reference to the ballast water convention and Emissions Control Areas.
5. Presentation by Mr. Ove Poulsen (Lindoe Offshore Renewables Center) of Danish policies for restructuring and closing shipyards as well as of reorientation of shipyards into other activities.
6. Presentation by Japan on policies and measures implemented by the Japanese government to reduce excess capacity in the shipbuilding industry [C/WP6(2015)6].
7. Presentation by the OECD Secretariat on the main outcome of the analytical work on excess supply in the shipbuilding industry, including an assessment of the gap between new building requirements and actual vessel completions, as well as the causes explaining this gap [C/WP6(2015)4].

*Please note that there will be a **coffee break** from 11:00-11:30.*

Action(s): Delegates are invited to ***discuss*** the report and possible statement to be issued by the WP6 on excess capacity in November 2015.

12:30-13:00	**10. Instrument review**	C/WP6(2014)4 C/WP6(2014)7

As agreed at the June 2014 WP6 meeting, the WP6 is considering again the future of two shipbuilding instruments:

- Revised General Arrangement for the Progressive Removal of Obstacles to Normal Competitive Conditions in the Shipbuilding Industry [C(82)194/FINAL]; and
- Revised General Guidelines for Governmental Policies in the Shipbuilding Industry [C(83)27, Appendix].

The Secretariat (Ms. Céline Folsché, from the Legal Directorate, and Mr. Laurent Daniel) will make a brief introduction to the item. The purpose is for the WP6 to discuss the need for a revised instrument and the type of instrument that would be appropriate. In the event that it is agreed to revise the instrument, this session also provides delegates with the opportunity to discuss the desired content of a revised instrument, so as to give the Secretariat initial drafting guidance.

Please refer to the documents presented at the June 2014 WP6 meeting, *Review of Shipbuilding Instruments – Discussion Paper* [C/WP6(2014)4] and *WP6 Shipbuilding Instrument Review – Circulation of Initial Submissions* [C/WP6(2014)7] as background information.

Action(s): Delegates are invited to ***decide*** if they want to work towards a revised shipbuilding instrument.

13:00-14:30	**Lunch**
14:30-15:30	**11. Follow-up on shipbuilding and the offshore industry** C/WP6(2015)5 1. Presentation by Mr. Barrie Stevens (OECD Secretariat) of the recent work done in the context of the Ocean Economy project. 2. Presentation by the Secretariat of the OECD's Trade and Agriculture Directorate (Mr. James Messent) on recent work that examines the impacts of localisation barriers. 3. Presentation by OECD Secretariat of the report on the main outcomes of the 24 November 2014 WP6 workshop on shipbuilding and the offshore industry, on the impact of the oil price decrease on the offshore sector and on policy issues [C/WP6(2015)5]. **Action(s)**: Delegates are invited to ***discuss*** the report and ***agree*** to its declassification subject to any final corrections.
15:30-16:30	**12. WP6 project updates** The Secretariat will update delegates on the following projects: • Peer Review of the German shipbuilding industry. • 2016 Peer review: possibility of non-WP6 members under peer review. • New forms of finance in the shipbuilding industry. • Supply and demand in the shipbuilding industry. • Theme of the 9 November 2015 WP6 workshop. **Action(s)**: Delegates are invited to ***discuss*** and ***approve*** the approach of projects.
16:30-16:35	**13. Dates of next meetings** Monday 9 and Tuesday 10 November 2015 Monday 6 and Tuesday 7 June 2016 **Action(s)**: Delegates are invited to ***note*** the dates of the next meetings.
16:35-16:45	**14. Other business**
16:45	**Close of meeting**

肆、工作內容

本次會議首先由 OECD「WP6」主席由經濟合作暨發展組織(Organization for Economic Co-operation and Development，OECD)及聯合國教科文組織(United Nations Education Scientific and Cultural Organization，UNESCO)的常務代表挪威大使 Ms. Elin Østebø Johansen 簡短致詞歡迎會員國以及非會員國參加此次會議，隨即展開 2 天的會議。

會議共進行九大議程及個別議題之相互討論，包括「政策發展（Policy development）」、「出口信貸造船部門瞭解書--最新發展（SSU- Sector Understanding on Export credits for ships – latest development）」、「綠色船舶(Green ship)」、「造船產業之新金融型態(New forms of finance in the shipbuilding industry)」、「國際運輸論壇之大型貨櫃船報告（Report by the International Transport Forum (ITF) on large container ships)」、「供應與需求分析（Supply and demand analysis)」、「公平競爭之措施回顧（Instrument review)」、「後續造船及離岸產業發展（Follow-up on shipbuilding and the offshore industry)」、「WP6 計畫更新（WP6 project updates)」等議題，邀請各國產、官及組織代表共同討論造船相關產業之發展趨勢、機會及挑戰，並進行經驗分享。

會議首先，各國會代表一致通過本次會議議程(agenda) 及 WP6 第 119 次會議的會議結論與摘要記錄。

接著開始各項議程及專題之報告、說明及討論，重要內容如下敘述：

一、政策發展

議題 1：法國造船產業之政策發展 (Policy developments for the French shipbuilding industry)

本議題由法國企業總局之經濟、工業及數位事務部(Directorate General for Enterprise, French Ministry of Economy, Industry and Digital Affairs) 之 Guillaume Decorzent 報告最近政策及工業發展。

法國造船產業現況，造船產值為 8.5 億歐元，以外銷出口為導向之 80%為客船，30%為軍艦，從業人數為 42,000 人，廠家數為 500 家，包括主要船廠(STX、DNCS 等)、供應商、分包商、船舶設計辦公室、相關工程顧問公司等，其中小型企業(少於 250 名員工)約佔 90%。

法國政府於 2010 年成立造船產業策略委員會(The shipbuilding industry strategic committee, SISC)，由工業部部長所發起，涵蓋工業部及交通部相關業務，該 SISC 委員會的試辦計畫是由法國船舶工業集團(GICAN)辦理，成員包括工業、公會、研究實驗室、創新集群等相關權利關係單位，主要範疇為建構一個談商平台，有助於有效定義公共政策議題，以及完成持續創造法國造船之就業機會之目標。

該 SISC 委員會提供二項業務措施，包括造船工業研究及創新理事會(CORICAN)及強化中小企業的推動計畫(Océans 21)，並建構造船產業契約之主要 6 大行動方針，涵蓋範疇如下表：

6 大行動方針	CORICAN	Océans 21
1. 推動大型企業及中小型企業之間的合作聯盟。	X	X
2. 制定具競爭力的發展策略，並促使中小企業自我提升。	X	X
3. 推動中小企業產業發展及拓展國際市場。		X
4. 維護並促進造船產業的關鍵 Know-how。		X
5. 透過業者間協調及整合，促進產業競爭力。	X	X
6. 著眼關鍵研究課題，提升創新性。	X	

於 2011 年由政府發起並創立造船工業研究及創新理事會(CORICAN)，涵蓋工業部及交通部相關業務。主要目標在於藉由各個造船相關領域的技術藍圖，勾勒出長遠的創新性策略，包括主要船舶性能(高效、安全、智慧船舶)、競爭性的工具等，並藉由歐盟及國家之產業輔導、廠商產業合作聯盟、由工業到行政公共機構的組織回饋，以利公共政策能符合造船業的產業特性，促進公私創新協同合作。

Océans 21 計畫措施主要強化法國工業之競爭力，透過海事工業集團執行設計的部分，並由國家及相關領域上具有競爭力之團體給予支持。該方案形塑四大主題：(1) 法國造船生態系統公司的策略定位；(2) 國際化發展；(3) 開發、維護及推動重點造船能力；(4) 藉由合作聯盟方式提升創新性及競爭力。而當前在不同層級上的行動策略，包括有獨立對話及諮詢業務、公司團體之支持、創造造船產業知識及訊息的傳遞。

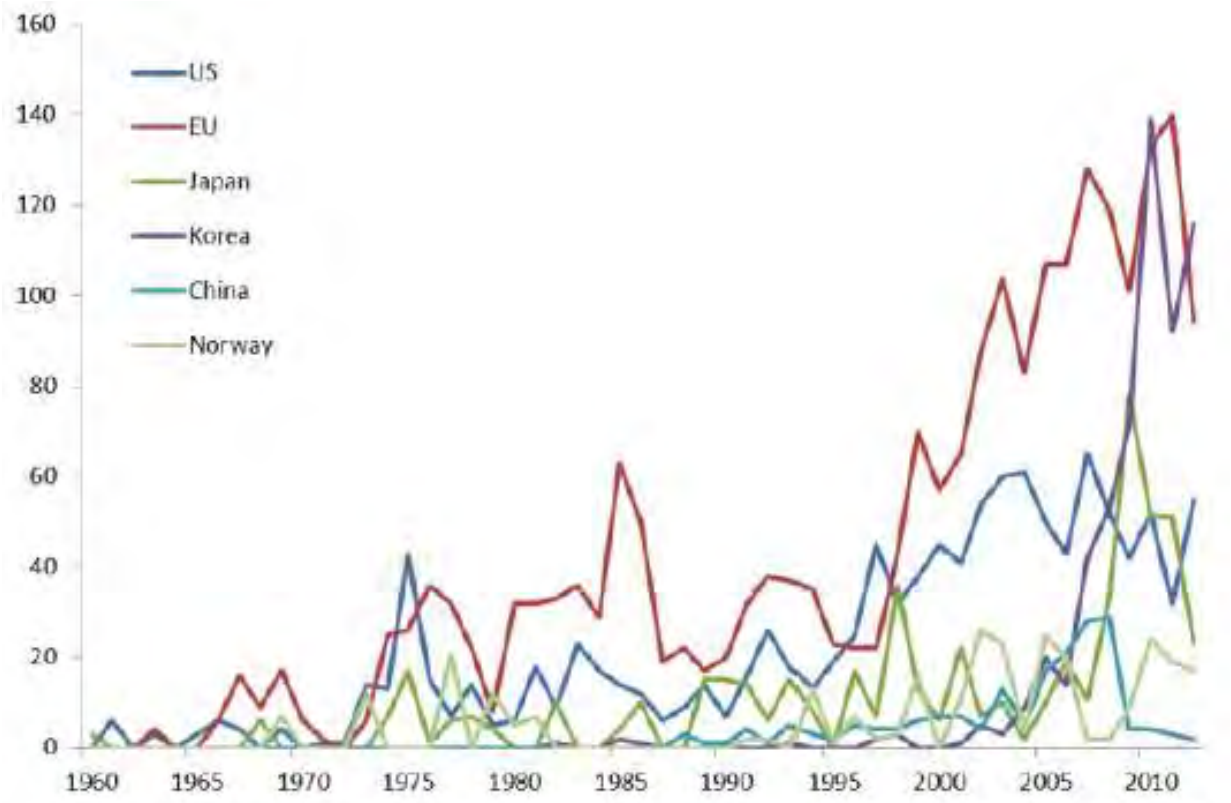
二、綠色船舶

議題 2 ： 綠色船舶 (Green Ship)

此議題由 OECD 秘書處政策結構部門之 Mr. Laurent Daniel 及 Ms. Karin Strodel 報告，透過數項初步資料提供與會人員進一步了解政策、創新與綠色船舶之間的重要鏈結。

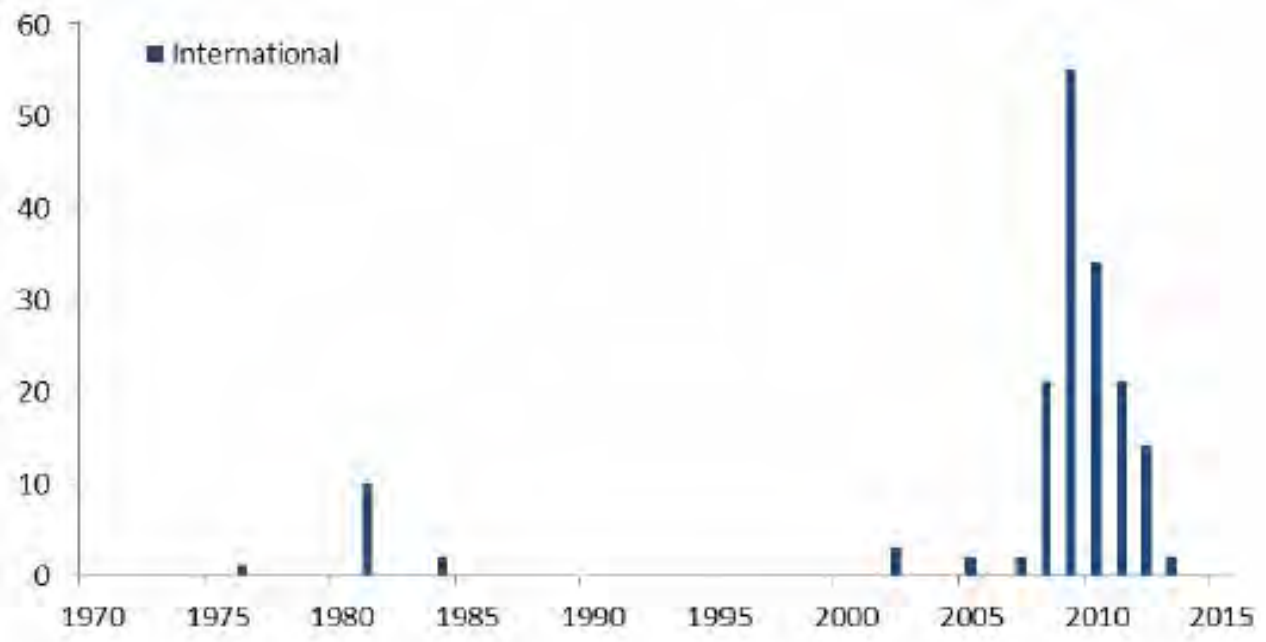
2015-2016 年間綠色船舶之工作及預算計畫，該計畫目標為確定市場環境及政策以引領海上運輸之創新，並聚焦於四大環保創新性主題進行說明，包括減緩氣候變遷、壓艙水處理系統、溢油回收處理、空氣汙染等，透過 OECD 秘書處數據庫所提供的基本資料，藉以分析環保兼創新性之專利種類。

減緩氣候變遷（1960-2012 年間減緩氣候變遷技術之發明國家專利數）：



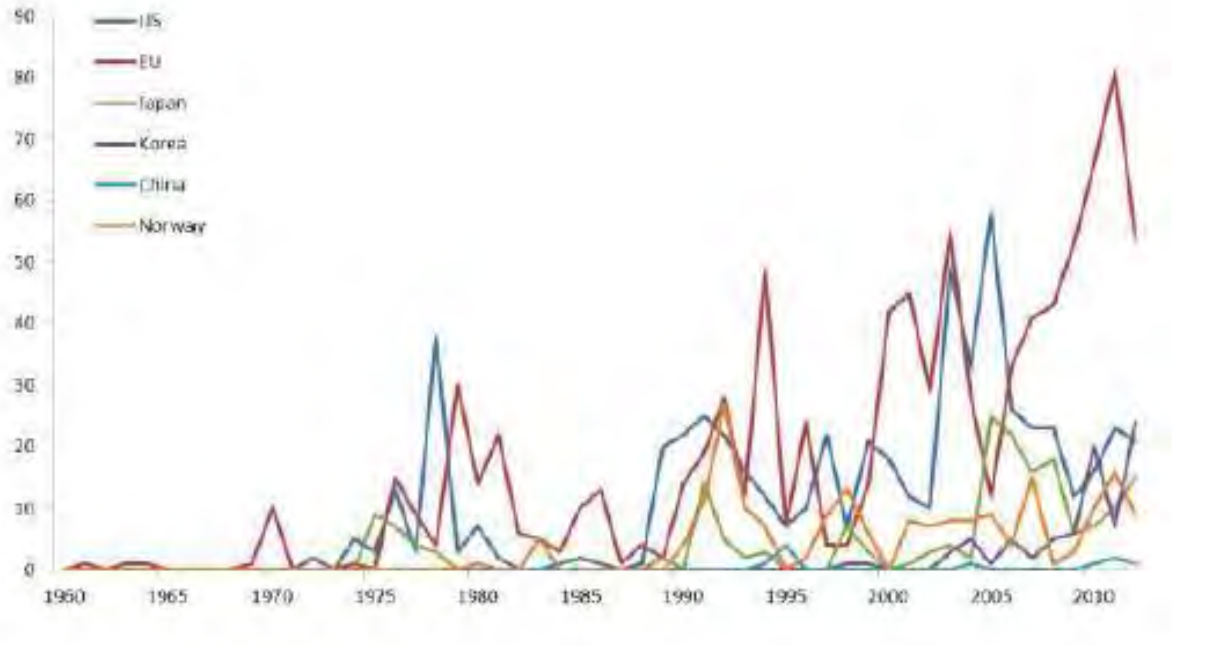
Source: OECD extractions from European Patent Office (2015). *Note:* Category CPC = Y02T70 for patents for climate change mitigation technologies related to maritime transportation.

壓艙水處理系統（1970-2015 年間國際合作發展壓艙水處理系統技術之專利數）：



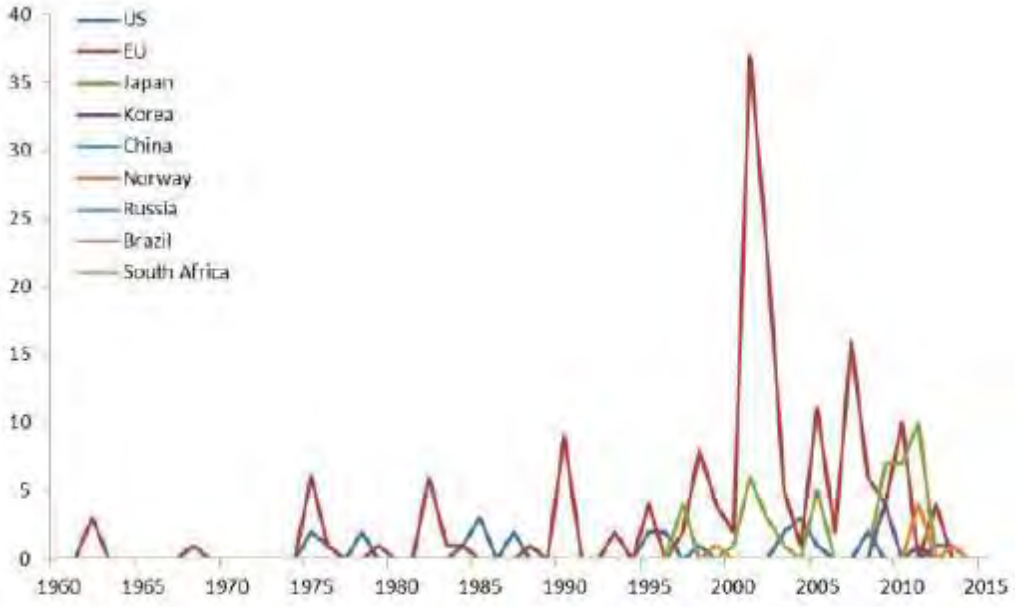
Source: OECD extractions from European Patent Office (2015). Note: Query for ballast water treatment CPC = ((B01D OR B01F OR C02F) AND B63J) OR B63J4 OR B63B13/00 OR B63B43/08 OR B63B59/00 OR B63J4.

溢油回收處理（1960-2012 年間溢油回收處理技術之發明國家專利數）：



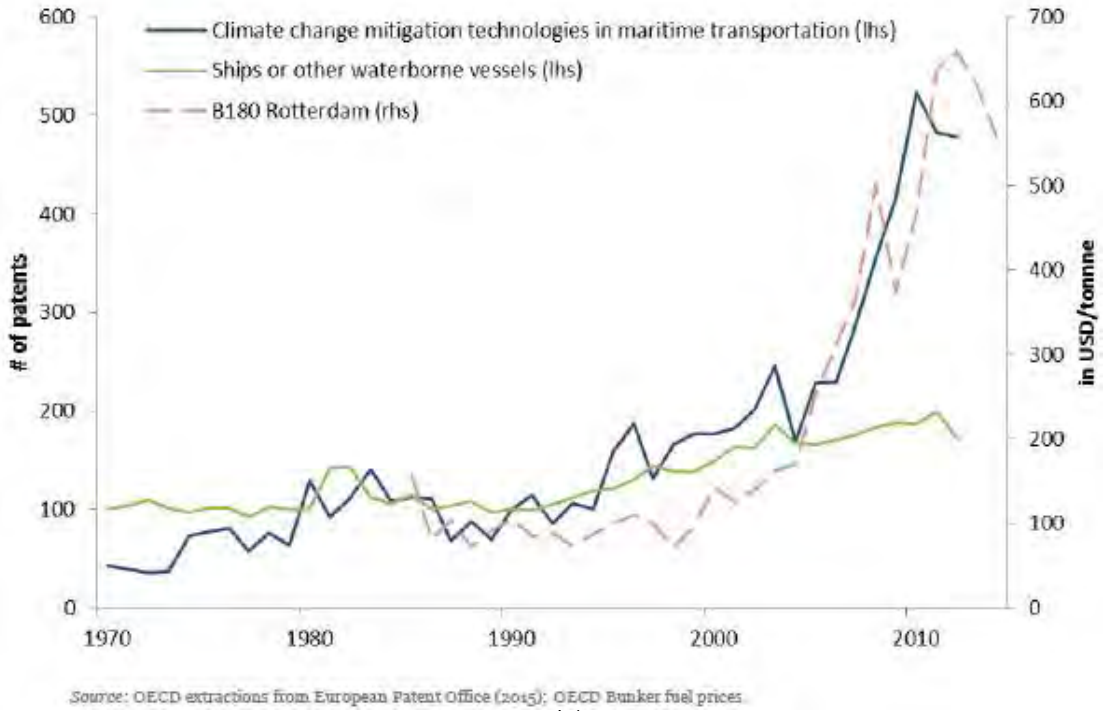
Source: OECD extractions from European Patent Office (2015). Note: Query for oil spill recovery CPC = (E02B15 OR B01D17/00 OR B01D17/02 OR C02F1 OR C09K3/32 OR B63B25/082 OR B63B35/32 OR B63B27/30 OR B63B17/0036) AND B63

空氣汙染（1960-2012 年間空氣汙染技術之發明國家專利數）：



Source: OECD extractions from European Patent Office (2015). Note: Query for air pollution CPC = B63 AND (B01D53 OR B01J23 OR F01M13 OR F02B47 OR F02D21 OR F02M2 OR G01M15 OR F02D4 OR F02M3 OR B01D53 OR F23G7 OR F23J15 OR F27B1 OR C21B7 OR C21C5 OR F23B80 OR F23C9 OR F23C10)

於國家及跨國性之 IMO MARPOL 附件 1~附件 6 等規範下，進行四大環保創新性主題分析，試圖擬出政策指標，藉以證實創新性（如專利活動）及政策、船用燃料價格之提升（參見下圖為 1970-2012 年間減緩氣候變遷及燃油價格提升之專利數）、海上貿易等變因之間的連結度，由創新性角度分析之報告，期盼在下半年度 11 月 10 日的 WP6 會議上能提出更具環保性能之綠色船舶。



Source: OECD extractions from European Patent Office (2015); OECD Bunker fuel prices

議題 3：綠色船舶促進未來活動之意見報告 (Proposal for future activities in terms of green ship promotion)

主席邀請日本國土交通部造船機械部門之 Mr. Kei Ito 提出日本在發展綠色船舶之可行性政策說明。日本在第 113 次及第 115 次 WP6 會議上，皆透過出口信貸造船部門瞭解書（SSU）提倡降低二氧化碳排放之綠色船舶提議，以及建議延遲 IMO 船舶能源效率設計指數（EEDI）規範之生效日期，經由上述的討論，聚焦於綠色船舶減緩溫室氣體排放之政策方針。

本次會議日本提出適用於定義綠色船舶之環境指標，如二氧化碳、硫氧化物、氮氧化物、壓艙水處理系統、船舶回收等。並討論適用於推動綠色船舶之政策方針，如信口信貸、研發支持、先導型計畫的推展、港口費的調降等。並加以討論綠色船舶是否要低於 20% EEDI 標準，亦或僅需要低於 EEDI 標準即可，但近幾次會議尚無共識，往後將持續蒐集更多訊息，以利界定，並彙整近期有關綠色船舶補貼措施相關新聞，然而補貼標準並不一致，尚待後續追蹤。

DNV 提出綠色船舶之政策，有 5 項方案，但尚未達成共識。下表說明近年來各國發展綠色船舶之比較：

國家/組織	政策方針	綠色船舶的定義
韓國(韓國進出口銀行 KEXIM)	貸款或股權	未知
韓國(韓國金融公司 KoFC)	貸款	未知
芬蘭 (Ministry of Transport, MOT)	未知	未知
GAF (Green Award Foundation)	調降港口費	氣體排放、壓艙水、船舶回收
WPCI (World Port Climate Initiative)	調降港口費	二氧化碳、硫氧化物、氮氧化物

議題 4 ： 以船塢生產力作為造船供給量之估測：以數據資料為基礎之實務及策略方法 (Dock productivity as the measure of Shipbuilding Supply ; A Data-based Practical and Policy Approach)

該議題由 Worldyards.com Pte Ltd.之 Mr. Matthew Flynn 透過視訊會議方式提出造船能量估測之說明。

2014 年 OECD 曾討論，過去 WP6 所嘗試進行的全面性造船產能量化方法，卻受限於資料及方法而無法進行。過去 OECD 曾採用明確且詳細的方法進行估測造船產能，且得得 WP6 及 OECD 重要造船產業組織所認可。Worldyards 公司檢視該方法，其需要大量的重要因素投入及說明解釋。

該方法利用單一參數，以客觀的統計方式量測船塢生產力，船塢生產力為主總因素生產力（Total Factor Productivity，TFP）之估算法，其基於總船塢面積及總 CGT 產量，船塢意指乾塢(drydock)、浮塢(floating dock)、滑式船台(slipway)、拖架式船台(slipway)，主要目的為船舶安放龍骨後，造船廠仍有可以建造其他船體之空間。

以經濟學來說，生產力可視為特定之投入如勞動力，或每單位產出之所有投入，包括勞動力、資本及在生產中使用的所有其他投入與產出，可藉由該方法取得所有總因素生產力之投入。

總因素生產力（Total Factor Productivity，TFP）係綜合所有投入的基礎因素所獲得之產出。總因素生產力包括取得國家或企業層級的生產力，並計算出供給量。（TFP 應用於商業上具有優勢，TFP 廣泛使用於農業，也適用於造船產業，在造船產業下，也應考量如何提供數據，作為實際基礎及政策擬定以解決造船供給。）在養殖方面，TFP 最基本之方法為每英畝或公頃種植出不同作物。

造船產業採用修正總噸（Compensated Cross Ton，CGT）以正確反映造船產量，使散裝貨船之產量和貨櫃船之產量可比為蘋果對蘋果，而非玉米對大豆，方能正確判斷各國、各船種之造船產量排名。

各種船塢應選用修正總噸（CGT）作為船塢生產力指標，才能正確計算出每年潛在產量。Worldyards 之船塢生產力（dock productivity）算法為將船廠每年總產量之修正總噸作為分子，並將船塢區域計量作為分母，也可利用過去船塢生產力估算供給量，公式為：造船廠生產量+基礎成長率 +/- 船廠發展+/- 國家成長。

Worldyards 之造船產能及產能利用率(shipbuilding capacity and utilization)估算並非為數學計算預測之結果，而是蒐集全球每個造船廠完工交船 3,000 載重噸以上船舶之所有產量加總而得之結果。對於統計上及策略上而言，總因素生產力應用於造船供給，係為可靠的參考方法，可稱之為「產能(Capacity)」或「理論潛在產量(Theoretical output potential)」，

表示造船廠建造商船時其廠區設備之最大產量。

有關船塢在造船產業之議題(該結論並不影響我們認定船塢生產力可作為造船供給之重要指標)，其實船廠設備(facilities)真正的瓶頸在於產量，這並非是短期的問題，例如缺乏主機、人力短缺、融資能力不足等。理論潛在產量（Theoretical output potential）係為造船廠設備及生產線所能生產「每年船舶數量」，因此，理論潛在產量並沒有變少，但產能利用率（Utilisation）的多寡則取決於需求市場之興衰狀況，故船廠每年之產能 Capacity）則為有效產能(有完工交船)及擱置(dormant)產能之總和。

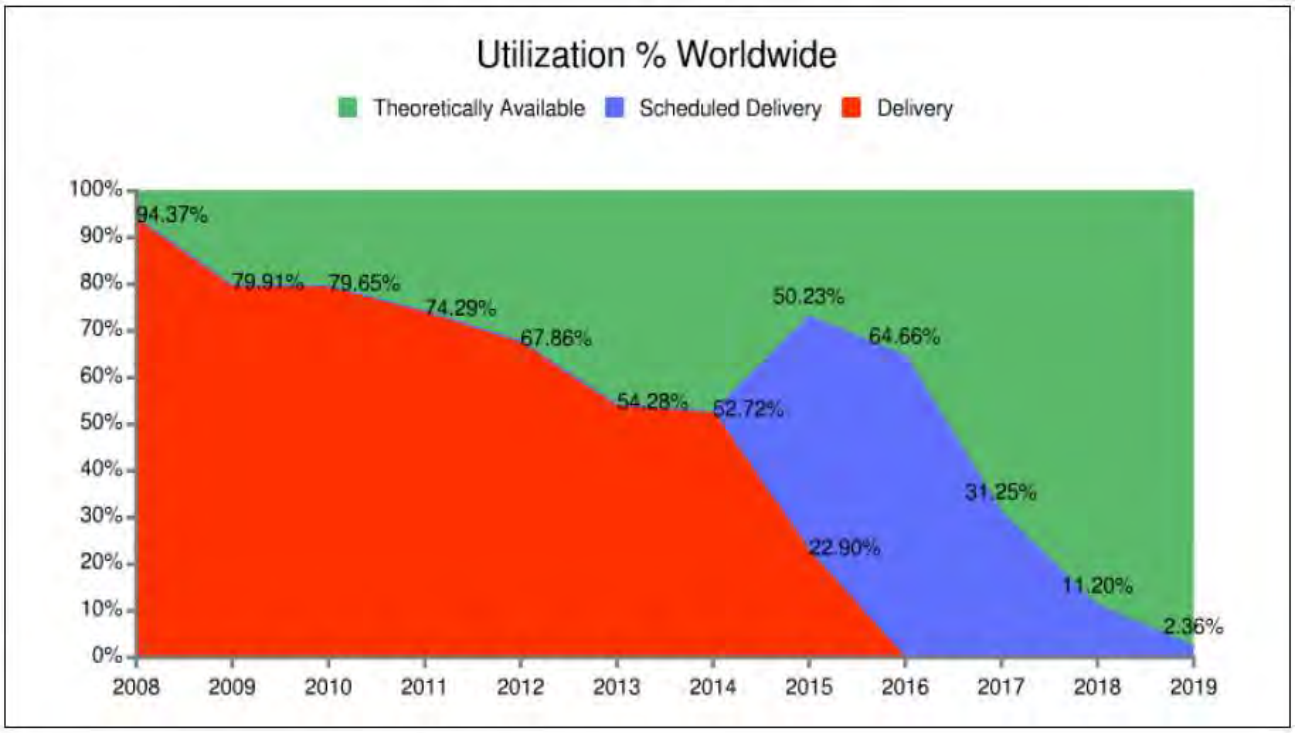
Worldyards 提供過去與現在之全球造船產能數據，在此基礎上，其公司已發展出一套內部方法理論(in-house methodology)以推估造船未來或潛在產能。Worldyards 計算「潛在產能（potential Capacity)」，首先算出現有船廠實際基礎生產力之成長，其次檢視其所有生產力投資項目，包括起重機、船段廠等，亦參考所謂「產能重要事件（capacity-significant events)」，透過引進新生產方法/過程、機械設備（巨型起重機)、廠區設備關閉、經營策略重點從造船轉移至其他領域業務等情形，而上述未開發的新計畫則有機會被政府批准且得到融資。Worldyards 評估上述事件對造船產能之衝擊，可在 Worldyards 網站上所有造船公司之”背景資料” 欄框中查得。

船廠開始啟用新設備後，我們為其設定一個「學習曲線」，藉由加班超時的方法可改善該設備之生產力，從基準日期(第一年之交船日期) 逐步成長到接近該船廠潛在理論產量，通常約需 3 年時間。

當 Worldyards 於 2005 年 9 月發表造船產能預測後，不少市場人士反映該預測過於誇大，實際上該公司在 2005 年預估 2009 年之產量，遠低於實際發生的產量。產能的倍增來自於因有利可圖的新船價格所致之新機械設備及額外生產力，這些皆基於基本經濟，當船價已飆升至頂，供給面相對會變得具彈性。

Worldyards 公司在有關造船業擴張(新船廠及改善生產效率)之相關數據顯示，西元 2000 年後之前 10 年間造船供給方面較有彈性，在 2006 年至 2009 年期間多數船廠藉由新廠區擴建及提升生產效率，而快速擴張造船產業版圖。

Worldyards 公司全球性造船產能/產量之評估，乃藉由全球、各洲、各國之個別船廠預估值加總之結果，若船廠同時建造商船及離岸工程船舶，Worldyards 亦可估算其離岸工程船舶之產能。



Figures as at 07 June 2015

Worldyards 採用 2008 年船廠生產作為評估基礎，並假定為船廠當年皆充分使用其所有生產設備。2008 年至 2012 年之產能成長：即使處於金融危機，仍於 2007 年至 2008 年間有新的生產設備之重大投資。2013 年至 2014 年產能下降原因：(1)小型造船廠關廠；(2)大型船廠將產能轉移至離岸工程船舶；(3)部分小型造船廠轉型建造離岸工程船舶(AHTS 船及其它少型結構體)。

Year	Capacity (Theoretical Output Potential in CGT)	Annual Growth	Delivery (CGT)	Scheduled Delivery (CGT)	Capacity / Utilization
2008	42,797,786	-	40,390,044	-	94.37%
2009	51,897,561	21.26%	41,472,510	-	79.91%
2010	59,498,371	14.65%	47,392,585	-	79.65%
2011	62,409,719	4.89%	46,366,336	-	74.29%
2012	63,294,870	1.42%	42,952,957	-	67.86%
2013	59,816,096	-5.50%	32,467,358	-	54.28%
2014	57,834,854	-3.31%	30,492,838	-	52.72%
2015	58,839,921	1.74%	13,477,271	29,557,804	73.14%
2016	60,356,041	2.58%	17,532	39,009,319	64.66%
2017	60,307,979	-0.08%	-	18,846,987	31.25%
2018	60,307,979	-	-	6,752,885	11.20%
2019	60,307,979	-	-	1,420,282	2.36%

總因素生產力投入之支持政策雖非本議題之重點,我們仍應注意到政策制定者會藉由政府扶植措施導向造船產能擴張之趨勢。在船舶需求疲軟（實體經濟）或不流動的財務狀況（金融經濟）時期，政府就會推出不同之國家支援措施。

藉由產能利用率的多寡反映市場狀況,政策制定者和退款保證發行機構則得以在市場上不同之週期點上改善造船合約的風險；2000 年代期間造船產能大幅擴張後，接著產能利用率銳降，此時政府應有所作為，眾所皆知的是，當船廠握有大量造船手持訂單數量時，在訂單協商及簽訂造船契約時站有優勢地位，此時完全成本定價(full cost pricing)的可能性更大。在手持訂單量少的時期，可變成本定價(variable cost pricing) 變得較為常見，則可能導致政府的扶持政策及市場長期蕭條。

政府干預船廠限制產量之各種方法：

船廠合併：雖然在技術上並不明顯影響整體產量（設施相同），但是這可改 善造船廠的財務狀況，並共享技術與設計能量。

1. 中國：

(1)中國制定了完善的三年計劃，以重組其龐大的造船產業，介入地方政府加以制止新的投資與建廠，以打造更高品質的船舶。

(2)並發布了「白名單」船廠，為值得政策支持（如出口退稅和銀行信貸）的造船廠。

2. 日本：

(1)營運管控 (Operational Control)

造船之許可、禁止船舶平行同時建造、船廠營運限制

(2)物理性管控 (Physical Control)

如船舶法之訂定、造船能量支配權。

(3)設備購買。

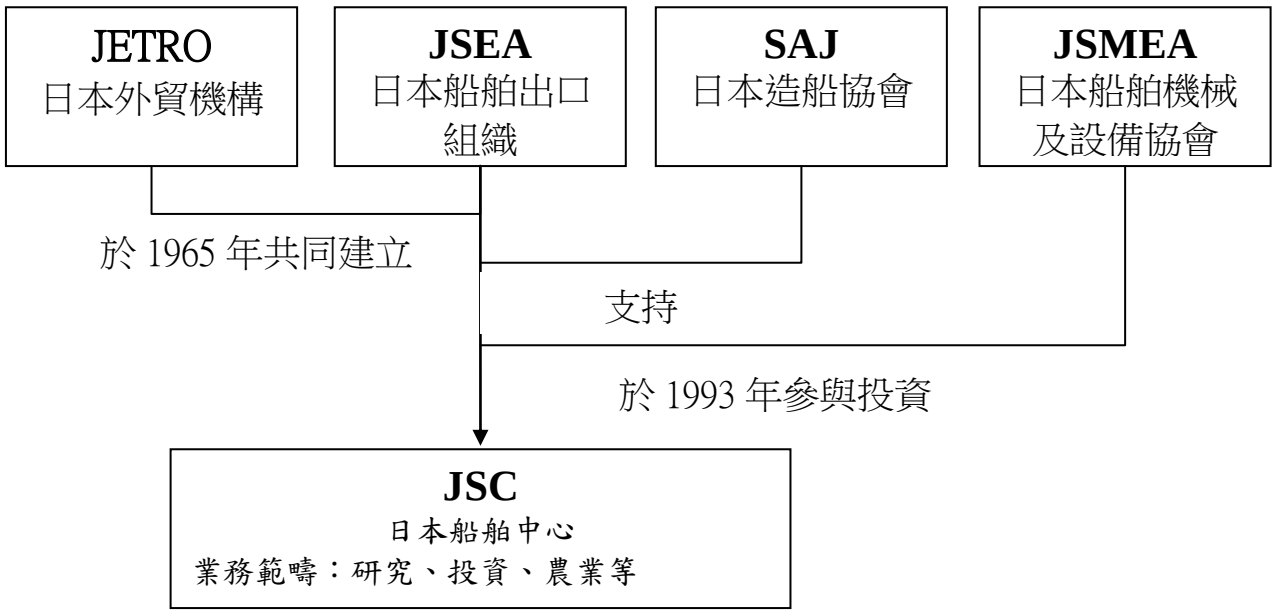
近年來，各國造船廠將部分比例產能用於建造離岸工作船，但在此將會影響原本以 CGT 系統對各國、各船廠之造船排名順序,因為離岸工作船在原 OECD 之 16 種船種系統並未被納入，而無修正係數加以規範。

本會議中確認將離岸工作船舶納入 CGT 系統,使得各國完工之商船及離岸工作船得以整合三大造船指標（新船訂單、訂單量、完工量）CGT 產量，後續秘書處將改善 CGT 系統，並討論各海洋工程船舶之修正係數。

議題 5 ： 新建船舶的需求預測 (Newbuilding Requirement Forecast)

主席請日本外貿機構倫敦辦事處之日本船舶中心(Japan Ship Centre, JETRO London)之 Mr. Takeo Suzuki 代表日本造船協會(The Shipbuilders' Association of Japan -SAJ)，報告日本新建船舶的需求預測說明。

日本外貿機構(JETRO)係屬政府組織，旨在促進日本與他國之對外貿易及國外投資等業務，在日本境內共有 44 家分部，及海外 76 家分部。另，日本船舶中心(JSC)成立於 1965 年，由日本外貿機構(JETRO)及日本船舶出口協會(JSEA)共同建立，專責處理海事問題，如造船及船舶機械等，並推廣海外之船舶工業市場。日本造船協會(SAJ)成立於 1947 年，由 17 家公司及 1 家協會為成立會員共同組成，日本對外貿易出口總額 90%來自於 SAJ 會員。日本船舶工業相關組織及分工如下圖。



SAJ 自 1960 年起定期分析未來新建船舶的趨勢，預測海上貿易及換船需求的未來走向與情報（投機性訂單及短期市場波動則無在探討範圍內），提供 SAJ 會員作為擬定公司長期性企業策略時之參考，SAJ 預測方法如下：

由海上貿易
推知新建船舶之船舶種類

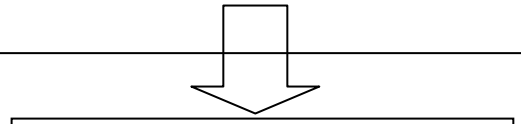
由各種因素推知：
- GDP 成長
- 能源耗損
- 人口增長
- 鋼材之生產/消費

由換船需求
推知新建船舶之船舶種類

船舶拆解模式：

船舶種類	船齡
油輪	25
散裝貨船	24
貨櫃船	28

假設 50%之船隻在上表所述船齡被報廢



推估新船建造之需求

由 IMF、IES、EIA 等組織所提供的經濟觀點，分析 GDP 的成長預測如下：

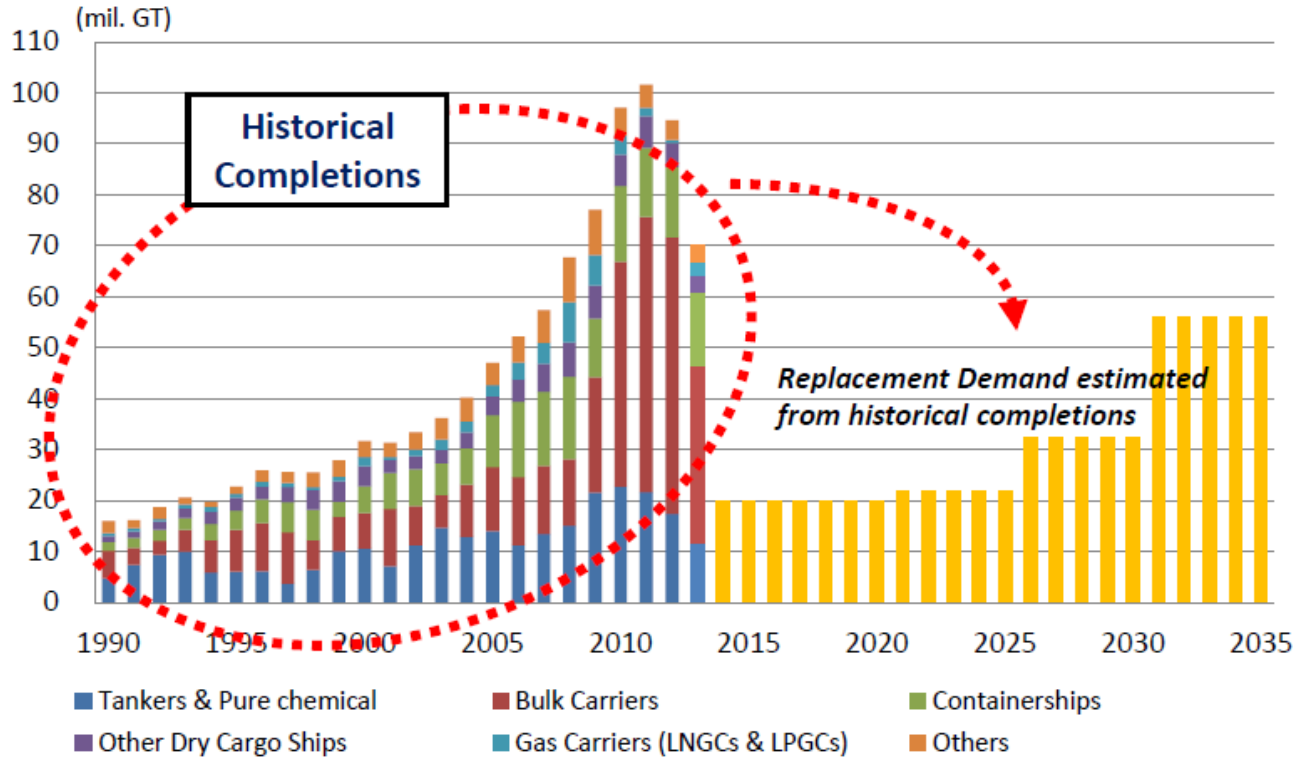
	2013-2035	2013-2020	2020-2025	2025-2030	2030-2035
OECD	2.2	2.5	2.1	2.0	2.0
Non-OECD	4.9	5.7	4.8	4.6	4.2
World	3.6	4.0	3.5	3.4	3.3

由主要貨物預測海上貿易如下表：

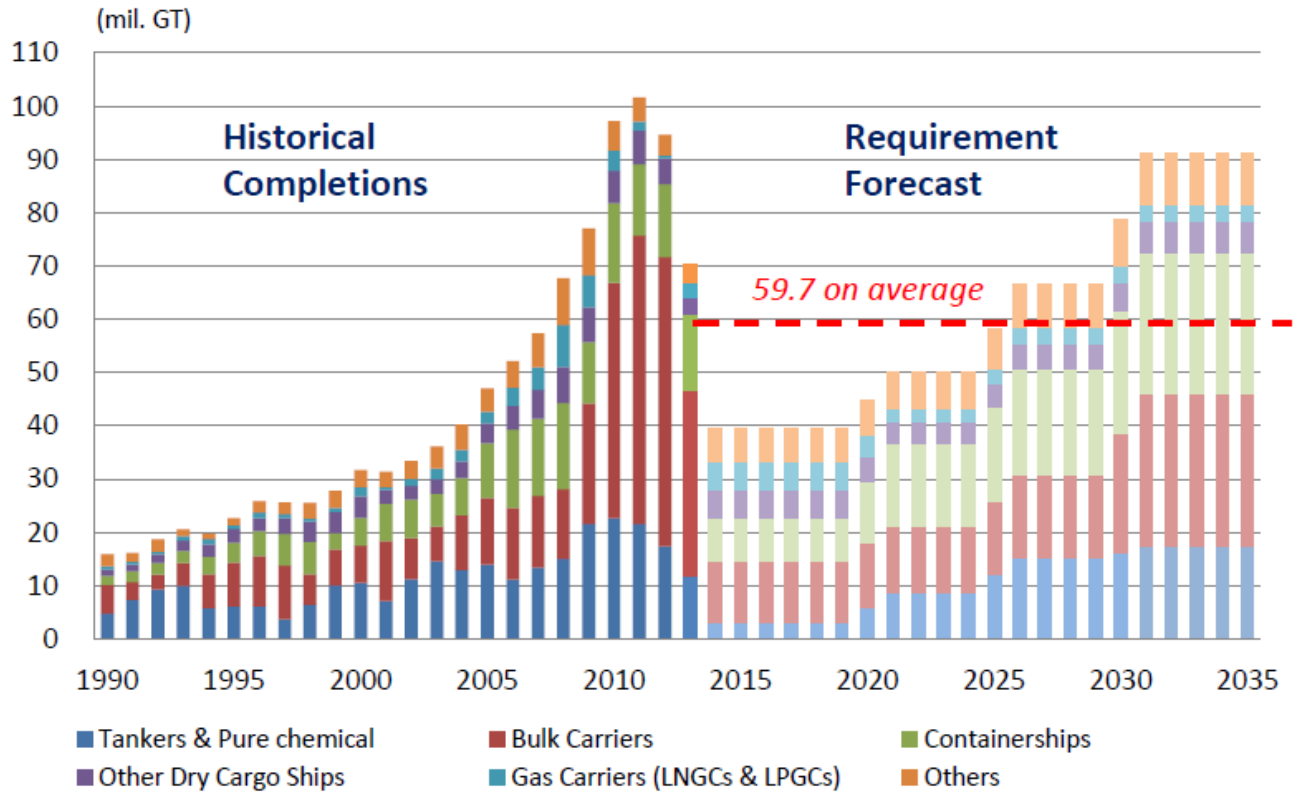
	2013	2020	2025	2030	2035	2013/2035
油	2,804	3,034	3,301	3,603	3,745	1.3%
五類主要散貨	2,759	3,385	3,735	3,895	4,067	1.8%
-鐵礦	1,156	1,540	1,749	1,740	1,743	1.9%
-煤	1,086	1,269	1,346	1,448	1,547	1.6%
-穀類	355	400	432	463	491	1.5%
其他乾貨(貨櫃)	2,491	3,382	4,101	4,926	5,862	4.0%
LNG(液化天然氣載運船)	246	393	434	477	517	3.4%

經由上表海運之四大主要貨物預測分析海上貿易，以「油」而言，至 2035 年的消費量，OECD 預測幾乎持平，亞洲則佔整體 2.6%，逐年些微增加，但與過去 SAJ 的預測數值比較，則相對減少，宜考量油頁岩天然氣及內部貿易等因素。以「主要散貨」而言，包括鐵礦、煤礦及穀類等，預測自 2025 年起中國之鋼材生產量將減少，而印度則增加；但中國及印度的煤礦海運進口量與去年同期相比，預測逐年分別增漲約 3.0%及 2.7%；另，因全球人口漸增，穀類預計與去年同期相比將逐年穩定增漲 1.5%。以「貨櫃」而言，藉由 GDP 及貨櫃運輸路徑（包括跨太平洋、跨大西洋、跨歐亞、亞洲區內等）之相關性作評估，預測大型船舶多運行於歐亞及太平洋區域，而亞洲區內之貿易預計將大幅增漲。以「LNG」而言，預計至 2035 年將增漲至 517 噸，與去年同期相比將增漲 3.4%，特別是北美至遠東或亞洲航線預計有漲幅的表現。

2015-2035 年換船之需求預測：



2015-2035 年新建船舶之需求預測：



議題6：IMO壓艙水管理國際公約及排放控制區（the Ballast Water convention and Emissions Control Areas)

該議題由歐洲船舶維修及船體改裝集團(SMRC, Ship Maintenance Repair and Conversion)執行秘書 Mr. Sieger Sakko 透過視訊會議方式，討論壓艙水管理國際公約及排放控制區議題，鏈結新規約及維修能量，討探歐盟區改裝維修商機。

歐盟內共有 42 個 SMRC 的船廠，SMRC 具有服務業之特性，協助確保航運安全及維護海洋環境，且較不受經濟危機影響。

壓艙水管理國際公約(International Convention for the Control and Management of Ships´ Ballast Water and Sediments, 2004) 於 2004 年 2 月 13 日已被國際海事組織 IMO 採納，其公約經 30 個國家批准且簽署國家商船(merchant fleet)總噸位數(Gross tonnage)累積達全球船隊之 35%總噸位以上之 1 年後生效，截至 2015 年 3 月底，已有 44 國批准，總噸位數達到 32.86%比例，已相當接近生效門檻。

公約核准後一年，預估約有 70,000 艘現有船舶需要進行加裝壓艙水處理系統（Ballast Water Treatment System, BWTS)，從歐盟海事技術產業的角度來看，SMRC 樂見壓艙水管理國際公約能立即生效，並希望提供準備措施以符合壓艙水管理國際公約要求。

安裝壓艙水處理系統適合於乾船塢內進行改裝，歐盟的乾船塢數量共 80 個船塢（120 米及 35 米寬)，全球約有 70,000 艘船舶需要進行改裝，其中約有 50,000 艘臨近歐盟海域，待公約批准後，倘若歐盟 5 年內承接 50,000 艘現有船舶之改裝，1 年需改裝 10,000 艘現有船舶，代表這 80 個乾船塢，每個乾船塢每年的改裝能量應有 125 艘船舶。

在壓艙水管理國際公約生效之前，歐盟之乾船塢具有充分時間及能量對全球現有需要安裝壓艙水處理系統之船舶進行改裝，歐盟船塢之相關改裝工藝與能力皆足以提供完善壓艙水處理系統之整體服務。國際公約倘若延遲生效將對歐盟海事技術產業廠家造成負面影響。

在船舶排放氣體控制議題方面，船舶航行之北海硫排放控制區內(North Sea Sulphur Emission Control Area)，按 2015 年 1 月 1 日起之規定，硫含量不得超過 0.10 % 濃度，預估約有 1,100 艘現有船舶急需進行加/改裝相關洗滌設備(Scrubber)以符合此要求標準。

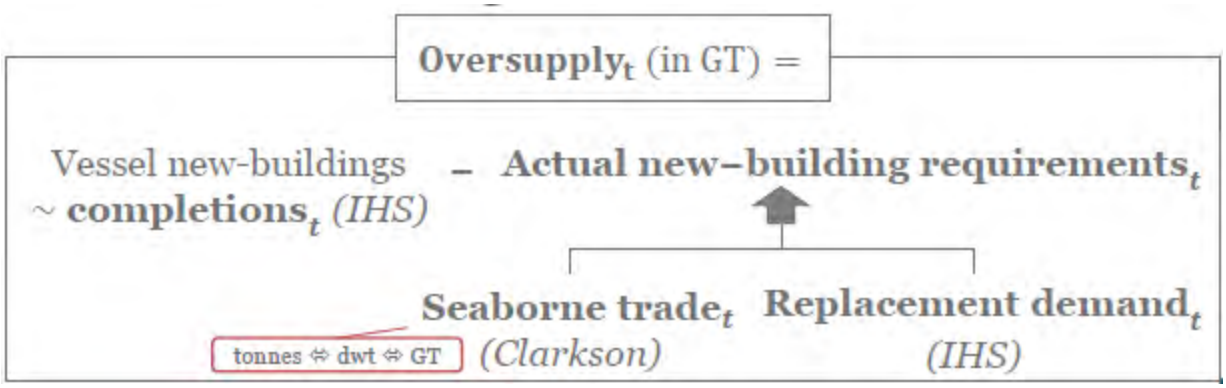
1. Number of EU SMRC Yards

議題 7 ： 造船產業供給過剩之分析 (Oversupply in the shipbuilding industry)

由 OECD 秘書處報告供給過剩的造船產業議題，包括評估新船需求量及實際完工量的落差，並進一步解釋其中落差的原因說明。

船舶產量供給過剩之測估 (Measurement of excess supply)

日本曾於 2014 年 11 月 WP6 會議中試圖估算供給過剩噸位(GT)，但受限於資料及方法，其估算方法如下：



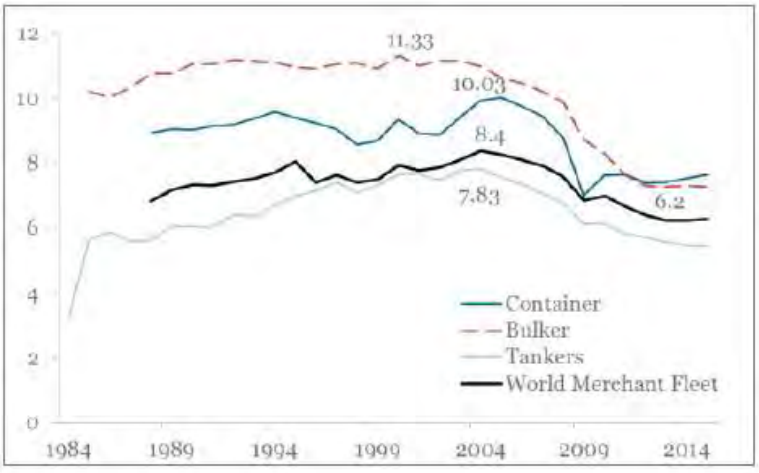
式中新船建造量(Vessel new-buildings)約等於新船完工量(completion) ，由美國 IHS 咨詢機構提供，而實際新船需求量 Actual new-building requirements 由海運貿易(Seaborne trade) 之船舶需求量(由增加之海上運輸噸位 Tonne 換算成所需總船舶載重噸 dwt 量，再換算成所需之船舶總噸 GT 量)及老舊船舶汰換需求量(Replacement)所構成，前、後者數據分別由英國 Clarkson 海事咨詢機構及美國 IHS 咨詢機構所提供。由上述數據可得到產能過剩之噸位，以總噸 GT 單位計算之。

預估新船之需求量，則需先了解以下各噸位間之轉換因子(Conversion factor) ：

海上運輸噸位/船舶載重噸(Tonne/dwt)及船舶之載重噸/總噸（dwt/gt）。

各類船舶海上運輸噸位/船舶載重噸(Tonne/dwt) 各年轉換因子趨勢變化如下圖所示：

貨櫃船最大值為 11.33，亦即海上貿易每 11.33 噸需要 1 噸載重噸貨櫃船來運輸，其他船種同理解釋。

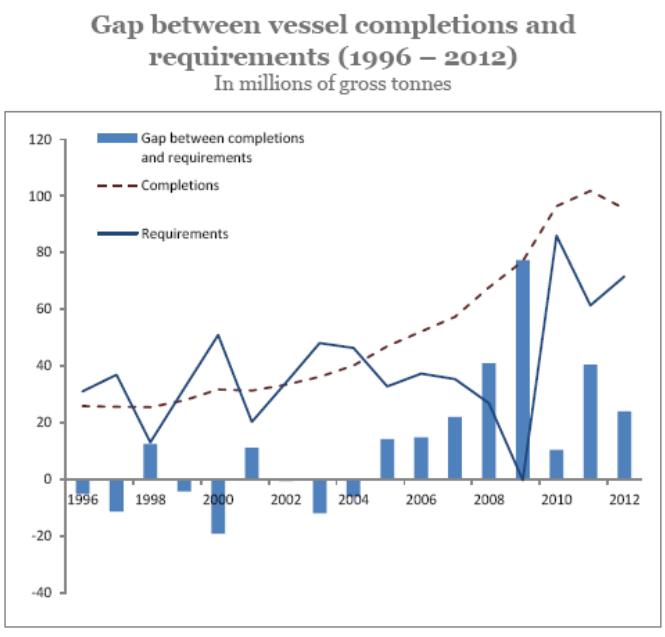


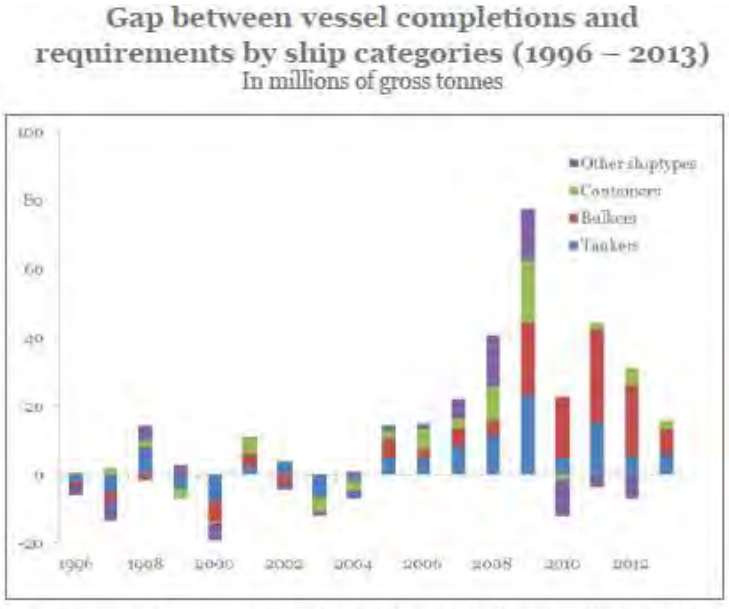
各類船舶之載重噸與總噸間之轉換因子如下：1996 年至 2013 年間的平均值為 0.71 dwt/gt。而油輪為 0.56 dwt/gt，散裝貨船為 0.90 dwt/gt，貨櫃船為 0.89 dwt/gt。以油輪舉例說明，10 萬載重噸阿芙拉型油輪船(Aframax Tanker) ，換算成總噸單位，則為 5 萬 6 千總噸（100000*0.56=56000）。

歷年船舶產量供給過剩之分析 (Estimations of historical oversupply)

分析1996~2013年間全球新船完工量(vessel completion)及新船訂單需求(requirement)之落差狀況(下圖左)，可知在 2009 年出現船舶供過於求之最大量 77.4 百萬總噸(該年沒有新船訂單，100%全為完工供給量)，2005 年至 2012 年間之累積供給過剩量達到 244 百萬總噸，約佔 2012 年世界船隊總噸位 23%之比重。

若分析各類船種供給過剩的狀況(下圖左)，2005 年至 2013 年間各類船種的過剩情況，以散裝貨船最為嚴重（113 百萬總噸，約佔 2013 年該船種世界船隊總噸位 35%之比重），次為油輪（83 百萬總噸，約佔 2013 年該船種世界船隊總噸位 29%之比重），最後為貨櫃船（48 百萬總噸，約佔 2013 年該船種世界船隊總噸位 26%之比重）。

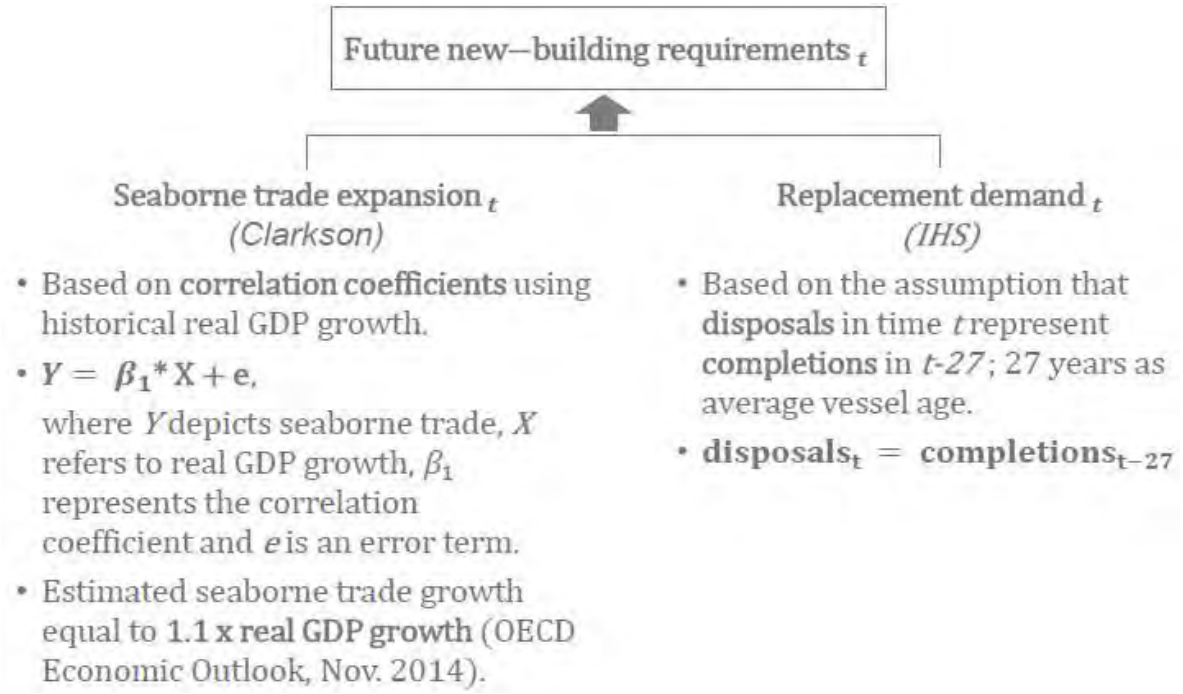




Source: OECD calculations based on Clarkson (2015a), IHS World Fleet Statistics.

新船訂單需求預測(Forecast of new vessel requirements)

新船訂單需求量之預測，可就海上貿易擴張量及汰換船舶需求量這兩因素，分別加以探討：



海上貿易擴張量 (Seaborne trade expansion)

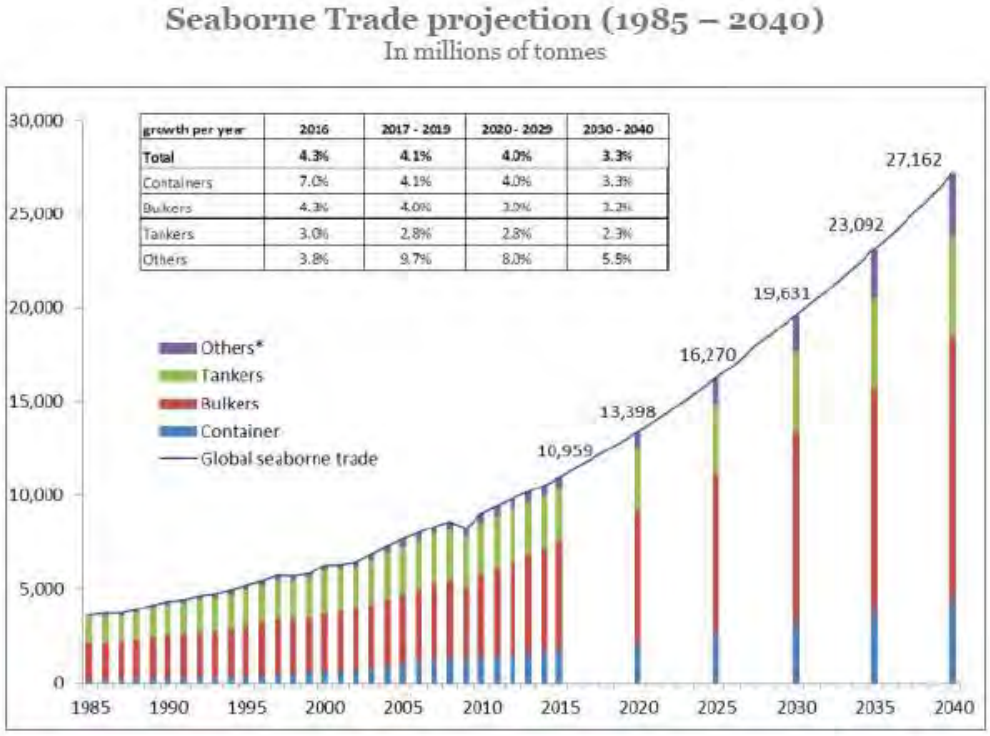
由英國 Clarkson 海事咨詢機構提供相關數據，基於與全球 GDP 成長之關聯係數估算海上貿易成長：

$Y = \beta_1 * X + e$

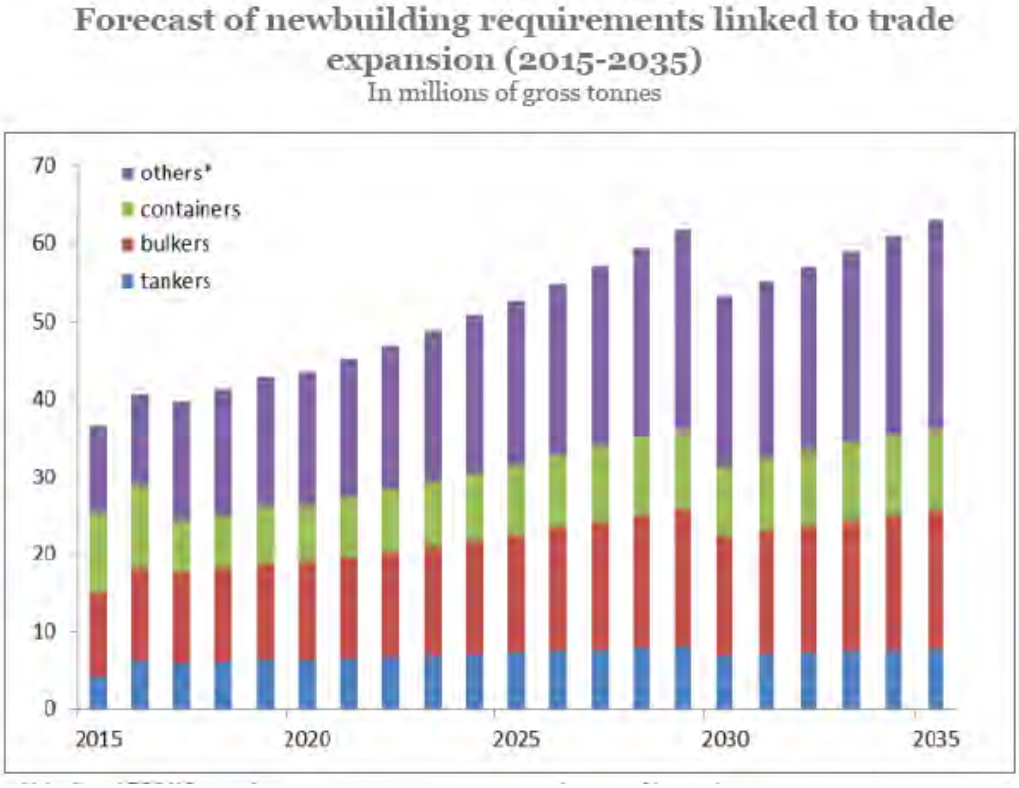
(Y 為海上貿易，X 參考實際 GDP 成長，β_1 為關聯係數，e 為誤差)

由 2014 年 11 月之 OECD Economic Outlook 資料，可估算海上貿易成長等於 1.1 倍之實際 GDP 成長。

1985~2040 年間全球海上貿易趨勢及預測走勢、各船種之海上貿易成長率及噸位參考如下圖所示。



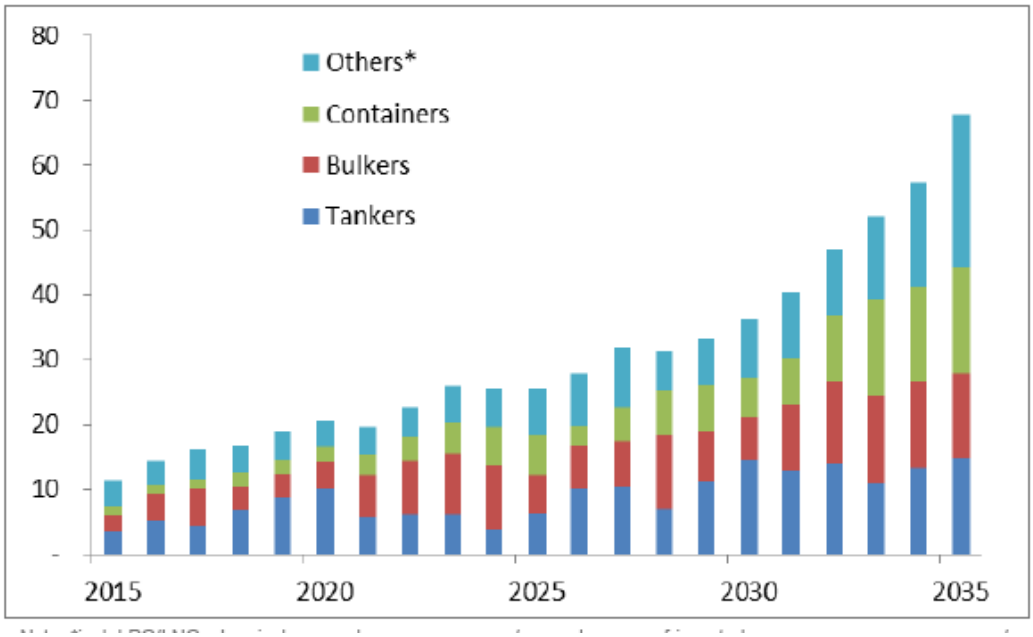
由上圖之全球海上貿易預測走勢、各船種之海上貿易成長率及噸位資料，因海上貿易擴張量換算成未來 20 間每年運輸所需之各類船種艘數，如下圖所示。



搭配未來 20 年間因老舊船舶汰換，各類船種之需求量預測，參考如下圖，

Forecast of vessel requirements linked to fleet replacement (2015-2035)

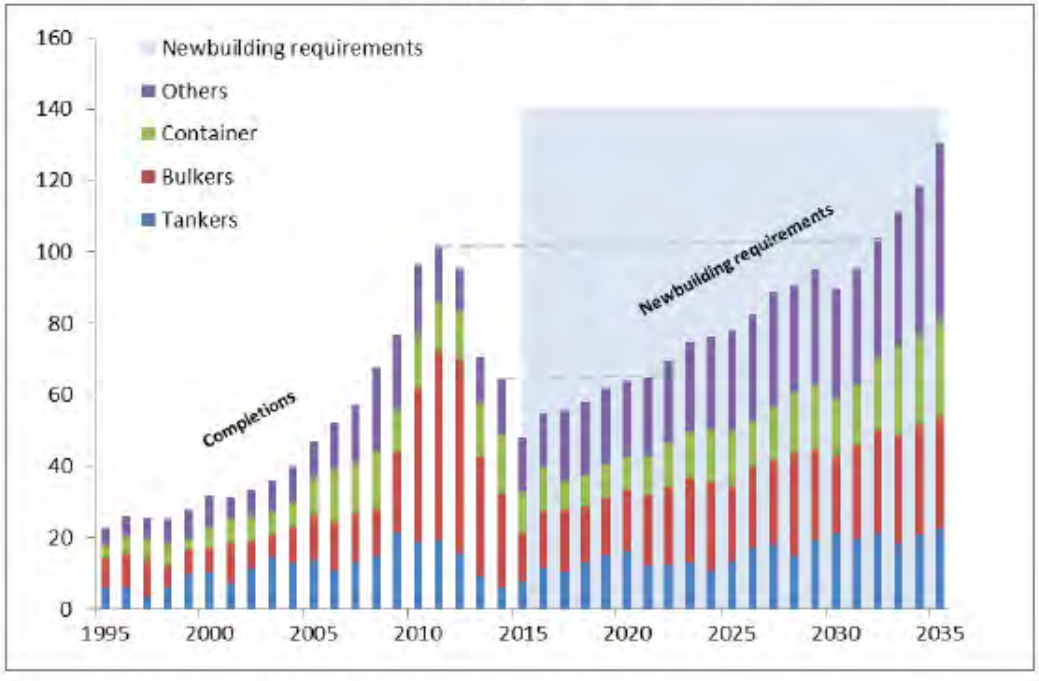
In millions of gross tonnes



藉由上述兩張圖表，加總後即可得出 2015 年至 2035 年間之新船訂單需求預估量

Past vessel completions (1995 – 2014) and future newbuilding requirements (2015 – 2035)

In millions of gross tonnes



Source: OECD calculations based on Clarkson (2015a), IHS World Fleet Statistics.

船舶供需落差之潛在原因 (Potential causes of the gap)

造成新船訂單需求及實際完工量之落差潛在原因如下：

對供給方(船廠、設備廠..)而言--以人為方式降低投入之成本要素，如提供(船廠)低廉資金、原物料、土地或(獲得)各式的補貼措施。

對需求方(船東、政府...)而言--強制採用國造船舶，對船東給予不同方式之支援措施。

政府對造船/航運市場之主要扭曲措施如下表：

供給方		需求方	
宏觀	微觀	宏觀	微觀
匯率	退款保證之支持	沿海貿易規則/船籍要求	個別船東之出口信貸
利息	船廠(shipbuilder)可獲得低利融資	產業政策（貨物/海上運輸航道）	特別會計政策支持船東以在國內船廠建造船舶
土地	廠商(builder)可獲得金融機構之債務赦免	國家機構配合國家特定目而直接下單訂購船舶	因國家採礦業或離岸開發計畫，藉由限制"國內造造"之要求，滿足國內船廠日益需求之訂單
其他補貼成本因素（水、電）	直接給予個別廠商(builder)補貼	產權結構問題（國營事業體機構問題）導致過度投資(訂單)	

總結

在過去幾年間，全球造船產業持續存在著供過於求的現象，2005 年至 2013 年間之累積供給過剩噸位，已佔 2013 年世界船隊總噸位 23%之比重。供需失衡的潛在因素，主要來自投機性訂單及上述之政府支持措施，未來造船供需失衡之預估分析，需要更複雜的計量經濟學方法並考量更多影響因子加以評估，如產業週期性、結構性因素等。

未來 WP6 會議/專題研討會中可能會發佈"主席聲明"(Chair’s Statement) ，聲明內容包含對過去、目前、未來造船產業，針對供給過剩之規模及原因進行評估工作，於 2015 年 11 月 WP6 會議中由 OECD 秘書處初步提供過剩供給分析工作之主要成果，並於 2015 年 11 月、2016 年 6 月在 WP6 會議中進行討論，最後之"主席聲明"將於 2016 年 6 月公佈發出。

議題8： 未來之海洋經濟 -探索2030/2050年新興海洋產業之前景（The future of the ocean economy – exploring the prospects for emerging ocean industries to 2030/50)

主席請OECD秘書處Mr. Barrie Stevens口頭報告近期完成有關海洋經濟(Ocean Economy)計畫之工作內容。

OECD的角色主要在解決近10年間全球所面臨之重大挑戰，包括扶植經濟發展、解決貧困問題、照顧20億的人口、減緩氣候變遷問題、管理自然資源永續發展、尋找新興再生能源等，而海洋將是解決未來挑戰的重要一環。面對不斷增漲的海洋經濟，需要肩負重任去面對，因為海洋生態系統刻正面臨這樣的壓力挑戰。

面對2030-2050年的海洋經濟發展，傳統及新興產業包括航運、造船、漁業、傳統海洋、海洋休閒遊憩、港埠、離岸風電工程、深海石油/天然氣探勘及開採、海洋能源、海洋生物、水產養殖、海底採礦、海洋監測等。重點在於海洋領域具有潛在性之經濟增長、就業率提升、創新性發展，將可能對海洋生態系統及永續發展造成影響，未來應妥善管理海洋活動所造成之衝擊。

OECD於2013年10月底執行海洋經濟(Ocean Economy)之計畫，結案日期為2015年底或2016年初，針對全球漁業、造船、生物科技、能源、旅遊、環境等議題進行跨OECD組織之合作，經費來自自願性捐助資金，參與的國家有挪威、韓國、法國、葡萄牙、愛爾蘭、瑞典、英國、加拿大（魁北克）、比利時、印度尼西亞、南非、臺灣等國，此外，還有基金會、研究單位、公司企業及NGO等加入，討論之議題包括：離岸風電（專家小組,2014年4月,巴黎）、海洋可再生能源-波浪、潮汐等（2014年5月,巴黎）、離岸油氣於深海、北極之探勘，（2014年6月,特隆赫姆）、開放海洋水產養殖（2014年,卑爾根月）、海床金屬及稀土開採（2014年11月,基爾）、海事安全產業（2015年5月,首爾）、海洋空間規劃和海上監測（2015年6月,里斯本）、海洋與海岸旅遊之創新（2015年6月,瑞典）、海洋生物科技（2015,畢爾巴鄂月）…等與海洋相關經濟活動(包括造船產業) 等跨部門之協調合作。

有關"海事安全產業（2015年5月,首爾）"的未來規劃：

推動至2030年之海洋運輸發展及改變海事運輸風險狀況，並推動全球海上安全產業發展及E化導航之系統創新和數位基礎設施、衛星船舶追蹤系統，建立全球共同合作戰略。

"海洋空間規劃(Maritime Spatial Planning,MSP) "未來工作主軸：

在日益擁擠的海域，應善加發展多功能性之海洋和沿海空間，全球刻正發展海洋空間規劃(MSP)，該計畫預計持續至2030年，藉由MSP之治理與創新，應用經濟工具(economic tools)於MSP和海洋空間評估（MSAs），進而發展數據、資訊、技術基礎設施，藉以推廣MSP（數據

需求、科學知識方面的落差、衛星遙感/地球觀測/導航等）值得注意的是港口問題，可運用環境影響評估/戰略環境影響評價等，以科學、客觀、綜合之調查、預測、分析及評定，提出海洋空間管理計畫。

WP6 造船工作小組與會員間之合作項目，包括支持舉辦 WP6 專題研討會(Workshop)，並與 WP6 秘書處執行之離岸產業計畫(offshore industry project)進行合作，定期並持續更新 WP6 造船資訊。

伍、綜合結論

1. 在過去幾年間，全球造船產業持續存在著供過於求的現象，2005 年至 2013 年間之累積供給過剩噸位，已佔 2013 年世界船隊總噸位 23%之比重。供需失衡的潛在因素，主要來自投機性訂單及上述之政府支持措施，未來造船供需失衡之預估分析，需要更複雜的計量經濟學方法並考量更多影響因子加以評估，如產業週期性、結構性因素等。

2. 近年來，各國造船廠將部分比例產能用於建造離岸工作船，但在此將會影響原本以修正總噸（Compensated Gross Ton, CGT）系統對各國、各船廠之造船排名順序，因為離岸工作船在原 OECD 之 16 種船種系統並未被納入，而無修正係數加以規範。本會議中確認將離岸工作船舶納入 CGT 系統，使得各國完工之商船及離岸工作船得以整合三大造船指標（新船訂單、訂單量、完工量）CGT 產量，會議後 OECD 秘書處將改善 CGT 系統，並討論各海洋工程船舶之修正係數，提供各國參考。

3. 壓艙水管理國際公約(International Convention for the Control and Management of Ships´ Ballast Water and Sediments, 2004) 已於 2004 年 2 月 13 日獲得國際海事組織 IMO 採納，其公約經 30 個國家批准且簽署國家商船(merchant fleet)總噸位數(Gross tonnage)累積達全球船隊之 35%總噸位以上之 1 年後生效，截至 2015 年 3 月底，已有 44 國批准，總噸位數達到 32.86%比例，已相當接近生效門檻。全球預估約有 70,000 艘現有船舶需要進行加裝壓艙水處理系統（Ballast Water Treatment System, BWTS），龐大商機已引起各國船舶裝備商競相開發、生產，以取得有利市場地位。

4. 未來 WP6 會議/專題研討會中可能會發佈"主席聲明"(Chair’s Statement) ，聲明內容包含對過去、目前、未來造船產業，針對供給過剩之規模及原因進行評估工作，於 2015 年 11 月 WP6 會議中由 OECD 秘書處初步提供過剩供給分析工作之主要成果，並於 2015 年 11 月、2016 年 6 月在 WP6 會議中進行討論，最後之"主席聲明"將於 2016 年 6 月公佈發出。

陸、心得建議

1. 各國政府對造船產業支持措施議題在 OECD「WP6」會議中討論已久，最新趨勢是將該補貼措施與 WTO 貿易規範進行連結，以界定何種造船補貼措施方式違反 WTO 規則；近年幾次 WP6 會議，其秘書處多邀請 WTO 代表與會進行相關經貿議題、法規之說明及討論，由於其內容已偏離原造船及離岸海事工程產業領域，建議可將其相關 WTO 議題尋求國貿局之協助，必要時邀請國貿局有關 WTO 事務專人參與開會，以掌握議題之發展及動向。

2. 本次會議日本提出適用於定義綠色船舶之環境指標，如二氧化碳、硫氧化物、氮氧化物、壓艙水處理系統、船舶回收（Ship Recycling）等。並討論適用於推動綠色船舶之政策方針，如信口信貸、研發支持、先導型計畫的推展、港口費（Port Fee）的調降等，並加以討論綠色船舶是否要低於 20% EEDI 標準，亦或僅需要低於 EEDI 標準即可，但近幾次會議尚無共識，往後將持續蒐集更多訊息，以利界定，並彙整近期有關綠色船舶補貼措施相關新聞，然而補貼標準並不一致，尚待後續追蹤。我國近年來亦推廣並發展綠色船舶，未來應持續關注此議題，可作為國內產官學研各界之參考。

3. 本會議由我國工業局蔡妙慈科長領隊，協同財團法人船舶暨海洋產業研發中心及台灣造船公司共三人參加此會議。下次會議時間預定於 2015 年 11 月 9 日-10 日，由於世界經濟快速發展變動與不景氣，航運業與造船業確實面對危機與挑戰，故了解與蒐集各國面對新興議題之策略與回應措施，對我國航運業、造船產業及新興之離岸產業發展幫助甚大，我國未來宜持續積極參與國際組織，如 OECD 相關活動，同時進一步蒐集最新全球造船產業情報並與各國相互交換意見，以作為我國研擬造船產業發展政策時之參考。

柒、檢附相關資料

附件一：會議正式邀請函

ORGANISATION FOR ECONOMIC
CO-OPERATION AND DEVELOPMENT

DIRECTION DE LA SCIENCE, DE LA TECHNOLOGIE, ET DE L'INDUSTRIE
DIRECTORATE FOR SCIENCE, TECHNOLOGY, AND INNOVATION

Division de la politique structurelle
Structural Policy Division

Administrateur principal
Principal Administrator

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Metal and Mechanical Industries Division
Industrial Development Bureau
Ministry of Economic Affairs
Chinese Taipei

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DSTI/SPD/15.38

Paris, 31 March 2015

Dear Mr. Lu,

I am writing to invite representatives of Chinese Taipei to the OECD Council Working Party on Shipbuilding (WP6) meeting taking place in Paris on Thursday 11 and Friday 12 June 2015. As you will see from the attached agenda, the group will discuss a number of issues in June, including supply and demand analysis, policy developments, a possible review of OECD instruments related to shipbuilding, green ships and the offshore industry.

We would welcome your participation in the meeting. If you are able to attend, please contact myself and Florence Hourtouat (florence.hourtouat@oecd.org) with a list of attendees so that we may register you for the meeting. Documents will be sent to you as they become available.

Please don't hesitate to contact us for further information. We look forward to hearing from you.

Kind regards,

Laurent Daniel
WP6 Secretariat

cc : Ms. Antonia MEI, Service Economique et Commercial, Centre Asiatique de Promotion Economique et Commerciale (CAPEC), Paris, Bureau de Représentation de Taipei en France (bcmei@orange.fr)

Encl.: 1

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保存年限：

駐法國代表處經濟組 函

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France
承 辦 人：梅碧琦
聯絡電話：+33(0)1 5689 8103
傳　　真：
電

受文者：經濟部工業局

發文日期：中華民國104年3月20日
發文字號：法經字第10400001120號
速別：最速件
密等及解密條件或保密期限：普通
附件：

主旨：陳報OECD造船工作小組(WP6)訂於本(104)年6月11至12日舉行第120次會議，敬請　查照。

說明：

一、OECD造船工作小組(WP6)秘書人員頃通知本年6月11至12日於巴黎OECD總部舉行第120次會議，續並提供本次會議議程草案。本次會議主要聚焦於造船工業之政策發展、綠色船舶、造船產業之供需分析以及各國對造船產業之支持及補貼措施等議題，另將延續前次會議中就離岸產業之討論(詳如附件)。

二、本組謹建請　貴局規劃派員與會，並復告出席人員名單，俾協助報名等出席會議相關事宜。

正本：經濟部工業局
副本：經濟部國際貿易局

電子公文交換章
駐法國代表處經濟組

104/03/23 一般公文

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DIRECTION DE LA SCIENCE, DE LA TECHNOLOGIE, ET DE L'INNOVATION
DIRECTORATE FOR SCIENCE, TECHNOLOGY, AND INNOVATION

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DSTI/SPD/15.58

Paris,5 May 2015

Dear Ms. TSAI Miao-tzu,

We are pleased to invite you to attend the meeting of the OECD Council Working Party on Shipbuilding (WP6) to be held on 11-12 June 2015

You have already received the draft agenda. Further documents will be sent to you once they become available.

Should you have any questions, please do not hesitate to contact me at laurentc.daniel@oecd.org if you have any questions or require any further information.

Kind regards,

Laurent Daniel
WP6 Secretariat

cc: Antonia Mei, Bureau de Représentation de Taipei en France, Service Economique et Commercial (email:bcmei@orange.fr)

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ORGANISATION FOR ECONOMIC
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Principal Administrator

Mr. Yeong-yuan OU
Deputy Director
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DSTI/SPD/15.58

Paris,4 May 2015

Dear Mr. OU Yeong-yuan,

We are pleased to invite you to attend the meeting of the OECD Council Working Party on Shipbuilding (WP6) to be held on 11-12 June 2015

You have already received the draft agenda. Further documents will be sent to you once they become available.

Should you have any questions, please do not hesitate to contact me at laurentc.daniel@oecd.org if you have any questions or require any further information.

Kind regards,

Laurent Daniel
WP6 Secretariat

cc: Antonia Mei. Bureau de Représentation de Taipei en France, Service Economique et Commercial (email:bcmei@orange.fr)

ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

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DSTI/SPD/15.58

Paris,4 May 2015

Dear Mr. CHUNG Kun-Hsien,

We are pleased to invite you to attend the meeting of the OECD Council Working Party on Shipbuilding (WP6) to be held on 11-12 June 2015

You have already received the draft agenda. Further documents will be sent to you once they become available.

Should you have any questions, please do not hesitate to contact me at laurentc.daniel@oecd.org if you have any questions or require any further information.

Kind regards,

Laurent Daniel
WP6 Secretariat

cc: Antonia Mei, Bureau de Représentation de Taipei en France, Service Economique et Commercial (email:bcmel@orange.fr)

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附件二：各國參與單位及名單

Participants list for the Council Working Party on Shipbuilding (WP6)/ Liste des participants pour le Groupe de travail du Conseil sur la construction navale (GT6)

Paris, 11-12 June 2015 - Paris, les 11-12 juin 2015

Présidente/Chairperson

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附件三 ： 會議活動照片

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會議開會狀況

WP6 會議主席 Ms. Elin Østebø JOHANSEN (左二)

OECD (左)法文縮寫為 OCDE(右)

附件四：大會發佈之正式文件

ROOM DOCUMENT 1

Japan's comments

on

the Inventory activities

DIRECTORATE FOR SCIENCE, TECHNOLOGY AND INNOVATION
COUNCIL WORKING PARTY ON SHIPBUILDING COMMITTEE

ROOM DOCUMENT 1

Japan's comments on the Inventory activities

Meeting of the Council Working Party on Shipbuilding, 11-12 June 2015

In this document, Japan provides its views on possible ways to improve the current inventory activities

ROOM DOCUMENT 1

COMMENTS ON THE INVENTORY ACTIVITIES

Introduction

1 Updating the inventory of subsidies and other support measures is a key activity of the WP6 to ensure/increase transparency of supporting measures in the shipbuilding sector. In recent years, new support measures have appeared, which might not been well captured by the current inventory practice. Furthermore, in some cases, information in the inventory is not enough detailed to correctly understand how measures are implemented and what impact they may cause to the shipbuilding industry.

2 Thus, the current inventory practice may be able to better serve its intended purpose with some modification. This document provides Japan's view on possible ways to improve the current inventory activities.

Review of the Inventory Activity

Lack of information

3 According to the updated inventory of government subsidies and other support measures [C/WP6(2015)2], 63 measures are reported by participants. Of these, 25 measures are categorized as "E. Export or Home Credits", which are expected to abide by terms and conditions of the SSU. Remaining 38 measures are implemented by each participant based on its own criteria/rules/guidance. Among these 38 measures, less than half include information on purpose, scope and upper limit of support. It also should be noted that only few include clear quantitative criteria for the scopes of the measures.

Need to capture up-to-date policy movements

4 In the past, the Secretariat collected information, mainly through media, on measures which were not reported by the participants but could be included in the Inventory. Also the Secretariat interacted with the participants to discuss the measures and produced a document summarizing measures and interaction with them (*Additional measures for possible inclusion in the WP6 Inventory of Subsidies and Other Government Support Measures, November 2011*). This effort complemented the inventory well, but it was stopped due to the limited resource of the Secretariat. In order to capture new policy developments and discuss them at the WP6, the introduction of a new mechanism to enhance information exchange by participants may be necessary. Also, such a scheme should be feasible within the current Secretariat's resource.

Proposal

6 In order to improve quality and consistency of information in the inventory, it is proposed that basic information such as purpose, scope and upper limit of support measures should be covered by the inventory and the inventory format should be modified accordingly. In addition to items illustrated above, what information should be covered by the inventory may need to be discussed further.

7 Regarding a new mechanism for information exchange, it is proposed to introduce a Q&A style information collection scheme, where an inventory participant submits a question on a policy by another participant and the respondent provides information on the asked policy. A good example was already seen in the past WP6 meeting, where K-Sure provided detailed information on its new finance scheme of bond guarantee in response to a request by Japan. The Secretariat may work as a liaison in this practice and prepare a summary document, complementing the current inventory activity. (ANNEX contains information on some new policy developments.)

ROOM DOCUMENT 1

ANNEX: NEW POLICY DEVELOPMENTS

1. Korean Eco-ship Fund

According to Lloyd's List 15th March 2015, Korea Eximbank (KEXIM) launched a Won 1 trillion ($898m) eco-ship fund to support South Korean carriers and yards, with two financing deals totalling $43m done with Hyundai Merchant Marine and Korea Lines initially.

KEXIM, in its press release, stated that KEXIM established the eco-ship fund in order to support ship owners for the purpose of purchasing energy efficient vessels. Below is consolidated information about the overview of the fund from publicly available sources:

- Total investment amount: 1 trillion won ($898m), including 0.25 trillion won ($225m) investment from KEXIM
- Scope of investment: New ships and/or second hand ships purchased by international and/or domestic shipping companies.
- Type of financing: Junior debt or equity
- Type of investment: investment trust fund in accordance with the relevant law.
- Fund managing agency: Selected in accordance with relevant law.

- The terms and conditions of the eco-ship fund and the definition of the eco-ship were not obtained from open sources.
- Nature of this fund is not clear: Loan as export credits subject to the SSU? Equity as a kind of subsidy subject to WTO rules?[1]

2. Chinese subsidies for fleets upgrade

According to the Reuters on-line article 30th September 2014, China provided four shipping lines including China Cosco 1.8 billion Yuan ($293.3 million) with subsidies to encourage them to replace their vessels. The funds provided to each company are as follows:

- China Cosco: 1.3 billion Yuan ($211.7 million)
- Cosco Shipping: 182.9 million Yuan ($29.8 million)
- China Shipping Development Co.: 215 million Yuan ($35.0 million) (for scrapping 15 ships)
- China Shipping Container Lines: 40 million Yuan ($6.5 million)

[1] Agreement on subsidies and countervailing measures.

ROOM DOCUMENT 2

Proposal for future activities in terms of green ship promotion

DIRECTORATE FOR SCIENCE, TECHNOLOGY AND INNOVATION
COUNCIL WORKING PARTY ON SHIPBUILDING COMMITTEE

ROOM DOCUMENT 2

Proposal for future activities in terms of green ship promotion

Meeting of the Council Working Party on Shipbuilding, 11-12 June 2015

In this document, Japan introduces the overview of the earlier discussion on the green ship in the WP6 and recent international trend on the green ship regulation and promotion measures provided by both international organization and each member country. Furthermore, Japan proposes the next process to proceed the discussion on the green ship.

ROOM DOCUMENT 2

PROPOSAL FOR FUTURE ACTIVITIFS IN TERMS OF GREEN SHIP PROMOTION

Introduction

1. As the international shipping carries approximately 90 percent of the world trade, the total volume of seaborne trade is expected to increase according to the global economic growth. In order to reduce environment burdens from the maritime sector, it is essential to improve environmental performance of ships and to promote greener ships. Based on this recognition, the WP6 started the "green ships" discussion, aiming to promote construction of green ships from the 113th session of the WP6.

2. In considering policies for promotion of green ships, it was necessary to discuss the definition of "green ships" and policy tools. The WP6 discussed the definition of green ships based on the proposal by Japan from the 113th to 115th sessions of the WP6 and also explored various policy options for green ship promotion based on the DNV report at the 116th and 117th sessions.

Farlier Discussion at the WP6

Discussion based on the Japanese proposal (amendments to SSU)

3. As for the definition of green ships, Japan proposed that if the attained EEDI of some ship is lower than the ship's required EEDI by more than 20%, then the ship is considered to be a "green ship". As for a policy tool, Japan proposed to utilize SSU by relaxing financial terms and conditions of SSU for green ships.

4. During the discussion on the definition of green ships, some members proposed to take into consideration SOx, NOx and ship recycle inventory as the definition of green ship. In addition, some members stated that high fuel prices already provided sufficient incentives for shipowners to purchase more fuel efficient ships and doubted the need for additional incentive. Since no agreement was reached on whether there was a need to support more fuel efficient ships, the WP6 agreed to postpone the discussion and to see the impact of the IMO EEDI regulation which came into force from January 1st 2013.

Discussion based on the DNV report

5. In order to explore possible policy options to promote green ships, the WP6 had discussion based on the report "Encouraging construction and operation of 'green ships' [C/WP6(2013)12/FINAL]", prepared by Det Norske Veritas (DNV), focusing on the policy tools to reduce GHG emissions from ships. Although five policy options were selected for further consideration, no substantive discussion has been done yet at the WP6.

Recent International Developments on Green Ship Promotion

6. According to Lloyd's List 15th Mar 2015,, Korea Eximbank launched $898m new eco-ship fund to support Korean shipping and shipbuilding companies. Although information on the definition of eco-ship seems unavailable to the public, Lloyd's List said that "the fund has relatively low criteria for eco-ships, only requiring them to meet the IMO EEDI benchmarks."

7. According to the press release of DNV GL on 16 June 2011, Korea Finance Corporation (KoFC) announced the green ship finance plan that incentives including a form of lower interest rates on loans would be provided to the ship owners who obtained the vessels designed to reduce emissions. However, the definition of green ship supported by this scheme and terms and conditions of loans are not publicly available.

8. According to Lloyd's List 30th July 2014, Finland was considering state aid to Finnish shipowners seeking ships that were built in excess of current environmental regulations. The intention was to get Finnish shipowners to go ahead of international regulations. The article also mentions that Finland's Ministry of Transport would assess the merit of launching a new aid package for shipowners in 2013, noting there is no definition of an environmentally ship to determine which vessels could receive aid.

9. Green Award Foundation based in the Netherland introduced incentive schemes for safe and clean ships. According to its website, the foundation developed the certification procedure for ships that are extra clean and extra safe. Ships with a Green Award certificate expect various financial and non-financial benefits. This scheme is open to oil tankers, chemical tankers and dry bulk carriers from 20,000DWT and upwards, LNG and container carriers and inland navigation vessels. At ports in particular countries, the green award vessels receive a considerable reduction on port dues.

10. World Port Climate Initiative (WPCI) developed Environmental Ship Index (ESI) which is used to identify ships that perform better in reducing air emissions than required by the current emission standards of the IMO. The ESI has been used as a criterion for a port fee exemption or reduction at particular port in Europe and the United States. In this scheme, ESI Bureau calculates the ESI scores based on the relevant information from shipowners, then the scores are published in the website.

Table: Summary of policies related to green ships

Country/Organization	Policy tools	Definition of green ships
Korea (KEXIM)	Loans or Equity	Unclear (EEDI only?)
Korea (KoFC)	Loans	Unclear
Finland (MOT)	Unclear	Unclear
GAF	Reduction of port fee	Air emission, ballast, ship recycling, etc.
WPCI	Reduction of port fee	NOx, SOx, CO2

Future Works

Information collection on recent movements

11. As written in paragraphs 4 and 5, the past discussion at the WP6 focused on whether additional incentives were necessary or not and on the definition of green ships. It seems that recent international movements acknowledge the necessity of incentive/support schemes and define their own criteria for green ships.

12. In order to deepen understanding on policies related to green ships, it is helpful to collect detailed information on those policies in terms of both the definition of green ships and policy tools. Moreover, in case where government supports for green ships are provided (eg. export credits), it may be worth considering whether common criteria for green ships or some guidance for governmental support is necessary. Thus, it is proposed that the WP6 collect information on recent movements relating to green ships. For this, governments are encouraged to submit information and data to the Secretariat by the next session of the WP6.

Study on policy tools

13. In addition to the issue of the definition of green ships, it is necessary to identify what types of policy tools are appropriate to promote green ships. So far, as stated earlier, five policy options are considered by the WP6 based on the DNV report. It may be beneficial to look at similar policies in other sectors such as road transport, building and aircraft. Furthermore, there is an issue of "split incentive", which could be a barrier for shipowners to invest in greener but more expensive ships. In order to formulate a policy which can give proper incentives to proper stakeholders, this issue should be also examined in detail.

C/WP6(2015)2

INVENTORY OF GOVERNMENT SUBSIDIES AND OTHER SUPPORT MEASURES: MAY 2015

For Official Use C/WP6(2015)2

Organisation de Coopération et de Développement Économiques
Organisation for Economic Co-operation and Development 18-May-2015

English - Or. English

COUNCIL
WORKING PARTY ON SHIPBUILDING

INVENTORY OF GOVERNMENT SUBSIDIES AND OTHER SUPPORT MEASURES: MAY 2015

Paris, 11-12 June 2015

This document is the latest version of the WP6 Inventory. It has been elaborated by the OECD Secretariat based on the responses to the Inventory questionnaire, and will be discussed at the 11-12 June 2015 WP6 meeting.

If desired, delegates may submit written questions to the Secretariat on the answers presented in advance of the meeting. These written questions should reach the Secretariat no later than Wednesday 3 June.

Action required: This document is for discussion.

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INVENTORY OF GOVERNMENT SUBSIDIES AND OTHER SUPPORT MEASURES: MAY 2015

Introduction

1. The Inventory of Government Subsidies and Other Support Measures is a regular exercise for the Council Working Party on Shipbuilding (WP6) and is a high priority in the group's current Programme of Work and Budget (2015-16). The main aim of the exercise is to provide transparency and continuity of data on support measures for the shipbuilding industry. As well as WP6 participants, the Inventory provides some information on the support measures in Partner economies.

2. This document contains the version of the Inventory prepared for the WP6's June 2015 meeting. It provides a permanent record of the Inventory's status, including the latest available financial data. It is based on responses to a questionnaire sent in January 2015 to WP6 Members, Associates, Participants and other economies that participate in the Inventory [C/WP6(2015)1]. That questionnaire requested updates to the existing information contained in the most recent version of the Inventory [C/WP6(2014)6]. As of 18 May 2015, responses were received from: Denmark, Finland, Greece, Germany, Italy, Japan, Korea, Netherlands, Norway, The Philippines, Poland, Portugal, Romania, Russia, Sweden, Turkey, the European Union, and Chinese Taipei.

3. This version of the Inventory aims to capture all government support measures in place at any time during the period 2013 to 2015, including the latest financial data related to those measures. Measures were to be reported even if they were not utilised during the period under review; measures that were rescinded during the period were also to be reported, to be retained until such time that they fall outside the period under review. For the purposes of comparison, previously collected financial data from 2011 is also presented for the measures.

4. It is the Secretariat's intention that a similar document will be produced at least once a year, as a permanent record of the Inventory at specific points in time.

5. Related to the Inventory, the WP6 has previously agreed that the Secretariat should supplement, from open sources, the information submitted by governments for the Inventory. The intention was that the Secretariat should follow up these possible additional items with the respective governments in order to determine whether or not they should be added to the Inventory, as this would significantly strengthen the Inventory as a means of transparency. Details of these additional items were contained in a document "Other Measures", available on the WP6 Inventory website[1] but that was not updated after June 2012. The Secretariat proposes several options for the improvements of the Inventory in the Document [C/WP6(2015)3] including a similar approach to be associated with the future Inventory process.

Action required

6. This document is for discussion at the WP6 meeting on 11-12 June 2015.

[1] https://community.oecd.org/community/inventory.

Notes

State-ownership

Paragraphs 7-10 below are included by agreement of WP6 delegates [C/WP6/M(2012)2/REV1].

7. The WP6 has been discussing the issue of state ownership of shipbuilding entities and the inclusion of such measures in the WP6 inventory.

8. At present, the inventory aims to capture information on government acquisition of interest in a yard or yards (Type G measure). This would include provision of equity capital inconsistent with usual investment practices, acquisition of shares or an interest in an enterprise, partial or total nationalisation of the industry or an enterprise, and other forms of acquisition of interest in a yard or yards. This measure is part of the agreed list of support measures that has been used for all inventories since 2006.

9. At its June 2012 meeting, the WP6 discussed the specific case of two yards in Italy and Spain [C/WP6(2012)11]. These yards are majority state owned and were proposed for inclusion in the inventory by the Secretariat. However, the governments of Italy and Spain disagreed. During the discussion at the June meeting, the delegations of Italy and Spain stressed that state ownership is subject to different legislative and regulatory settings in different countries, and that such ownership may not necessarily confer a benefit or represent a support measure, especially where laws exist to uphold competitive neutrality (as is the case in the European Union). Other delegates considered that government ownership of facilities and enterprises should generally be reported as a form of best practice, and noted that reporting of a measure in the inventory did not imply there was anything wrong with that measure.

10. No conclusion was reached at the June 2012 meeting on the inclusion of these and other similar instances of government ownership in the inventory. The WP6 agreed to undertake further analysis of the general issue of state ownership [C/WP6/M(2012)1], in order to present to the WP6 a broad range of views on the role of government ownership in shipbuilding in OECD and partner economies. This may form the basis of an ongoing discussion of the issue in the WP6 and may be taken into account in decisions on how to refer to instances of government ownership in the shipbuilding industry in the inventory.

Reporting

11. Where countries have recorded nil information for section 4b (Maximum financial exposure at end of each year), this section has been omitted from the template.

12. If exchange rates were neither provided in Inventory submissions nor in the previous Inventory, the Secretariat used average exchange rates for the appropriate period from Reuters.

WP6 participants and invitees

13. In addition to WP6 Members, Associates and Participants, the Secretariat asked the following economies to participate in the WP6 Inventory activity: Brazil, China, Chinese Taipei and the Philippines. Of these, Chinese Taipei and the Philippines provided responses to the questionnaire.

Changes from the previous Inventory

14. Changes are as follows:

- Denmark's CIRR for ships discontinued from 31 December 2012 onwards and was considered to be no more relevant for this report. Therefore, it was not reported in the Inventory 2015.
- Denmark reported a new measure, The Market Development Fund, under "Direct transfer of funds by governments" in 2015.
- Finland reported a new measure, the acquisition of shares in the Finish yard *Turku*, under "Government acquisition of interest in a yard or yards". On 17 April 2015, it was published that Meyer becomes 100% owner of Turku shipyard. The change in the ownership structure is expected to become effective in May-June 2015.
- Japan reported a new measure, a grant for research and development of offshore technologies, under "Support for Research and Development"
- Korea reported a new measure (Export credit guarantees) under "Export or Home Credits". The measure for "Export or Home Credits" (Network loans for SME subcontractors) is included in the measure for "Export or Home Credits" (Pre-shipment loans to Korean shipyards).
- The Philippines participated for the first time in the Inventory this year and reported seven measures.
- Poland reported a new measure under "Deferral of direct fiscal charges" in the Inventory 2015.
- Russia participated for the first time in the Inventory this year and reported a measure under "Direct transfer of funds by Governments".
- Turkey's Inventory for 2015 does not include four measures that were indicated in 2014, in the categories "Direct transfer of funds by Governments – Subsidies and grants (Energy support)", "Direct transfer of funds by Governments – Subsidies and grants (Interest rate support)"," Government revenue that is foregone or not collected – Remission or drawback of import charges (Tax reduction)" and "Government revenue that is foregone or not collected – the Inward Processing Regime".
- The European Union reported no entry in 2015.

DENMARK

(1/3)

REFERENCE YEARS 2013-2015

1. Type of the measure of support			
A: **Direct transfer of funds by Governments** *a4: Direct transfer of funds for other purposes (please specify)* *Direct funding for technological experimental development via the Market Development Fund*			
2. Authority/agency responsible for the measure and legal authority			
Danish Business Authority			
3. Outline/explanation of the measure			
The **Market Development Fund** funds testing and adjusting of functioning prototypes of new innovative products in collaboration with potential customers and end-users. Some of these technologies have been within the realm of ships.			
4a. Monies actually committed each year	Year 2013	Year 2014	Year 2015
National Currency [DKK million]	5,5	8,86	-
USD	0,979	1,586	
Exchange rate [DKK/USD]	0.178	0.179	
4b. Maximum financial exposure at end of each year			
National Currency [Name :] **OR**			
USD			
Exchange rate [/USD]			
5. Notes (if any)			

DENMARK

(2/5)

REFERENCE YEARS 2013-2015

1. Type of the measure of support			
A: **Direct transfer of funds by Governments** *a4: Direct transfer of funds for other purposes*			
2. Authority/agency responsible for the measure and legal authority			
Danish Maritime Authority Order No. 142 of 12 February 2013 on a maritime conversion pool			
3. Outline/explanation of the measure			
The purpose of the **maritime conversion pool** was to promote resource-efficient, green maritime solutions within areas considered to have a considerable potential for jobs. Subsidies were granted for demonstration projects, the purpose of which was to develop or demonstrate new maritime solutions within the following subject areas: 1. The construction of ships in new lightweight materials. 2. Environmental- and climate-modernisation of existing ships. 3. Use of alternative propellants for ships. Subsidies were granted for partial coverage of additional costs related to investments in resource-efficient solutions compared to a solution based on generally known solutions in the area. The conversion pool did only exist in 2013.			
4a. Monies actually committed each year *[see Explanatory Note 4)]*	Year 2013	Year 2014	Year 2015
National Currency [DDK million]	20.64		
USD (million)	3.674		
Exchange rate [DKK /USD]	0.178		
4b. Maximum financial exposure at end of each year			
National Currency [Name :] **OR**			
USD			
Exchange rate [/USD]			
5. Notes (if any)			
The conversion pool did only exist in 2013.			

DENMARK

(3/3)

REFERENCE YEARS 2013-2015

1. Type of the measure of support			
E: **Export or Home Credits** *e2: Export credit guarantees or insurance (guarantees)*			
2. Authority/agency responsible for the measure and legal authority			
Eksport Kredit Fonden (EKF)			
3. Outline/explanation of the measure			
Official export credit guarantees are provide to the Danish maritime sector in accordance with the OECD Arrangement on Officially Supported Export Credits and its Sector Understanding on Export Credits for Ships or in accordance with relevant EU legislation.			
4a. Monies actually committed each year	Year 2013	Year 2014	Year 2015
National Currency [Name :] **OR**			
USD			
Exchange rate [/USD]			
4b. Maximum financial exposure at end of each year			
National Currency [Name: DKK million] **OR**	26,3	112,4	-
USD	4.681	20.119	
Exchange rate [DKK /USD]	0.178	0.179	
5. Notes (if any)			

FINLAND

(1/5)

REFERENCE YEARS 2013-2015

1. Type of the measure of support			
G: **Government acquisition of interest in a yard or yards** *g2: Acquisition of shares or an interest in an enterprise*			
2. Authority/agency responsible for the measure and legal authority			
The Finnish Industry Investment Ltd (FII, fully government owned investment company).			
3. Outline/explanation of the measure			
The State of Finland and the German shipbuilder Meyer Werft purchased the whole share capital of STX Finland Oy in August 2014. Meyer is the industrial lead investor with its 70 per cent ownership share, carrying a main responsibility for the yard's operations and its further development. State's ownership share is, through the Finnish Industry Investment Ltd (FII, fully government owned investment company), 30 per cent. The FII investment was done following FII's normal investment policy and criteria. Taking into account the fact that FII only acts as a co-investor (in minority role), the investment was also done fully on market terms. In August it was also published that FII has the possibility for an exit at a later stage – in line with the FII normal practice. On 17 April 2015 it was published that Meyer had decided to further invest in Turku shipyard using the call option, on which was agreed when the investment was done by FII. Meyer becomes 100% owner of Turku shipyard. The change in the ownership structure is expected to become effective during May-June 2015.			
4a. Monies actually committed each year	Year 2013	Year 2014	Year 2015
National Currency [Name:] **OR**		*	*
USD			
Exchange rate [/USD]			
4b. Maximum financial exposure at end of each year			
National Currency [Name:] **OR**			
USD			
Exchange rate [/USD]			
5. Notes (if any)			
* The exact purchase price in the transaction cannot be disclosed, but the current distressed situation of the company was reflected on the valuation of the company, and therefore, also on the final purchase price.			

FINLAND

(2/5)

REFERENCE YEARS 2013-2015

1. Type of the measure of support
K: Support for Research and Development
2. Authority/agency responsible for the measure and legal authority
Decisions on grants - Centre for Economic Development, Transport and the Environment for Southwest Finland, if the aid granted is less than or equal to EUR 5 million. - Ministry of Employment and the Economy, if the amount of aid granted is more than EUR 5 million. Legislation - European Commission – Framework on State Aid to Shipbuilding (2011/C 364/06) - European Commission – Communication from the Commission concerning the prolongation of the application of the Framework on State aid to shipbuilding (2013/C 357/01) - National – Government Decree on the State's Innovation Aid for Shipbuilding 502/2012, later 955/2014, unofficial translation (issued under Act on Discretionary Government Transfers 688/2001) The measure was approved by European Commission 25 July 2012 (State aid SA.34408 (2012/N)) and was in effect until 31.12.2013. The latest approved national scheme of Finland was approved by European Commission 23 June 2014 (SA.38798 (2014/N)).
3. Outline/explanation of the measure
Innovation aid (in the form of direct grants) may be granted for the industrial application of innovative products and processes. These are technologically new or substantially improved products and processes when compared to the state of the art that exists in the shipbuilding industry in the European Community. The aid may represent no more than 20 percent of the eligible costs as described below. This maximum aid intensity shall not be exceeded by accumulating further authorised aid measures. Where the innovation has the objective of increasing environmental protection and leads to compliance with EU standards at least one year before those standards enter into force or increases the level of environmental protection in the absence EU standards or makes it possible to go beyond EU standards, aid may not exceed 30 %. The total amount of aid awarded to a project may not exceed 150 euros per compensated gross tonne. For further information please see documents "State aid SA.34408 (2012/N) – Finland – Innovation aid scheme for the Finnish shipbuilding industry" and "State aid SA.38798 (2014/N) – Finland Innovation aid scheme for the Finnish shipbuilding industry" available at: http://ec.europa.eu/competition/state_aid/cases/245262/245262_1350808_98_2.pdf http://ec.europa.eu/competition/state_aid/cases/252877/252877_1565908_60_2.pdf

4a. Monies actually committed each year	Year 2013	Year 2014	Year 2015
National Currency [Name : EUR million] OR	38.94	10.00	-
USD	51.790	13.30	
Exchange rate [EUR/USD]	1.33	1.33	
4b. Maximum financial exposure at end of each year			
National Currency [Name : EUR] OR			
USD			
Exchange rate [/USD]			

5. Notes (if any)

FINLAND

(3/5)

REFERENCE YEARS 2012-2014

1. Type of the measure of support

E: **Export or Home Credits**
e2: *Export Credit Guarantee (for foreign buyers)*
e3: *Home Credit Guarantees (for domestic buyers)*

*(Buyer Credit Guarantees provided for **post-delivery** financing of the vessels)*

2. Authority/agency responsible for the measure and legal authority

Responsible authority: Ministry of Employment and the Economy through state-owned company Finnvera plc

Legislation:
1) Act on the State`s Export Credit Guarantees (Act No. 422/01)

2) Act on the Ship Guarantees granted by the State (Act No. 573/72)

3. Outline/explanation of the measure

Post-delivery guarantees are granted to lenders providing financing to foreign shipowners for the purchase of the vessels built in Finland (export credit guarantees provided under legislation 1) above) or to Finnish shipowners for the purchase of vessels from Finland or abroad (guarantees provided under legislation 2) above). The guaranteed loans shall comply with the terms of the OECD Arrangement on Guidelines for Officially Supported Export Credits and its Sector Understanding on Export Credits for Ships.

4a. Monies actually committed each year	Year 2012	Year 2013	Year 2014
National Currency [Name : EUR million]	490.499	0	853.334
USD	627.839		1,134.934
Exchange rate [EUR/USD*]	1.28		1.33
* Provided by the OECD Secretariat			
4b. Maximum financial exposure at end of each year			
National Currency [Name : EUR million]	1,855.878	1,705.297	2,039.046
USD	2,375.524	2,268.045	2,711.931
Exchange rate [EUR/USD*]	1.28	1.33	1.33
* Provided by the OECD Secretariat			

5. Notes (if any)
Please note, that the amounts given above in 4a) show new guarantee commitments during the year and 4b) show Finnvera's actual exposure at the end of each year i.e. the guaranteed portion of the loans disbursed and not repaid. Interest Make-Up (IMU) has been provided for the guaranteed portion of the export credits as follow: Outstanding amount supported by IMU at the end 2012: EUR 597,431,000 (USD 764,711,680) Outstanding amount supported by IMU at the end 2013: EUR 548,433,000 (USD 729,415,890) Outstanding amount supported by IMU at the end 2014: EUR 156,372,000 (USD 207,974,760) Guarantees provided to cover buyer credits provided by Finnish Export Credit (refinancing scheme), actual exposure at the end of each year i.e. the guaranteed portion of the loans disbursed and not repaid. Outstanding amount at the end 2012: EUR 287,441,000 (USD 367,924,480) Outstanding amount at the end 2013: EUR 387,417,000 (USD 515,264,610) Outstanding amount at the end 2014: EUR 831,071,000 (USD 1,105,324,430)

FINLAND

(4/5)

REFERENCE YEARS 2012-2014

1. Type of the measure of support
E: Export or Home Credits *e1: Export credit facilities (interest support and refinancing)* Interest support and refinancing for Export Credits consistent with the Understanding on Export Credits for Ships
2. Authority/agency responsible for the measure and legal authority
The authority responsible for interest support and refinancing is the Ministry of Employment and the Economy. The interest support measure is granted under Act on the Interest Equalisation of Officially Supported Export and Ship Credits (1137/1996, as amended) and the relating decree 1044/2005.
3. Outline/explanation of the measure
Interest support is provided through an Interest Make Up -scheme to enable financial institutions to provide Export Credits based on CIRR consistent with the Understanding on Export Credits for Ships. Under the Interest Make Up –scheme the financial institution will provide and administer the Export Credit and the financial institution will receive/pay the difference between Euribor/Libor and the CIRR rate paid by the borrower. Under the refinancing scheme financing is provided at CIRR consistent with the Understanding on Export Credits for Ships.

4a. Monies actually committed each year	Year 2012	Year 2013	Year 2014
National Currency **EUR**			
USD			
Exchange rate EUR/USD			
4b. Maximum financial exposure at end of each year			
National Currency **EUR**	754,395,282	927,150,815	1,122,642,000
USD	965,625,960	1,233,110,585	1,493,113,860
Exchange rate [EUR/USD*] * Provided by the OECD Secretariat	1,28	1,33	1,33

5. Notes (if any)
The amounts given under 4 b. above represent the outstanding loan amount supported by Interest Make Up at the end of each year and the outstanding amount of refinancing. State-owned company Finnvera has provided credit insurance (buyer credit guarantees) for the export credits mentioned above as follows (amounts represent the guaranteed amount): Year 2012: EUR 597.43 million (USD 764.71) Year 2013: EUR 548.43 million (USD 729.41) Year 2014: EUR 987.44 million (USD 1,313.30)

FINLAND

(5/5)

REFERENCE YEARS 2012-2014

1. Type of the measure of support

E: **Guarantees for domestic shipyards**

(Pre-delivery guarantees provided for partly financing the construction of vessels)

2. Authority/agency responsible for the measure and legal authority

Responsible authority: Ministry of Employment and the Economy through state-owned company Finnvera plc
Legislation:
1) Act on the State's Export Credit Guarantees (Act No. 422/01)

2) Act on the Ship Guarantees granted by the State (Act No. 573/72)

3. Outline/explanation of the measure

Pre-delivery guarantees provided on behalf of Finnish shipyards to partly cover the financing of the construction of vessels: 1) Finance guarantees are granted to partly cover the construction loan taken by the yard. Bond guarantees are used as advance payment guarantees or performance guarantees. If the buyer is a foreign company, guarantees are provided under legislation 1) above, if a Finnish company, under legislation 2) above.

Guarantees are granted according to the rules stated in Commission Notice on the application of Articles 87 and 88 of the EC Treaty to State aid in the form of guarantees. Guarantees are provided on commercial terms and they do not include any subsidy element. Information on the guarantee schemes for pre-delivery financing of the ships has also been given to European Commission, which has made a decision over the scheme on 4.4.2007 C(2007)1406 final.

4a. Monies actually committed each year *[see Explanatory Note 4)]*	Year 2012	Year 2013	Year 2014
National Currency [Name : EUR million]	96.016	292.000	291.000
USD	122.90	388.36	387.03
Exchange rate [EUR/USD*]	1.28	1.33	1.33
* Provided by the OECD Secretariat.			
4b. Maximum financial exposure at end of each year			
National Currency [Name : EUR million]	96.016	196.792	110.000
USD	122.90	261.733	146.30
Exchange rate [EUR/USD*]	1.28	1.33	1.33
* Provided by the OECD Secretariat.			

5. Notes (if any)

Please note, that the amounts given above in 4a) show new guarantee commitments during the year and 4b) Finnvera's actual exposure at the end of each year (both in 4a and 4b the guaranteed portion of the loans disbursed and the advance payment guarantees given).

GREECE

Following the termination of the EU special aid scheme for the shipbuilding industry (Regulation 1540/98 on establishing new rules on aid to shipbuilding, the EU Framework on State Aid to Shipbuilding (2011/C 364/06) ended on June 30th 2014 with no expression of interest by the domestic sector. This apart, we have not been notified of any other support measures of the types referred to in Annex I of the document C/WP6(2015)1 by other public authorities in Greece.

GERMANY

(1/5)

REFERENCE YEARS 2011-2014

1. Type of the measure of support				
C: Loans on terms and conditions more favourable than those that would be commercially available to the benefitting enterprise				
2. Authority/agency responsible for the measure and legal authority				
Government of the German land Mecklenburg-Vorpommern				
3. Outline of the measure				
The land Mecklenburg-Vorpommern has forwarded loans to shipyards at market based interest rates. These loans are in line with European Competition law.				
4a. Monies actually committed each year	**2011**	**2012**	**2013**	**2014**
National currency (EUR million)	0	70	30	0
USD (million)		89.6	39.9	
Exchange rate [EUR/USD]	1.39	1.28	1.33	
5. Notes (if any)				

GERMANY

(2/5)

REFERENCE YEARS 2011-2014

1. Type of the measure of support				
E: **Export or home credits** *e2:* *Export credit guarantees* *e3:* *Home credits granted to domestic ship owners or other domestic third parties*				
2. Authority/agency responsible for the measure and legal authority				
German lands ("Länder")				
3. Outline of the measure				
Guarantees are offered for pre-delivery and post-delivery financing of ships ordered at German shipyards. It is a pure cover system approved by the European Commission and it is therefore in compliance with European competition law. Commitments were only made for pre-delivery finance.				
4a. Monies actually committed each year	**2011**	**2012**	**2013**	**2014**
National currency (EUR million)	92	113.5	113	180
USD (million)	127.88	145.28	150.29	239.40
Exchange rate [EUR/USD]	1.39	1.28	1.33	1.33*
*Provided by the OECD Secretariat.				
5. Notes (if any)				

GERMANY

(3/5)

REFERENCE YEARS 2011-2014

1. Type of the measure of support				
E: **Export or home credits** *e1:* *Export credit facilities* (Refinancing)				
2. Authority/agency responsible for the measure and legal authority				
Ministry of Economics and Technology together with Ministry of Finance; programme administered by KfW-Ipex.				
3. Outline of the measure				
Under the interest make-up scheme, funding risks are covered to enable banks to provide loans at CIRR (Commercial Interest Reference Rate) for the purchase of vessels in Germany. The financial institution providing the loan will receive or pay the difference between the CIRR and funding cost. The system complies with the OECD Arrangement on Guidelines for Officially Supported Export Credits and its Sector Understanding on Export Credits for Ships. The figures below show the amount of loans supported. Since the guarantee can be returned by the bank, the actual amount of guarantees used is much smaller.				
4a. Monies actually committed each year	**2011**	**2012**	**2013**	**2014**
National currency (EUR million)	2,100	1,500	3,100	2,200
USD (million)	2,919	1,920	4,123	2,926
Exchange rate [EUR/USD]	1.39	1.28	1.33	1.33*
*Provided by the OECD Secretariat.				
5. Notes (if any)				

GERMANY

(4/5)

REFERENCE YEARS 2011-2014

1. Type of the measure of support				
E: **Export or home credits** *e2:* *Export credit guarantee or insurance (pure cover)*				
2. Authority/agency responsible for the measure and legal authority				
Ministry of Economics and Technology together with Ministry of Finance, Ministry of Economic Cooperation and Development and Foreign Office. Programme administered by Euler Hermes.				
3. Outline of the measure				
Official export credit guarantees are provided to lenders extending loans to foreign buyers of civil vessels built in Germany. The guaranteed loans shall comply with the terms of the OECD Arrangement on Guidelines for Officially Supported Export Credits and its Sector Understanding on Export Credits for Ships.				
4a. Monies actually committed each year	**2011**	**2012**	**2013**	**2014**
National currency (EUR million)	2,300	2,000	700	4,430
USD (million)	3,197	2,560	931	5,891.90
Exchange rate [EUR/USD]	1.39	1.28	1.33	1.33
5. Notes (if any)				

GERMANY

(5/5)

REFERENCE YEARS 2011-2014

1. Type of the measure of support				
K: **Support for Research and Development** *[Aid granted for innovation in existing shipbuilding repair or ship conversion yards, provided that it relates to the industrial application of innovative products and processes ("Innovationsbeihilfen").* *Form of the subsidy: Grant]*				
2. Authority/agency responsible for the measure and legal authority				
Commitment authorizations in the Federal budget from ptevious years. Guidelines from the Federal Ministry of Economics and Technology.				
3. Outline of the measure				
Certain features make shipbuilding unique and distinguish it from other industries such as small production series, the size, value and complexity of the units produced as well as well as the fact that prototypes are generally used commercially. As a consequence, shipbuilding is the only sector eligible for innovation aid, as an incentive to technological risk-taking (EU Framework of state aid to shipbuilding). Modes of payment: 20 per cent gross limited to expenditure on investments, design, engineering and testing activities directly and exclusively related to the innovative part of the project.				
4a. Monies actually committed each year	**2011**	**2012**	**2013**	**2014**
National currency (EUR million)	31.4	24	23.5	19.7
USD (million)	43.6	30.7	31.3	26.2
Exchange rate [EUR/USD]	1.39	1.28	1.33	1.33*
*Provided by the OECD Secretariat.				
5. Notes (if any)				
The numbers above are the commitments made each year, irrespective of the time of disbursement (which may be over 2 or 3 years). During the crisis, hardly any commitments were made due to the lack of new orders.				

ITALY

(1/4)

REFERENCE YEARS 2013-2015

1. Type of the measure of support
B: Indirect transfer of funds by governments *b1: Subsidies and grants* *(Measures for investments in the naval sector-subsidies to ship owners)*
2. Authority/agency responsible for the measure and legal authority
Ministry of Infrastructures and Transport Law n.88/01 dated 16 March 2001
F3-:Outline/explanation of the measure
Purpose of the ship owner subsidy is to allow a level playing field for Italian and European shipyards on the market. The aid element of the subsidies provided cannot exceed the 9 % of the contract value, according to ceiling established by the EEC Council Regulation n. 1540/98

4a. Monies actually committed each year	Year 2013	Year 2014	Year 2015
National Currency [Name : EUR million]OR	37.15	5.38	0
USD	49.41	7.16	
Exchange rate [EUR/USD]	1.33	1.33	1.12
4b. Maximum financial exposure at end of each year	40.25	4.77	0.61
National Currency [Name : EUR million]OR	53.53	6.34	0.683
USD			
Exchange rate [EUR/USD]	1.33	1.33	1.12
5. Notes (if any)			

ITALY

(2/4)

REFERENCE YEARS 2013-2015

1. Type of the measure of support
K: Support for Research and Development *(Competitiveness increase on assessment of the trade effects of the subsidy)*
2. Authority/agency responsible for the measure and legal authority
Ministry of Infrastructures and Transport Grants Law n. 296/06 dated 27 December 2006 – art 1 co. 1040 and co. 1041
3. Outline/explanation of the measure
To assist EU shipyards by means of new naval sector processes in order to develop a new class of ships. The maximum subsidy level was fixed at 150 Euros for each compensated gross ton (CGT) for product innovation project and at 5 million Euros for process innovation projects. This measure is at the moment concluded. Funds were committed until 2009 and they had never been refinanced.

4a. Monies actually committed each year	Year 2013	Year 2014	Year 2015
National Currency [Name : EUR] OR	0	0	0*
USD			
Exchange rate [/USD]			
4b. Maximum financial exposure at end of each year			
National Currency [Name : EUR million] OR	0.58	0.40	
USD	0.77	0.53	
Exchange rate [EUR/USD]	1.33	1.33	
5. Notes (if any)			

(*) the date refer to founds expended until march 2015

ITALY

(3/4)

REFERENCE YEARS 2013-2015

1. Type of the measure of support

E: **Export or Home Credit**
e1: Export credit facilities

2. Authority/agency responsible for the measure and legal authority

SIMEST SPA

Legislative Decree 143/98, Chapter II

3. Outline/explanation of the measure

Support by way of export credit interest snpport at CIRR provided in accordance to OECD Sector Understanding on Export Credit for Ships (SSU) to banks and financial institutions (buyer credit) financing the purchase of products and services offered by Italian shipbuilders.
Maximum repayment term: 12 years
Minimum cash payment: 20% of the contract value.

4a. Monies actually committed each year	Year 2013	Year 2014	Year 2015
National Currency [Name : EUR million OR	912.4	1,027.7	86 (*)
USD	1,213.49	1,366.84	96.32
Exchange rate [EUR/USD]	1.33	1.33	1.12
4b. Maximum financial exposure at end of each year			
National Currency [Name : I			
USD			

5. Notes (if any)

(*) As of 28th February 2015.

ITALY

(4/4)

REFERENCE YEARS 2013-2015

1. Type of **the measure of support**

E: **Export or Home Credits**
e2: Export credit guarantee or insurance (pure cover)

2. **Authority/agency responsible for the measure and legal authority**

SACE

Outline/explanation of **the measure**

Support by way of export credit guarantees and insurances (pure cover) provided in accordance to OECD's Sector Understanding on Export Credits for Ships (SSU):
a) directly to Italian shipbuilders (supplier credit)
b) to financial institutions (buyer credit) financing the purchase of products and services related to Italian shipbuilding sector
Maximum repayment term: 12 years
Minimum cash payment: 20% of the contract price

4a. Monies actually committed each year(1)	Year 2013	Year 2014	Year 2015(2)
National Currency [Name : **EUR million**]	1,7113	2,504.4	
U SD	2,2760	3,330.85	
Exchange rate [EUR/USD]Exchange rate [	1.33	1.33	
4b. Maximum financial exposure at end of each year			
National Currency [Name : OR	n.a.	n.a.	n.a.
USD			
Exchange rate [EUR/USD]			

5. Notes (if any)

(1) Principal + interests

(2) up to 28th February 2015

JAPAN

(1/5)

REFERENCE YEARS 2013-2015

1. Type of the measure of support			
E: **Export or Home Credits** *e1: Export credit facilities*			
2. Authority/agency responsible for the measure and legal authority			
Japan Bank for International Cooperation (JBIC)			
3. Outline/explanation of the measure			
Officially supported export credits are granted to buyers or shipbuilders by JBIC, complying with terms and conditions under the Sector Understanding on Export Credits for ships.			
4a. Monies actually committed each year*	Year 2013	Year 2014	Year 2015
National Currency [JPY billion]	34.74	24.35	
USD -million	346.70	221.62	
Exchange rate [JPY /USD]**	100.19	109.86	
4b. Maximum financial exposure at end of each year			
National Currency [JPY billion]	142.03	152.95	
USD -million	1,417.60	1,392.24	
Exchange rate [JPY /USD] **	100.19	109.86	
5. Notes (if any)			
*Japanese fiscal year begins in April and ends in March the following year. ** Exchange rate applied here is average rate in a calendar year.			

JAPAN

(2/5)

REFERENCE YEARS 2013-2015

1. Type of the measure of support			
E: **Export or Home Credits** *e2: Export credit guarantee or insurance (pure cover)*			
2. Authority/agency responsible for the measure and legal authority			
Nippon Export and Investment Insurance (NEXI)			
3. Outline/explanation of the measure			
Officially supported export credits are provided to buyers or shipbuilders by NEXI, complying with terms and conditions under the Sector Understanding on Export Credit for ships.			
4a. Monies actually committed each year*	Year 2013	Year 2014	Year 2015
National Currency [JPY billion]	30.45	33.29	
USD -million	303.92	303.03	
Exchange rate [JPY /USD]**	100.19	109.86	
4b. Maximum financial exposure at end of each year			
National Currency [JPY billion]	164.20	191.20	
USD -million	1638.90	1740.36	
Exchange rate [JPY /USD] **	100.19	109.86	
5. Notes (if any)			
*Japanese fiscal year begins in April and ends in March the following year. ** Exchange rate applied here is average rate in a calendar year.			

JAPAN

(3/5)

REFERENCE YEARS 2013-2015

1. Type of the measure of support

E: Export or Home Credits
e3: Home credits granted to a domestic shipowner or other domestic third parties

2. Authority/agency responsible for the measure and legal authority

Development Bank of Japan (DBJ)

3. Outline/explanation of the measure

To build up more comprehensive and sophisticated transport and distribution network in Japan, the DBJ provides finance, with commercial banks, for Japanese transport-related companies including ocean-going shipping companies (Shipbuilders are not subject to this scheme)
This scheme covers projects to build a wide range of infrastructure related to maritime transport, such as ocean-going vessels, warehouses, materials handling facilities, modernized terminals for physical distribution, and etc.
These loans are provided in combination with those from private financial institutions.
The interest rate is determined by the credit of the company and loan maturity, and as for a loan to ocean going ships, the loan allocation for the DBJ is 50%.

4a. Monies actually committed each year*	Year 2013	Year 2014	Year 2015
National Currency [JPY billion]	0.7	0	
USD -million	6.99	0	
Exchange rate [JPY /USD]**	100.19	109.86	
4b. Maximum financial exposure at end of each year			
National Currency [JPY billion]	96.57	74.91	
USD -million	963.87	681.87	
Exchange rate [JPY /USD] **	100.19	109.86	

5. Notes (if any)

*Japanese fiscal year begins in April and ends in March the following year.
** Exchange rate applied here is average rate in a calendar year.

JAPAN

(4/5)

REFERENCE YEARS 2013-2015

1. Type of the measure of support

K: Support for Research and Development
(Grant for research and development of more fuel-efficient ships)

2. Authority/agency responsible for the measure and legal authority

The Ministry of Land, Infrastructure, Transport and Tourism

3. Outline/explanation of the measure

This grant, started from 2009, is provided to shipbuilding and ship machinery companies which carry out research and development of high level technologies for the reduction of CO_2 emissions from the international shipping sector (grant intensity is up to 33% of eligible costs).

4a. Monies actually committed each year*	Year 2013	Year 2014	Year 2015
National Currency: Japanese Yen -JPY million	333.19		
USD - million	3.33		
Exchange rate [USD/JPY]**	100.19		

5. Notes (if any)

*Japanese fiscal year begins in April and ends in March the following year.
** Exchange rate applied here is average rate in a calendar year.

JAPAN

(5/5)

REFERENCE YEARS 2013-2015

1. Type of the measure of support			
K: Support for Research and Development *(Grant for research and development of offshore technologies)*			
2. Authority/agency responsible for the measure and legal authority			
The Ministry of Land, Infrastructure, Transport and Tourism			
3. Outline/explanation of the measure			
This grant, started from 2013, is provided to shipbuilding and ship machinery companies which carry out research and development of high level offshore technologies, aiming to promote innovation for offshore development (grant intensity is up to 50% of eligible costs).			
4a. Monies actually committed each year*	Year 2013	Year 2014	Year 2015
National Currency: Japanese Yen -JPY million	542.00		
USD - million	5.41		
Exchange rate [USD/JPY]**	100.19		
5. Notes (if any)			
*Japanese fiscal year begins in April and ends in March the following year. ** Exchange rate applied here is average rate in a calendar year.			

KOREA

(1/5)

REFERENCE YEARS 2013-2015

1. Type of the measure of support			
E : Export or Home Credits *e1: Export Credit Facilities*			
2. Authority/agency responsible for the measure and legal authority			
The Export-Import Bank of Korea (KEXIM)			
3. Outline/explanation of the measure			
Export Credit Facilities are provided to a foreign buyer, complying with the terms and conditions under the Sector Understanding on Export Credits for Ships of the OECD Arrangement on Officially supported Export Credits.			
4a. Monies actually committed each year	Year 2013	Year 2014	Year 2015
National Currency [Name : Korean Won, billion]	2,777	2,997	292
USD [million]	2,536	2,845	267
Exchange rate [USD/KRW]	1,094.7	1,053.3	1,094.9
4b. Maximum financial exposure at end of each year			
National Currency [Name : Korean Won, billion]	6,040	7,198	7,535
USD [million]	5,518	6,834	6,882
Exchange rate [USD/KRW]	1,094.7	1,053.3	1,094.9
5. Notes (if any)			
Data for Year 2015 is as of February 28th, 2015. Commitment is made in USD.			

KOREA

(2/5)

REFERENCE YEARS 2013-2015

1. Type of the measure of support
E: Export or Home Credits *(Pre-shipment Loans to Korean Shipyards)*
2. Authority/agency responsible for the measure and legal authority
The Export-Import Bank of Korea (KEXIM)
3. Outline/explanation of the measure
Pre-shipment Loans are provided to Korean shipyards for financing for the vessel constructions. Maturity is generally 6 months to 1 and a half years depending on the construction period of each vessel. Terms and conditions are not more favourable than those commercially available. Interest rate is comparable to the prevailing market rate. This facility is not subject to the terms and conditions under the Sector Understanding on Export Credits for Ships of the OECD Arrangement on Officially Supported Export Credits.

4a. Monies actually committed each year	Year 2013	Year 2014	Year 2015
National Currency [Name : Korean Won, billion]	4,165	5,235	878
USD [million]	3,804	4,970	802
Exchange rate [USD/KRW]	1,094.7	1,053.3	1,094.9
4b. Maximum financial exposure at end of each year			
National Currency [Name : Korean Won, billion]	3,271	3,504	3,864
USD [million]	2,988	3,327	3,529
Exchange rate [USD/KRW]	1,094.7	1,053.3	1,094.9

5. Notes (if any)
Data include Shared Growth Loans (or, Network Loans).Shared Growth Loans provide liquidity to the small-and-medium-sized (SME) subcontractors during the construction period and share the same characteristics with Pre-shipment Loans in that it is the credit given to the shipyards. Terms and conditions are very similar to those for Pre-shipment loans. Pre-shipment Loans are not limited to the shipbuilding but also available for other manufacturing industries such as construction. Data for Year 2015 is as of February 28th, 2015. Commitment is made in either KRW or USD.

KOREA

(3/5)

REFERENCE YEARS 2013-2015

1. Type of the measure of support
E: Export or Home Credits *E2: Export Credit Guarantee*
2. Authority/agency responsible for the measure and legal authority
The Export-Import Bank of Korea (KEXIM)
3. Outline/explanation of the measure
Export credits in the form of insurance or gnarantee are provided to a Korean shipyard or a foreign buyer, complying with terms and conditions under the Sector Understanding on Export Credits for Ships of the OECD Arrangement on Officially Supported Export Credits.

4a. Monies actually committed each year	Year 2013	Year 2014	Year 2015
National Currency [Name : Korean Won, billion]	466	902	-
USD [million]	426	856	-
Exchange rate [USD/KRW]	1,094.7	1,053.3	1,094.9
4b. Maximum financial exposure at end of each year			
National Currency [Name : Korean Won, billion]	426	1,154	1,253
USD [million]	389	1,096	1,144
Exchange rate [USD/KRW]	1,094.7	1,053.3	1,094.9

5. Notes (if any)
Data for Year 2015 is as of February 28th, 2015. Commitment is made in USD.

KOREA

(4/5)

REFERENCE YEARS 2013-2015

1. Type of the measure of support

E: **Export or Home Credits**
e2: Export credit guarantee or insurance (Export Credit Insurance)

2. Authority/agency responsible for the measure and legal authority

Korea Trade Insnrance Corporation (K-sure)

3. Outline/explanation of the measure

Export Credits in the form of insurance are provided to a Korean shipyard or a foreign buyer, complying with terms and conditions under the Understanding on Export Credits for Ships or the OECD Arrangement on Officially Supported Export Credits.

4a. Monies actually committed each year	Year 2013	Year 2014	Year 2015
National Currency [Name : Korean Won-KRW-billion]	3,940	3,380	411
USD [Million]	3,599	3,209	375
Exchange rate [USD/KRW]	1,094.7	1,053.3	1,094.9
4b. Maximum financial exposure at end of each year			
National Currency [Name : Korean Won-KRW-billion]	16,823	17,653	17,540
USD [Million]	15,368	16,760	16,020
Exchange rate [USD/KRW]	1,094.7	1,053.3	1,094.9

5. Notes (if any)

The data for 2015 is as of February 28,2015

KOREA

(5/5)

REFERENCE YEARS 2013-2015

1. Type of the measure of support

K: **Support for Research and Development**

2. Authority/agency responsible for the measure and legal authority

The Ministry of Trade, Industry & Energy

3. Outline/explanation of the measure

The program is intended for technical areas that are in need for common interest of the industry in accordance with WTO rules.

- Small and Medium Enterprise(Maximum : 75% of the total development cost)
- Large Enterprise(Maximum : 50% of the total development cost)

4a. Monies actually committed each year	Year 2013	Year 2014	Year 2015
National Currency [Korean Won, billion] **OR**	28.4	23.8	29.3
USD [Million]	25.9	22.6	26.7
Exchange rate [KRW /USD]	1,094.7	1,053.3	1,094.9

5. Notes (if any)

The data for Year 20154 is the budget for the Year 2015.

NETHERLANDS

(1/3)

REFERENCE YEARS 2012-2014

1. Type of the measure of support
E: Export or Home Credits
2. Authority/agency responsible for the measure and legal authority
Authority/agency: The Netherlands Enterprise Agency is responsible for the measure. The agency is part of the Dutch Ministry of Economic Affairs. Legislation(latest): Government Decree on the set-up, growth and transfer of Enterprises, paragraph 8 guarantee scheme for shipbuilding (Staatscourant, 4 maart 2013, nr. 5957). This scheme is according to the framework rules on guarantees and financing of the European Commission.
3. Outline/explanation of the measure
The guarantee scheme for shipbuilding finance is a scheme covering loans granted by financial institutions – Dutch or foreign – to shipyards located in the Netherlands in order to finance the construction of new ships.

4. Quantitative indication of the guarantees granted	Year 2012	Year 2013	Year 2014[2]
National Currency: EURO	-	44.08	-
USD		58.63	
Exchange rate [EUR /USD]		1.33	
5. Notes (if any)	In 2012 and 2014 there wasn't any appeal on the scheme.		

[2] Please provide the most recent information available and specify the period in Notes

NETHERLANDS

(2/3)

REFERENCE YEARS 2012-2014

1. Type of the measure of support
E: Export or Home Credits **e2: Export credit insurance**
2. Authority/agency responsible for the measure and legal authority
Authority/agency: Atradius Dutch State Business Legislation: Kaderwet Financiële Verstrekkingen Financiën.
3. Outline/explanation of the measure
Insurance against the risk of non-payment of credits in relation to the export of ships, complying with terms and conditions under the OECD framework.

4. Quantitative indication of the measure	Year 2012	Year 2013	Year 2014
National Currency: EURO	677,338,099	1,638,184,501	1,099,067,937
USD	866,992,766	2,178,785,386	1,461,760,356
Exchange rate [EUR /USD]	1.28	1.33	1.33
5. Notes (if any)			
The figures consist of the transaction/financing amounts (policies and promise of covers) and do not contain transactions of military goods.			

NETHERLANDS

(3/3)

REFERENCE YEARS 2012-2014

1. Type of the measure of support

K: Support for Research, Development and Innovation.

2. Authority/agency responsible for the measure and legal authority

Authority/agency: The Netherlands Enterprise Agency is responsible for the measure. The agency is part of the Dutch Ministry of Economic Affairs.

Legislation: Government Decree on the state's Innovation Aid scheme for Shipbuilding, paragraph 10 of Subsidieregeling sterktes in innovatie (Staatscourant, 8 oktober 2012, nr. 20876).

The measure was approved by European Commission (No N 692/2009, C(2012) 6788 and SA38742 (2014/N).

3. Outline/explanation of the measure

Support is provided to shipbuilding companies, ship repair companies and ship conversion companies. Innovation aid may be granted for the industrial application of innovative products and processes. These are technologically new or substantially improved products and processes when compared to the state of the art that exists in the European Community. The implementation of the innovative products or processes must carry a risk of technological or industrial failure.

Innovation aid for the products or processes may be granted up to a maximum aid intensity of 20% (or 30% for costs concerning environmental innovation) of the eligible costs. These costs are limited to expenditure on investments, design, engineering and testing activities directly and exclusively related to the innovative part of the project.

This measure is within the EU Framework on State aid to shipbuilding.

http://ec.europa.eu/competition/state_aid/register/ii/doc/N-719-2006-WL.WL-en-01.02.2007.pdf

4. Quantitative indication of the measure	Year 2012	Year 2013	Year 2014
National Currency: EURO million	4.0	0.0	5.2
USD	5.12		6.92
Exchange rate [EUR /USD]	1.28	1.33	1.33

5. Notes (if any)

Mentioned amounts are committed for 2012 and 2014. There was no budget available for 2013.

NORWAY

(1/5)

REFERENCE YEARS 2013-2015

1. Type of the measure of support

E: Export and home credits
e1: Credit facilities (Eksportkreditter)
e3: Home credits

2. Authority/agency responsible for the measure and legal authority

The Ministry of Trade, Industry and Fisheries is formally and constitutionally responsible for the scheme.

A new state-owned limited liability company called Export Credit Norway was established in June 2012. The purpose of the company is to manage a state scheme for financial services for Norwegian export of capital goods and services, previously managed by Eksportfinans. The company may in its own name provide financing in accordance with the OECD Arrangement on Officially Supported Export Credits, meaning export credits on CIRR-terms and loans with a market based commercial interest rate as an alternative to CIRR. All loans must be fully guaranteed either by public export credit guarantee institutions and / or financial institutions with good rating.

3. Outline/explanation of the measure

Norway operates a CIRR financing scheme for ships with 12 years tenor for both export contracts as well as contracts with domestic ship-owners. The total outstanding loan balance for such loans represents:

2012
- Total amount in NOK 23,824 million, of which 19,533 was in NOK; 4,055 million NOK was denominated in USD; 8 million NOK in EUR and 229 million NOK in GBP.
- Total contracts for Norwegian buyers of ships intended for operation in international waters, including the Norwegian continental shelf, were 20,172 NOK (84,67 % of the total ship financing).

2013
- Total amount in NOK 26,118 million, of which 21,830 was in NOK; 4,047 million NOK was denominated in USD; 5,6 million NOK in EUR and 235 million NOK in GBP.
- Total contracts for Norwegian buyers of ships intended for operation in international waters, including the Norwegian continental shelf, were 22,577 NOK (86,44 % of the total ship financing).

2014
- Total amount in NOK 35,136 million, of which 25,773 was in NOK; 9113 million NOK was denominated in USD; 4 million NOK in EUR and 246 million NOK in GBP.

- Total contracts for Norwegian buyers of ships intended for operation in international waters, including the Norwegian continental shelf, were 31,821 million NOK (90,56 % of the total ship financing).

4a. Monies actually committed each year	Year 2013	Year 2014	Year 2015
National Currency Name : NOK	26,118	35,136	
USD	4,294.7	4,728.9	
Exchange rate NOK /USD]	6.0815	7.43	
4b. Maximum financial exposure at end of each year			
National Currency [Name :] **OR**			
USD			
Exchange rate [/USD]			

5. Notes (if any)

The figures reported under items 4 a) above are related to the costs of loans disbursed by Eksportfinans ASA prior to July 1, 2012. The costs are accounted for and incurred two years after the actual disbursement of the loans. As such, the costs reported in 2013 refer to the level of subsidies for loans disbursed in 2011.

NORWAY

(2/5)

REFERENCE YEARS 2011-2014

1. Type of the measure of support

E: **Export and home credits**
e2: Export credit guarantee (for foreign buyers)
e3: Home credit guarantee (for domestic buyers)

2. Authority/agency responsible for the measure and legal authority

The Ministry of Trade, Industry and Fisheries is constitutionally responsible for the *General scheme for export credit guarantees*. The scheme is implemented by The Norwegian Agency for Export Credit Guarantees (GIEK).

3. Outline of the measure

Under the *General scheme for export credit guarantees* GIEK can offer guarantees covering post-delivery credit risk on foreign buyers (here defined as export credit guarantees) or domestic buyers (here defined as home credit guarantees) of vessels built in Norway or abroad. For domestic buyers the vessels must be intended for offshore oil and gas operations or operations in international waters. Guarantees covering post-delivery credit risk of 2 years or more shall comply with the terms and conditions set out in the OECD Arrangement on Guidelines for Officially Supported Export Credits and its Sector Understanding on Export Credits for Ships.

Under the *General scheme for export credit guarantees* GIEK can also offer refund guarantees covering pre- payments made by the buyer.

4a. Quantitative indication of the measure **Export credit guarantees**	**2011**	**2012**	**2013**	**2014**
National currency (NOK million)	14,843.34	4,166.02	11,903.71	6,186
USD (million)	2,471.21	745.1	1,957.36	832.6
Exchange rate [USD/NOK]	6.0065	5.5912	6.0815	7.43

4a. Quantitative indication of the measure Home credit guarantees	2011	2012	2013	2014
National currency (NOK million)	7,191.61	5,486.14	6,969.98	8,279
USD (million)	1197,30	981.21	1 146,09	1 114,3
Exchange rate [USD/NOK]	6.0065	5.5912	6.0815	7.43
5. Notes (if any)				
Figures in the above tables represent amounts covered under new policies for post-delivery credit risks each year. The report includes transactions covered as well as not covered by the SSU. GIEK applies the same underwriting guidelines and principles to home credits as to export credits. All transactions reported have a significant share of private risk sharing. GIEK applies the same terms and conditions as private risk sharers as long as the terms comply with Arrangement/SSU requirements.				

NORWAY

(3/5)

REFERENCE YEARS 2011-2014

1. Type of the measure of support

K: **Support for research and development**
[Scheme for maritime development and innovation – Maritim Utvikling]

2. Authority/agency responsible for the measure and legal authority

The Ministry of Trade, Industry and Fisheries is formally and constitutionally responsible for the scheme. The scheme is implemented by Innovation Norway. Innovation Norway is the Norwegian government's primary agent for implementation of public innovation programs and schemes.

3. Outline of the measure

The overall objective of the scheme is to increase RDI efforts within the maritime industry in Norway. The scheme consists of two parts. The first part concerns aid for research and development within the maritime cluster in Norway. Eligible projects may involve all types of companies in the maritime industry, in so far that the objectives of the project are coherent with the overall objectives of the scheme. The second part of the scheme concerns aid for innovation to shipbuilding. Innovation aid may be granted for shipbuilding companies, ship repair companies or ship conversion companies.

Precompetitive development and technical feasibility studies are eligible for aid under the first part of the scheme. The table below illustrates the maximum aid intensity (gross, as % of eligible costs) under the scheme. There is in addition a bonus of 5% that is applicable to projects conducted in remote regions (regional bonus).

	Precompetitive development	*Technical feasibility studies*
Large enterprises	25 %	50 %
Small and medium sized enterprises	35 %	60 %

Eligible costs are:

- Costs of personnel employed solely on the research activity;
- Costs of durable assets used solely and on a continual basis for the research activity (equipment and instruments);
- Costs of consultancy and equivalent services used exclusively for the research activity, including the research, technical knowledge and patents, etc. bought from outside sources;
- Additional overheads incurred directly as a result of the research activity.

As for aid for innovation, the maximum aid intensity is 20% gross. However, the total aid amount for innovation cannot exceed EUR 150 per CGT for a ship or EUR 5 million for new processes. The aid is limited to support expenditure on investments, design, engineering and testing activities directly and exclusively related to the innovative part of the project. Additional production costs strictly necessary to validate the technological innovation can be eligible to the extent they are limited to the minimum necessary amount.

The scheme is in accordance with the Framework of State aid for research and development and Framework on State Aid to Shipbuilding in the *EFTA Surveillance Authority State Aid Guidelines*.

4a. Monies actually committed each year	**2011**	**2012**	**2013**	**2014**
Aid to shipbuilding National currency (NOK million)	3.276	1.425	0	0
USD (million)	0.56	0.24	0	0
Total aid programme National currency (NOK million)	10	15.65	10.35	12.7
USD (million)	1.7	2.69	1.76	2.12
Exchange rate [USD/NOK]	5.837	5.821	5.877	5.9725

5. Notes (if any)

Comment: The scheme was implemented in 2006. The budget for the scheme in 2006 was 20 million NOK, however only 2 million NOK were dispersed. The budget allocations for 2009-2013 were 15 million NOK each year. However, since the scheme is transferable it is possible that the grants in the latter period were higher than the budget allocation.

2014 is the last year for this instrument.

NORWAY

(4/5)

REFERENCE YEARS 2013-2015

1. Type of the measure of support

K: Support for Research and Development

[Research programme for maritime activity and offshore operations (MAROFF)]

2. Authority/agency responsible for the measure and legal authority

The Ministry of Trade, Industry and Fisheries is formally and constitutionally responsible for the scheme. The Research Council of Norway implements the scheme. The Research Council of Norway is the Norwegian government's primary adviser concerning research policy.

3. Outline/explanation of the measure

The overall objective of the scheme is to promote innovation and value creation in the maritime industry. This is a general scheme targeted to all industry, not only the shipbuilding industry. With regard to the maritime industry the program supports research, development and innovation activities. The target group is the ship-owner indnstry, the shipbuilding industry and equipment vendors. Companies and research institutions are encouraged to cooperate in order to ensure that new knowledge and competence is diffused.

A research project cannot receive more than 50 % financing from the program. Private actors are required to supply a minimum of 50 %, but they usually contribute with a greater proportion of the financing.
The scheme is in accordance with the EFTA Surveillance Authority State Aid Guidelines.

4a. Monies actually committed each year	Year 2013	Year 2014	Year 2015
National Currency [Name : NOK millions] **OR**	3.48	4.63	
USD	0.592	0.775	
Exchange rate [USD/NOK]	5.877	5.9725	
4b. Maximum financial exposure at end of each year			
National Currency [Name :] **OR**			
USD			
Exchange rate [/USD]			

5. Notes (if any)

NORWAY

(5/5)

REFERENCE YEARS 2011-2014

1. Type of the measure of support
K: Support for Research and Development *[Aid for research and development contracts – Forskning-og Utviklingskontrakter]*
2. Authority/agency responsible for the measure and legal authority
The Ministry of Trade, Indnstry and Fisheries is formally and constitutionally responsible for the scheme. The scheme is implemented by Innovation Norway.
3. Outline of the measure
Aid, in form of grants, is given to cooperative research and development projects that are regulated by a contract between suppliers and customers. The scheme is available to all industries, not only the maritime industry. The main objective of the scheme is to increase innovation based on research and development carried out as cooperation between customers and suppliers. The table below illustrates the maximum aid intensity (gross, as % of eligible costs) under the scheme.

	Large enterprises	*Medium sized enterprises*	*Small Enterprises*
Industrial R&D&I	50%	60%	70%
Experimental development	25%	35%	45%

Costs eligible for aid are personnel costs, overhead, current costs, consultancy and equivalent services and instrument and equipment. Only costs directly related to the accomplishment of the project are eligible. The condition is that the aid is necessary to start up and realise a project. The scheme is in accordance with Chapter 13 of the EFTA Surveillance Authority State Aid Guidelines.

4a. Monies actually committed each year	**2011**	**2012**	**2013**	**2014**
Aid to shipbuilding National currency (NOK million)	1.29	0	0	0.59
USD (million)	0.22	0	0	0.10

Total aid programme National currency (NOK million)	285	260.3	259.3	313.8
USD (million)	48.83	44.72	44.12	52.54
Exchange rate [USD/NOK]	5.837	5.821	5.877	5.9725
5. Notes (if any)				

PHILIPPINES

(1/7)

REFERENCE YEARS 2012-2014

1. Type of the measure of support
H: Government revenue that is foregone or not collected *h1: Fiscal incentives - Additional deductions from taxable income*
2. Authority/agency responsible for the measure and legal authority
The Board of Investments (BOI) is the granting authority for the measure of support. The BOI, an agency under the Department of Trade and Industry (DTI), is the lead investments promotion agency of the Philippines. As such, it is at the forefront of government's efforts to attract direct investments into the country to contribute to economic growth and jobs creation, to help uplift the general economic welfare of the Filipinos. The agency is designed to promote inward investments and assist local and foreign investors in their venture of the desirable areas of business, defined in the annually -prepared Investments Priorities Plan (IPP). The BOI is mandated through the Omnibus Investments Code of 1987 (or Executive Order 226) to encourage investments through tax exemption and other benefits in preferred areas of economic activity specified by the BOI in IPP. **Shipbuilding** is one of the priority areas of investment listed in the IPP during the period covered by the survey (2012-2014). The IPP is formulated annually by the BOI through an inter-agency committee and approved by the President. These are the list the priority activities for investments. It contains a listing of specific activities that can qualify for incentives. The Maritime Industry Authority (MARINA) is an attached agency of the Department of Transportation and Communications (DoTC) tasked to accelerate the integrated development of the maritime industry in the country. MARINA performs its mandates over four (4) major maritime sectors, namely: the domestic shipping, overseas shipping, shipbuilding and ship repair and the maritime manpower. It has been implementing reforms and programs to transform the country's domestic shipping and shipbuilding and ship repair industries to global competitiveness and the MARINA into a premiere maritime administration in Southeast Asia. The MARINA regulates and supervises the shipbuilding industry of the country. The MARINA endorses to the BOI the MARINA-Registered Shipyards for the availment of incentives under the EO 226.

3. Outline/explanation of the measure
Additional deductions from taxable income a) Additional deduction for labor expense (ADLE). For the first five (5) years from registration, a registered enterprise shall be allowed an additional deduction from taxable income equivalent to fifty percent (50%) of the wages of additional skilled and unskilled workers in the direct labor force. The incentive shall be granted only if the enterprise meets a prescribed capital to labor ratio and shall not be availed of simultaneously with the ITH. This additional deduction shall be doubled if the activity is located in an LDA. b) Additional deduction for necessary and major infrastructure works. Registered enterprises locating in LDAs or in areas deficient in infrastructure, public utilities and other facilities may deduct from their taxable income an amount equivalent to the expenses incurred in the development of necessary and major infrastructure works. The privilege, however, is not granted to mining and forestry-related projects, as they would naturally be located in certain areas to be near their sources of raw materials.

4a. Monies actually committed each year	Year 2012	Year 2013	Year 2014
National Currency [Name:] **OR**			
USD			
Exchange rate [/USD]			
4b. Maximum financial exposure at end of each year			
National Currency [Name:] **OR**			
USD			
Exchange rate [/USD]			

5. Notes (if any)

PHILIPPINES

(2/7)

REFERENCE YEARS 2012-2014

1. Type of the measure of support
H: Government revenue that is foregone or not collected *h1: Fiscal incentives - Zero duty on imported capital equipment, spare parts and accessories by virtue of Executive Order E.O. 70*
2. Authority/agency responsible for the measure and legal authority
The Board of Investments (BOI) is the granting authority for the measure of support. The BOI, an agency under the Department of Trade and Industry (DTI), is the lead investments promotion agency of the Philippines. As such, it is at the forefront of government's efforts to attract direct investments into the country to contribute to economic growth and jobs creation, to help uplift the general economic welfare of the Filipinos. The agency is designed to promote inward investments and assist local and foreign investors in their venture of the desirable areas of business, defined in the annually –prepared Investments Priorities Plan (IPP). The BOI is mandated through the Omnibus Investments Code of 1987 (or Executive Order 226) to encourage investments through tax exemption and other benefits in preferred areas of economic activity specified by the BOI in IPP. **Shipbuilding** is one of the priority areas of investment listed in the IPP during the period covered by the survey (2012-2014). The IPP is formulated annually by the BOI through an inter-agency committee and approved by the President. These are the list the priority activities for investments. It contains a listing of specific activities that can qualify for incentives. The Maritime Indnstry Authority (MARINA) is an attached agency of the Department of Transportation and Communications (DoTC) tasked to accelerate the integrated development of the maritime industry in the country. MARINA performs its mandates over four (4) major maritime sectors, namely; the domestic shipping, overseas shipping, shipbnilding and ship repair and the maritime manpower It has been implementing reforms and programs to transform the country's domestic shipping and shipbuilding and ship repair industries to global competitiveness and the MARINA into a premiere maritime administration in Southeast Asia. The MARINA regulates and supervises the shipbuilding industry of the country. The MARINA endorses to the BOI the MARINA-Registered Shipyards for the availment of incentives under the EO 226.
3. Outline/explanation of the measure
Zero duty on imported capital equipment, spare parts and accessories by virtue of Executive Order E.O. 70 Effective 29 March 2012, BOI-registered enterprises of good standing with project registered as new or expanding under Executive Order 226, otherwise known as the Omnibus Investments Code of 1987, may import machinery, equipment, spare parts and accessories subject to zero percent (0%) duty for BOI-registered enterprises, classified under AHTN Chapters 40, 59, 68, 69, 70, 73, 76, 82, 83, 84, 85, 87, 89, 90, 91 and 96 of the Tariff and Customs Code of the Philippines. The capital equipment incentive provided under the E.O. 70 shall be availed of by the registered enterprise for a period of five (5) years from its effectivity.

4a. Monies actually committed each year	Year 2012	Year 2013	Year 2014
National Currency [Name :] **OR**			
USD			
Exchange rate [/USD]			
4b. Maximum financial exposure at end of each year			
National Currency [Name :] **OR**			
USD			
Exchange rate [/USD]			

5. Notes (if any)

PHILIPPINES

(3/7)

REFERENCE YEARS 2012-2014

1. Type of the measure of support
H: **Government revenue that is foregone or not collected** *h1:* *Fiscal incentives - Exemption from wharfage dues and export tax, duty, impost and fees*
2. Authority/agency responsible for the measure and legal authority
The Board of Investments (BOI) is the granting authority for the measure of support. The BOI, an agency under the Department of Trade and Industry (DTI), is the lead investments promotion agency of the Philippines. As such, it is at the forefront of government's efforts to attract direct investments into the country to contribute to economic growth and jobs creation, to help uplift the general economic welfare of the Filipinos. The agency is designed to promote inward investments and assist local and foreign investors in their venture of the desirable areas of business, defined in the annually –prepared Investments Priorities Plan (IPP). The BOI is mandated through the Omnibus Investments Code of 1987 (or Executive Order 226) to encourage investments through tax exemption and other benefits in preferred areas of economic activity specified by the BOI in IPP. **Shipbuilding** is one of the priority areas of investment listed in the IPP during the period covered by the survey (2012-2014). The IPP is formulated annually by the BOI through an inter-agency committee and approved by the President. These are the list the priority activities for investments. It contains a listing of specific activities that can qualify for incentives. The Maritime Industry Authority (MARINA) is an attached agency of the Department of Transportation and Communications (DoTC) tasked to accelerate the integrated development of the maritime industry in the country. MARINA performs its mandates over four (4) major maritime sectors, namely; the domestic shipping, overseas shipping, shipbuilding and ship repair and the maritime manpower. It has been implementing reforms and programs to transform the country's domestic shipping and shipbuilding and ship repair industries to global competitiveness and the MARINA into a premiere maritime administration in Southeast Asia. The MARINA regulates and supervises the shipbuilding industry of the country. The MARINA endorses to the BOI the MARINA-Registered Shipyards for the availment of incentives under the EO 226.
3. Outline/explanation of the measure
Exemption from wharfage dues and export tax, duty, impost and fees All enterprises registered under the IPP will be given a ten (10) year period from date of registration to avail of the exemption from wharfage dues and any export tax, impost and fees on its non-traditional export products.

4a. Monies actually committed each year	Year 2012	Year 2013	Year 2014
National Currency [Name:] **OR**			
USD			
Exchange rate [/USD]			

4b. Maximum financial exposure at end of each year			
National Currency [Name:] **OR**			
USD			
Exchange rate [/USD]			

5. Notes (if any)

PHILIPPINES

(4/7)

REFERENCE YEARS 2012-2014

1. Type of the measure of support
H: **Government revenue that is foregone or not collected** *h1:* *Fiscal incentives - Exemption from taxes and duties on imported spare parts*
2. Authority/agency responsible for the measure and legal authority
The Board of Investments (BOI) is the granting authority for the measure of support. The BOI, an agency under the Department of Trade and Industry (DTI), is the lead investments promotion agency of the Philippines. As such, it is at the forefront of government's efforts to attract direct investments into the country to contribute to economic growth and jobs creation, to help uplift the general economic welfare of the Filipinos. The agency is designed to promote inward investments and assist local and foreign investors in their venture of the desirable areas of business, defined in the annually -prepared Investments Priorities Plan (IPP). The BOI is mandated through the Omnibus Investments Code of 1987 (or Executive Order 226) to encourage investments through tax exemption and other benefits in preferred areas of economic activity specified by the BOI in IPP. **Shipbuilding** is one of the priority areas of investment listed in the IPP during the period covered by the survey (2012-2014). The IPP is formulated annually by the BOI through an inter-agency committee and approved by the President. These are the list the priority activities for investments. It contains a listing of specific activities that can qualify for incentives. The Maritime Industry Authority (MARINA) is an attached agency of the Department of Transportation and Communications (DoTC) tasked to accelerate the integrated development of the maritime industry in the country. MARINA performs its mandates over four (4) major maritime sectors, namely: the domestic shipping, overseas shipping, shipbuilding and ship repair and the maritime manpower It has been implementing reforms and programs to transform the country's domestic shipping and shipbuilding and ship repair industries to global competitiveness and the MARINA into a premiere maritime administration in Southeast Asia. The MARINA regulates and supervises the shipbuilding industry of the country. The MARINA endorses to the BOI the MARINA-Registered Shipyards for the availment of incentives under the EO 226.
3. Outline/explanation of the measure
Exemption from taxes and duties on imported spare parts A registered enterprise with a bonded manufacturing warehouse shall be exempt from customs duties and national internal revenue taxes on its importation of required supplies/spare parts for consigned equipment or those imported with incentives.

4a. Monies actually committed each year	Year 2012	Year 2013	Year 2014
National Currency [Name :] **OR**			
USD			
Exchange rate [/USD]			

4b. Maximum financial exposure at end of each year			
National Currency [Name :] **OR**			
USD			
Exchange rate [/USD]			
5. Notes (if any)			

PHILIPPINES

(5/7)

REFERENCE YEARS 2012-2014

1. Type of the measure of support

I: Provision by government of infrastructure (other than general infrastructure), goods or services on non-commercial conditions

i1: Preferential access to infrastructure, goods or services provided, directly or indirectly, by governments or their agencies. **Non-Fiscal Incentives such as:**

- Employment of Foreign Nationals
- Simplification of Customs Procedures
- Importation of Consigned Equipment
- The privilege to Operate a Bonded Manufacturing Warehouse

2. Authority/agency responsible for the measure and legal authority

The Board of Investments (BOI) is the granting authority for the measure of support. The BOI, an agency under the Department of Trade and Industry (DTI), is the lead investments promotion agency of the Philippines. As such, it is at the forefront of government's efforts to attract direct investments into the country to contribute to economic growth and jobs creation, to help uplift the general economic welfare of the Filipinos. The agency is designed to promote inward investments and assist local and foreign investors in their venture of the desirable areas of business, defined in the annually –prepared Investments Priorities Plan (IPP).

The BOI is mandated through the Omnibus Investments Code of 1987 (or Executive Order 226) to encourage investments through tax exemption and other benefits in preferred areas of economic activity specified by the BOI in IPP. **Shipbuilding** is one of the priority areas of investment listed in the IPP during the period covered by the survey (2012-2014). The IPP is formulated annually by the BOI through an inter-agency committee and approved by the President. These are the list the priority activities for investments. It contains a listing of specific activities that can qualify for incentives.

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3. Outline/explanation of the measure

Non-fiscal Incentives

a. Employment of Foreign Nationals
   A registered enterprise may be allowed to employ foreign nationals in supervisory, technical or advisory positions for five (5) years from date of registration, extendible for limited periods at the discretion of the Board. The positions of President, General Manager and Treasurer of foreign-owned registered enterprises (more than 40%) or their equivalent shall, however, not be subject to the foregoing limitations.
b. Simplification of customs procedures for the importation of equipment, spare parts, raw materials and supplies and exports of processed products.
c. Importation of consigned equipment for a period of 10 years from date of registration, subject to posting of a re-export bond equivalent to 100% of the estimated taxes and duties.
d. The privilege to operate a bonded manufacturing/ trading warehouse subject to customs rules and regulations.

4a. Monies actually committed each year	Year 2012	Year 2013	Year 2014
National Currency [Name :] **OR**			
USD			
Exchange rate [/USD]			
4b. Maximum financial exposure at end of each year			
National Currency [Name :] **OR**			
USD			
Exchange rate [/USD]			

5. Notes (if any)

PHILIPPINES

(6/7)

REFERENCE YEARS 2012-2014

1. Type of the measure of support

H: **Government revenue that is foregone or not collected**
h1: Fiscal incentives - Tax credit on raw materials and supplies

2. Authority/agency responsible for the measure and legal authority

The Board of Investments (BOI) is the granting authority for the measure of support.

The BOI, an agency under the Department of Trade and Industry (DTI), is the lead investments promotion agency of the Philippines. As such, it is at the forefront of government's efforts to attract direct investments into the country to contribute to economic growth and jobs creation, to help uplift the general economic welfare of the Filipinos. The agency is designed to promote inward investments and assist local and foreign investors in their venture of the desirable areas of business, defined in the annually –prepared Investments Priorities Plan (IPP).

The BOI is mandated through the Omnibus Investments Code of 1987 (or Executive Order 226) to encourage investments through tax exemption and other benefits in preferred areas of economic activity specified by the BOI in IPP. **Shipbuilding** is one of the priority areas of investment listed in the IPP during the period covered by the survey (2012-2014). The IPP is formulated annually by the BOI through an inter-agency committee and approved by the President. These are the list the priority activities for investments. It contains a listing of specific activities that can qualify for incentives.

The Maritime Industry Authority (MARINA) is an attached agency of the Department of Transportation and Communications (DoTC) tasked to accelerate the integrated development of the maritime industry in the country. MARINA performs its mandates over four (4) major maritime sectors, namely; the domestic shipping, overseas shipping, shipbuilding and ship repair and the maritime manpower. It has been implementing reforms and programs to transform the country's domestic shipping and shipbuilding and ship repair industries to global competitiveness and the MARINA into a premiere maritime administration in Southeast Asia. The MARINA regulates and supervises the shipbuilding industry of the country. The MARINA endorses to the BOI the MARINA-Registered Shipyards for the availment of incentives under the EO 226.

3. Outline/explanation of the measure

Tax credit on raw materials and supplies. A tax credit equivalent to the national internal revenue taxes and duties paid on raw materials, supplies and semi-manufacture of export products and forming part thereof shall be granted to a registered enterprise.

4a. Monies actually committed each year	Year 2012	Year 2013	Year 2014
National Currency [Name:] **OR**			
USD			
Exchange rate [/USD]			
4b. Maximum financial exposure at end of each year			
National Currency [Name:] **OR**			
USD			
Exchange rate [/USD]			

5. Notes (if any)

PHILIPPINES

(7/7)

REFERENCE YEARS 2012-2014

1. Type of the measure of support
H: **Government revenue that is foregone or not collected** *h1:* *Fiscal incentives - Income Tax Holiday (ITH)*
2. Authority/agency responsible for the measure and legal authority
The Board of Investments (BOI) is the granting authority for the measure of support. The BOI, an agency under the Department of Trade and Industry (DTI), is the lead investments promotion agency of the Philippines. As such, it is at the forefront of government's efforts to attract direct investments into the country to contribute to economic growth and jobs creation, to help uplift the general economic welfare of the Filipinos. The agency is designed to promote inward investments and assist local and foreign investors in their venture of the desirable areas of business, defined in the annually –prepared Investments Priorities Plan (IPP). The BOI is mandated through the Omnibus Investments Code of 1987 (or Executive Order 226) to encourage investments through tax exemption and other benefits in preferred areas of economic activity specified by the BOI in IPP. **Shipbuilding** is one of the priority areas of investment listed in the IPP during the period covered by the survey (2012-2014). The IPP is formulated annually by the BOI through an inter-agency committee and approved by the President. These are the list the priority activities for investments. It contains a listing of specific activities that can qualify for incentives. The Maritime Industry Authority (MARINA) is an attached agency of the Department of Transportation and Communications (DoTC) tasked to accelerate the integrated development of the maritime industry in the country. MARINA performs its mandates over four (4) major maritime sectors, namely: the domestic shipping, overseas shipping, shipbuilding and ship repair and the maritime manpower. It has been implementing reforms and programs to transform the country's domestic shipping and shipbuilding and ship repair industries to global competitiveness and the MARINA into a premiere maritime administration in Southeast Asia. The MARINA regulates and supervises the shipbuilding industry of the country. The MARINA endorses to the BOI the MARINA-Registered Shipyards for the availment of incentives under the EO 226.

3. Outline/explanation of the measure
Income Tax Holiday (ITH)-BOI registered enterprise shall be exempt from payment of income taxes reckoned from the scheduled start of commercial operation, as follows: a) New projects with pioneer status for six (6) years; b) New projects with a non-pioneer status for four (4) years; c) Expansion projects for three (3) years. As a general rule, exemption is limited to incremental sales revenue/volume; d) New or expansion projects in less developed areas for six (6) years, regardless of status; and e) Modernization projects for three (3) years. As a general rule, exemption is limited to incremental sales revenue/volume. New registered pioneer and non-pioneer enterprises and those located in the less developed areas (LDAs) may avail of a bonus year in each of the following cases: a) The indigenous raw materials used in the manufacture of the registered product must at least be fifty percent (50%) of the total cost of raw materials for the preceding years prior to the extension unless the Board prescribes a higher percentage; or b) b. Compliance with the Board's prescribed ratio of total imported and domestic capital equipment to the number of workers for the project c) The net foreign exchange savings or earnings amount to at least US$500,000 annually during the first three (3) years of operation. In no case shall a registered pioneer firm avail of this incentive for a period exceeding eight (8) years.

4a. Monies actually committed each year	Year 2012	Year 2013	Year 2014
National Currency [Name:] **OR**			
USD			
Exchange rate [/USD]			
4b. Maximum financial exposure at end of each year			
National Currency [Name:] **OR**			
USD			
Exchange rate [/USD]			

5. Notes (if any)

POLAND

(1/8)

REFERENCE YEARS 2013-2015

1. Type of the measure of support			
A: Direct transfer of fund by Governments *A 1: Subsidies and grants*			
2. Authority/agency responsible for the measure and legal authority			
Ministry of Economy			
3. Outline/explanation of the measure			
Refund of a part of participation costs in the market exhibition Support as the "de minimis" aid.			
4a. Monies actually committed each year	Year 2013	Year 2014	Year 2015
National Currency Name : Zloty PLN million] OR	0.042	0.130	n/r
Million USD	0.014	0.037	
Exchange rate [USD/PLN]	3.01	3.51	
4b. Maximum financial exposure at end of each year			
National Currency [Name :] OR			
USD			
Exchange rate [/USD]			
5. Notes (if any)	Exchange rates of 31 December (2013, 2014)		

POLAND

(2/8)

REFERENCE YEARS 2013-2015

1. Type of the measure of support			
C: Loans on terms and conditions more favourable that those commercially available			
2. Authority/agency responsible for the measure and legal authority			
Industrial Development Agency Co.			
3. Outline/explanation of the measure			
Support is provided to shipyards for implementation of restructuring programs			
4a. Monies actually committed each year	Year 2013	Year 2014	Year 2015
National Currency [Name : Zloty PLN million] OR	0	0	n/r
Million USD	0	0	
Exchange rate [USD/PLN]			
4b. Maximum financial exposure at end of each year			
National Currency [Name :] OR			
USD			
Exchange rate [/USD]			
5. Notes (if any)	Exchange rates of 31 December (2013, 2014)		

POLAND

(3/8)

REFERENCE YEARS 2013-2015

1. Type of the measure of support			
D: Loan guarantees			
2. Authority/agency responsible for the measure and legal authority			
Treasury of State / Export Credit Insurance Corporation Co.			
3. Outline/explanation of the measure			
Support is provided to shipyards as individual guaranties for the part of contract prices of ships.			
4a. Monies actually committed each year	Year 2013	Year 2014	Year 2015
National Currency [Name : Zloty PLN million] OR	0	0	n/r
Million USD	0	0	
Exchange rate [USD/PLN]			
4b. Maximum financial exposure at end of each year			
National Currency [Name :] OR			
USD			
Exchange rate [/USD]			
5. Notes (if any)	Exchange rates of 31 December (2013, 2014)		

POLAND

(4/8)

REFERENCE YEARS 2013-2015

1. Type of the measure of support			
E: Export or Home Credits *E2: Export credit guarantee or insurance*			
2. Authority/agency responsible for the measure and legal authority			
Export Credit Insurance Corporation Co.			
3. Outline/explanation of the measure			
Support is provided to shipyards as individual guaranties for the part of contract prices of ships.			
4a. Monies actually committed each year	Year 2013	Year 2014	Year 2015
National Currency [Name :] OR			
Million USD			
Exchange rate [/USD]			
4b. Maximum financial exposure at end of each year			
National Currency Name : Zloty PLN million] OR	1.10	0	n/r
Million USD	0.37	0	
Exchange rate [USD/PLN]	3.01		
5. Notes (if any)	Exchange rates of 31 December (2013, 2014)		

POLAND

(5/8)

REFERENCE YEARS 2013-2015

1. Type of the measure of support			
F: Taking over or absolving from debts			
2. Authority/agency responsible for the measure and legal authority			
Industrial Development Agency Co.			
3. Outline/explanation of the measure			
Shipyard debts conversion into the stock capital.			
4a. Monies actually committed each year	Year 2013	Year 2014	Year 2015
National Currency [Name : Zloty PLN million] OR	0	0	n/r
Million USD	0	0	
Exchange rate [USD/PLN]			
4b. Maximum financial exposure at end of each year			
National Currency [Name :] OR			
USD			
Exchange rate [/USD]			
5. Notes (if any)	Exchange rates of 31 December (2013, 2014)		

POLAND

(6/8)

REFERENCE YEARS 2013-2015

1. Type of the measure of support			
G: Government acquisition of interest in a yard *g2: Acquisition of shares or an interest in an enterprise*			
2. Authority/agency responsible for the measure and legal authority			
Industrial Development Agency Co			
3. Outline/explanation of the measure			
Increasing of the stock capital			
4a. Mooies actually committed each year	Year 2013	Year 2014	Year 2015
National Currency [Name : Zloty PLN million] OR	0	0	n/r
Million USD	0	0	
Exchange rate [USD/PLN]			
4b. Maximum financial exposure at end of each year			
National Currency [Name :] OR			
USD			
Exchange rate [/USD]			
5. Notes (if any)	Exchange rates of 31 December (2013, 2014)		

POLAND

(7/8)

REFERENCE YEARS 2013-2015

1. Type of the measure of support			
H: Deferral of direct fiscal charges			
2. Authority/agency responsible for the measure and legal authority			
Voivode and Marshal of Voivodeship.			
3. Outline/explanation of the measure			
Dividing of debts payment by instalments. Deferral of fiscal charges.			
4a. Monies actually committed each year	Year 2013	Year 2014	Year 2015
National Currency [Name : Zloty PLN million]OR	0	0.200	n/r
Million USD	0	0.057	
Exchange rate [USD/PLN]		3.51	
4b. Maximum financial exposure at end of each year			
National Currency [Name :] OR			
USD			
Exchange rate [/USD]			
5. Notes (if any)	Exchange rates of 31 December (2013, 2014)		

POLAND

(8/8)

REFERENCE YEARS 2013-2015

1. Type of the measure of support			
K: Support for Research and Development and Training			
2. Authority/agency responsible for the measure and legal authority			
Ministry of Science and Higher Education / Polish Agency for Enterprise Development			
3. Outline/explanation of the measure			
Assistance in the form of subsidies for R&D and workers training			
4a. Monies actually committed each year	Year 2013	Year 2014	Year 2015
National Currency [Name : Zloty PLN million] OR	0.022	0.260	n/r
Million USD	0.007	0.074	
Exchange rate [USD/PLN]	3.01	3.51	
4b. Maximum financial exposure at end of each year			
National Currency [Name :] OR			
USD			
Exchange rate [/USD]			
5. Notes (if any)	Exchange rates of 31 December (2013, 2014)		

PORTUGAL

(1/3)

REFERENCE YEARS 2011-2014

1. Type of the measure of support				
C: Loans on terms and conditions more favourable than those commercially available				
2. Authority/agency responsible for the measure and legal authority				
Agency responsible: IAPMEI (Portuguese Agency for Competitiveness and Innovation) Legal Authority: Portuguese Ministry of Economy				
3. Outline of the measure				
These Credit Lines were conceived to facilitate access to finance for SMEs through more favorable credit rates and through the reduction of the risk factor by using mutual guarantee schemes.				
4a. Monies actually committed each year	**2011**	**2012**	**2013**	**2014**
National currency (EUR million)	-	0,15	0,10	0,25
USD (million)		0,19	0,13	0,33
Exchange rate [EUR/USD]		1,28	1,33	1,33
5. Notes (if any)				
The Credit Line of EUR 0,1 million has an associated Guarantee of EUR 0,1 million, involving 3 companies in 2013. In 2014, these credit lines involved 6 companies.				

PORTUGAL

(2/3)

REFERENCE YEARS 2011-2014

1. Type of the measure of support				
D: Loan guarantees that support loans on terms and conditions more favourable than those that would be commercially available to the benefiting enterprise				
2. Authority/agency responsible for the measure and legal authority				
Agency responsible: IAPMEI (Portuguese Agency for Competitiveness and Innovation) Legal Authority: Portuguese Ministry of Economy				
3. Outline of the measure				
The Mutual Guarantee is a support system for Micro, Small and Medium-sized Enterprises (SMEs) based on mutualism. It grants financial guarantees that facilitate access to loans, and technical guarantees, which provide adequate terms for investments and cycles of activities. The fact that the risk is shared with other financial entities makes these enterprises' access to credit easier. It also liberates banking plafonds and gives access to amounts, cost conditions and maturity which are adapted to the specific needs of these enterprises. The main objective of the Mutual Guarantee System is to stimulate investment, development, modernization and internationalization of SMEs.				
4a. Monies actually committed each year	**2011**	**2012**	**2013**	**2014**
National currency (EUR million)	0,025	0,106	0,094	0,18
USD (million)	0,035	0,136	0,125	0,239
Exchange rate [EUR/USD]	1,39	1,28	1,33	1,33
5. Notes (if any)				
IAPMEI notes that the state finances the Mutual Counter Guarantee Fund to an amount equal to approximately 10% of the value of guarantees issued.				

PORTUGAL

(3/3)

REFERENCE YEARS 2012-2015

1. Type of the measure of support				
E – Export or Home Credits ***E2: Export Credit Guarantee or Insurance*** (pure cover)				
2. Authority/agency responsible for the measure and legal authority				
COSEC, S.A. – Credit Insurance Company (on behalf of Portuguese State) Decree-Law nº 183/88, 24 May and Decree-Law nº 31/2007, 14 February				
3. Outline of the measure				
No commitments assumed since 2012.				
4a. Monies actually committed each year	**2012**	**2013**	**2014**	**2015**
National currency (EUR million)	0	0	0	0
USD (million)	0			
Exchange rate	0			
4b. Maximum financial exposure at end of each year	**2012**	**2013**	**2014**	**2015**
National currency (EUR million)	149.75	147.46	146.35	144.87
USD (million)	191.68	196.12	194.65	162.25
Exchange rate [EUR/USD]	1.28	1.33	1.33	1.12
5. Notes (if any)				
Figures under part 4 include estimated interest. Amounts reported for the Year 2015 are referring to 30.04.2015.				

ROMANIA

(1/1)

REFERENCE YEARS 2013-2015

1. Type of the measure of support			
A: Direct transfer of funds by Governments *a1: Subsidies and grants*			
2. Authority/agency responsible for the measure and legal authority			
MINISTRY OF ECONOMY			
3. Outline/explanation of the measure			
Refund of a part of participation costs in the market exhibition. Support as „de minimis'' aid.			
4a. Monies actually committed each year	Year 2013	Year 2014	Year 2015
National Currency [Name :Leu -RON million] **OR**	1.272	0.697	Not reported
USD -million	0.382	0.208	
Exchange rate [USD /RON]	3.3279	3.3492	
4b. Maximum financial exposure at end of each year			
National Currency [Name : Lei] **OR**			
USD			
Exchange rate [USD /]			
5. Notes (if any)			
Average exchange rates (2013, 2014) **Email extract:** Regarding the inventory of subsidies and other support measures by WP6, I inform you, that during the years 2013-2015 in Romania there were no subsidies and other financial support measures for the shipbuilding sector except for refund of a part of participation cost in the market exhibition, support as „de minimis'' aid (in accordance with the HG 296/2007 on subsidizing partial participation in international fairs and trade missions).			

RUSSIA

(1/1)

REFERENCE YEARS 2013-2015

1. Support type **A: Direct transfer of funds by Governments**			
2. Organ / Authority responsible for measurements and legal powers Ministry of Industry and Trade of the Russian Federation The regulatiou of the Government of the Russian Federatiou dated May 22, 2008 No. 383 "On approval of the Rules for provision of subsidies to Russian Transport Companies and steamline companies for recovery of some costs for payment of interest ou credits received in the Russian credit orgauisations and in state corporation "Bank For Developmeut and Foreign Economic Activities (Vnezheconombank)" iu 2008 - 2014 for purchase of civil vessel, and also leasing payments under leasing agreements executed in 2008 - 2014 with the Russian leasing companies for purchase of civil vessels.			
3. Description/ explanation of action Subsidies as of today are the only subsidiary measures of shipbuilding supports. Within the Regulation, leasing projects of river transport vessel of domestic production are being executed, the number of vessels under the State Flag of the Russian Federation increases, ecouomic stimuli are developed for fleet upgrade, a complex of measures is realized to subsidize customers and manufacturers of vessels and objects of marine equipmeut. Negative impact of high credit rates in the Russian Federatiou reduces, makiug it possible to increase competitiveuess of the Russian industry and as a resulty, iucreased orders for construction of transport and fishing vessels in Russia.			
4a. Funds actually transferred for the year	2013	2014	Q1, 2015. (provided quarterly)
National currency [RUR]	590,597,268.34	1,615,056,931.58	225,651,511.99
USD	18,904,427.96	44,972,875.30	4,375,834.12
Exchange rate [RUR/ USD]*	0.032009	0.027846	0.019392
*Provided by the OECD Secretariat			
4b. Maximum financial risk at the end of each year			
National currency [name:] or			
USD			
Exchange rate [/ USD]			
5. Notes (if available)			

SWEDEN

Sweden advised it has no government support measures for the shipbuilding industry.

TURKEY

(1/7)

REFERENCE YEARS 2013-2015

1. Type of the measure of support			
E: **Export or Home Credits** *e1:* *Export Credit Facilities*			
2. Authority/agency responsible for the measure and legal authority			
Turk Eximbank (Export Credit Bank of Turkey)			
3. Outline/explanation of the measure			
In the scope of Fourth Export Finance Intermediary Loan (EFIL-IV) signed between Turk Eximbank and IBRD, it is aimed to provide medium and long term investment and working capital support to entities including the companies operates in ship-building industry in Turkey. Under EFIL-IV, there are eligibility criteria for borrowers as complying with financial ratios, environmental and occupational health and safety procedures and procurement procedure of IBRD for goods and works financed under this program. These loans are provided to ship producers in Turkey with medium and long terms with floating interest rates comparable to the prevailing market rates. Terms and conditions are not more favorable than those commercially available. This program is not subject to the terms and conditions under the Understanding on Export Credits for Ships of the OECD Arrangement on Officially Supported Export Credits.			
4a. Monies actually committed each year	**Year 2013**	**Year 2014**	**Year 2015**
National Currency [Name of Currency:] **OR**	-	-	-
USD	-	-	-
Exchange rate [/USD	-	-	-
4b. Maximum financial exposure at end of each year *[see Explanatory Note 4)]*	**Year 2013**	**Year 2014**	**Year 2015**
National Currency [Name of Currency:] **OR**	-	-	-
USD	63,068,501.07	61,076,094.63	61,261,644.85
EUR	7,834,753.09	7,834,753.09	7,834,753.09
Total (USD) Exchange rate* [1.0758 EUR/USD]	71,497,128.44	69,504,722.00	69,690,272.22

5. Notes (if any)

*Euros are converted into USD by cross exchange rate of Turk Eximbank at 2015, March 11.

*Under the year of 2015, the risk amount at the date of 2015, March 11 is given for the amount of exposure.

*The overall fund provided by IBRD was extended to the companies in manufacturing sector including ship-building companies. The fund was fully allocated at 2013. Hence, there has not been any credit extension in the program since that year.

TURKEY

(2/7)

REFERENCE YEARS 2013-2015

1. Type of the measure of support			
E: Export or Home Credits *e1: Export Credit Facilities*			
2. Authority/agency responsible for the measnre and legal authority			
Turk Eximbank (Export Credit Bank of Turkey)			
3. Outline/explanation of the measure			
Under the Ship-Building Finance and Guarantee Program, Turkish companies involved in shipbuilding and/or exporting of ships will be provided direct loans and/or Letters of Guarantee so that they may obtain pre-financing either in advance or in installments from the buyer or they can buy supplies & materials with payments having a fixed term. This program is not subject to the terms and conditions under the Understanding on Export Credits for Ships of the OECD Arrangement on Officially Supported Export Credits.			
4a. Monies actually committed each year	Year 2013	Year 2014	Year 2015
National Currency [Name of Currency:] **OR**	-	-	-
USD	-	-	-
Exchange rate [/USD	-	-	-
4b. Maximum financial exposure at end of each year	Year 2013	Year 2014	Year 2015
National Currency [Name of Currency:] **OR**	-	-	-
USD	-	-	-
EUR	-	-	-
Total (USD) Exchange rate* [EUR/USD]	-	-	-
5. Notes (if any)			

TURKEY

(3/7)

REFERENCE YEARS 2013-2015

1. Type of the measure of support			
E: Export or Home Credits *e1: Export credit facilities*			
2. Authority/agency responsible for the measure and legal authority			
Turk Eximbank (Export Credit Bank of Turkey)			
3. Outline/explanation of the measure			
The Export Credit Facility is provided to foreign buyer for the purchase of ships built in Turkey: • under sovereign guarantee or reputable bank guarantee acceptable to Turk Eximbank. • through refinancing support to the Domestic Banks in Turkey who provide financing through their foreign branches, subsidiaries and correspondent banks operating overseas. • through discounting Bill(s) of Exchange and Letter(s) of Credit arising from export transactions and which have been covered by "Turk Eximbank Specific Export Credit Insurance Policy(ies)". • Loans under the Programs shall comply with the terms of the OECD arrangement on Officially Supported Export Credits and its Sector Understanding on Export Credits for Ships.			
4a. Monies actually committed each year	Year 2013	Year 2014	Year 2015
National Currency [Name of Currency:] **OR**	-	-	-
USD	-	-	-
Exchange rate [/USD	-	-	-
4b. Maximum financial exposure at end of each year			
National Currency [Name of Currency:] **OR**	-	-	-
USD	-	-	-
Exchange rate [/USD	-	-	-
5. Notes (if any)			

TURKEY

(4/7)

REFERENCE YEARS 2013-2015

1. Type of the measure of support			
H:	**Government revenue that is foregone or not collected** **Customs Duty Exemption**		
h4:	*The remission or drawback of import charges on inputs imported in the production of vessels*		
2. Authority/agency responsible for the measure and legal authority			
The Ministry of Economy is the granting authority for the measure. The implementation is done together with the Ministry of Customs and Trade. The legislative base for the measure during the time period covered by the survey is the "Decree Concerning State Encouragements to Investments" (Decree No: 2012/3305, dated: June 15th, 2012).			
3. Outline/explanation of the measure			
The measure is one of the encouragement tools offered under the investment encouragement mechanism. For investment projects which are evaluated and found eligible by the Ministry of Economy, imports of machinery and equipment to be used in the production process shall be subject to the Customs Duty Exemption. Once the exemption is listed on the Investment Encouragement Certificate, the investor can import the machinery and equipment indicated on the approved list, namely the "Machinery and Equipment List" aiming only at the purposes of the investment in question, without paying any customs duties. 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 third countries. Therefore the above mentioned exemption is implemented only for imports from third countries. Available for shipbuilding industry.			
4a. Monies actually committed each year	**2011**	**2012**	**2013**
National currency	n/a*	n/a*	n/a*
USD			
Exchange rate			
4b. Maximum financial exposure at the end of each year			
National currency	n/a*	n/a*	n/a*
USD			
Exchange rate			
5. Notes (if any)			
* The Investment Encouragement Program contains mainly tax-based encouragement measures and each project has its own characteristics and time period to be completed. The peculiar characteristics of this type of measure make it difficult to figure out the foregone revenues precisely.			

TURKEY

(5/7)

REFERENCE YEARS 2013-2015

1. Type of the measure of support			
H:	**Government revenue that is foregone or not collected** **Value Added Tax Exemption**		
h2:	*Exemption or remission of direct or indirect taxes or fiscal charges*		
2. Authority/agency responsible for the measure and legal authority			
The Ministry of Economy is the granting authority for the measure. The implementation is done together with the Ministry of Finance. The legislative base for the measure during the time period covered by the survey is the "Decree Concerning State Encouragements to Investments" (Decree No: 2012/3305, dated: June 15th, 2012).			
3. Outline/explanation of the measure			
If this measure is enlisted on the Investment Encouragement Certificate, imports and domestic purchases of machinery and equipment within the scope of approved machinery and equipment lists attached to the certificate are exempted from Value Added Tax. The net subsidy amount of this measure varies depending on the rate of VAT, the time of purchase of machinery and equipment, market interest rates and whether the company is in operation or not at the time of purchase. Available for shipbuilding industry.			
4a. Monies actually committed each year	**2011**	**2012**	**2013**
National currency	n/a*	n/a*	n/a*
USD			
Exchange rate			
4b. Maximum financial exposure at the end of each year			
National currency	n/a*	n/a*	n/a*
USD			
Exchange rate			
5. Notes (if any)			
* The Investment Encouragement Program contains mainly tax-based encouragement measures and each project has its own characteristics and time period to be completed. The peculiar characteristics of this type of measure make it difficult to figure out the foregone revenues precisely.			

TURKEY

(6/7)

REFERENCE YEARS 2013-2015

1. Type of the measure of support			
H: Government revenue that is foregone or not collected **Social Security premium support** *h5: Full or partial exemption, remission or deferral of direct or indirect taxes or social welfare charges*			
2. Authority/agency responsible for the measure and legal authority			
The Ministry of Economy is the granting authority for the measure. The implementation is done together with the Ministry of Labor and Social Security. The legislative base for the measure during the time period covered by the survey is the "Decree Concerning State Encouragements to Investments" (Decree No: 2012/3305, dated: June 15th, 2012).			
3. Outline/explanation of the measure			
The social security premium to be paid by the employer, corresponding to the amount to be paid on minimum wage costs, is funded from the budget for changing time periods. Available for shipbuilding for 18 months during construction period.			
4a. Monies actually committed each year	**2011**	**2012**	**2013**
National currency	n/a*	n/a*	n/a*
USD			
Exchange rate			
4b. Maximum financial exposure at the end of each year			
National currency	n/a*	n/a*	n/a*
USD			
Exchange rate			
5. Notes (if any)			
* The Investment Encouragement Program contains mainly tax-based encouragement measures and each project has its own characteristics and time period to be completed. The peculiar characteristics of this type of measure make it difficult to figure out the foregone revenues precisely.			

TURKEY

(7/7)

REFERENCE YEARS 2010-2015

1. Type of the measure of support						
D: Loan guarantees that support loans on terms and conditions more favourable than those that would be commercially available						
2. Authority/agency responsible for the measure and legal authority						
The Treasury Support Scheme is a credit guarantee programme supported by the Turkish Treasury. This programme is implemented by the Credit Guarantee Fund (CGF) and monitored by the Turkish Treasury.						
3. Outline/explanation of the measure						
There are two guarantee mechanisms for ship construction credits one of which has been terminated as of February 2015. The purpose of these mechanisms is to support the shipbuilding industry in Turkey by increasing shipbuilding firms' access to financing. First mechanism has been started in 2010 and it has been terminated as of February 2015. In order to benefit from this guarantee mechanism, the loan should be used for the construction of a ship that is incomplete (at least 15% of the construction should be completed or payment amount for the construction should be equal to the 15% of construction cost of the ship). In this mechanism, a guarantee of up to 75 percent of the credit can be provided. There are two types of loans than can be guaranteed, namely "working capital loan" and "investment loan". Maximum amount of working capital loan for a company is TRY 7 million (for the same group of companies, TRY 10 million) with 4 year grace period and up to 6 years maturity. Maximum amount of investment loan for a company is TRY 20 million (for the same group of companies, TRY 30 million) with 6 years grace period and up to 10 years maturity. Second mechanism has been started as of February 2015. In this mechanism, buyer provides finance for the ship to be constructed and CGF guarantees non-cash loan (warranty letter) issued in favour of the buyer. In this mechanism, a guarantee of up to 70 percent of the credit can be provided. Maximum guarantee amount is USD 70 million (for the same group of companies, USD 200 million) with a maturity up to 3 years. No guarantee has been provided within the mechanism yet. Due date for the applications to this mechanism is 31/12/2017. In this scheme, the amount of guarantee fee collected by the CGF is 1% of the outstanding guarantee each year.						
4a. Monies actually committed each year*	**Year 2010**	**Year 2011**	**Year 2012**	**Year 2013**	**Year 2014**	**Year 2015**
National Currency [Turkish Lira, Million]	70.3	80.9	15.9	1.6	4.9	
USD	46.6	48.2	8.8	0.8	2.2	
Exchange rate [USD/TRY] (yearly average)	1.51	1.68	1.80	1.91	2.19	
(*)Guarantees issued within the year						
4b. Maximum financial exposure at end of each year**						
National Currency [Turkish Lira, Million]	70.3	131.7	145.5	172.6	191.1	
USD	45.4	69.3	81.3	80.7	82.4	
Exchange rate [USD/TRY] (end of the year)	1.55	1.9	1.79	2.14	2.32	
(**)Total outstanding guarantee volume at the end of the year						
5. Notes						

EUROPEAN UNION

(1/1)

REFERENCE YEARS 2013-2015

The European Union reported no government support measures for the shipbuilding industry.

CHINESE TAIPEI

(1/1)

REFERENCE YEARS 2013-2015

1. Type of the measure of support			
K: Support for Research and Development			
2. Authority/agency responsible for the measure and legal authority			
Ministry of Economic Affairs (MOEA)			
3. Outline/explanation of the measure			
MOEA grants research funds to a non-profit research firm, the Ship and Ocean Industries R&D Center (SOIC). Its purpose is to promote the general technical capability (through technology transfer) of local small and medium-sized ship and boat builders.			
4a. Monies actually committed each year	Year 2013	Year 2014	Year 2015
National Currency: New Taiwan Dollar. TWD – million	61.31	86.17	86.853
USD - million	2.1	2.8	2.8
Exchange rate [USD/TWD]	29.2	30.33	31.41
5. Notes (if any)			

C/WP6(2015)4

OVERSUPPLY IN THE SHIPBUILDING INDUSTRY

Organisation de Coopération et de Développement Économiques
Organisation for Economic Co-operation and Development

26-May-2015

English - Or. English

COUNCIL
WORKING PARTY ON SHIPBUILDING

OVERSUPPLY IN THE SHIPBUILDING INDUSTRY

OECD, Paris, 11-12 June 2015

This document has been developed under Output area 1.2.3.3 of the WP6 PWB for 2015-16. It contributes to Project 1.2.3.3.4 on Demand and supply in the shipbuilding industry.

Action required: Delegates are invited to discuss the report and possible statement to be issued by the WP6 on excess capacity in November 2015.

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C/WP6(2015)4
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OVERSUPPLY IN THE SHIPBUILDING INDUSTRY

Executive summary

1. The global shipbuilding industry is confronted with a high degree of overcapacity and oversupply causing numerous problems including weak profitability for shipbuilding companies [C/WP6(2014)11] (OECD, 2014a). Analysing the magnitude and the causes of the imbalances between supply and demand in the global shipbuilding industry is essential to raise awareness for the industry and governments in order to prevent actions that would tend to worsen the problem.

2. The WP6 has a long experience in dealing with the measurement of shipbuilding capacity. However, previous attempts by the WP6 to conduct a comprehensive measurement of shipbuilding capacity were limited by data or methodological constraints (OECD, 2014a). As a consequence, at the 25 November 2014 WP6 meeting, following a proposal by Japan, the WP6 agreed to conduct an analytical work aiming to measure oversupply *i.e.* the gap between vessel requirements and vessel completions. This approach[1] allows measuring the severity of the imbalance between supply and demand in the shipbuilding market without being faced with the constraints inherent to the measurement of excess capacity.

3. Global vessel completions by economy and by ship types are available from public sources. By contrast, vessel requirements should be imputed as they depend on the coefficients used to convert seaborne trade expansion into vessel requirements. Vessel requirements are the sum of new vessel requirements for a given year, and are a function of trade expansion and the replacement of scrapped and lost vessels. World seaborne trade in tonnes of goods is converted into ship requirements in deadweight tons (dwt) and subsequently in gross tonnage (gt).

4. World seaborne trade has been steadily increasing during the last 30 years with a limited decline only in 2009 owing to the "great recession". From 1983 to 2015, global seaborne trade grew from around 3.3 billion tonnes to 10.9 billion tonnes, corresponding to a Compounded Annual Growth Rate (CAGR) of 3.8%. The average seaborne trade growth rate between 1983 and 2015 was higher than the average global GDP growth rate which amounted to 3.6% for this period.

5. Since 2005, the tonnage of the global world fleet in dwt has been growing faster than seaborne trade in tonnes. The global world fleet in dwt grew 7% per year on average between 2005 and 2014 as compared to 3.8% for world seaborne trade in tonnes. The "great recession" amplified the gap between the world fleet and seaborne trade but it should be noted that the gap has already started to grow three years before the financial crisis.

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[1] This approach is also commonly used by shipbuilding associations and some maritime industry experts. The OECD Secretariat thanks the Shipbuilders' Association of Japan, SEA Europe, Clarkson and IHS Maritime & Trade for their support. While the report has benefited extensively from their inputs, in terms of data and advices, the OECD Secretariat takes final responsibility for all content presented.

6. The largest level of oversupply occurred in 2009 when the gap between vessel completions and vessel requirements reached 77.4 million gt representing 100% of total completions. In total, between 2005 and 2012, the cumulated oversupply reached 244 million gt, representing 23% of the world fleet in 2012 (aggregate tonnage of 1 081 million gt[2]).

7. Between 2005 and 2013, the cumulated oversupply of **tankers** reached 83 million gt, representing 35% of the world tanker fleet in 2013 (aggregate tonnage of 239 million gt). Oil consumption grew by 1.9 % per year on average between 2003 and 2007 and then slowed down in the period 2008-2012 which is marked by the financial crisis and a relatively slow post-crisis recovery. Moreover, increasing shale oil production in the US which is consumed mainly domestically was also a negative factor for seaborne trade of oil products. Large levels of completions despite a weak demand for seaborne trade of oil explain the massive oversupply in the tanker market.

8. Between 2004 and 2013, the cumulated oversupply in the **bulker** market reached 113 million gt in 2013, representing 29% of the world bulker fleet (aggregate tonnage of 388 million gt). Demand for seaborne trade by bulkers has been driven in recent years by the demand for raw materials from emerging economies, especially China. For instance, Chinese imports of iron ore increased from 70 million tonnes in 2000 to 930 million tonnes in 2014 driven by the strong increase of Chinese steel industry in the last fifteen years. Despite increasing freight carried by bulkers, completions increased also sharply in the last ten year in this market segment and led to a situation of large oversupply.

9. Between 2005 and 2013, the **container** market was in oversupply in each year except 2010. In total, between 2005 and 2013, the cumulated oversupply reached 48 million gt, representing 26% of the world container fleet in 2013 (aggregate tonnage of 188 million gt). Between 1983 and 2014, containerized trade increased by a factor of 13 as compared to 5.5 for seaborne trade and 3 for global real GDP during this period. Containerization has been a major trend in the development of world trade, with now 90% of non-bulk cargo worldwide transported by containers (TRAC Intermodal, 2014). Despite the strong growth of containerised trade, completions also exceeded requirements in this market segment contributing to oversupply.

10. The **residual part** (total world fleet minus containers, bulkers and tankers) includes other cargo vessel categories such as LNG/LPG carriers but also non-cargo vessels notably passenger and offshore ships. Details by shiptypes are not available for this residual category. However, it can be noted, that demand for offshore ships, which represents a large part of this residual category, has been relatively strong between 2010 and 2012 as oil prices were relatively high (OECD, 2015a). It can explain why vessel requirements were higher than vessel completions for "other shiptypes" between 2010 and 2012. Except for this three-year period, all shiptypes contributed to the oversupply of the world shipbuilding market between 2005 and 2013.

11. To estimate future vessel newbuilding requirements, an assessment of vessel requirements for trade expansion and for vessel replacement is required. For vessel requirements linked to trade expansion, there are numerous potential explanatory variables (for instance, GDP, energy consumption and price, population) and there are many hypotheses to make in order to convert seaborne trade into vessel requirements. Vessel requirements for replacement also depend on numerous factors including the age of the fleet, fuel price, demand for shipping and regulation.

12. The choice made here was to build in the first instance an exceedingly simple model for assessing future vessel requirements linked to seaborne trade expansion based on a single explanatory variable which

[2] Figures here and below from IHS *World Steel Statistics*.

is global real GDP growth rate. Correlation coefficients show that global GDP is a statistically significant explanatory variable for seaborne trade, in total and for the three shiptype categories studied. Moreover, the expected slowdown of containerization has been taken into account in the analysis by assuming a lower growth rate for the future.

13. The assessment of vessel requirements linked to ship replacement uses results based on past completions and no other cyclical factors (such as energy price, ferrous scrap price, demand for shipping and regulation) as this simulation focuses on the medium term and each of these cyclical factors are supposed to compensate with each other for this long-time horizon.

14. During the forecasting period (2015-2040), total seaborne trade is expected to increase from 10 959 million tonnes in 2015 to 27 162 million tonnes in 2040, with a CAGR of 3.7%. Converting seaborne trade expansion into newbuilding requirements leads to vessel requirements of 63 million gt in 2035. Total disposals and losses are expected to reach around 70 million gt in 2035. The three categories of vessels considered (i.e. containers, bulkers and tankers) account for roughly one third of total requirements linked to vessel replacements.

15. A conservative assessment reveals that if completions stay at their levels in 2014 we expect that oversupply in the global shipbuilding market will remain at least until 2020. If completions recover to their pre-crisis peak of 2011, global oversupply is likely to remain until 2030.

16. Causes explaining oversupply in the shipbuilding industry may include the impact of past and current policies that could have market distorting effects and thereby fail to equalize global supply and demand, at least in the medium term. Further causes may also include speculative orders undertaken by some market participants.

17. The WP6 has discussed on various occasions what kind of government support measures could distort the shipbuilding market, most notably as part of the negotiations of the Shipbuilding Agreement between 2002 and 2005, as well as at a special Session on Market Distorting Factors in June 2012. In each case, it appears that there are artificially low prices or too high production volumes compared to usual levels.

18. Shipping is a speculative industry as seen in the volatility in new orders. New orders were matching relatively well vessel requirements in the period 1996-2002. After 2002, new orders have been overshooting vessel requirements for an extended period of 8 years (2003-2010). New orders have rebounded in 2013 and 2014 above their 2012 level and above the level of completions despite the absence of a significant improvement for any of the major vessel types. This implies that some of the contracting in 2013-14 has been undertaken on a speculative basis (OECD, 2014c). Speculative orders to shipbuilding companies are difficult to identify and could be linked to new forms of finance in the shipbuilding industry, notably the higher involvement of potentially shorter-term investors such as private equity funds.

Issues for discussion

On the model used to assess oversupply

- How can the model to assess and forecast vessel requirements, notably linked to seaborne trade expansion and disposals, be improved?
- Are there other data sources that the OECD Secretariat could use?
- Should the analysis be detailed by regions and/or by other shiptypes?

On the results of the model

- What are the views of WP6 members on the results of the model in terms of past and future vessel requirements?
- Do WP6 members agree that oversupply will remain for several years at least?

On the causes of excess supply

- How to identify support policies that would be market-distorting and would worsen the problem of oversupply in the shipbuilding industry?
- How to identify speculative orders?
- To what extent is oversupply in the shipbuilding industry a structural or a cyclical problem?

On the next steps of the WP6 work on oversupply

- How can the analytical work be linked to the discussion about policies?
- What should be the main points in a potential statement on excess capacity/oversupply?

1. Methodological issues linked to the measurement of excess capacity and excess supply

1.1 Issues related to the measurement of excess capacity

19. In the absence of comprehensive sources of national capacity data, the WP6 has recently used two methodological approaches to measure shipbuilding capacity (*maximum production approach* and *yard-by-yard measurement*) [C/WP6(2014)11] (OECD, 2014). These methodologies provide a base-line assessment of capacity but not a measure of potential capacity.

20. The first methodology, the *maximum production approach*, based on the highest shipbuilding output on record, is a rough measure of capacity. For example, after the recent production peak of 2010, there have been net capacity additions with more capacity added (new facilities constructed and existing facilities upgraded) than removed (disposals or obsolescence). Moreover, the shipbuilding capacity used to produce marine equipment other than ships, for instance offshore facilities, is not taken into account in this methodology. In principle this could be converted back to equivalents in terms of the construction of ships and included in the calculation.

21. The second methodology, based on *yard-by-yard measurement* of capacity, does not account for capacity that may have become obsolete since the year of maximum production for each of the yards included in the dataset. Moreover, this approach is based on a limited number of yards available in the Clarkson's monthly publication, *World Shipyard Monitor*.

1.2 Methodology to measure excess supply

22. At the 25 November 2014 meeting, the WP6 decided to follow an approach based on the gap between vessel completions and vessel requirements, given world seaborne trade and replacement demand. Global vessel completions by economy and by ship types as well as disposal requirements are available from public sources (*e.g.* IHS Maritime & Trade and Clarkson). By contrast, vessel requirements should be imputed as it depends on the coefficients used to convert seaborne trade expansion into vessel requirements.

23. In this document, vessels completions are denominated in gross tonnage (gt).[3] They represent all vessels completed in a given year. IHS *World Fleet Statistics* is the primary source for annual vessel completions in this study. Vessel requirements are the sum of new vessel requirements for a given year linked to trade expansion and replacement of scrapped and lost vessels.

24. Clarkson is used for world seaborne trade data. World seaborne trade in tonnes of goods is then converted into ship requirements in deadweight tonnes (dwt) and subsequently in gross tonnes (gt). Vessel disposals and losses are available in gt from IHS *World Fleet Statistics*. Oversupply in the shipbuilding market is the difference between vessel completions and vessel requirements for a given year (See Figure 1 for an overview of the methodological approach).

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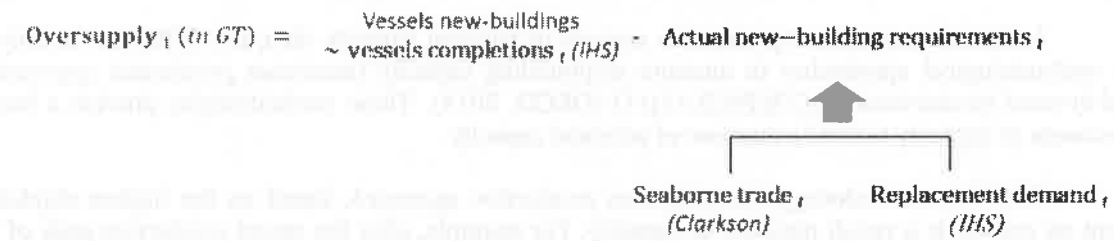
[3] Gross tonne (gt) has been chosen and not compensated gross tonne (cgt) due to better data availability. Moreover, the Secretariat has established contacts with shipbuilding associations and industry experts in order to investigate potential avenues to improve the cgt system that does not fully capture the specificities of sophisticated ships, notably offshore vessels.

Figure 1. Methodological approach to assess past vessel requirements

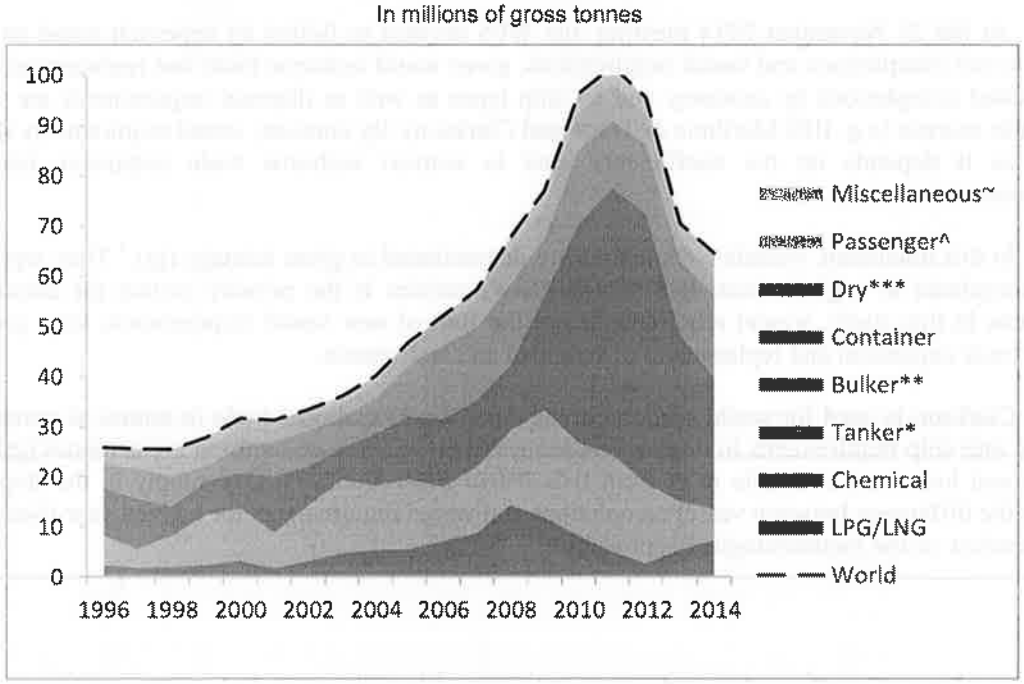


Source: OECD Secretariat

2. Vessel completions

25. Between 1996 and 2011, global vessel completions increased from around 25.8 million gt to 101.8 million gt, corresponding to a compounded annual growth rate (CAGR) of approximatively 10%. After 2011, vessel completions sharply decreased to 64.6 million gt in 2014, a decline by 36% as compared to their 2011 levels (see Figure 2).

Figure 2. Vessel completions by ship type (1996 – 2014)



NOTE: Data covers all vessels > 100 GT; *including crude oil tanker, oil products tanker, other liquids; **including bulk dry, bulk dry/oil, self-discharging bulk dry, other bulk dry; ***including general cargo, passenger/general cargo, refrigerated cargo, ro-ro cargo, passenger/ro-ro cargo, other dry cargo; ^including passenger (cruise), passenger ship; ~including fish catching, other fishing, offshore supply, other offshore, research, towing/pushing, dredging, other activities.

Source: IHS (former Lloyd's Register) "World Fleet Statistics".

26. Completions of bulkers increased strongly from 22.0 million gt in 2009 to 53.8 million gt in 2012 and accounted for 30% and 56% of global vessel completions, respectively. Bulk carriers completions then decreased to 33.4 million gt in 2013 (47% of total vessel completions) and by 22% to 26.2 million gt in 2014 (41% of total vessel completions). The tanker market reached a peak in 2009 when completions amounted to 21.5 million gt representing 28% of total completions. According to IHS *World Fleet Statistics*, from 2009 to 2014, tanker completions decreased by 69% to 6.2 million gt in 2014, or approximatively 10% of total completions. By contrast to the trend observed for the whole fleet, Liquefied Petroleum Gas and Liquefied Natural Gas (LPG/LNG) ship and container completions measured in gt were in 2013 above their 2011 levels.

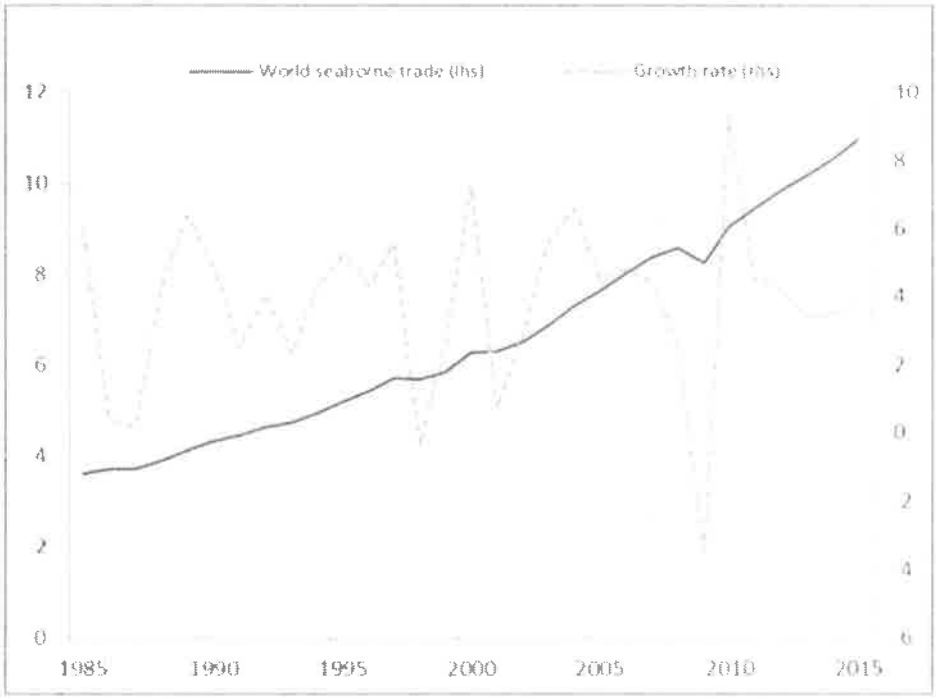
3. Vessel requirements

3.1 New vessel requirements linked to seaborne trade expansion

27. World seaborne trade has been steadily increasing during the last 30 years with a limited decrease only in 2009 owing to the "great recession". From 1983 to 2015, global seaborne trade grew from around 3.3 billion tonnes to 10.9 billion tonnes, corresponding to a CAGR of 3.8% (see Figure 3). Average seaborne trade growth rate between 1983 and 2015 was higher than the average global GDP growth rate of 3.6% per year for the same period.

Figure 3. World Seaborne Trade (1983 – 2015)

In billion tonnes (Left hand scale) and, annual growth rate, in percent (Right hand scale)

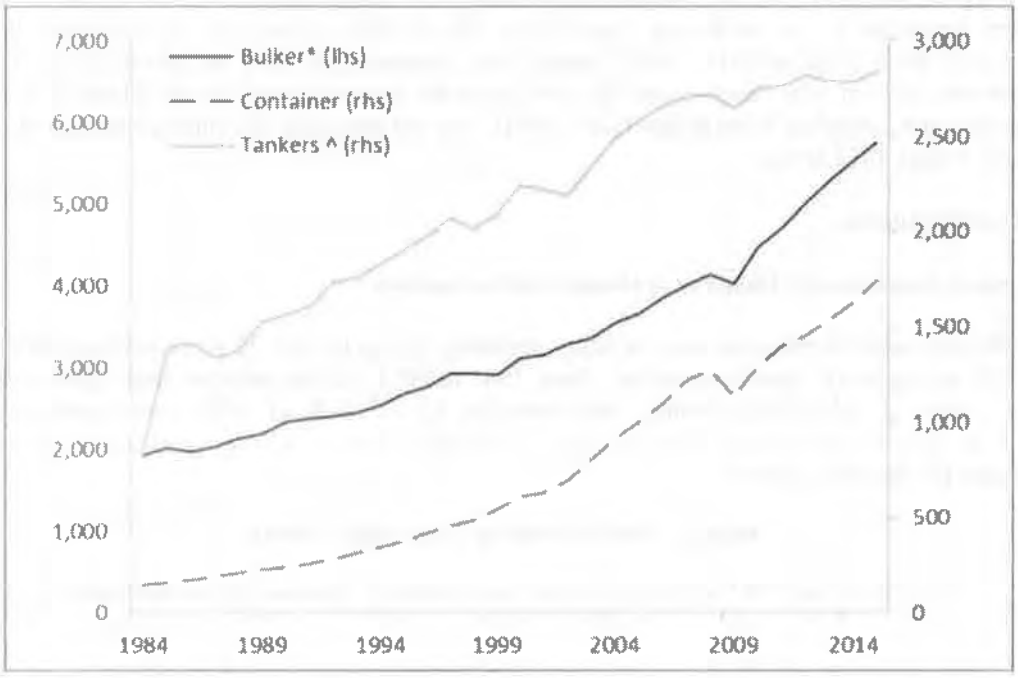


Source: Clarkson.

28. Between 1984 and 2015, seaborne trade has been increasing for tankers, bulkers and containers (see Figure 4) with a CAGR of 3.9%, 3.6% and 8.4%, respectively. In the period from 2000 to 2015, the seaborne trade growth rate decelerated as compared to the previous 15 years, to 1.6% for tankers and to 7.3% for containers.

Figure 4. Seaborne Trade for selected ship types, 1984 – 2015

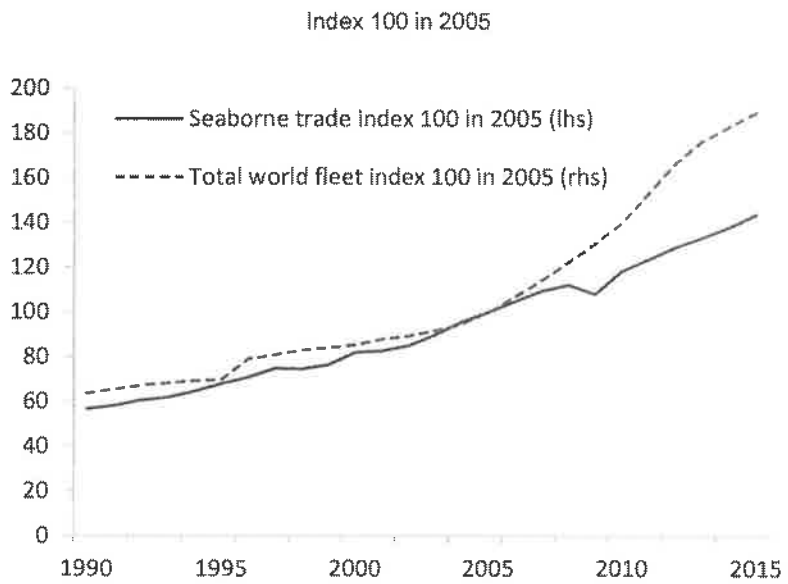
In millions of tonnes



Source: Clarkson Research (2015). ^ Including crude oil, oil products; * Including iron ore, coal (coking, steam), grain, bauxite/aluminium, phosphate rock, minor bulk, other dry.

29. Since 2005, the tonnage of the global world fleet in dwt has been growing faster than seaborne trade in tonnes. The global world fleet in dwt grew 7% per year on average between 2005 and 2014 as compared to 3.8% for world seaborne trade in tonnes. The "great recession" amplified the gap between the world fleet and seaborne trade but it should be noted that the gap had already started to grow three years before the financial crisis (See Figure 5).

Figure 5. Seaborne Trade and Fleet size, 1990 – 2015



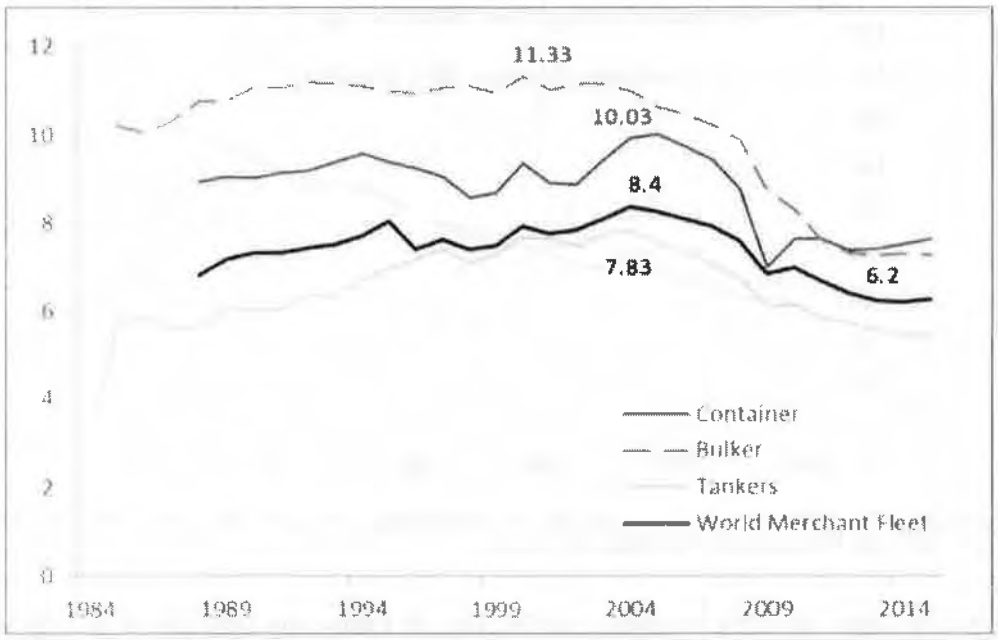
Source: Clarkson Research (2015) for seaborne trade; derived from disposals and loss ratio of IHS (Former Lloyd's Register) "Casualty Return" until 1989. "World Casualty Statistics" from 1990.

30. Figure 6 shows the ratio between seaborne trade in tonnes and fleet size in dwt for the period from 1988 to 2015. For the world fleet, this ratio reached a maximum of 8.4 tonnes per dwt in 2004, meaning that sea-going vessels transported 8.4 tonnes of goods per dwt that year. By contrast, in 2014 the ratio between seaborne trade and fleet size was only 6.2 tonnes per dwt (t/dwt), its lowest level on record. The maximum coefficient to convert seaborne trade in tonnes into fleet size in dwt varies by ship type, amounting to 11.3 t/dwt for bulkers in 2000, to 7.8 t/dwt for tankers in 2004 and to 10.0 for containers in 2005 (See Figure 6).

31. The coefficient of 8.4 t/dwt is used in the calculations to assess vessel requirements for seaborne trade expansion as it reflects a situation of relatively high utilization of the fleet. However, it is not possible to conclude that it reflects the maximum capacity utilisation ratio of the fleet as during peak times there may be still a state of overcapacity. Moreover, this coefficient is dependent on other factors than only demand for shipping goods, such as the time required at ports to load and unload goods as well as the average speed of ships, the average operating period during a year, the number of stops during a year and efficiency improvements. All these factors can vary in function of the exports and imports of all trading partners around the world as well as other elements such as the level of port congestion.

Figure 6. Ratio of Seaborne Trade and Fleet size for the world fleet and selected shiptypes, 1984 – 2015

In tonnes by deadweight tonne



Source: Clarkson Research (2015).

32. Tonnage in dwt is then converted into gt using a coefficient of 0.71 dwt per gt (or 1.4 gt per dwt) which is the historical average between 1996 and 2013. The use of a constant coefficient is justified by the fact that the relationship between dwt and gt between 2001 and 2013 has been relatively stable with coefficients oscillating between 0.74 and 0.69 dwt/gt (IHS, 2014; Clarkson, 2015b). This coefficient of dwt/gt varies by ship types: the average coefficient is 0.56 dwt/gt for tankers, 0.90 dwt/gt for bulkers and 0.89 dwt/gt for containers (SAJ, 2011).

3.2 New vessel requirements linked to fleet replacement

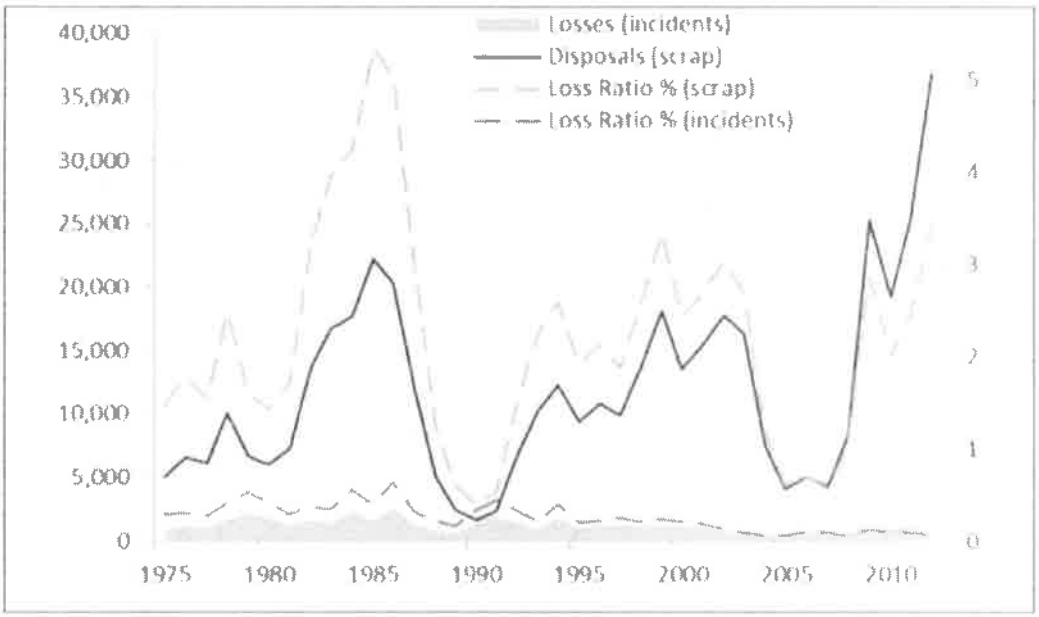
33. Vessel requirements due to fleet replacement arising from vessel disposals and losses are available from IHS Maritime & Trade for the period from 1975 to 2013 (See Figure 7). Global replacement demand linked to ship disposals was very volatile between 1975 and 2013. In 1985, the disposal ratio[4] reached a peak of 5.3% of the total world fleet corresponding to 22.2 million gt. Its lowest level was 0.4% with 1.6 million gt of vessel disposals in 1990. Between 1993 and 2003, the disposal ratio ranged between 1.9% (9.8 million gt) and 3.3% (18.2 million gt). It has then decreased gradually to 0.55% (4.3 million gt) in 2007. Since 2009, it has been oscillating between 2.0% (19.2 million gt) and 3.4% (36.8 million gt).

34. By contrast, since 2002 the loss ratio by incidents has remained at a relatively stable level of 0.1% of the world fleet. We assume that the loss ratio for incidents will remain at 0.1%.

[4] Loss (Disposal) Ratio = Lost (Disposed) Fleet / World Total Existing Fleet at mid year (end year from 1992).

Figure 7. World Fleet Losses and Disposals (1975 – 2012)

In thousands of gross tonnes (LHS) and in percent (RHS)

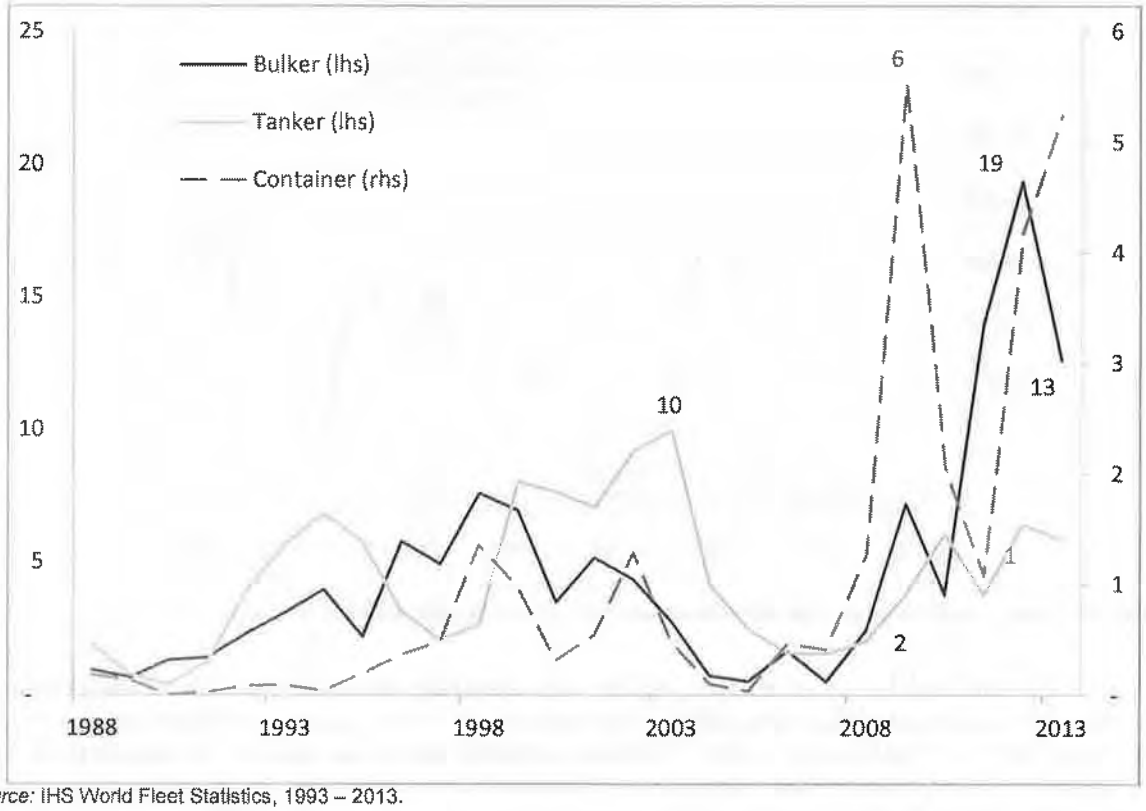


Source: IHS (Former Lloyd's Register) "Casualty Return" until 1989. "World Casualty Statistics" from 1990.

35. Disposals and losses of tankers, bulkers and containers followed different trends (Figure 8). Tankers experienced their highest disposal and loss levels in 2013 with a peak of 10.0 million gt, followed by a strong drop to 1.6 million gt in 2007. Container disposals and losses reached 5.5 million gt in 2009 their highest level on record. They subsequently decreased to 1.1 million gt in 2011 and rebounded to 5.2 million gt in 2013. Bulker disposals and losses started to decrease in the late 1990s and increased again in 2007, reaching a peak of 19.4 million gt in 2012.

Figure 8. Disposals and Losses for selected ship types (1988 – 2013)

In millions of gross tonnes



Source: IHS World Fleet Statistics, 1993 – 2013.

4. Gap between vessel completions and vessel requirements

4.1 Gap between vessel completions and vessel requirements for the whole fleet

36. The gap between vessel completions and requirements is an indicator of the imbalance between supply and demand in the shipbuilding industry (See Table 1 and Figure 9). The largest level of oversupply occurred in 2009 when the gap between vessel completions and vessel requirements reached 77.4 million gt representing around 100% of total completions. In 2010, the gap narrowed to 10.3 million gt (11% of total completions). In absolute terms, the gap widened to 40.5 million gt in 2011 and 24 million gt in 2012, representing in relative terms 40% and 25% of vessel completions, respectively. In total, between 2005 and 2012, the cumulated oversupply reached 244 million gt, representing 23% of the world fleet that had an aggregated tonnage of 1,081 million gt in 2012 according to IHS *World Steel Statistics*.

Table 1. Gap between vessel completions and requirements (1996 - 2012)

In millions of gross tonnes, seaborne trade in tonnes

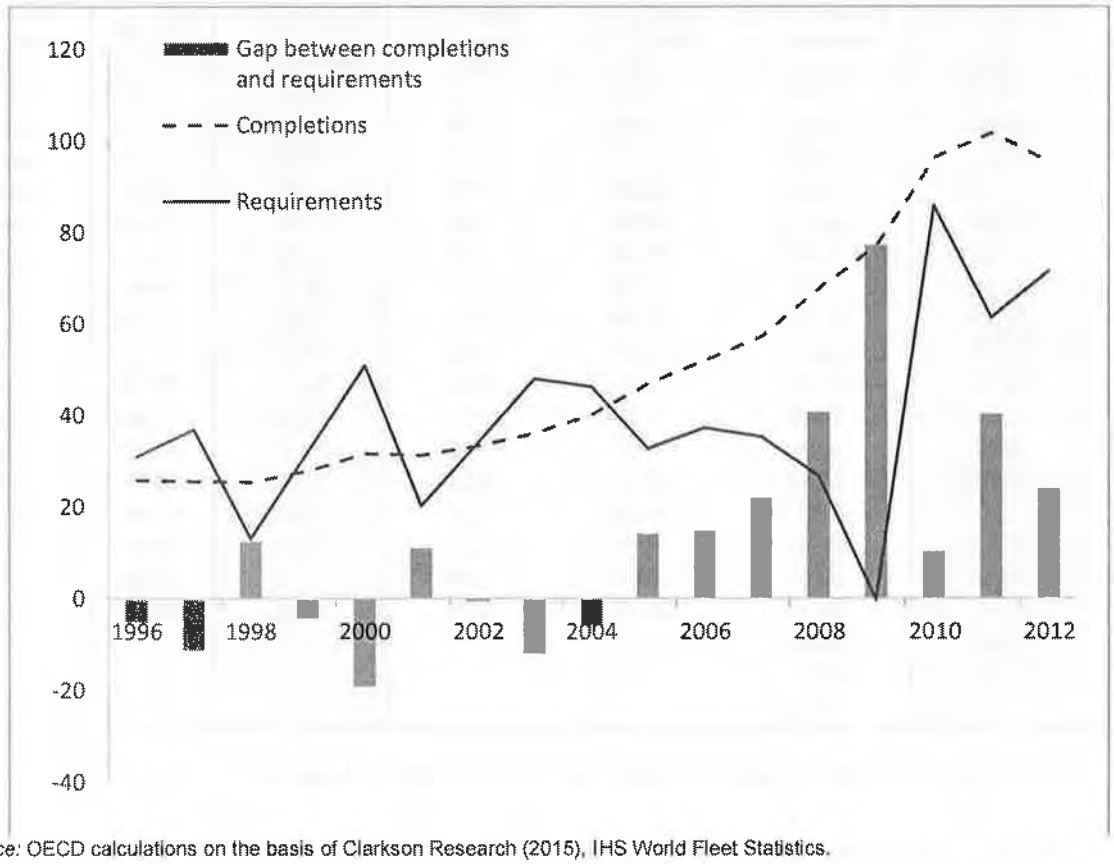
Year	Completions (gt) [A]	Seaborne trade expansion (t) [B]	Replacement disposal (gt) [C]	Replacement losses (gt) [D]	Requirements (gt) [E=B+C+D]	Gap (gt) [F=B-E]	*Gap (% of completions) [F/A]*
1996	25.84	19.04	10.82	1.19	31.06	-5.22	*-20%*
1997	25.54	25.77	9.84	1.29	36.90	-11.36	*-44%*
1998	25.46	-1.85	13.74	1.16	13.04	12.42	*49%*
1999	27.82	12.67	18.16	1.29	32.13	-4.30	*-15%*
2000	31.70	36.18	13.55	1.20	50.93	-19.24	*-61%*
2001	31.29	3.64	15.48	1.10	20.22	11.07	*35%*
2002	33.38	15.41	17.83	0.77	34.02	-0.63	*-2%*
2003	36.13	31.16	16.36	0.58	48.09	-11.96	*-33%*
2004	40.17	38.38	7.47	0.46	46.32	-6.15	*-15%*
2005	46.97	28.19	4.11	0.48	32.78	**14.19**	*30%*
2006	52.12	31.47	5.05	0.80	37.32	**14.80**	*28%*
2007	57.32	30.34	4.29	0.71	35.33	**21.99**	*38%*
2008	67.69	17.94	8.35	0.55	26.84	**40.85**	*60%*
2009	77.07	-26.77	25.36	1.10	-0.31	**77.38**	*100.4%*
2010	96.43	65.81	19.22	1.01	86.04	**10.39**	*11%*
2011	101.85	34.91	25.36	1.09	61.36	**40.48**	*40%*
2012	95.58	34.02	36.82	0.74	71.58	**24.00**	*25%*
2013	70.48	28.64					
2014	64.62	30.21					
2015		36.63					

Source: OECD calculations on the basis of Clarkson Research (2015) and IHS World Fleet Statistics.

37. In 2012, vessel requirements for replacement were higher than vessel requirements linked to trade expansion. Since 2011, the share of disposals in total requirements has been increasing. The age of the fleet is a key driver for disposals. Other cyclical factors for disposals include vessel prices that tend to increase new orders when prices are low, and the oil price. A high oil price environment could lead to disposals of energy-inefficient vessels except for the offshore vessel segment where demand is supported by oil exploration and production activities driven by an elevated oil price.

Figure 9. Gap between vessel completions and requirements (1996 – 2012)

In millions of gross tonnes



Source: OECD calculations on the basis of Clarkson Research (2015), IHS World Fleet Statistics.

4.2 Gap between vessel completions and vessel requirements for selected shiptypes

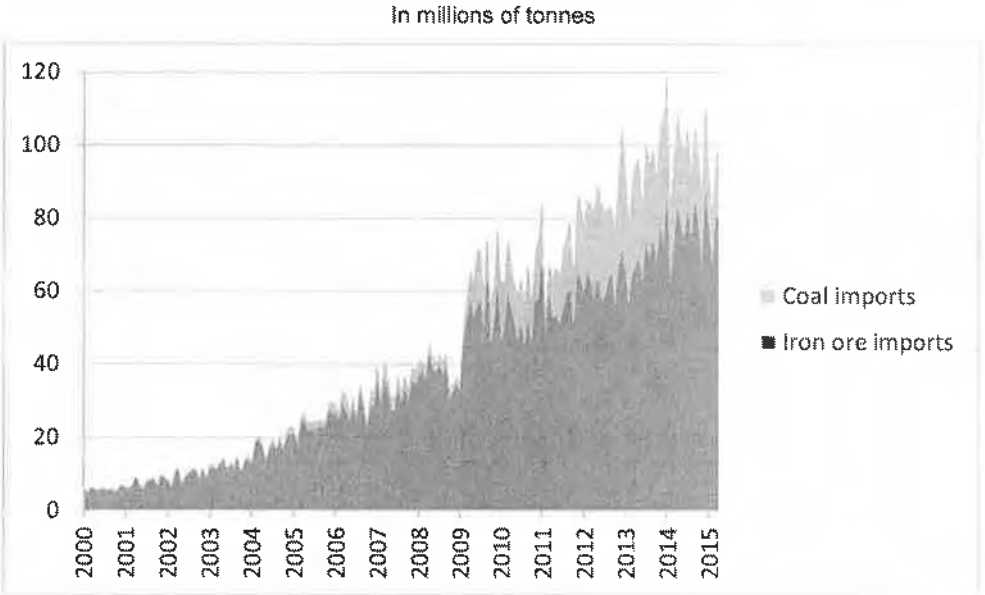
38. Tankers, bulkers and containerships are three of the biggest ship segments, with each segment sometimes broken down into sub-segments linked to size or other more exact purposes. The shipping market is relatively segmented, so we may expect different trends for the various market segments. The gaps between the three ship type categories, tankers, bulkers and containers are detailed in Annex 1.

39. Between 2005 and 2013, the cumulated oversupply of **tankers** reached 83 million gt, representing 35% of the world tanker fleet in 2013 (aggregate tonnage of 239 million gt). Oil consumption grew by only 1.9 % per year, on average, between 2003 and 2007 and then slowed down further in the period 2008 and 2012 marked by the financial crisis and a relatively slow recovery. Moreover, increasing shale oil production in the US which is consumed domestically was also a negative factor for seaborne trade of oil products. Large levels of completions despite a weak demand for seaborne trade of oil products explain the massive oversupply in the tanker market.

40. The gap between **bulker** completions and requirements reached a peak of 21 million gt in 2009, representing 93% of total bulker completion. Between 2004 and 2013, the cumulated oversupply in the bulker market reached 113 million gt in 2013, representing 29% of the world bulker fleet (aggregate tonnage of 388 million gt) (See Annex 1, Table 4 and Figure 21). Demand for seaborne trade by bulkers has been driven in recent years by the demand for raw materials from emerging economies, especially

China. For instance, Chinese imports of iron ore increased from 70 million tonnes in 2000 to 930 million tonnes in 2014 driven by the strong increase of the Chinese steel industry in the last fifteen years. Chinese imports of coal were multiplied by 137 between 2000 and 2014 due to the development of the steel industry and rising energy demand in China to reach a level of 292 million tonnes in 2014 (See Figure 10). Despite increasing freight carried by bulkers, completions increased also sharply in the last ten years and this market segment suffered from large oversupply.

Figure 10. Chinese monthly imports of iron ore and coal



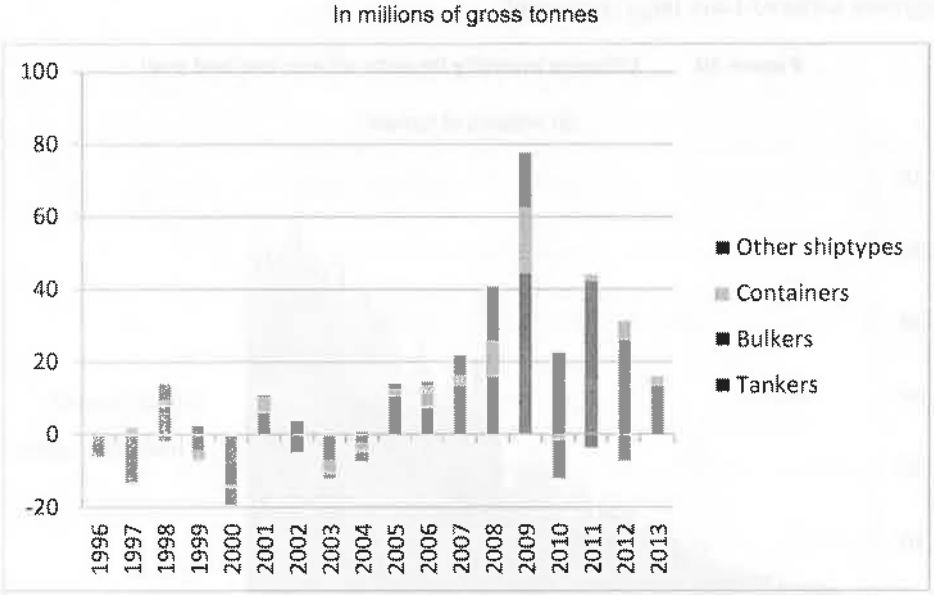
Source: Datastream.

41. Between 2005 and 2013, the **container** market was in oversupply each year, except in 2010 The gap between container completions and requirements reached a peak of 18.3 million gt in 2009, corresponding to a gap of 159% of total container completions. Between 2005 and 2013, the container market was in oversupply in each year except 2010. In total, between 2005 and 2013, the cumulated oversupply reached 48 million gt, representing 26% of the world container fleet in 2013 (aggregate tonnage of 188 million gt). Between 1983 and 2014, containerized trade increased by a factor of 13 as compared to 5.5 for seaborne trade and of 3 for global real GDP during this period. Containerization has been a major trend in the development in world trade, with now 90% of non-bulk cargo worldwide moved by containers (TRAC Intermodal, 2014). Another trend has been the increasing size of new-built containerships that can now carry more than 19 000 twenty-foot equivalent units (TEUs). In addition to increasing the capacity of the container fleet, this trend involves many issues, notably for the management of containers in ports (International Transport Forum, 2015a). Despite the strong growth of containerized trade, completions also outpaced requirements in this market segment and led to high level of oversupply.

42. The residual part (total world fleet minus containers, bulkers and tankers) includes other cargo vessel categories such as LNG/LPG carriers but also non cargo vessels, notably passenger and offshore ships. Unfortunately, details by shiptypes are not available for this residual category. However, it can be noted that the offshore market has been relatively strong between 2010 and 2012 as oil prices were at relatively high level (OECD, 2015). This can explain why vessels requirements were above vessel completions for "other shiptypes" between 2010 and 2012. Except for this period, it appears, as shown in

Figure 11 below, that all shiptypes contributed to the oversupply of the world shipbuilding market between 2005 and 2013.

Figure 11. Gap between vessel completions and requirements (1996 – 2012)



Source: OECD calculations on the basis of Clarkson Research (2015), IHS World Fleet Statistics.

5. Prospects for vessel requirements

43. Building a forecasting model for vessel newbuilding requirements involves an assessment of vessel requirements for trade expansion and for vessel replacements. For vessel requirements linked to trade expansion, there are numerous potential explanatory variables (for instance, GDP, energy consumption and price, population) and there are many hypotheses to make in order to convert seaborne trade into vessel requirements. Vessel requirements for replacement also depend on numerous factors, including the age of the fleet, fuel price, demand for shipping and regulation.

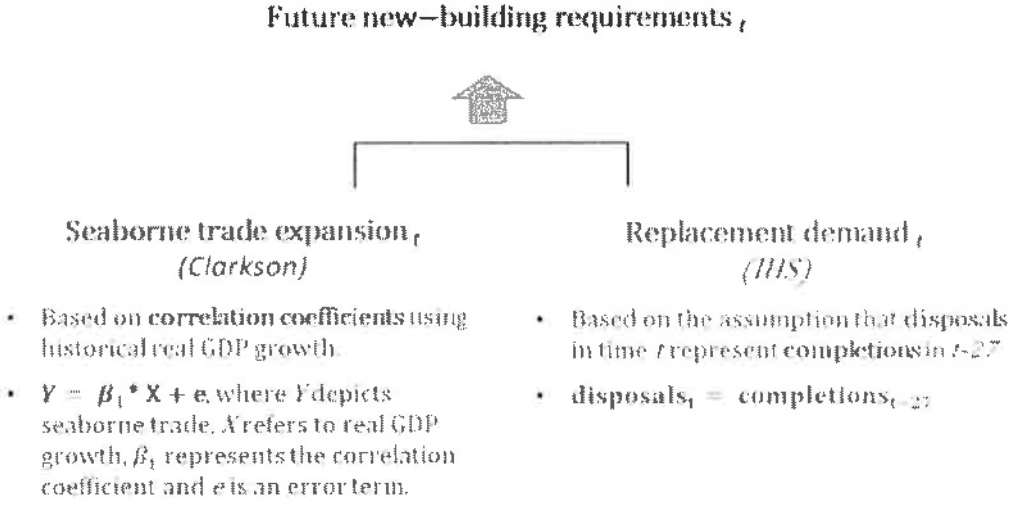
44. Moreover, forecasting of explanatory variables is in itself difficult for a 20-year forecasting period (2015-2035). The choice made here was to build in the first instance a very simple model for vessel requirements linked to seaborne trade based on the correlation coefficient between real GDP growth and seaborne trade growth (Figure 12). Moreover, the expected slowdown of containerization has been taken into account in the analysis by assuming a lower growth rate for the future.,

45. Moreover, our model only deals with maritime transport. Some other freight models, for instance the one developed by the International Transport Forum, account for all the main transport modes and the extent to which they are complements and substitutes (ITF, 2015b). In addition to that, slow steaming, a trend that consists in limiting vessel speed was not included in our model as there is great uncertainty in future trends in its use as a shipping practice. Despite lower oil price, slow steaming is expected to remain a common practice in the shipping industry as it leads to lower greenhouse gas emissions and increasing energy efficiency.

46. The model for assessing vessel requirements linked to ship replacement only takes into account the average age of existing vessels and not the other cyclical factors (such as energy prices, ferrous scrap

prices, shipping regulations) as this model focuses on the medium term and each of these cyclical factors are assumed to compensate each other over this time horizon. As the average age of a vessel scrapped is 27 years, we derive future vessel disposals on the assumption that completions in time t-27 will be disposed in t (Figure 12).

Figure 12. Methodological approach to assess future vessel requirements



Source: OECD Secretariat

5.1 Future vessel requirements linked to seaborne trade expansion

47. Seaborne trade is correlated with economic activity, energy consumption and oil price. The results of an econometric analysis show a strong correlation between, on the one hand, the annual growth rate in seaborne trade, and on the other hand the annual growth rates in global real GDP and total primary energy supply (TPES)[5] (Annex 2, Table 6). Seaborne trade is correlated with economic activity, energy consumption and oil price. The results of an econometric analysis show a strong correlation between, on the one hand, the annual growth rate in seaborne trade, and on the other hand the annual growth rates in global real GDP and total primary energy supply (TPES)[6] (Annex 2, Table 11). While real GDP growth is expected to impact total seaborne trade in general, the TPES and oil price mainly affect certain ship types, such as bulkers and tankers. Only partial correlation coefficients between real GDP growth and seaborne trade growth are used in this analysis to estimate global seaborne trade.

48. As Figure 13 shows, seaborne trade growth and real GDP growth followed relatively similar trends between 1983 and 2015. In the last 30 years, the global economic activity experienced continuous positive growth rates, except a -0.06% growth rate in 2009. After a strong rebound in 2010 with a growth rate of 5.3% and in 2011 of 4.1%, the global economy has been slowly recovering with growth rates of 3.1% in 2012 as well as in 2013, and 3.3% in 2014.

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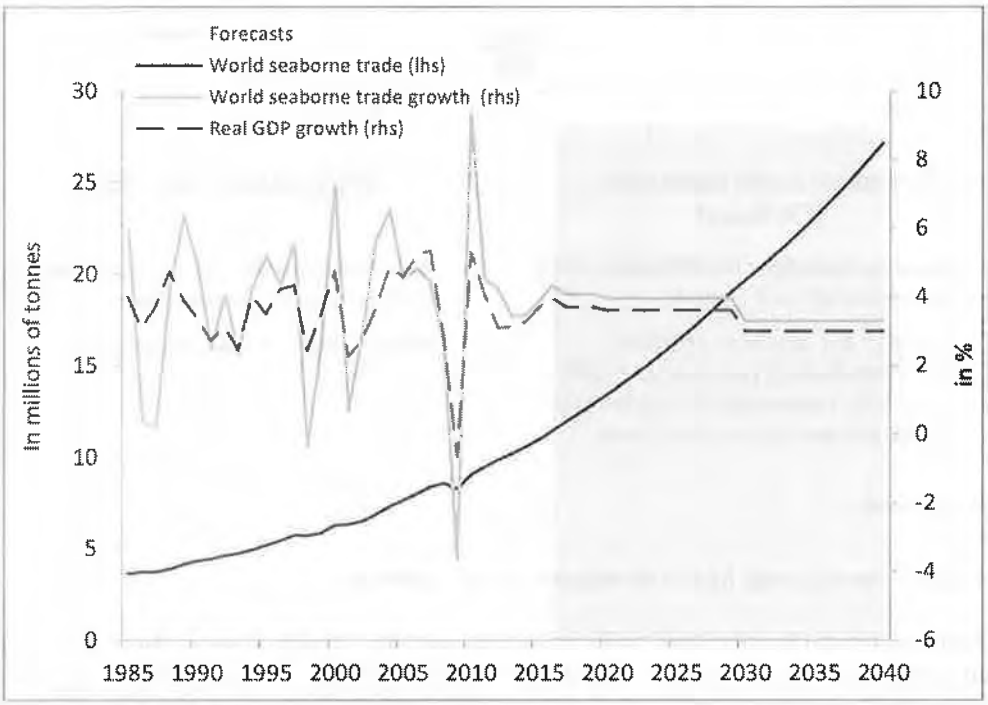
5 According to IEA (World Energy Outlook, 2014) TPES is equivalent to total primary energy consumption.

6 According to IEA (World Energy Outlook, 2014) TPES is equivalent to total primary energy consumption.

Global real GDP growth is expected to reach 3.7% in 2015 and 3.95% in 2016, according to the latest OECD Economic Outlook (2014b).

49. The correlation coefficient between growth in seaborne trade and real GDP growth rate is 1.1, meaning that a 1% increase in real GDP growth corresponds to a 1.1% growth rate in seaborne trade in the same year. Therefore, future growth in seaborne trade is expected to reach 4.3% in 2016, 4.1% per year on average for 2017–2019, 4.0% per year on average for 2020 –2029 and 3.3% for 2030 – 2040 (Figure 13).

Figure 13. World Seaborne Trade and GDP (1985 – 2040)



Source: Clarkson; IEA World Energy Outlook, 2014; OECD Economic Outlook, November 2014.

50. The growth rate of freight carried by tankers is expected to be 2.1%[7] in 2015, according to Clarkson (2015a), as low oil prices in the first months of 2015 could contribute to increasing crude oil trade, and energy demand in Asia is expected to remain strong. To estimate future tanker trade growth with the forecasts of GDP growth, the correlation coefficient of 0.77 observed in the past between these two variables is used. It means that a 1% increase in real GDP growth corresponds to a 0.77% increase in tanker trade growth. On that basis, tanker trade growth is expected to reach 3.0% in 2016, 2.8% per year for 2017 – 2019, 2.75% per year for 2020–2029 and 2.3% per year for 2030–2040.

51. The trade of goods carried by bulkers [8] is expected to grow by around 4.1% in 2015 against the backdrop of adverse market mechanisms. On the one hand, the Chinese economic slowdown especially regarding steel production (OECD, 2015b) and import restrictions on coal weigh on seaborne trade carried

[7] Growth is based on seaborne trade of crude oil and other oil products.

[8] Including trade in iron ore, coal (coking, steam), grain, bauxite/aluminium, phosphate rock, minor bulk, other dry.

by bulkers. Seaborne trade of coal represented 22% of total bulk trade in 2014. On the other hand, India's coal imports increased strongly in 2014 and this trend is expected to continue given the acceleration of Indian GDP growth rate to 6.4% in 2015 (OECD, 2014b). Moreover, iron ore trade which accounts for 25% of bulk cargo, grew by 12% in 2014 driven by a significant increase in iron ore production in Australia. Seaborne iron ore trade is expected to be supported by relatively low prices, at USD 60 per tonne, or even below in 2015 and 2016 (Australia's Bureau of Resources and Energy Economics, 2015).

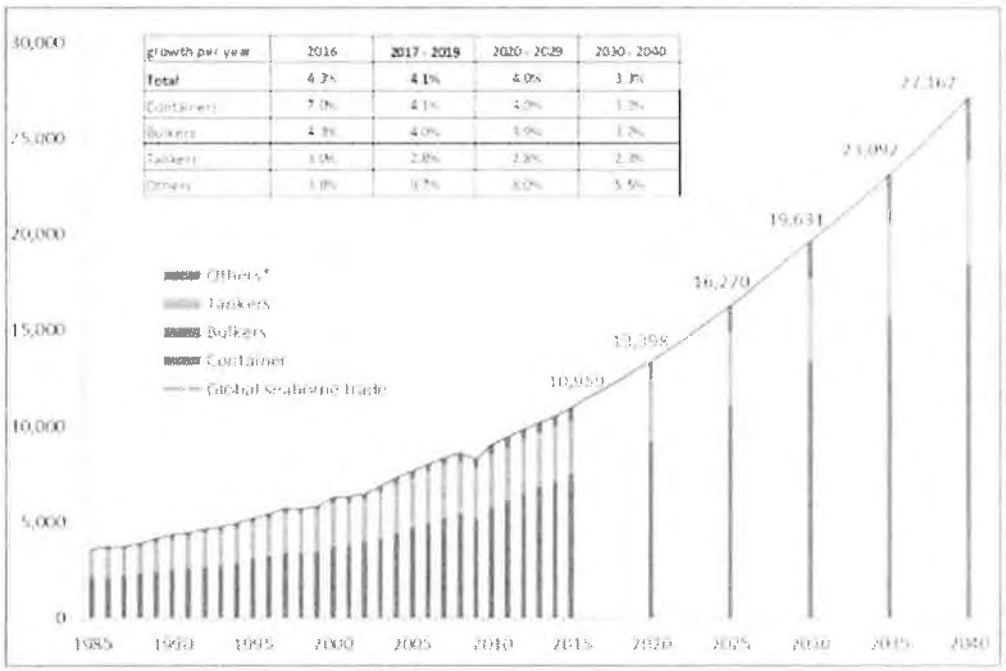
52. Goods carried by bulkers, such as coal, iron ore, aluminium and grains, are driven by real GDP growth. To estimate future bulker seaborne trade growth on the basis of the prospects for GDP growth, the correlation coefficient of 1.08 between these two variables is used. In this regard, a 1% increase in real GDP growth corresponds to a 1.08% increase in bulker trade growth and thereby reaching 4.25% in 2016, 4.0% per year for 2017 – 2019, 3.9% per year for 2020 –2029 and 3.23% per year for 2030 – 2040.

53. Global containerized trade growth rate is estimated to reach around 7% in 2015 and 2016 (Clarkson, 2015a). Prospects for container trade growth until 2040 are based on real GDP growth. Statistical results of a simple correlation between real GDP growth and growth in container trade results in a coefficient of 2.5 . However, we consider that containerized trade will have caught up trends in seaborne trade in 2017. Containerized trade makes up already around 90% of non-bulk trade and we expect future containerized trade to grow at the same pace than total seaborne trade after 2017. In this regard, a 1% increase in real GDP growth corresponds to a 1.1% increase in container trade growth. On that basis, future growth in container trade is expected to reach 4.1% per year for 2017 –2019, 4.0% per year for 2020–2029 and 3.3% per year for 2030–2040.

54. Total seaborne trade is expected to increase from 10,959 million tonnes in 2015 to 27,162 million tonnes until 2040, corresponding to a CAGR of 3.7% between 2015 and 2040 (Figure 14).

Figure 14. Seaborne trade projection (1985 – 2040)

In millions of tonnes



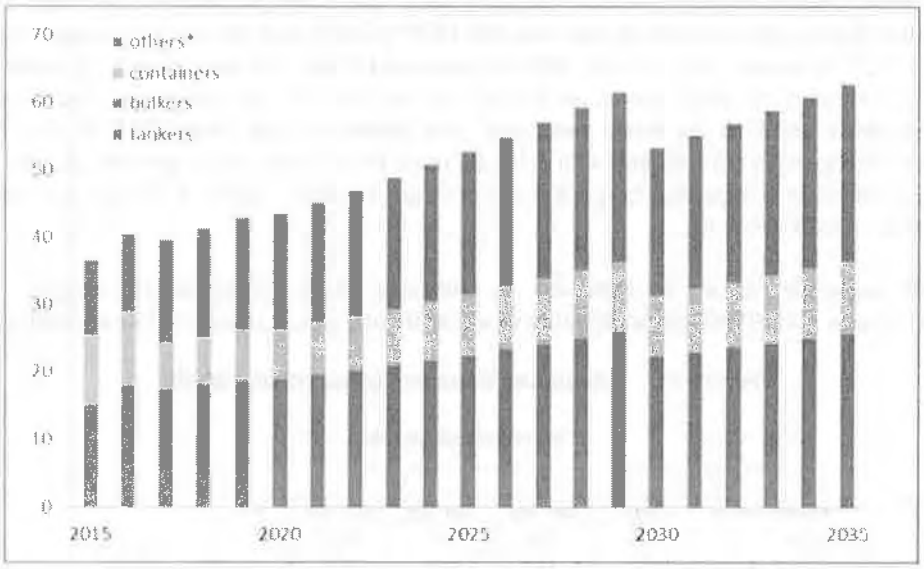
Note: *incl. LPG/LNG, chemical, general cargo, passenger/general cargo, refrigerated cargo, ro-ro cargo, passenger/ro-ro cargo, other dry cargo, passenger (cruise), passenger ship, fish catching, other fishing, offshore supply, other offshore, research, towing/pushing, dredging, other activities.

Source: Clarkson; IEA World Energy Outlook, 2014; OECD Economic Outlook, November 2014.

55. Converting seaborne trade expansion into newbuilding requirements shows that in 2015, newbuilding requirements for trade expansion are expected to increase from 37 million gt in 2015, to 63 million gt in 2035 (Figure 15). A decrease in vessel requirements is expected to occur between 2029 and 2030 because GDP growth rate is forecasted to decline from 3.6% per year between 2020 and 2029 to 3.0% per year between 2030 and 2040.

Figure 15. Forecast of newbuilding requirements linked to trade expansion (2015-2035)

In millions of gross tonnes



Note: *incl. LPG/LNG, chemical, general cargo, passenger/general cargo, refrigerated cargo, ro-ro cargo, passenger/ro-ro cargo, other dry cargo, passenger (cruise), passenger ship, fish catching, other fishing, offshore supply, other offshore, research, towing/pushing, dredging, other activities.

Source: Clarkson; IEA World Energy Outlook, 2014; OECD Economic Outlook, November 2014.

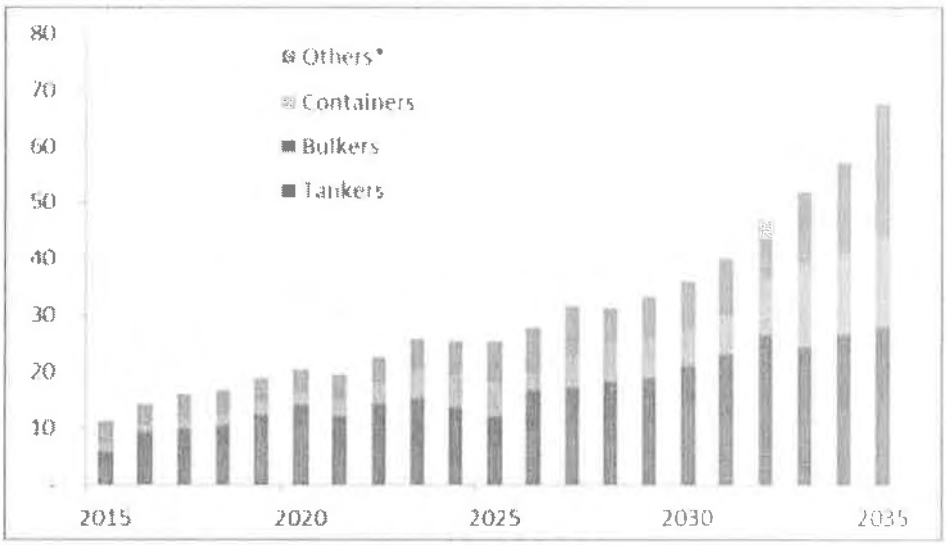
5.2 Future vessel requirements linked to fleet replacement

56. Past completions are used to predict future vessel requirements linked to disposals and losses. Average scrapping age for total vessels amounted to 28 years in 2014 and is expected to drop to 27 years in 2015 (Clarkson, 2015b). On that basis, for the period 2025 – 2035, we assume that all completions (in gt) in *time t-27* will be disposed in time *t*. The average scrapping is similar across the three studied ship type categories; therefore, we use for tankers, bulkers and containers an average scrapping age of 27 years for 2015 – 2035.

57. Figure 16 shows the forecasts of vessel requirements to replace scrapped and lost vessels. Total disposals and losses are expected to reach around 70 million gt in 2035. All three categories, containers, bulkers and tankers, account for roughly one third of total requirements linked to vessel replacements.

Figure 16. Forecast of vessel requirements linked to fleet replacement (2015-2035)

In millions of gross tonnes



Note: *including LPG/LNG, chemical, general cargo, passenger/general cargo, refrigerated cargo, ro-ro cargo, passenger/ro-ro cargo, other dry cargo, passenger (cruise), passenger ship, fish catching, other fishing, offshore supply, other offshore, research, towing/pushing, dredging, other activities.

Source: IHS World Fleet Statistics; OECD Secretariat.

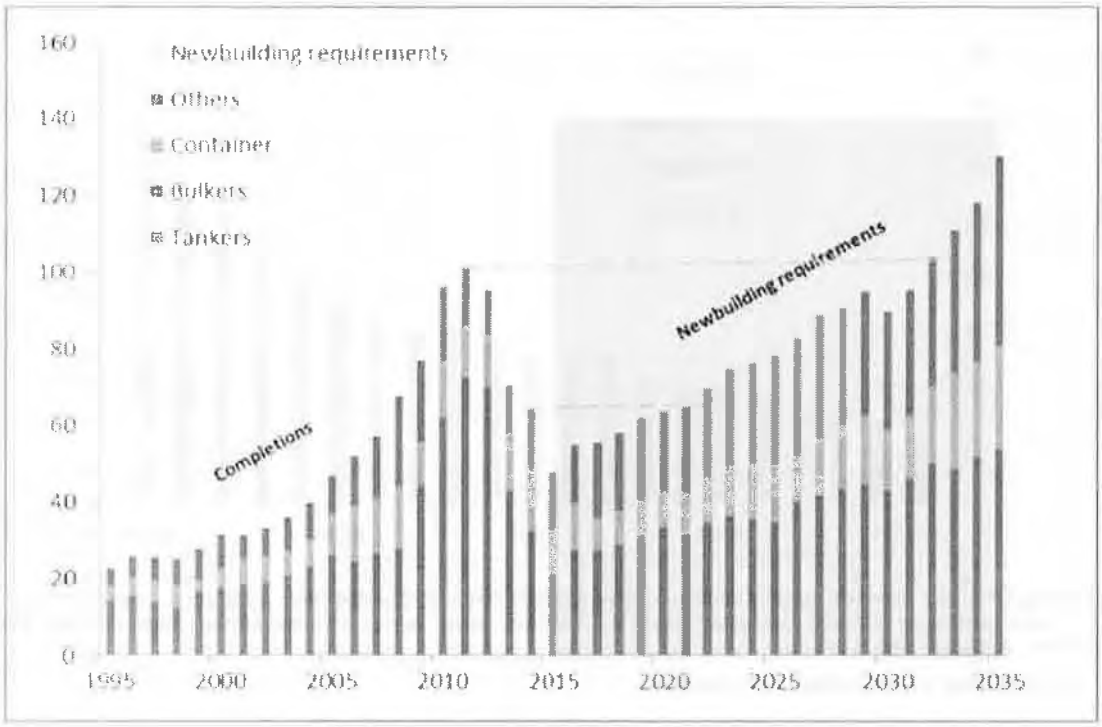
5.3 Total future vessel requirements

58. The simulation model indicates increasing vessel requirements linked to seaborne trade expansion as well as to fleet replacement. In 2014, vessel completions amounted to 64.6 million gt 23.1 million gt higher than vessel requirements. The estimations of future vessel requirements indicate that they are expected to reach the 2014 level of completions only after 2020.

59. It is difficult to predict future completions, as completions depend on market decisions that led to production levels outpacing demand for an extended period. If completions would stay at their levels in 2014, then the global shipbuilding market is expected to remain in a situation of oversupply at least until 2020. If completions recover to their pre-crisis peak of 2011, global overcapacity is expected to remain until 2030 (Figure 17). It should be recognized that our simulation of future vessel requirements cannot provide a precise level of the expected level of oversupply; however, it shows clearly that the shipbuilding market is expected to remain in a situation of oversupply for several years.

Figure 17. Past vessel completions (1995 – 2014) and future newbuilding requirements (2015 – 2035)

In millions of gross tonnes



Source: IHS World Fleet Statistics; Clarkson; OECD Secretariat.

6. Causes of the gap between vessel completions and requirements

60. Causes explaining oversupply in the shipbuilding industry may include the impact of past and current policies that could have market distorting effects and thereby fail to equalize global supply and demand, at least on the medium term. Further causes may also include speculative orders undertaken by some participants in the market.

6.1 Measures potentially distorting the balance between supply and demand

61. The WP6 has discussed on various occasions what kind of government support measures could distort the shipbuilding market. During the Shipbuilding Agreement negotiations between 2002 and 2005, some negotiators considered that all outside influence by governments is considered to be distorting for the market and some other negotiators rejected this judgment. During this discussion, it was proposed to classify a measure as distorting, if it was to be able to prove that this measure is accompanied by demonstrable adverse effects. Later on, there were discussions on the definition of an adverse effect and on the possibility to establish *ex ante* (before its implementation) or *ex post* whether a measure was market distorting. However, no consensus was reached.

62. The WP6 also discussed this issue at a special Session on Market Distorting Factors in June 2012. In a document prepared for this session on behalf of the WP6 (OECD, 2012) [C/WP6(2012)16]. Previous analyses by the WP6 have listed several market distorting practices from the government side, such as price supports and subsidies, and preferential government regulations (OECD, 2012a). Distorting actions in the supply side could include, for instance by artificially lowering the costs of factor inputs that

can be done by providing cheap finance, raw materials or lands for supported steelmakers or other types of subsidisation. On the demand side, these actions could include, for example the mandatory use of locally built ships or all kinds of supports for shipowners. Table 2 shows a segmentation of key government market distorting measures made by the consultant *Worldyards* for the WP6 in 2012. This segmentation should not be seen as comprehensive as other types of government interventions exist, such as state ownership.

Table 2. Key government market distorting measures

Supply Side		Demand Side	
Macro	**Micro**	**Macro**	**Micro**
(1) Exchange Rates	(1) Support for refundment guarantees	(1) Cabotage rules/flag requirements	(1) Export credit for individual owners
(2) Interest Rate (negative effective interest rate)	(2) Access to financing at low interest for shipbuilders	(2) Industrial Policy (National cargo/National shipping movements)	(2) Special accounting policies supporting owners to build ships at national shipyards
(3) Land	(3) Debt forgiveness for builders from financial institutions	(3) Direct ordering of ships by agents of the State in response to certain state objectives	(3) Increased demand national shipyards via "locally built" requirements for national mining or offshore exploration projects
(4) Other subsidized factor costs (water, electricity)	(4) Direct subsidies to individual builders	(4) The ownership structure (agency problem of state-owned entities), which leads to over-investing	

Source: Worldyards WP6 presentation, 2012.

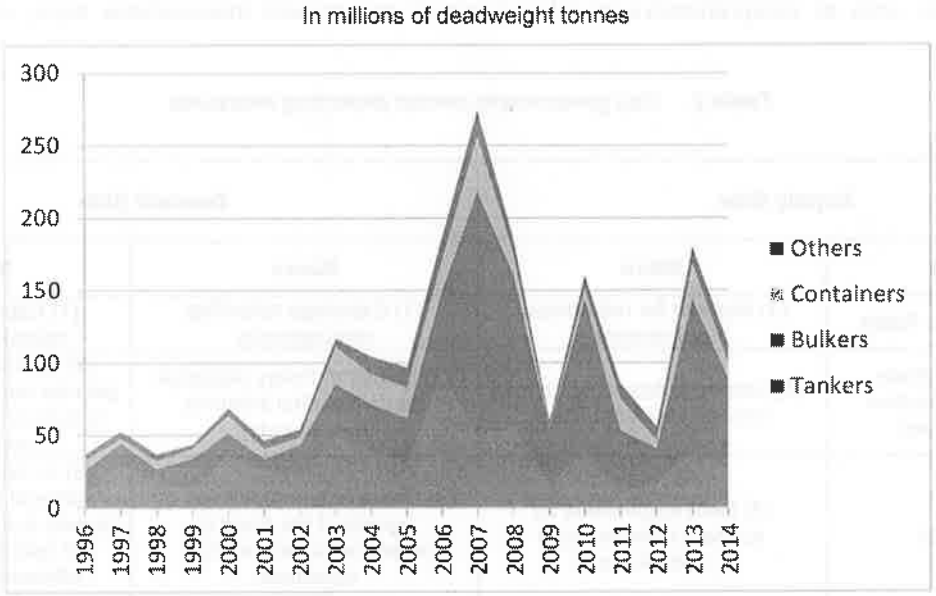
63. The WP6 Inventory of Subsidies and Other Support Measures (OECD, 2015c) covers numerous categories of support measures. The Secretariat listed some options to improve the inventory and one of them would be to assess to what extent a measure can be distortive (OECD, 2015c). In 2012, The Secretariat proposed to implement an "*early warning system, which could alert WP6 members of some potential problems, for example, through the introduction of support measures that are considered to have considerable risk of distorting the market*" (OECD, 2012a).

64. The contribution to oversupply could be a criteria used for the assessment of the distortive nature of a support measure. However, the assessment of the effect of a support measure on oversupply would require some research on an appropriate methodology and some research to find accurate facts and data to undertake such analysis.

6.2 Speculation

65. Shipping is a speculative industry as seen in the volatility in new orders (OECD, 2014c). New orders in the shipbuilding industry have been indeed very volatile (See Figure 18), especially after the Crisis despite softer market conditions. After reaching a peak of 275 million dwt, total ordering of new ships decreased to 60 million dwt in 2009, according to Clarkson. They then strongly rebounded to 161 million dwt in 2010.

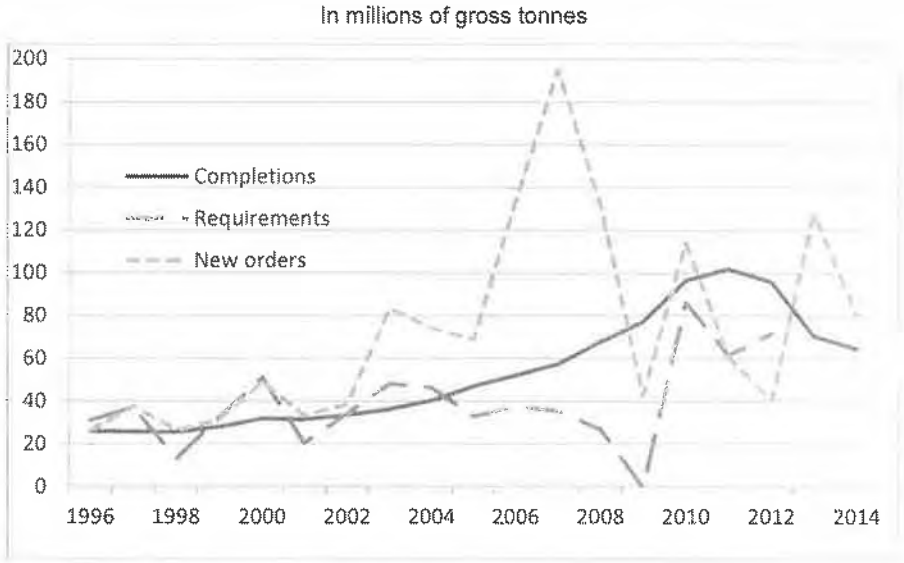
Figure 18. Global shipbuilding new orders



Source: Clarkson.

66. Figure 19, comparing new orders, vessel completions and vessel requirements, shows that new orders were matching relatively well vessel requirements in the period 1996-2002. After 2002, new orders have been overshooting vessel requirements for an extended period of 8 years (2003-2010). This excessive level of contracting could be attributable to uncertainty and imperfect information. New orders rebounded in 2013 and 2014 above their 2012 level and above the level of completions despite the absence of a significant improvement of expected demand. This implies that a share of 2013 and 2014 contracting has been undertaken on a speculative basis (OECD, 2014c).

Figure 19. Global shipbuilding new orders, completions and vessel requirements



Source: Clarkson.

67. Speculative orders are orders that are not only triggered by demand. Their increase in some markets has been driven by the development of financial markets (Chalmin, 2011). However, speculative orders to shipbuilding companies are difficult to identify due to their non-transparent nature, and could be linked to new forms of finance in the shipbuilding industry, notably the involvement of potentially shorter-term investors such as private equity funds. According to *Tufton Oceanic*, private equity funds' share in total ship finance amounted to 22% in 2014 with USD 278 billion invested (GIEK, 2014). Easier access to ship finance due to a high level of liquidity in global financial markets can also contribute to the generation of speculative orders.

7. Possible future work for improving the assessment of vessel requirements

68. The methodology used in this document for the assessment of past and future vessel requirements is very simple and could be considerably improved. In the previous sections, we presented a simple model for the assessment of vessel requirements. The current estimation of vessel requirements is based on the assumption that determinants (*i.e.* the partial correlation coefficient between real GDP growth and seaborne trade growth as well as the average disposal age) follow a linear function. Moreover, our current analysis excludes many potential driving factors.

69. Possible future work would aim to better understand vessel requirements linked to trade expansion and vessel replacements, as well as vessel completions using more sophisticated econometric models. These statistical approaches would include cyclical and structural factors that are likely to influence supply and demand over time. Having sound estimates of oversupply would help to understand in more depth the causes of oversupply and to implement accordingly appropriate policy measures.

A possible analysis on the reasons of excessive completions in the past

70. As shown in the section 4, completions have been outpacing vessel requirements for an extended period. It could be linked, at least partly, to excessively optimistic forecasts of future seaborne trade that have been used by shipbuilding market participants. One possible future analysis would be to statistically **estimate the impact of past historical predictions** of future seaborne trade on actual vessel completions

of the subsequent years. The results could provide more insights into factors driving production decisions. This analysis may also help to assess the share and the role of speculative orders in vessel completions.

A possible new model for vessel requirements linked to trade expansion

71. Seaborne trade expansion could be predicted on the basis of trade simulation models, such as the OECD METRO model from the Trade and Agriculture department (OECD/TAD, 2015) or a "gravity model" (Tinbergen, 1963). The **OECD METRO model** is a computable general equilibrium (CGE) model which allows modelling seaborne trade on the basis of the different factors impacting trade, such as commodity prices, production activity, household expenditures, government interventions (*e.g.* taxes, income, expenditure) or investment activity.

72. The "**gravity model**" is based on the idea that trade relationships and the sizes of trade flows between countries are not only explained by demand but also by several other factors, such as the distance of the trading economies, their respective GDP or population size. This idea is similar to Newton's theory of universal gravitation; such as two planets are attracted to each other in relation to their size and proximity so are countries in terms of their trade relationship (WTO and United Nations, 2012).

A possible new model for vessel disposals

73. Our current estimations for vessel replacement are based on a linear depreciation of 27 years based on one year's observations. Possible future work could include the development of a **survival function**, using the ship age by types and years. Vessel disposals could be derived from a survival analysis (Miller, 2011) which would allow assessing the probability of a vessel at a certain age to be disposed. It would allow including factors which potentially influence this age-conditioned scrapping ratio, such as technological changes possibly leading to vessel disposal in earlier ages, changes in regulations[9] or substitution functions between the different transport means.

[9] For instance, changes in environmental regulations may lead to earlier disposal decisions.

ANNEX 1: GAP BETWEEN COMPLETIONS AND REQUIREMENTS BY SHIPTYPES

1. Tankers

Since 2005, the tankers market has remained in a state of large oversupply, with a peak of the gap in 2009 when oversupply reached 23.2 million gt, corresponding to 108% of total tanker completions (See Table 3 and Figure 20). In total, between 2005 and 2013, the cumulated oversupply reached 83 million gt, representing 35% of the world tanker fleet that had an aggregated tonnage of 239 million gt in 2013 According to IHS *World Steel Statistics*. The tanker market has been severely hit by the economic crisis. Moreover, the strong increase of shale oil production in the United States that is consumed domestically contributed to a reduction of oil shipments to the US.

Table 3. Tankers*: Gap between vessel completions and requirements (1996 – 2013)

In millions of tonnes and gross tonnes

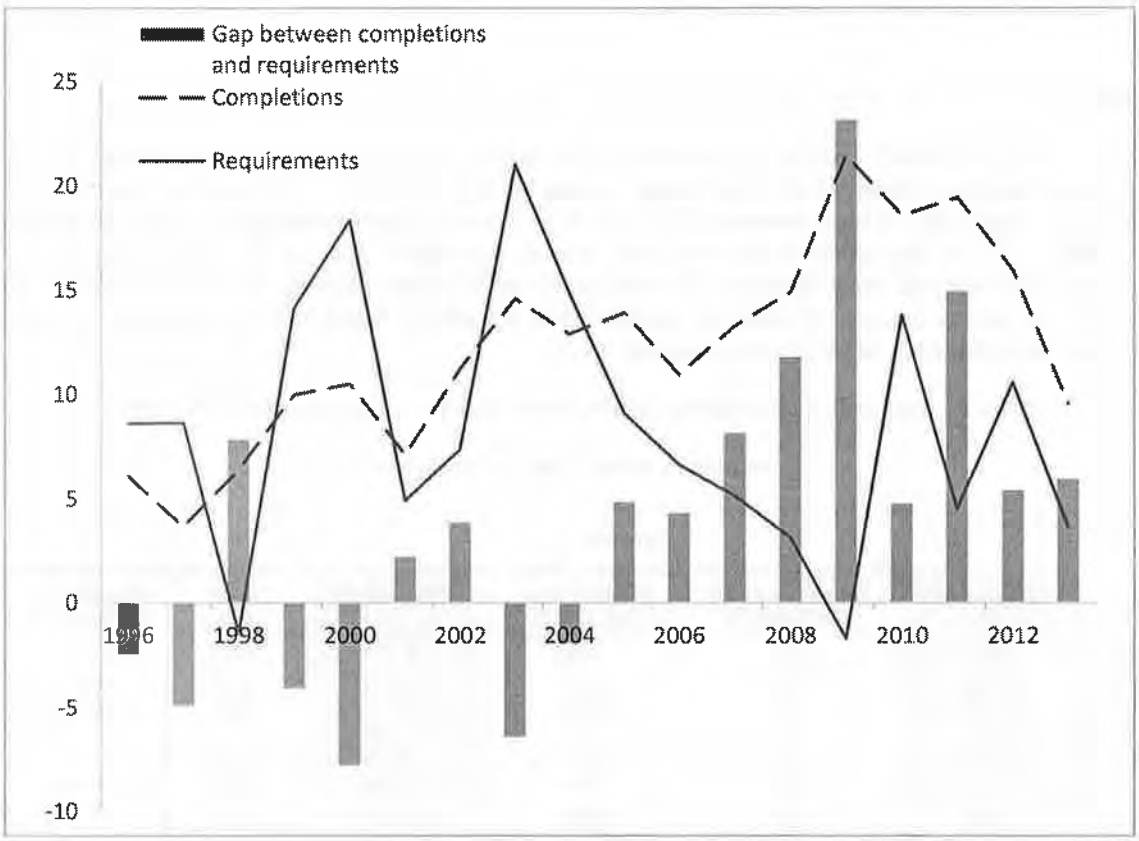
in mio GT	Tankers*					
year	**Completions (gt)**	**Seaborne trade expansion (t)**	**Replacement disposal (gt)**	**Requirements (gt)**	**Gap (gt)**	**Gap as % of completions**
1996	6.09	5.4	3.15	8.59	-2.51	-41.2%
1997	3.65	6.6	2.06	8.61	-4.96	-135.7%
1998	6.36	-4.1	2.64	-1.48	7.84	123.2%
1999	10.00	6.1	8.04	14.12	-4.12	-41.2%
2000	10.51	10.7	7.64	18.34	-7.82	-74.4%
2001	7.08	-2.2	7.05	4.88	2.20	31.1%
2002	11.19	-1.8	9.17	7.34	3.85	34.4%
2003	14.57	11.1	9.98	21.03	-6.46	-44.4%
2004	12.88	10.7	4.16	14.85	-1.97	-15.3%
2005	13.93	6.6	2.48	9.10	**4.84**	34.7%
2006	10.93	5.0	1.58	6.62	**4.30**	39.4%
2007	13.25	3.6	1.55	5.11	**8.14**	61.4%
2008	14.89	1.1	2.01	3.10	**11.79**	79.2%
2009	21.46	-5.5	3.77	-1.73	**23.19**	108.0%
2010	18.56	7.7	6.07	13.81	**4.75**	25.6%
2011	19.42	0.7	3.76	4.48	**14.94**	76.9%
2012	15.93	4.1	6.43	10.55	**5.39**	33.8%
2013	9.54	-2.2	5.83	3.59	**5.95**	62.4%
2014	6.20	-0.5				
2015		4.2				

* Data covers all vessels > 100 GT; *including crude oil tanker, oil products tanker, other liquids.

Source: OECD calculation on the basis of Clarkson Research (2015), IHS World Fleet Statistics.

Figure 20. Tankers*: Gap between vessel completions and requirements (1996 – 2013)

In millions of gross tonnes



* Data covers all vessels > 100 GT; *including crude oil tanker, oil products tanker, other liquids.

Source: OECD calculations on the basis of Clarkson Research (2015), IHS World Fleet Statistics.

2. Bulkers

Since 2004, the bulker market has been in a situation of massive oversupply. The gap reached a peak of 21 million gt in 2009, 93% of total bulker completion. In total, between 2004 and 2013, the cumulated oversupply reached 113 million gt, representing 29% of the world bulker fleet that had an aggregated tonnage of 388 million gt in 2013 according to IHS *World Steel Statistics* (See Table 4 and Figure 21).

Table 4. Bulkers: Gap between vessel completions and requirements (1996 – 2013) In millions of tonnes and gross tonnes

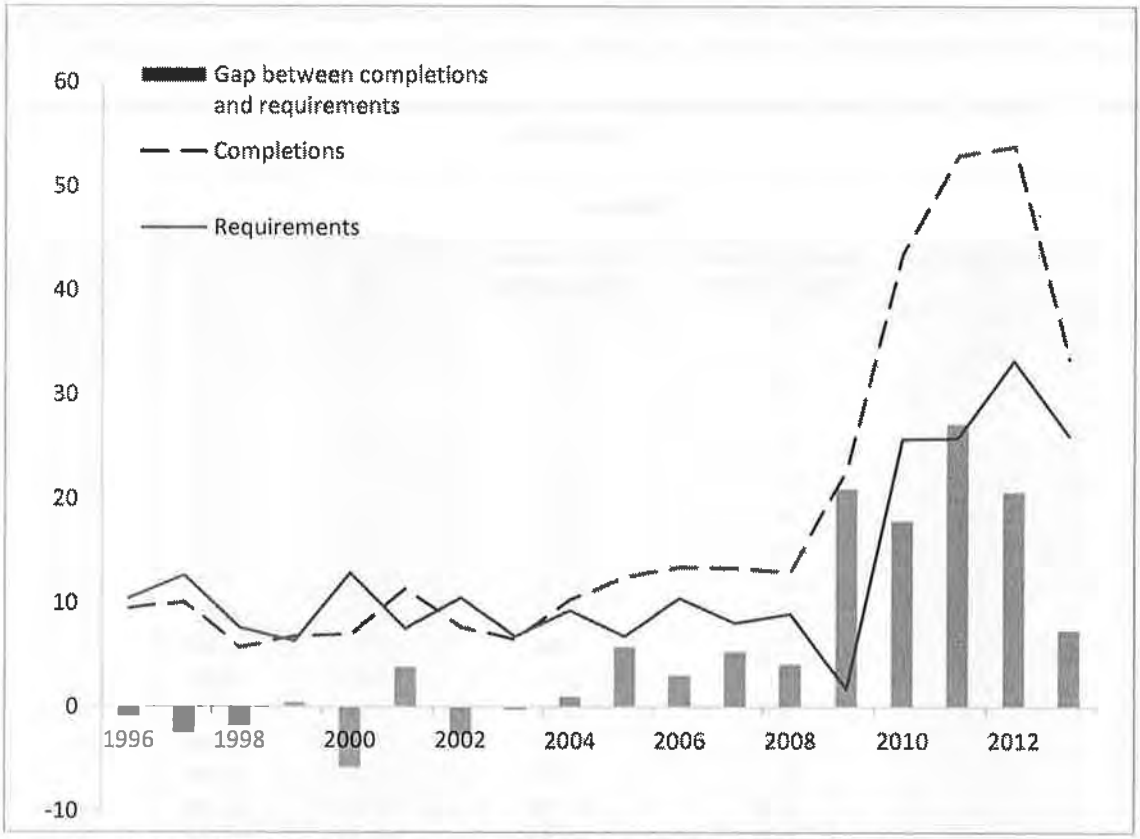
In mio GT	**Bulkers****					
year	**Completions (gt)**	**Seaborne trade expansion (t)**	**Replacement disposal (gt)**	**Requirements (gt)**	**Gap**	*Gap (% of completions)*
1996	9.44	4.6	5.77	10.40	-0.96	-10.2%
1997	10.10	7.7	4.92	12.61	-2.51	-24.8%
1998	5.78	0.0	7.58	7.60	-1.82	-31.5%
1999	6.78	-0.6	6.94	6.30	0.49	7.2%
2000	6.96	9.3	3.48	12.83	-5.87	-84.3%
2001	11.30	2.3	5.15	7.49	3.82	33.8%
2002	7.73	6.1	4.35	10.45	-2.73	-35.3%
2003	6.47	4.0	2.77	6.76	-0.29	-4.6%
2004	10.26	8.5	0.73	9.25	**1.01**	9.9%
2005	12.54	6.2	0.51	6.75	**5.78**	46.1%
2006	13.47	8.8	1.64	10.41	**3.05**	22.7%
2007	13.38	7.5	0.50	8.04	**5.33**	39.9%
2008	13.01	6.5	2.42	8.91	**4.11**	31.6%
2009	22.69	-5.5	7.19	1.71	**20.99**	92.5%
2010	43.55	21.9	3.76	25.67	**17.86**	41.0%
2011	53.00	11.8	13.99	25.78	**27.22**	51.4%
2012	53.89	13.9	19.36	33.23	**20.66**	38.3%
2013	33.41	13.4	12.62	26.02	**7.39**	22.1%
2014	26.20	11.8				
2015		11.0				

Data covers all vessels > 100 GT; including bulk dry, bulk dry/oil, self-discharging bulk dry, other bulk dry.

Source: OECD calculations on the basis of Clarkson Research (2015), IHS World Fleet Statistics.

Figure 21. Bulkers: Gap between vessel completions and requirements (1996 – 2013)

In millions of gross tonnes



Data covers all vessels > 100 GT; including bulk dry, bulk dry/oil, self-discharging bulk dry, other bulk dry.

Source: OECD calculation on the basis of Clarkson Research (2015), IHS World Fleet Statistics.

3. Containers

Between 2005 and 2013, the container market experienced, each year except in 2010, a severe period of oversupply reaching a peak of 18.3 million gt in 2009 and corresponding to a gap of 159% of total container completions. In total, between 2005 and 2013, the cumulated oversupply reached 48 million gt, representing 26% of the world container fleet that had an aggregated tonnage of 188 million gt in 2013 (See Table 5 and Figure 22).

Table 5. Container: Gap between vessel completions and requirements (1996 – 2013)

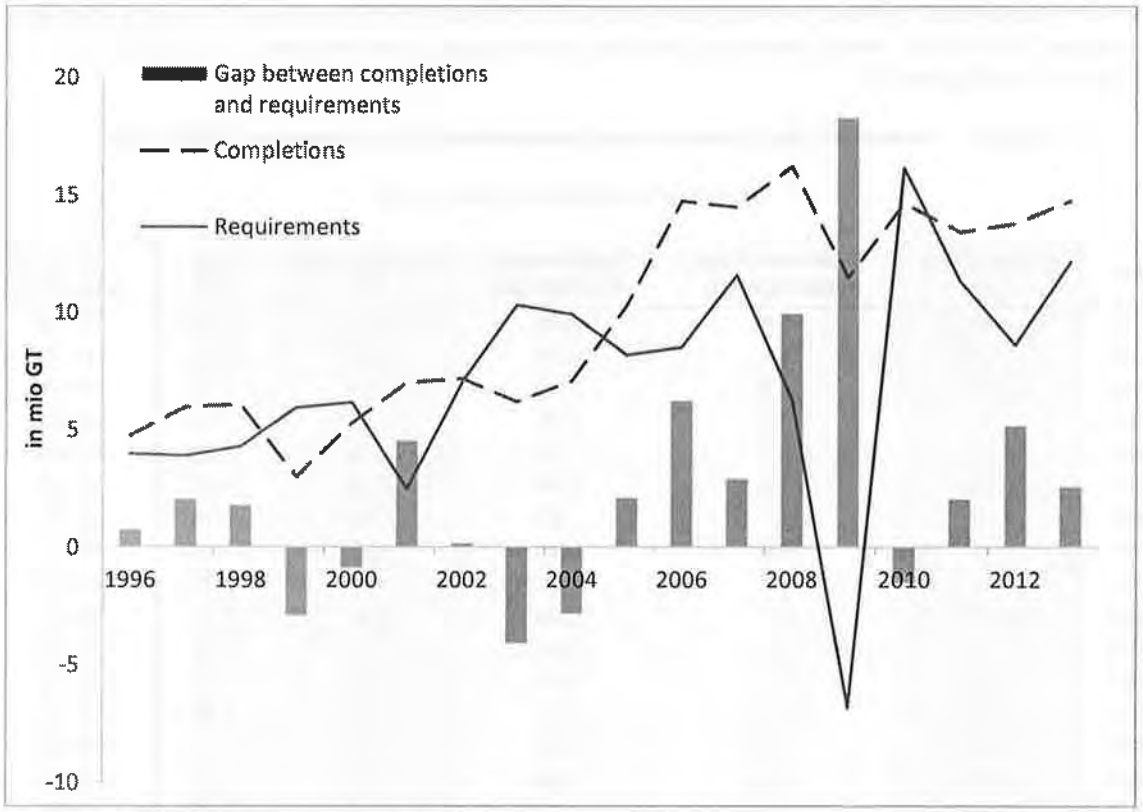
In millions of tonnes and gross tonnes

year	Completions (gt)	Seaborne trade expansion (t)	Replacement disposal (gt)	Requirements (gt)	Gap (gt)	*Gap (% of completions)*
1996	4.72	3.6	0.36	3.97	0.75	*15.9%*
1997	5.94	3.4	0.48	3.88	2.05	*34.6%*
1998	6.06	2.9	1.35	4.28	1.78	*29.4%*
1999	2.99	4.9	0.98	5.92	-2.94	*-98.4%*
2000	5.27	5.8	0.31	6.16	-0.89	*-16.9%*
2001	6.98	1.9	0.54	2.45	4.52	*64.8%*
2002	7.17	5.7	1.28	7.01	0.16	*2.3%*
2003	6.19	9.8	0.48	10.30	-4.10	*-66.3%*
2004	7.07	9.8	0.10	9.91	-2.84	*-40.2%*
2005	10.28	8.1	0.03	8.17	**2.11**	*20.5%*
2006	14.75	8.0	0.46	8.50	**6.25**	*42.4%*
2007	14.50	11.2	0.41	11.58	**2.92**	*20.1%*
2008	16.23	5.0	1.27	6.27	**9.96**	*61.4%*
2009	11.48	-12.4	5.53	-6.82	**18.30**	***159.4%***
2010	14.65	14.1	2.06	16.17	-1.52	*-10.4%*
2011	13.39	10.3	1.08	11.34	**2.05**	*15.3%*
2012	13.77	4.4	4.17	8.59	**5.17**	*37.6%*
2013	14.75	6.9	5.24	12.16	**2.59**	*17.5%*
2014	16.41	8.8				
2015		10.3				

Source: OECD calculations on the basis of Clarkson Research (2015), IHS World Fleet Statistics.

Figure 22. Containers: Gap between vessel completions and requirements (1996 – 2013)

In millions of gross tonnes



Source: OECD calculations on the basis of Clarkson Research (2015), IHS World Fleet Statistics.

ANNEX 2: SELECTED VARIABLES CORRELATED WITH SEABORNE TRADE

As Table 6 shows, several variables are highly correlated with seaborne trade, notably, economic activity measured by GDP growth (with real GDP growth, 0.895; GDP Purchasing Power Parity, 0.99), energy consumption measured by total primary energy supply in tonne of oil equivalent (TPES, 0.99; TPES growth, 0.916), population (POP_PROJ, 0.98), and other factors, such as oil price (North Sea Oil price, 0.96; North Sea Oil price growth, 0.76) and freight rates proxied by Baltic Dry Index (BDI growth, 0.61).

GDP PPP is correlated with population (0.995), TPES with GDP PPP (0.995) as well as with population (0.99), North Sea Oil prices shows a correlation with GDP PPP (0.95) as well as with population (0.93) and TPES (0.94), growth in freight rates (BDI) shows a medium-strong correlation with real GDP growth (0.56) and TPES growth (0.68). As these explanatory variables are highly correlated they linearly estimate each other, therefore an issue of multi-collinearity arises. Using these explanatory variables to estimate seaborne trade growth in a regression model would lead to biased coefficients. Furthermore, using several explanatory variables which contain the same information about the dependent variable would make them redundant as they do not add further value to the model.

Table 6. Correlation Table

	seaborne_tonnes	seaborne_miles	growth-tonnes	growth_miles	GDPPPP	realGDP_growth	POP_PROJ	POP_PR_growth	TPES	TPES_growth	NorthSeaoil	NorthSeaoil_growth	BDI	BDI_growth
seaborne_tonnes	1													
seaborne_miles	0.9891	1												
growth-tonnes	0.0456	0.0626	1											
growth_miles	0.1298	0.1491	0.9798	1										
GDPPPP	0.9948	0.9914	-0.0317	0.0528	1									
realGDP_growth	0.0451	0.0596	0.8954	0.8558	-0.0373	1								
POP_PROJ	0.9865	0.9817	-0.0599	0.0293	0.9951	-0.0871	1							
POP_PR_growth	-0.9723	-0.9675	0.0281	-0.0613	-0.9719	0.0596	-0.9856	1						
TPES	0.9971	0.9943	0.0368	0.1237	0.995	0.0358	0.991	-0.9767	1					
TPES_growth	0.0126	0.0208	0.9182	0.9178	-0.052	0.7954	-0.0535	-0.0022	0.028	1				
NorthSeaoil	0.9651	0.9876	0.0231	0.1013	0.9563	0.0484	0.9317	-0.901	0.949	-0.084	1			
NorthSeaoil_growth	-0.0175	-0.0026	0.7685	0.7424	-0.0876	0.7513	-0.1331	0.1412	-0.03	0.579	0.089	1		
BDI	0.1515	0.1366	0.123	0.1284	0.1322	0.2842	0.0922	-0.0681	0.162	0.195	0.21	0.3585	1	
BDI_growth	-0.243	-0.2432	0.6165	0.5883	-0.2834	0.5684	-0.3084	0.2983	-0.24	0.687	-0.28	0.4554	0.52	1

Source: OECD Secretariat.

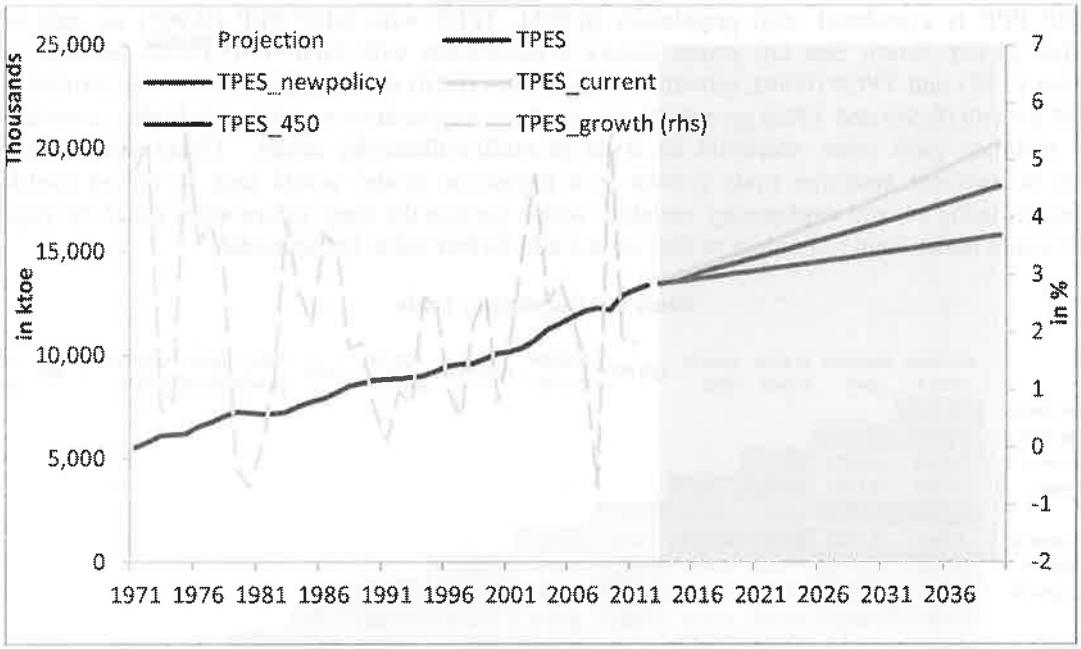
According to IEA (IEA, 2014) TPES is equivalent to total primary energy consumption. In this regards, this study uses TPES as a proxy for global energy consumption. TPES represents inland demand and it includes international marine and aviation bunkers for world energy demand. In this regards, world TPES is defined as production + imports – exports ± stock changes.[10]

10 http://wds.iea.org/WDS/tableviewer/document.aspx?FileId=1496

Between 2000 and 2012, global TPES has increased from around 10.1 million ktoe to 13.4 million ktoe which corresponds to a CAGR of 2.4%. TPES growth has been positive over the years, except for 2009 with a negative growth rate of -0.7%. In the subsequent years, growth reached around 5.7% in 2010 and dropped to roughly 1.85% in 2011 and 1.84 in 2012 (Figure 23).

IEA (IEA, 2014) predicts future TPES growth on the basis of three scenarios until 2040 (Figure 23), notably energy supply under current policies with a CAGR of 1.5%, under a new policy approach with a CAGR of 1.1% and under the "450 scenario", that assumes to reach the 2 degree goal, with a CAGR of 0.6% (IEA, 2014). In 2040, TPES is expected to reach about 20.3 million ktoe under the current policy scenario, around 18.1 million ktoe under the new policy scenario and approximately 15.8 million ktoe under the 450 scenario.

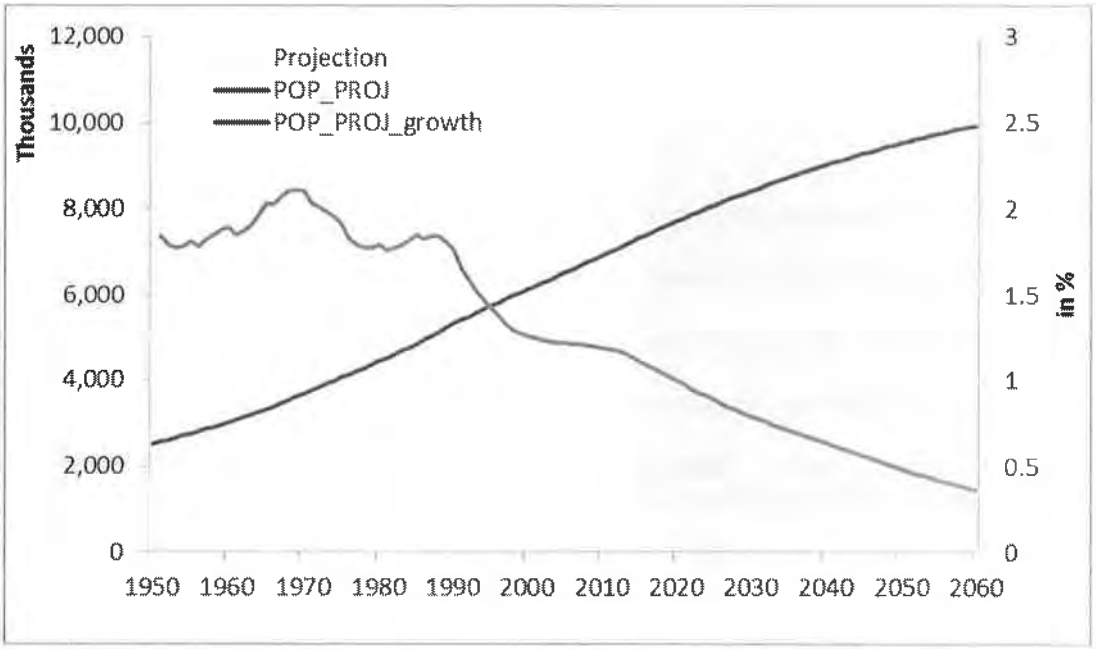
Figure 23. Total Primary Energy Supply (1971 – 2040)



Source: International Energy Agency, World Energy Outlook (2014).

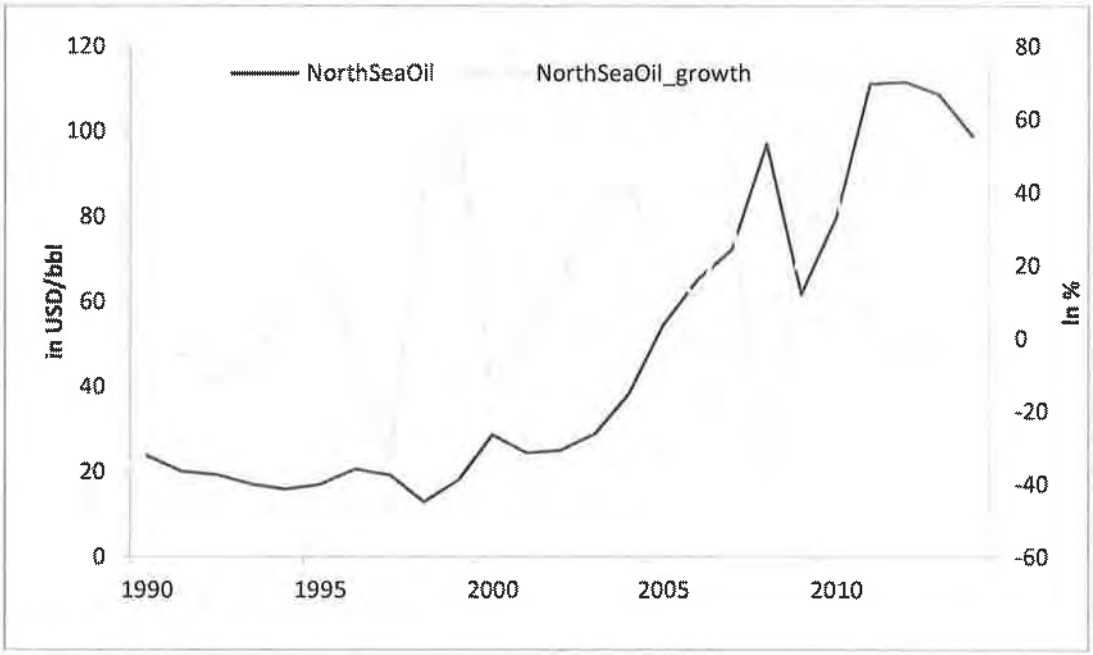
Global population has steadily grown but with a decreasing growth rate. From 1950 to 2014, global population increased from 2.5 billion to 7.2 billion and it is expected to grow further to around 7.7 billion in 2020, 8.4 billion in 2030, 9 billion in 2040 and reaching 9.95 billion in 2060 (Figure 24).

Figure 24. Population and population growth (1950 – 2050)



Source: OECD Historical Population Data and Projections (2015).

Figure 25. North Sea Oil price (1990 – 2014)



Source: OECD.Stat.

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C/WP6(2015)5

SHIPBUILDING
AND
THE OFFSHORE INDUSTRY

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Organisation de Coopération et de Développement Économiques
Organisation for Economic Co-operation and Development

26-May-2015

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COUNCIL
WORKING PARTY ON SHIPBUILDING

SHIPBUILDING AND THE OFFSHORE INDUSTRY

OECD Headquarters, Paris, 11-12 June 2015

On 24 November 2014, the OECD Council Working Party on Shipbuilding (WP6) hosted a workshop on shipbuilding and the offshore industry. This document summarizes the key points discussed during this workshop and updates some of the analyses included in the report by Douglas-Westwood on offshore vessels, mobile offshore drilling units and floating production, as well as in the presentations made by other speakers.

This document has been developed under Output area 1.2.3.3 of the WP6 PWB for 2015-16. It contributes to Project 1.2.3.3.4 on Demand and supply in the shipbuilding industry.

Action Required: For discussion and comment. The intention is to seek approval for the declassification of the report subject to any final corrections.

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SHIPBUILDING AND THE OFFSHORE INDUSTRY

Introduction

1. The offshore sector is an increasingly important market segment for the shipbuilding industry. On 24 November 2014, the OECD Council Working Party on Shipbuilding (WP6) hosted a workshop on shipbuilding and the offshore industry.[1] It was attended by representatives of OECD and Partner governments, industry associations, shipbuilding and marine equipment firms, industry experts and trade union representatives. The WP6 was particularly interested in understanding the scope and limitations for shipyards reorientation towards the offshore market and the lessons learnt from recent diversification strategies.

2. This document summarizes the key points discussed during this workshop and updates some of the analyses included in the report by Douglas-Westwood on offshore vessel, mobile offshore drilling unit and floating production[2] as well as in the presentations made by other speakers, notably in the context of a lower oil price than in November 2014. This document also proposes some issues for discussion in areas that were not extensively discussed during the workshop, in particular on government policies that have an impact on the offshore sector and may introduce distortions in the shipbuilding market.

3. The first section of this document deals with the current situation and trends in the offshore energy market. Oil and gas supply is the major driver for demand of offshore vessels and structures. When the workshop took place, oil price was already far below its summer 2014 level. Since the oil price continued to decrease after November 2014 the following analysis of the energy market has been updated accordingly. The oil price decreased by 60% between June 2014 and January 2015, and then rebounded to reach USD 66 per barrel in May 2015, but was still 43% below its June 2014 level. This section also includes some elements on other market segments, notably offshore renewables, floating power plants and floating infrastructure such as floating desalination plants.

4. The second section deals with current and expected demand for offshore vessels and structures for the global fleet as well as by market segment. The third section is about the activity of the shipbuilding sector linked to the offshore market. The fourth section deals with the main policy issues related to shipbuilding and the offshore industry, notably local content requirements and export credits. Finally, the last section lists some of the main shipbuilding industry challenges to successfully enter and perform in the offshore market.

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1 Presentations delivered at the 24 November 2014 WP6 workshop on shipbuilding and the offshore industry can be found at the following Internet address: http://www.oecd.org/sti/ind/workshoponshipbuildingandtheoffshoreindustry.htm.

2 The declassified report by Douglas-Westwood Ltd. on offshore vessel, mobile offshore drilling unit & floating production unit market review can be found at the following Internet address: http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=c/wp6%282014%2913/final&doclanguage=en.

Issues for discussion

- How shipyards involved in the offshore market should adapt to the expected 10-15% reduction of future investment in oil and gas (especially for investment in exploration)?
- What are the prospect for new offshore markets, notably offshore renewables and floating plants?
- What will be the effects of cost pressure by their clients on the shipbuilding companies involved in the offshore market?
- What has worked (and not worked) regarding the reorientation of shipyards into the offshore market? What are the appropriate strategies for large and small companies?
- What is the role of government financing notably in the context of low interest rates? What role is played by export credits and R&D support for the offshore activities?
- What are the causes of market distortions in the offshore industry and what are their effects?
- What are the impacts of speculative orders on the offshore market?
- What are the burdens of local content requirements? In particular, to what extent do local content requirements restrict access to the offshore market?

1. Current situation and trends in offshore energy

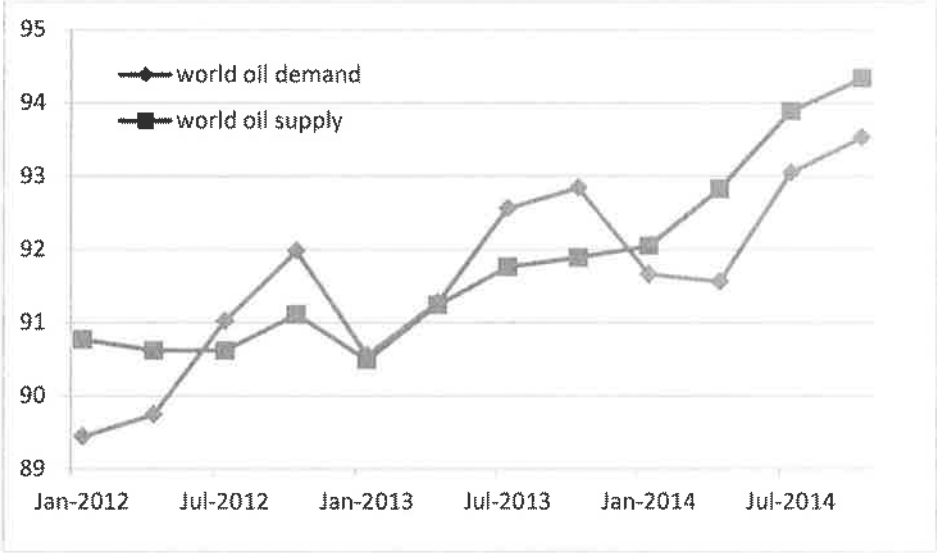
a) Oil & gas demand and supply

5. The macro-economic environment plays a key role in energy demand and as a consequence in offshore oil and gas exploration as well as exploitation activities, that are in turn the main markets for offshore vessels and structures. In particular, the oil price is a major driver for the demand of offshore vessels because of the relationship between oil prices, exploration, number of profitable fields and the need for offshore vessels.

6. According to the International Energy Agency (IEA), world oil demand amounted to 92.4 million barrels per day in 2014, corresponding to an increase by 0.7% as compared to 2013 (See Figure 1) and thereby representing the smallest annual increase in the last five years. World oil supply amounted to 93.3 million barrels per day in 2014. In the same year, world oil supply increased by 2.1% which has been mainly driven by the increase of production in countries not part of the *Organization of the Petroleum Exporting Countries (OPEC)*, notably the United States where oil supply amounted to more than 9 million barrels per day. Moreover, OPEC production was above its 30 million barrels per day agreed level of supply in 2014. In total, the oil market has been in a situation of excess supply since early 2014.

Figure 1. Oil supply demand balance

In millions of barrels per day



Source: International Energy Agency

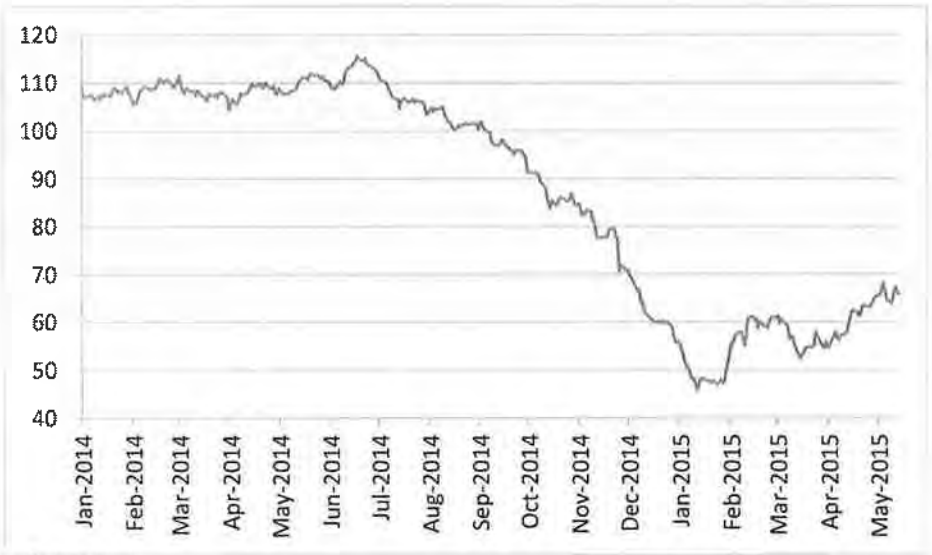
7. The crude oil Brent price, which is commonly used as a benchmark for the global crude oil price, strongly increased from USD 23 per barrel in January 2003 to USD 143 per barrel in July 2008 (See Figure 2). As a consequence of the financial crisis of 2008, the oil price dropped to around USD 40 per barrel, but strongly recovered after the "great recession" and remained relatively stable in a range from USD 100 to 120 per barrel from early 2011 to mid-2014. Because of increasing supply and slowing demand in oil markets, the crude oil Brent price decreased strongly by 60% from USD 115 per barrel in June 2014 to USD 46 per barrel in January 2015. Shortly after, the oil price slightly rebounded to USD 66 per barrel in May 2015. Short-term forecast for oil prices are relatively uncertain, however, some oil company representatives expect "*a period of relatively weak oil price*" given the resilience of US shale oil production[3].

[3] Comments by Rex Tillerson, Chief Executive of ExxonMobil, the world's largest listed energy company quoted in *Exxon CEO says oil prices will stay low*, Financial Times, 4 March 2015

Figure 2. Crude oil Brent price

In USD per barrel – 2000 - 2015

In USD per barrel – January 2014 - May 2015

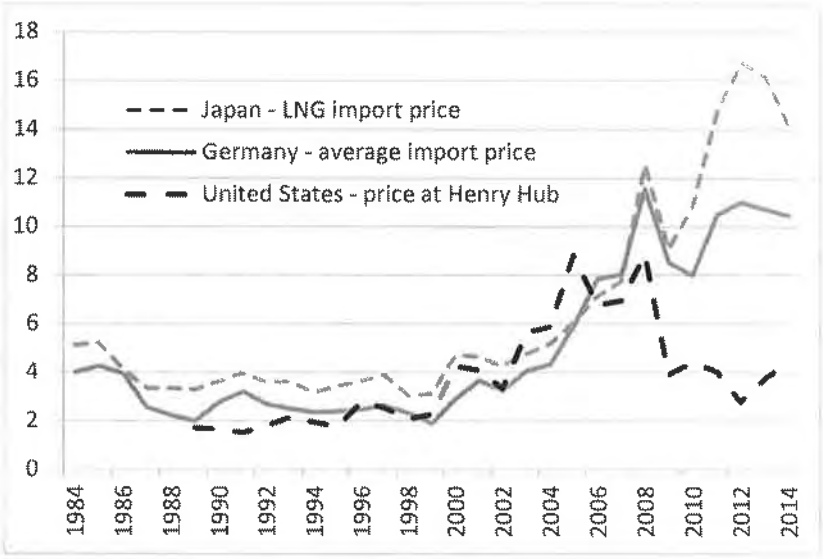


Source: Datastream.

8. Gas prices are substantially more regionally differentiated than oil prices. Moreover, the recent sharp increase in shale gas production in the United States has contributed to widen the gaps between the price in North America and the price in Europe and Asia, respectively (see Figure 3). Indeed, the price gap between the Liquid Natural Gas imported in Japan and the gas price in the United States widened from USD 0.4 per MBTU in 2006 to USD 9.7 per MBTU in 2014. The price gap between the gas imported in Germany and the gas price in the United States increased from USD 1.1 per MBTU in 2006 to USD 6.1 per MBTU in 2014.

Figure 3. Natural gas prices in Japan, Germany and the United States

In USD per million British Thermal Unit (MBTU)



Source: BP Statistical Review of World Energy.

b) Oil and gas offshore exploration and production

9. Twenty percent of oil reserves and 45% of gas reserves are located offshore. Most of the recent large discoveries have been offshore, especially deep to ultra-deep offshore natural gas reserves. According to the French Petroleum Association (IFP EN), the most promising zones for offshore oil and gas discoveries are Brazil and West Africa continental margin (« subsalt »), East Africa, especially in Mozambique and in Tanzania. There are also many other opportunities in the Mexican Gulf, Mediterranean region, Australia and the Arctic region.

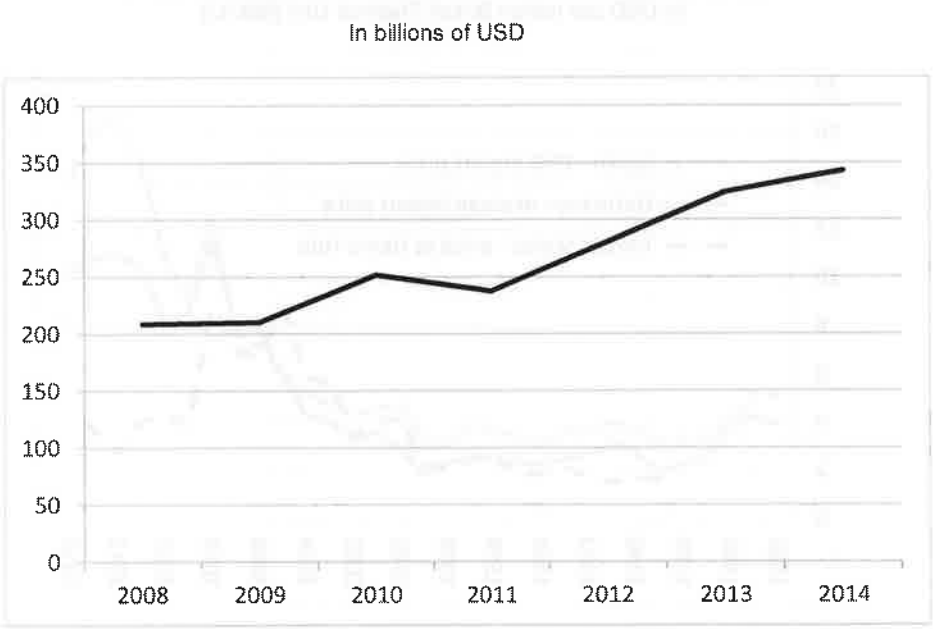
10. Offshore oil production amounted to 21.5 million barrels per day in 2014, representing about one quarter of world oil production. Offshore gas production amounted to 90 billion cubic feet per day (BCFD) in 2014 corresponding to approximately one quarter of world gas production. Offshore oil and gas production has been on a downward trend since 2010 driven by the decline of production in Europe, Middle East, Africa and North America.

Recent developments

11. According to figures from Douglas-Westwood, spending for offshore exploration and production amounted to USD 343 billion in 2014, an increase by 6% as compared to the previous year (See Figure 4). Regarding gas exploration and exploitation, high gas prices in Asia has enabled highly capital intensive Australian export projects in recent years.[4] However, the potential to ship cheap liquefied natural gas from the United States may lead to the cancellation of some high cost export projects in other countries.

[4] According to the Australian Petroleum Production & Exploration Association (APPEA), Australia has four operating LNG developments and six more under construction. Other projects are also being considered. http://www.appea.com.au/oil-gas-explained/operation/australian-lng-projects/.

Figure 4. Offshore oil exploration and production spending



Source: Douglas-Westwood.

Offshore oil and gas supply prospects

12. Offshore vessels are purchased and used by oil majors and para-petroleum companies. Oil majors are expected to stabilize or even slightly decline their investments in response to lower oil prices. For instance, ExxonMobil, Chevron, British Petroleum, Royal Dutch Shell announced large cuts in capital spending for 2015; these reductions are in the range of 10 to 20%.[5] Para-petroleum companies also suffered from the recent oil price decrease. Schlumberger, for instance, in early 2015 announced 20 000 job cuts (15% of its employees) in response to the oil price drop.[6] At the same time the company indicated a sharp decrease of oil exploration activities notably offshore.

13. However, in the medium term, fossil fuels are expected to continue dominating the energy supply. Therefore, offshore would be the main beneficiary of the ongoing demand for fossil fuels in terms of capital expenditures. In the International Energy Agency (IEA) New Policies Scenario, offshore is expected to account for more than 30% of the global oil production by 2030, corresponding to an increase by five percentage points from its current level. In this scenario, the increase in the share of offshore oil would be driven by the expected 50% growth of deep water production in the next 15 years. By contrast, shallow water field production is expected to decrease in the coming years.

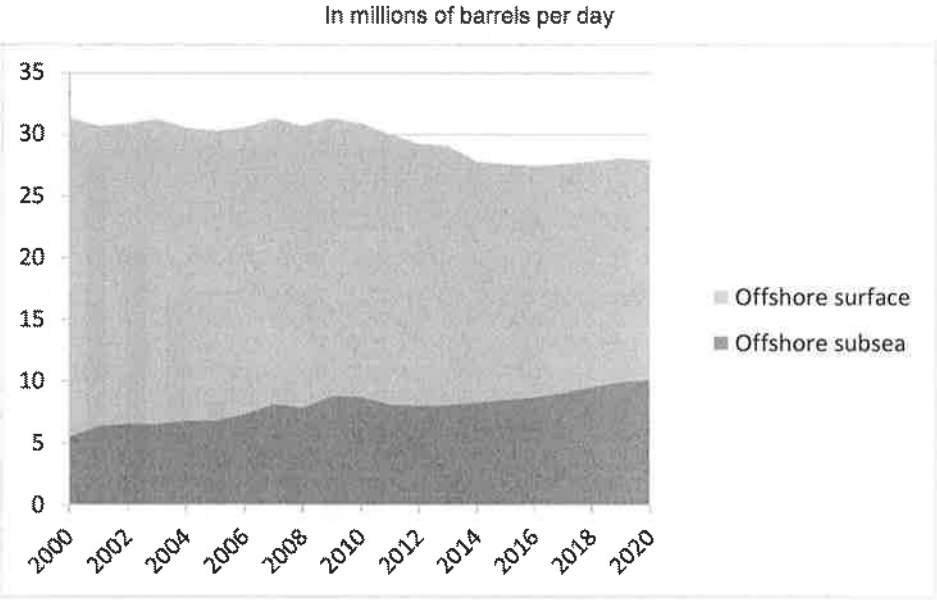
14. Douglas-Westwood expects offshore subsea production to grow significantly with its share in total oil production increasing from 8% in 2014 to 10% in 2020. Despite project delays, Douglas-Westwood expects deep water spending to reach USD 210 billion from 2015 to 2019, meaning a 69%

5 Source: *Exxon CEO says oil prices will stay low*, Financial Times, 4 March 2015.

6 Source: Schlumberger, *First-Quarter 2015 Results*, 16 April 2015.

increase over the preceding five-year period[7]. Deepwater spending would be driven by large capital expenditures in major areas of oil resources, such as in Africa, Latin America and North America.

Figure 5. Offshore crude oil production



Sources: Douglas-Westwood.

15. Regarding offshore natural gas production, strong growth is expected both in shallow and deep waters, driven notably by the development of East African natural gas basins. Latin America will, however, remain the largest market and North America would experience the slowest growth. In total, oil and gas offshore production is expected to grow 1.2% per year on average in the next 15 years.

c) Offshore renewables

16. According to Mr. Sam Anson, Head of the Marine Analytical Unit of the Scottish Government, offshore wind accounts for the largest proportion of offshore renewable energy supply and is driven by both political and economic factors. Political drivers include various global, regional and national measures aiming to reduce greenhouse gas emissions.

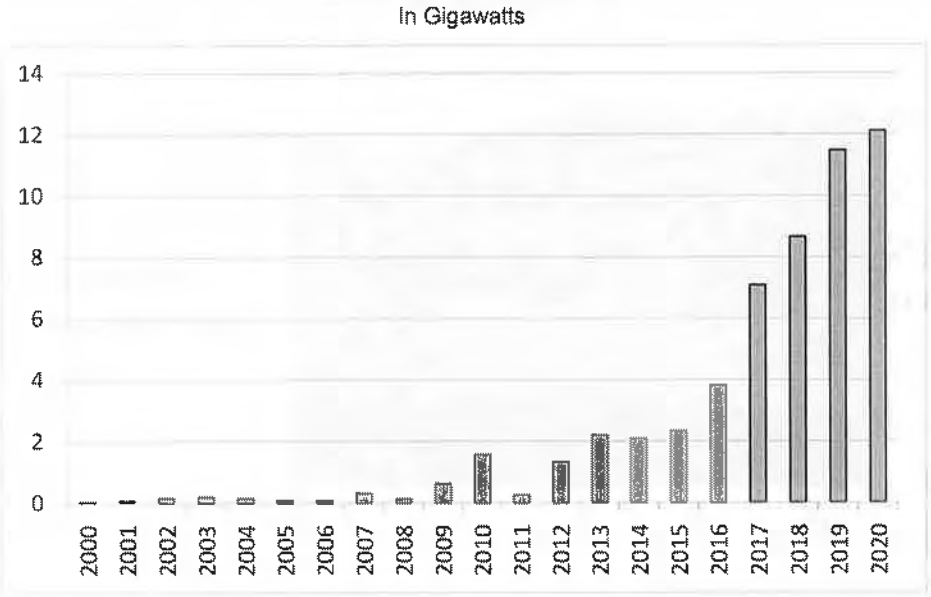
17. The offshore renewables market is reliant on government subsidies due to the high capital cost involved. However, Mr. Anson noted during his presentation at the 24 November 2014 WP6 workshop that offshore wind energy becomes more and more cost-effective as installed capacity increases and turbines become larger and more powerful.

18. Moreover, Mr. Anson noted that due to greater and more regular wind speeds and fewer aesthetic externalities, there is good potential for offshore wind resource located in deep water. As a consequence, floating foundations are likely to represent the long-term future for the offshore wind industry. According to Douglas-Westwood, average offshore wind installations are expected to increase from 2 Gigawatt (GW) in 2014 to 12 GW in 2020 (Figure 6). However, grid connection, logistics, large investment requirements

[7] Source: *World Deepwater Market Forecast 2015-2019*, Douglas-Westwood, April 2015.

with high technological and construction risks and financing costs remain challenging issues for the wind energy industry.

Figure 6. Prospects for offshore wind installation



Source: Douglas-Westwood.

d) New offshore markets

Floating desalination plants

19. According to Mr. Toshifumi Kokubun, Partner in the Global Management Institute of Deloitte, the global desalination market is already significant thanks to its sharp expansion in the last 15 years notably in North America and Middle East. He expects water shortage to be a driver for the global desalination market that would reach more than USD 14 billion in 2018.

20. However, the desalination industry is facing challenging issues including delays linked to environmental assessments, uncertain climate conditions during construction, and more general country risk. Mr. Kokubun indicated in his presentation that floating desalination plants will address these issues, since they can be relocated upon request and minimize the destruction of costal ecosystems. Floating desalination plants have been used for instance in Saudi Arabia, Cyprus and Thailand. Mr. Kokubun expects the floating desalination plant market to reach between USD 1.5 billion and USD 4 billion per year until 2025.

Floating power plant and other floating structures

21. As Liquid Natural Gas (LNG) electric power plants located in coastal areas run the risk of being damaged by tsunamis, Mr. Kokubun mentioned that floating LNG plants could be a good alternative from a risk management perspective. Mr. Kokubun also indicated that Japan has started a new energy strategy utilizing hydrogen technologies in order to diversify energy sources and reduce CO_2 emissions. He expects that production facilities for hydrogen to be located near offshore gas fields and to generate new markets

for marine industries. He also mentioned the synergies between floating LNG plants and desalination plants as the former can work as an electric power source for floating desalination plants.

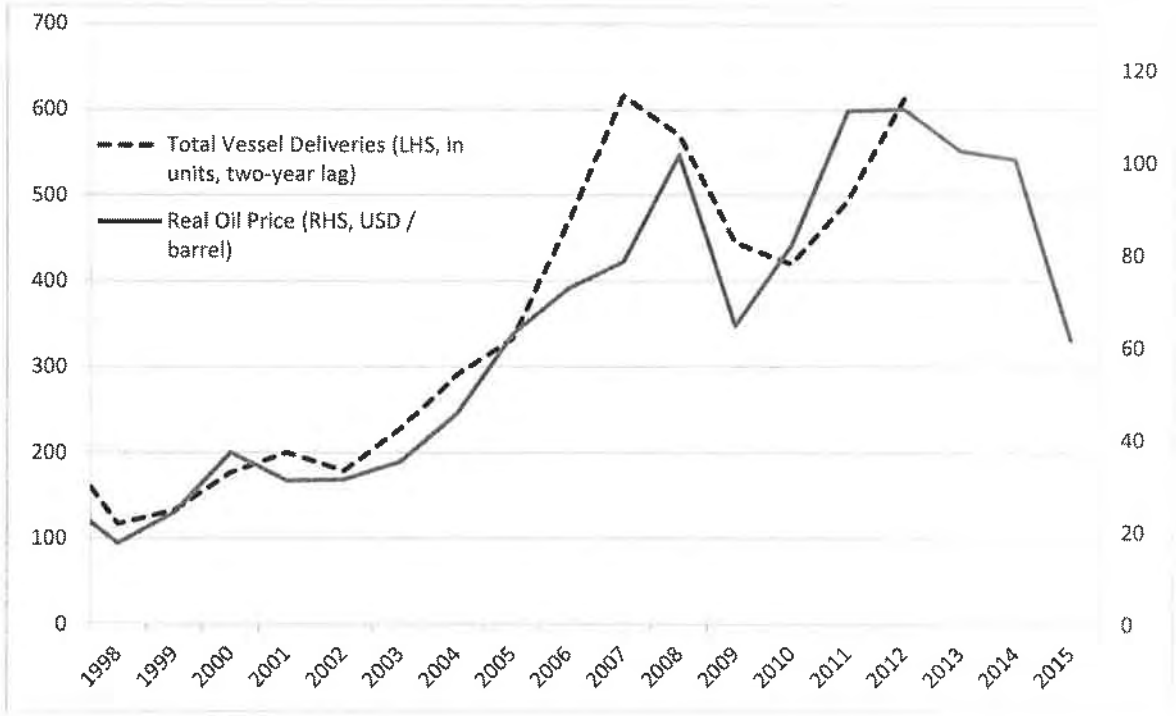
2. Demand for offshore vessels and structures market outlook

a) Total offshore vessel demand prospects

22. According to Douglas-Westwood, the last decade has seen high offshore vessel and building activity, driven by rising oil prices and a need for fleet replacement. The total offshore vessel deliveries more than tripled from 179 in 2004 to 616 in 2009. The great recession and lower oil prices led to a decrease of offshore vessel deliveries to 420 units in 2012. But the stabilization of the oil price around USD 110 per barrel between 2011 and mid-2014 led to a rebound of offshore vessel deliveries to 616 units in 2014.

23. Figure 7 below shows the high level of correlation between offshore vessel deliveries with a two-year lag and the oil price. If this correlation persists over the coming years, we can expect a decrease of offshore vessel deliveries in 2015 by at least 10%, and further decreases in 2016 and 2017. Nevertheless, over the medium-term, Douglas-Westwood is relatively confident on the offshore vessel market and expects demand for all offshore vessel types to increase by 3.7% per year on average between 2014 and 2025 driven by growing offshore oil and gas supply in the coming years notably in deep offshore fields.

Figure 7. Offshore vessel deliveries (in units, with a two-year lag) and oil price (in USD per barrel)



Source: Douglas-Westwood.

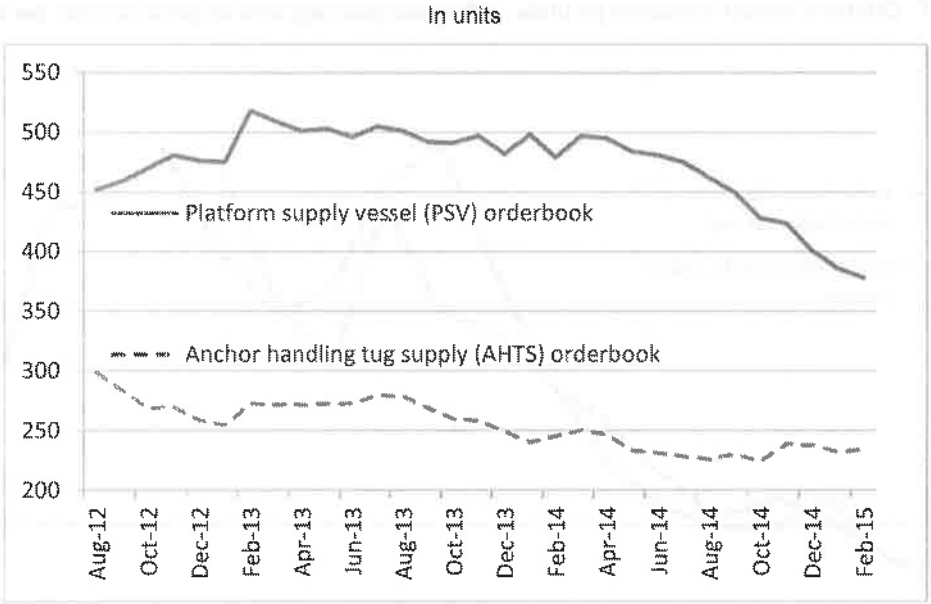
b) Offshore vessel demand by market segment

Recent developments and short-term prospects

24. Because of the recent fall in oil prices, drilling rig utilization decreased from 95% in late 2013 to 87% in March 2015 according to Clarkson.[8] Due to the non-renewal of many contracts, the drilling rig utilization is expected to decrease even further. As a consequence, the rates for offshore vessels that are frequently rented on a daily basis are expected to continue decreasing.

25. Moreover, according to Clarkson, the market for offshore support vessel markets is suffering from overcapacity due to the recent increase in the construction of small vessels in Asia and very large vessels for the North Sea and Brazilian markets. The large orderbook for platform support vessels (PSVs) that has been driven by speculative orders and represents around 40% of the fleet may lead to cancellations. As a consequence, Clarkson expects a slowdown of the offshore fleet growth to 4% in 2015 as shown by the decreasing trends of the orderbook for platform support vessels and anchor handling tug supply (AHTS) vessels (See Figure 8). However, supply of offshore support vessels would still grow faster than demand.

Figure 8. Recent developments of the orderbook for platform support vessels (PSV) and anchor handling tug supply (AHTS) vessels



Source: Clarkson

Medium to long-term forecasts

26. According to Douglas-Westwood, robust growth forecasts for both the offshore support vessel (OSV) and mobile offshore drilling Unit (MODU) market is expected over the next decade, supported by increasing offshore drilling activities. This growth is largely attributed to the increased activity in Latin America, Africa and Asia.

[8] Source: Clarkson Research services, *Shipping Review & Outlook*, Spring 2015.

27. Douglas-Westwood also expects growth in the floating production unit market given the increase in offshore production activity. Besides Subsea, Umbilicals, Risers, Flowlines (SURF) vessels, the requirement for construction vessels will be driven by replacement demand. The vessel market for wind energy construction is expected to grow rapidly with continued government subsidies. The expectations by Douglas-Westwood of market demand for offshore vessels by market segment are detailed in Box 1 below.

Box 1. Detailed offshore vessel demand medium to long-term forecasts by market segment (2014-2025)

- **Offshore support vessel (OSV)**. The anchor handling tug supply (AHTS) market is driven by a combination of large assets supporting deep water drilling and smaller multi-purpose service vessels. The *Platform supply vessel* (PSV) market is expected to see the strongest growth out of all offshore support vessel types as a result of increased demand for floating production systems and drillships. The Emergency Response and Rescue Vessel (ERRV) market is less subjected to industry cyclicality given the greater exposure to longer term life of field contracts and a relatively consolidated supply chain.

- **Mobile Offshore Drilling Unit (MODU)**. Significant growth is expected in the shallow water jackup drilling market before stabilization between 2020 and 2025. Demand for drillships is expected to see robust growth, driven by the deepwater triangle – West Africa, Latin America and North America.

- **Floating production unit (FPU)**. The floating production, storage and offloading (FPSO) market is project-driven. Asian yards are expected to continue supplying floating storage and offloading (FSO)s.

- **Construction vessel demand**. The increasing volume of subsea installations and of Inspection, Repair & Maintenance (IRM) activities is expected to drive demand for subsea vessels particularly from Latin America and Africa. Subsea, Umbilicals, Risers, Flowlines (SURF) vessels are expected to benefit from the increasing volume of subsea installations, particularly in Africa and Latin America. Increasing water depth and size of wind turbines is expected to drive higher requirements for larger cranes and deeper operational capabilities.

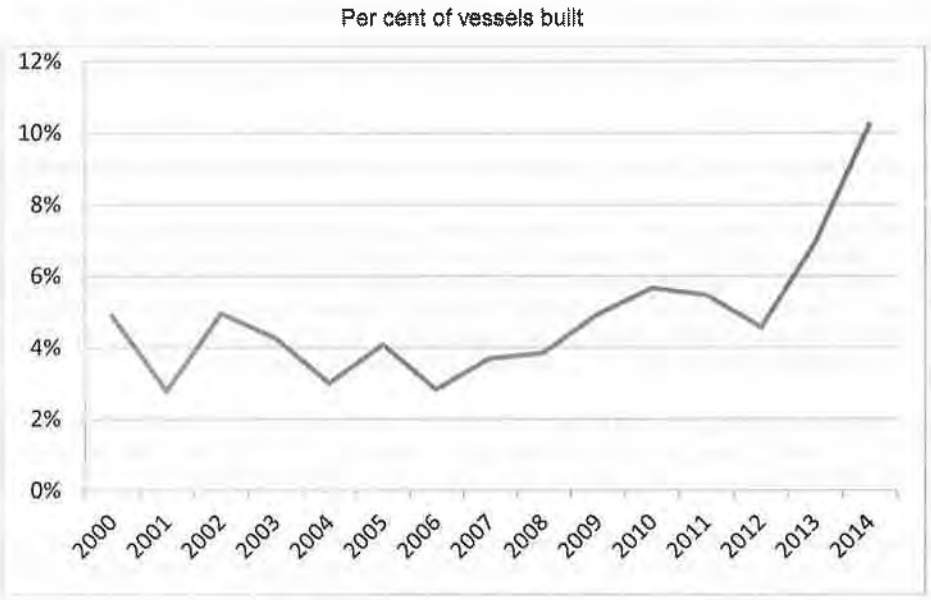
Source : Douglas-Westwood

3. Shipbuilding activity linked to the offshore sector

a) Yard capability to build offshore vessels

28. According to Douglas-Westwood, offshore vessels accounted for around 10% of the total number of vessels completed in 2014, increasing strongly from its share of 4.5% in 2012 (See Figure 9). The growing share of offshore vessels in the global shipbuilding activity can be explained simultaneously by the weakness of the cargo ship market and the massive orders for offshore vessels in the last three years driven by high oil prices. In terms of investment by vessel types, the offshore segment represented in 2012 more than half of investments in vessels and not less than 20% of total investment each year between 2008 and 2014 (Clarkson database).

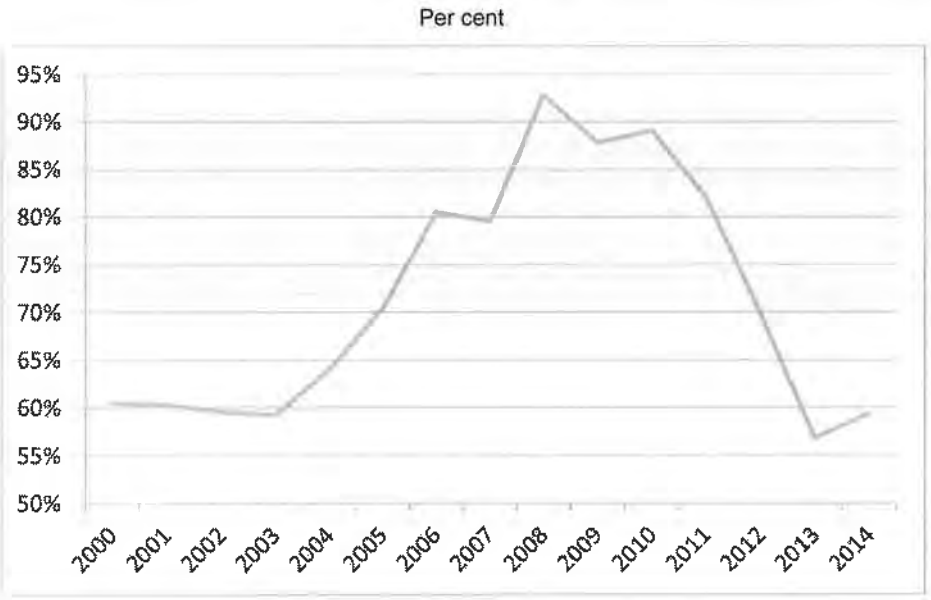
Figure 9. Share of offshore in total (marine + offshore) vessel completions



Source: Douglas-Westwood.

29. According to IHS Fairplay, the offshore segment represented in previous years a significant share of global new orders. In value, Korea accounted for 42% of the global offshore orderbook as of January 2014, followed by Brazil (21%), China (16%) and the European Union (11%). Despite stronger activity in the offshore market, the shipbuilding capacity utilisation ratio remained below 60% in 2013 and 2014 (See Figure 10), showing that growing offshore activity didn't significantly help to resolve the excess capacity situation in the shipbuilding industry.

Figure 10. Capacity utilization ratio in the shipbuilding industry



Source: Douglas-Westwood.

30. According to calculations by Douglas-Westwood, which are based on the maximum tonnage of each yard, 34% of OECD yards are able to construct production units such as floating production, storage and offloading (FPSO) and 48% are able to produce drill ships. By contrast, 96% of yards are able to produce smaller and less complicated vessels such as offshore support vessels. However, not all yards have the engineering, procurement and construction capabilities to produce offshore ships.

b) Competitiveness factors

31. Despite some similarities regarding raw materials and equipment used, the reorientation of shipyards into the offshore sector involves various risks, which are notably linked to customization requirements, complicated construction processes, strict safety regulations, and stringent environmental standards. Involvement in the offshore segment also involves close cooperation with designers and equipment manufacturers. Moreover, high levels of investment are needed in the short term, and the playing field is not always levelled when taking into account potential public support measures.

32. Mr. Raimon Strunck, Vice-President Sales, Flensburger Schiffbau-Gesellschaft (FSG) highlighted in his presentation on the offshore sector the challenges and opportunities for European high-tech shipyards. Series in the offshore segment are small which implies essential structural change. For FSG, contract volume for offshore vessels are around twice the average contract for other vessels and amount to about EUR 100 to 150 million per vessel on average, involving higher financial risks for each contract.

33. Moreover, offshore means more design and production flexibility, new planning processes, high level of coordination, less internal added value by ship but higher project volume. Offshore projects involve complex after-sales support service and sophisticated project financing, improved planning and design engineering processes, and method planning supported by simulation. For a successful transformation process to enter the offshore market, shipyards need both highly skilled experts who are difficult to find in the job market, as well as continuous investment in R&D.

4. Policies issues related to shipbuilding and the offshore industry

34. Several types of policies have a big impact on the shipbuilding sector in the context of its offshore activity. This section presents some elements regarding local content requirements and export credits.

a) Local Content requirements

35. Local content requirements are applied in various regions, increasing costs and uncertainty of offshore projects. Douglas-Westwood described local content requirements in selected regions, as depicted in Box 2.

Box 2. Local content requirements by region

- **North Sea** – in this region, local content requirements are not imposed, although there has been an added emphasis on environmental and safety issues.
- **North America** – Several regulations govern offshore vessels that can be operated within the US: US Coast Guard (USCG), Mineral Management Service (MMS), Jones Act.
- **Africa** - The shipbuilding industry in Africa is currently going through major changes in the field of local content requirement policies with a focus on production units. South Africa implemented Revised Preferential Procurement Policy Framework Act (PPPFA) regulations for Shipbuilding.
- **Latin America** – Brazil has introduced several local content requirements in an attempt to strengthen the local industry. While local content policies are in place, the local industry struggles to meet Petrobras' ambitious Exploration & Production plans.
- **Middle East** – There is no explicit regulations regarding the construction of offshore vessels.
- **Asia** - There are no explicit construction local content requirements governing Asian countries, however, local content policies on vessel contracting exists. Indonesia requires all drilling vessels to be Indonesian-flagged. Malaysia through the Petroleum Development Act and Petroleum regulations require supplies and service providers to have a valid license produced by Petronas (National oil company of Malaysia).

Source : Douglas-Westwood

36. Local content requirements distort trade by forcing companies to purchase local inputs even if alternative foreign supply would be less costly. Regarding the specific case of the offshore vessel sector, they increase the constraints on the value chains that are already very complicated in the offshore industry. In addition to that, they may also inhibit innovation by reducing artificially competition. Some economic studies[9] have tried to measure quantitatively the impact of local content requirements.

b) Export credits

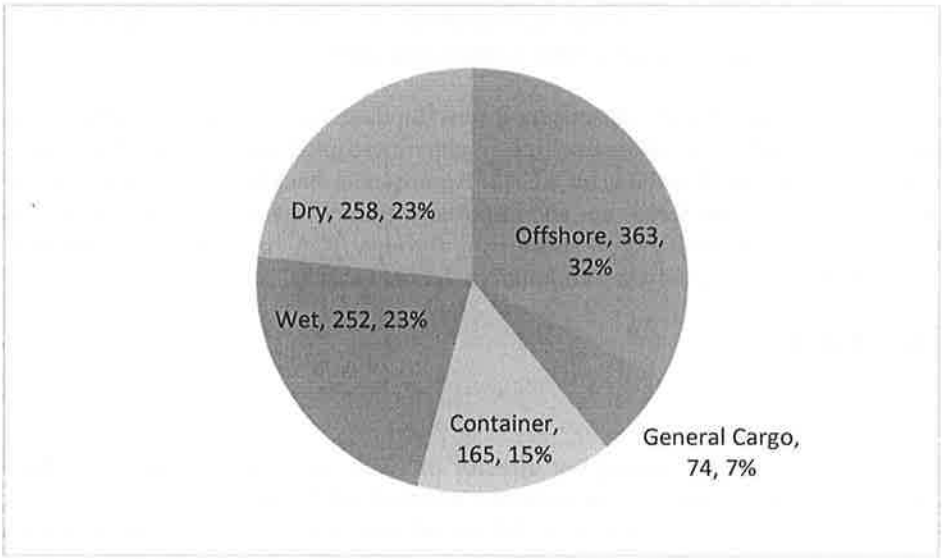
37. In his presentation at the 24 November 2014 WP6 workshop, Mr. Mowinckel, Assistant Managing Director, Market Analysis and International Relations at the Norwegian Export Credit Agency (GIEK) showed that the outstanding exposure to the offshore segment increased from 32% in January 2012 to 42% in January 2014 of total ship financing (See Figure 11).

[9] For instance: Stone, S., D. Flaig and F. Van Tongeren (2014), "*Modelling Local Content Requirements: Quantitative Restrictions in a CGE Model*", 2014 GTAP Conference, Dakar, Senegal. The authors used a Computable general equilibrium (CGE) model to assess the impact of local content requirements.

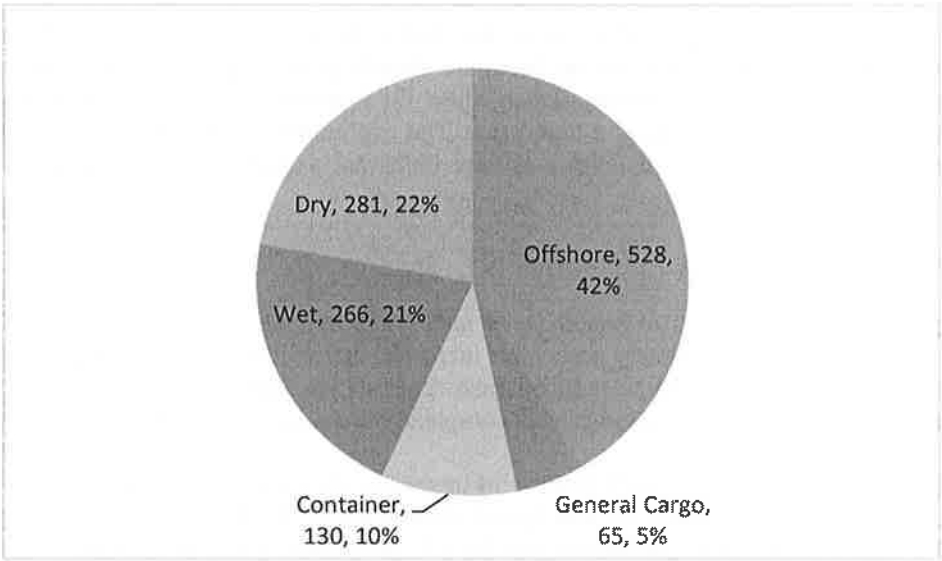
Figure 11. Outstanding exposure by shiptypes

In billions USD

January 2012



January 2014



Source: Tufton Oceanic

38. Mr. Mowinckel mentioned that there are more similarities than differences between financing for shipping and offshore activities. However, he mentioned that country risk is less relevant in offshore ship financing. Moreover, he indicated some special characteristics related to offshore finance, in particular the role of secured lending notably mortgage over asset, the assignment of charter parties and wide variation of credit risk and the more specialized assets required for offshore vessels.

39. Mr. Mowinckel also highlighted the falling share of financing by banks as compared notably to export credit agencies that is due to the tightening of banking regulation in recent years. Discussions with markets participants in the offshore sector provide anecdotal evidence that finance is a key competitiveness factor for the shipbuilding companies constructing offshore vessels. The role of finance, both in terms of volume and structure of the institutions financing the offshore sector, will be studied in the context of the WP6 project on the new forms of finance for the shipbuilding industry.

40. New sources for credit risk capacity and new funding tools would probably be required, with increased importance of bonds as a funding source. Tightening capital requirements for banks are expected to lead to a further increase of financing by ECAs. Against this backdrop, the increasing role of export credit agencies could be considered as an important policy issue for discussion. According to Mr. Mowinckel, a good way to limit export subsidising through ECA financing is to encourage co-finance on equal terms, *i.e.* sharing of risk between commercial lenders and ECAs.

5. Main industry challenges

a) Technical issues

41. According to Mr. Borelli, managing director of D2M, the exploitation of offshore oil and gas fields will require an increased recovery rate from the reservoir of 35-40% on average to a future objective of 60%. The increasing share of ultra-deep offshore oil production will involve tailor-made projects, adapted to the site conditions and characteristics of the reservoir. The industrialization and the lowering of costs in deep water are big technical challenges. For production vessels and other marine supports, the development of all subsea processing is expected to be more complex. Moreover, lots of work to qualify equipment and materials will be required to manage ecological risk.

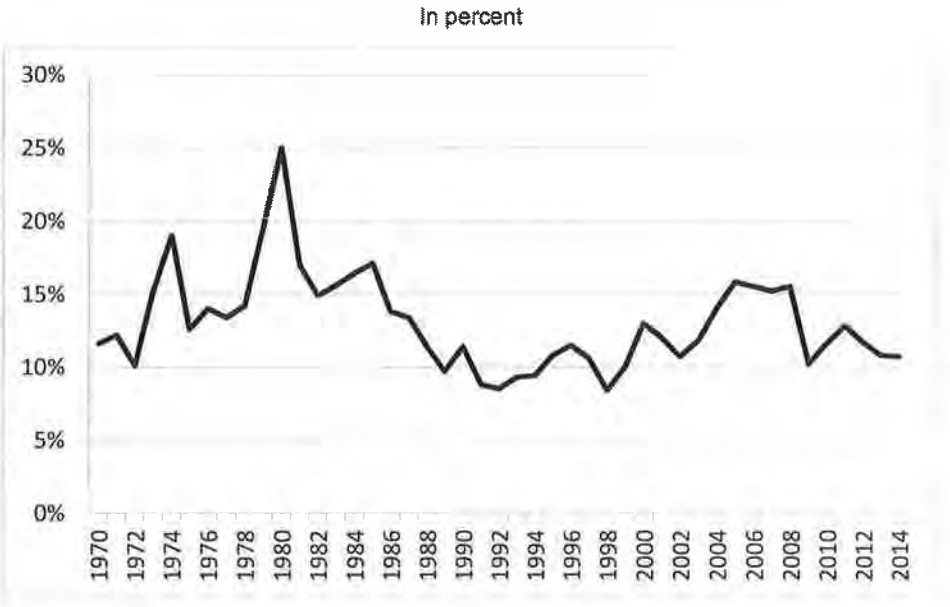
42. There are vast underexplored areas in the Arctic Region with potentially 20% of globally available hydrocarbons. In this region, several fields are already producing in difficult environments, such as Alaska, Eastern Canada, Russia and Khazakstan where the industry has gathered significant experience relevant to Arctic developments, often at a high price. The exploitation of new fields in the Arctic region will involve even greater technical challenges as new fields are expected to be located in more hostile areas.

b) Cost increase

43. Higher oil and gas prices in recent years have increased the viability of complex oil and gas projects. In parallel, since 2000, industry costs have increased dramatically; impacting project profitability despite higher oil prices and leading to reduced cash returns (See Figure 12). Reasons for rising costs include supply chain constraints, inereased project complexity and a lack of standardisation.

44. In the past few years, the rapid increase in upstream costs, capital and operating cost put many projects at risk as they are vulnerable to an oil price drop below USD 80 per barrel. Cost escalation has been one of the key reasons for project deferments by Chevron, Statoil and Shell in recent years. Around one-third of these new projects, amounting to about 3.5 million barrel per day in 2020, could be at risk. According to Douglas-Westwood, this is an optimistic view, as it assumes the offshore hydrocarbons that will be produced will remain competitive, and this is uncertain.

Figure 12. Cash return on cash invested in the oil industry



Source: Douglas-Westwood.

c) Labour issues

45. Mr. Kan Matsuzaki, Director for Shipbuilding and Shipbreaking at IndustriALL, mentioned during the workshop that the shifting of the shipbuilding industry towards offshore industry represents a big issue for employees. Mr. Matsuzaki highlighted the role of education, skills, training and research to tackle this challenge. He mentioned that shipbuilding companies involved in the offshore sector must create quality employment, minimize negative environmental impacts and advance the interests of society as a whole.

46. He also highlighted the issue of promoting equity that can be addressed with comprehensive industrial policies and social programs. It would allow workers benefiting from change and would be essential for sharing the costs and benefits of change.

C/WP6(2015)6

MEASURES TAKEN BY JAPAN TO ADDRESS OVERCAPACITY AFTER 1ST AND 2ND OIL CRISES

(Paper by Japan)

For Official Use C/WP6(2015)6

Organisation de Coopération et de Développement Économiques
Organisation for Economic Co-operation and Development

26-May-2015

English - Or. English

COUNCIL
WORKING PARTY ON SHIPBUILDING

MEASURES TAKEN BY JAPAN TO ADDRESS OVERCAPACITY AFTER 1ST AND 2ND OIL CRISES

(Paper by Japan)

OECD Headquarters, Paris, 11-12 June 2015

This document has been submitted by Japan for the session on supply and demand analysis. It reviews Japanese experience in controlling its shipbuilding capacity to address the global excess capacity after the first and second oil crises. The measures taken were mainly categorized into three types: operational control, physical control and support for structural change.

This document relates to Output area 1.2.3.3 of the WP6 PWB for 2015-16. It contributes to Project 1.2.3.3.4 on Demand and supply in the shipbuilding industry.

Action required: For information.

Contact: Structural Policy Division, Mr. Laurent Daniel, Tel.: +33 (0)1 45 24 18 69;
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MEASURES TAKEN BY JAPAN TO ADDRESS OVERCAPACITY AFTER 1ST AND 2ND OIL CRISES

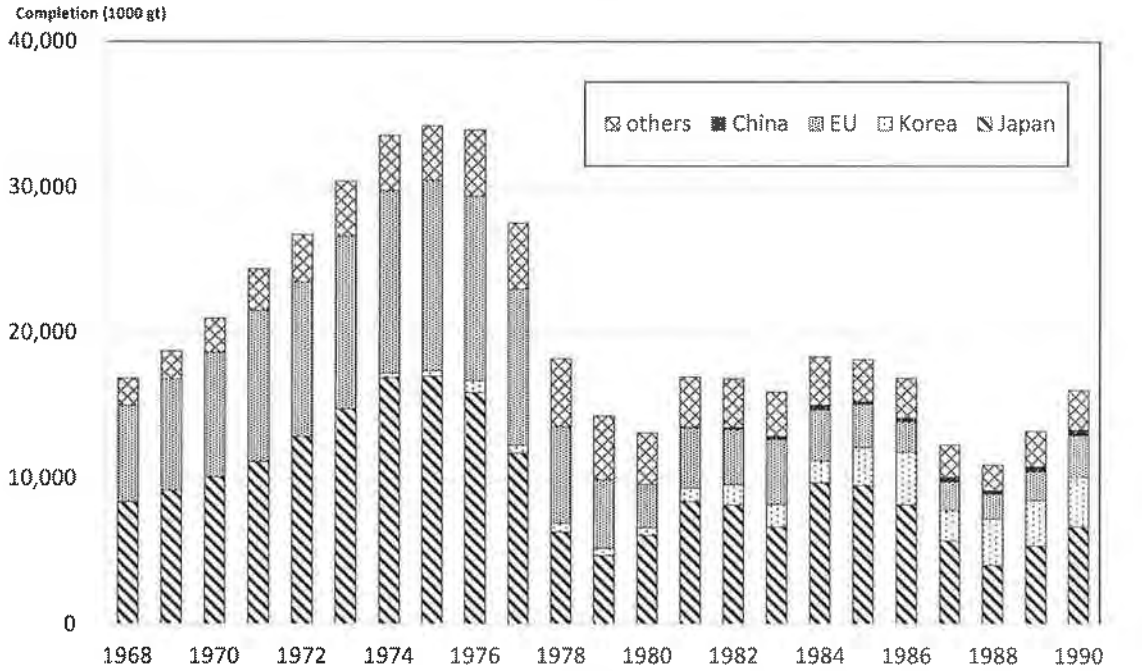
Introduction

1. During the discussions on the issue of excess capacity at various sessions of the WP6, delegates generally recognized the usefulness of studying and sharing information on past efforts to address overcapacity, a cyclical characteristic of the global shipbuilding industry. This document introduces Japanese experiences in controlling its shipbuilding capacity to address the global excess capacity from 1970s to 1980s (non-exhaustive).

Market situations after 1st and 2nd oil crises

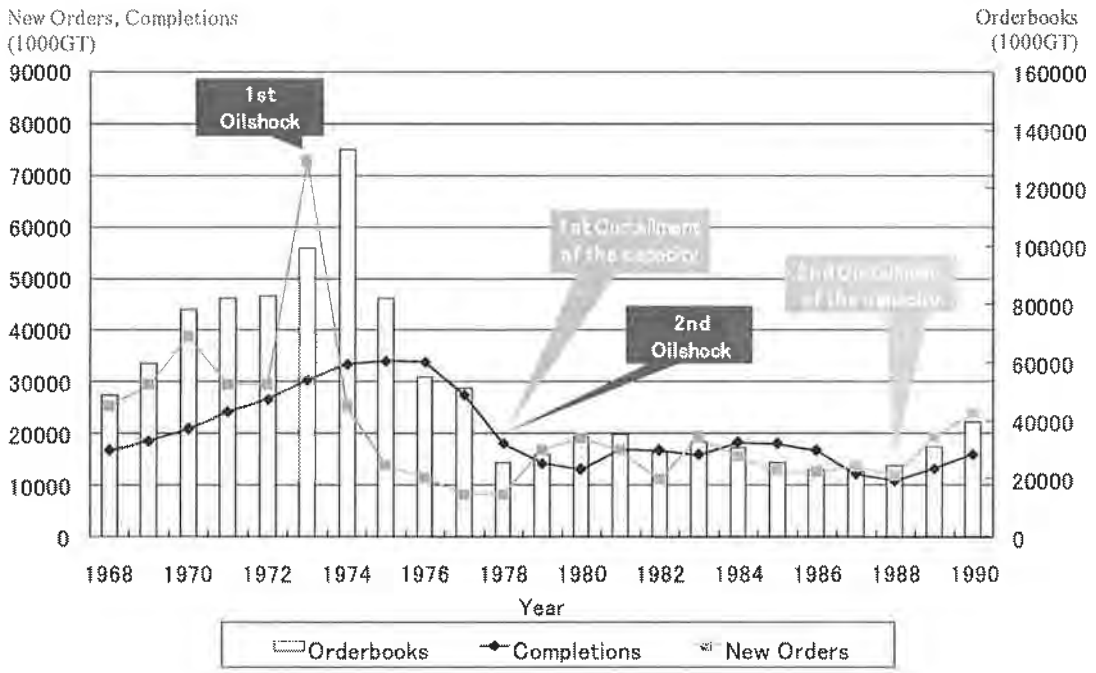
2. In early 1970s, Japan was the biggest shipbuilding economy, accounting for around 50% of the world shipbuilding completion (in terms of GT), and western European economies accounted for approximately 38 % (Figure A). As Figure B shows, new orders in the early 1970s remained at a high level (over 30 million GT) and there was a surge of new orders in 1973, reaching over 70 million GT, due to a boom of big oil tankers. However, new orders plummeted to around 25 million GT in 1974 (approximately 65% decrease from the previous year) as a result of the first oil crisis in 1973. The impact of the oil crisis was significant and persisted for a long time. New orders continued shrinking after 1973, hit its bottom (below 10 million GT) in 1978 and stayed at a low level for the next over 10 years. In addition to falling levels of new orders, there was a huge amount of cancellation of existing orders. In case of Japan, cancellations reached more than 7 million GT in 1976, about 70% of new orders made in the same year. Such a sudden and drastic change of shipbuilding demand caused serious imbalance between supply and demand, creating huge excess capacity of shipbuilding.

Figure A Share of the global shipbuilding, by economy



(note) 1. Data Source : Lloyd's Resister, United Nations, The Japanese Shipowners' Association
2. Ship Size Coverage : 100 Gross Tonnage and over.

Figure B New orders, orderbooks and completions from 1968 to 1990



Measures to address overcapacity

3. In order to address extraordinary levels of overcapacity, Japan implemented mainly three types of measures to facilitate its adjustment of shipbuilding capacity: operational control, physical control and structural change support. The operational control was to put a cap on new vessel built for individual yards to control total shipbuilding capacity. The physical control was to reduce building capacity by actually disposing of existing facilities. The structural change support was to facilitate structural changes by alleviating adjustment costs associated with structural changes.

Operational control

Permission for building a vessel

4. The Act on Temporary Adjustment of Shipbuilding (Act No. 149 – 1953) requires an entity intending to construct steel vessels (cargo vessels and cargo-passenger vessels only) of 2500 gross tonnage or larger, or 90 metres or longer, to obtain permission from MLIT (Ministry of Land, Infrastructure, Transport and Tourism). This act was established to secure the sustainable development of the Japanese merchant fleet by controlling construction of new ships. Permission is required for each ship of this size that is to be built.

Prohibition of parallel construction

5. In 1975, Ministry of Transport (MOT) issued an administrative guidance to Japanese shipbuilders, which prohibited construction of vessels more than 1.5 vessels in parallel. This measure was in place from 1977 to 1979 and was utilized not only to reduce building capacity but also to adjust a balance of construction volume between large shipbuilders and medium-and-small shipbuilders.

Limitation of shipyard operation

6. Since 1977, MOT issued a recommendation on operation capacity to 40 shipyards which were capable of building a vessel of 10,000 gross ton or larger, in order to put an upper limit of man-hour planning for the next biennium. The recommendation remained in effect until 1979, and its implementation was examined by MOT.

Physical control

Basic law for physical control: The Shipbuilding Act (Act No. 129 – 1950)

7. The Shipbuilding Act (Act No. 129 – 1950) requires an entity who intends to build docks which can be used to manufacture or repair steel vessels of 500 gross tonnage or lager, or 50 metres or longer, to obtain permission from MLIT. This act was established to keep shipbuilding capacity at an appropriate level.

Disposal of shipbuilding capacity

8. The Ministry of Transport developed and implemented comprehensive plans to reduce ship building capacity in Japan twice: first from 1978 to 1980, and second from 1987 to 1988. The main measures taken were "purchase of facilities" to eliminate excess capacity as described below.

Purchase of facilities

9. The shipbuilding industry established the Association for the Stabilization of Specified Shipbuilding Enterprises, which was tasked to reduce shipbuilding capacity by purchasing superfluous docks and selling them to purchasers who intended to use facilities for activities other than shipbuilding.The Japan Development Bank provided long term loans necessary for purchasing superfluous docks, under terms and conditions of ten years repayment term. MOT made budgetary arrangement to provide interest subsidies to the loans provided to the association.

10. The scope and target for capacity disposal were determined as below.

1) Scope of facilities: docks and building berths, which could be used to build vessels of 5 000 gross ton or larger

2) Target of disposal: 3.4 million CGT per year

3) Means of disposal: suspension of operation, closures or alienation of facilities

4) Others: MOT decided that approval for new investment and/or expansion of facilities should not be made by the end of June 1983.

Results of capacity disposal

	Before 1st capacity disposal	After 1st capacity disposal	After 2nd capacity disposal
The number of companies	61 companies	44 companies	26 companies
The number of docks	138 docks	73 docks	46 docks
Building capacity	9.77 mil CGT	6.19 mil CGT	4.60 mil CGT

Targets and results of capacity disposal, by company size

The 1st capacity disposal (1978-1980)			The 2nd capacity disposal (1987-1988)			After 2nd disposal
Number of companies	Disposal target %	Disposal result %	Number of companies	Disposal target %	Disposal result %	Number of companies
Big 7 companies	40%	39.5%	Big 7 companies	20%	23.6%	Big 7 companies
Upper Middle 17 companies	30%	35.6%	Upper Middle 17 companies			Upper Middle 13 companies
Lower Middle 16 companies	27%	31.6%	Lower Middle 11 companies			Lower Middle 4 companies
Small 21 companies	15%	12.5%	Small 9 companies			Small 2 companies
Total 61	35%	36.6%	Total 44	20%	23.6%	Total 26

Structural change support

Change from shipbuilding to ship recycling

11. In 1978, the Japanese government secured the budget for establishing Association of the Ship Scrapping Promotion which aimed to promote structural change from shipbuilding to ship recycling, in order to reduce excess shipbuilding capacity. This association offered grants to shipbuilders involved in ship scrapping of ocean going vessels.

Employment measures

12. After 1978, employment-related laws were enacted in Japan in order to eliminate employment imbalances and assist job transfers. The shipbuilding industry was designated as one of the specified depressed industries and received subsidies for recess, training, and temporary transfer. Similar measures are still effective today.

附件五 ： 會議簡報內容

WTO Rules on Export Credits and Subsidies

WORKING PARTY 6

PARIS, 11 JUNE 2015

Presented by Clarisse Morgan, Counsellor, WTO Rules Division

WTO EXPORT SUBSIDY RULES - GENERAL

- SCM Agreement Article 3.1(a): Prohibits export subsidies:
  - "Subsidies contingent, *in law or in fact*, whether solely or as one of several other conditions, upon export performance, including those illustrated in Annex I" (footnotes omitted)
- Why are export subsidies (along with import substitution subsidies) prohibited?
  - Direct trade distortive effects: increase exports or reduce imports

SUBSIDIES COVERED BY WTO AGREEMENT ON SUBSIDIES AND COUNTERVAILING MEASURES

- Financial contributions by government/public body
  - Direct and potential direct transfers of funds (grants, loans, guarantees...)
  - Government revenue foregone that is otherwise due (tax measures...)
  - Government provision of goods or services, or government purchase of goods
  - Any of the above, by a private body entrusted or directed by government
- Which confer a benefit
- And are specific

SPECIFICITY

- *Per se* specificity -- prohibited subsidies (export, import substitution)
- Other forms of specificity (*de jure* or *de facto* limitation of access to the subsidy) on the basis of:
  - Enterprise
  - Industry
  - Region

ILLUSTRATIVE LIST OF EXPORT SUBSIDIES – ANNEX I

- Illustrative (not exhaustive) list of measures deemed, *per se*, to be export subsidies
- Footnote 5: Measures referred to in the list as NOT constituting export subsidies are not prohibited
- Issue of *a contrario* interpretation. Can an item in the list referred to as an export subsidy be read in a contrary sense to identify measures that are not export subsidies?
  - A number of panels (aircraft and ships) have said NO (in the specific context of export credits and guarantees).

ILLUSTRATIVE LIST – ITEM K – EXPORT CREDITS

- Para. 1: "The grant by governments (or special institutions controlled by and/or acting under the authority of governments) of export credits at rates below those which they actually have to pay for the funds so employed (or would have to pay if they borrowed on international capital markets in order to obtain funds of the same maturity and other credit terms and denominated in the same currency as the export credit), or the payment by them of all or part of the costs incurred by exporters or financial institutions in obtaining credits, insofar as they are used to secure a material advantage in the field of export credit terms."
- *A contrario* issue – above-cost financing?

ILLUSTRATIVE LIST – ITEM K – EXPORT CREDITS

- Para. 2: "Provided, however, that if a Member is a party to an international undertaking on official export credits to which at least twelve original Members to this Agreement are parties as of 1 January 1979 (or a successor undertaking which has been adopted by those original Members), or if in practice a Member applies the interest rates provisions of the relevant undertaking, an export credit practice which is in conformity with those provisions shall not be considered an export subsidy prohibited by this Agreement."

RELATIONSHIP BETWEEN PARAS. 1 & 2 OF ITEM K

- K(1) defines certain export credit practices that ARE prohibited export subsidies. (AB: CIRR is a measure of whether or not a "material advantage" is secured.)
- K(2) provides a "safe haven" from the export subsidy prohibition (in para. 1 and under Article 3) - covers export credit practices that are "in conformity with" the "interest rates provisions" of the *OECD Arrangement* or "a successor undertaking".
  - Not necessary to be a participant to the *Arrangement* – non-participants can "in practice" apply the interest rate provisions to use the safe haven

WTO DISPUTE PANELS – INTERPRETATION OF ITEM K(2) AND *ARRANGEMENT*

- "Successor undertaking"
  - A "dynamic" reference to the most recently adopted version of the *Arrangement*, reflecting its continual evolution (not one particular version of the *Arrangement*)
  - *Sector Understandings*, if not integral parts of the *Arrangement*, in any event would be "successor undertakings"
  - Would include new versions of the *Arrangement*
  - Could also encompass future undertakings, other than the *Arrangement*, that meet the language of k(2)

WTO DISPUTE PANELS – INTERPRETATION OF ITEM K(2) AND *ARRANGEMENT*

Applicability of the safe haven of K(2)

- *OECD Arrangement* was an undertaking as referred to in K(2) (in practice, the only such undertaking)
- So, in practice, eligibility for safe haven defined entirely in terms of the *Arrangement*
- The sector *Understandings* were either integral parts of the *Arrangement*, or "successor undertakings"
- The version of the *Arrangement* examined was the one in force at that time (1998 version) - "successor" to 1978 version
  - *Arrangement* defined the "most generous" terms that could be supported
  - Stated aim: encourage competition based on quality and price of goods and services, not most favourable officially supported export credits

WTO DISPUTE PANELS – INTERPRETATION OF ITEM K(2) AND *ARRANGEMENT*

Role of safe haven in context of export subsidy prohibition

- ES prohibited due to direct trade-distortive effects
- Among ES, subsidized export credits: arguably, most immediate and thus greatest, potential to distort trade
- Thus, an interpretation of item K(2) creating very broad exemption from prohibition for export credits would not be consistent with the purpose of the ES prohibition
- Also, inequitable to developing countries – their borrowing costs structurally higher; temporary S&D exemption from ES prohibition undermined

WTO DISPUTE PANELS – INTERPRETATION OF ITEM K(2) AND *ARRANGEMENT*

- "Export credit practices" is a broad term – for K(2), could encompass everything covered by the *Arrangement*:
  - "All official support for exports of goods &/or services, or to financial leases" with repayment terms of at least 2 years, plus tied aid.
- "Interest rates provisions" of the *Arrangement*?
  - Minimum interest rates (CIRRs); Construction of CIRRs; Application of CIRRs; Cosmetic Interest Rates; Official Support for Cosmetic Interest Rates; plus the corresponding provisions of sector *Understandings*, (in particular on aircraft in those disputes)

WTO DISPUTE PANELS – INTERPRETATION OF ITEM K(2) AND *ARRANGEMENT*

- "Conformity" with interest rates provisions
  - Types of practices subject to minimum interest rates (CIRRs):
    - "Official financing support": direct credits/financing, refinancing, and interest rate support
    - Only those types of practices could be "in conformity" with interest rates provisions, as only they are subject to min. interest rates (CIRRs)
    - Thus, at that time, only those types of practices potentially eligible for safe haven of K(2)
  - CIRRs – fixed, not floating, rates. No minimum interest rates for floating rate financing. So only fixed rate OFS (with repayment terms of 2 or more years) could potentially be "in conformity" with interest rates provisions, and thus eligible for K(2) safe haven

WTO DISPUTE PANELS – INTERPRETATION OF ITEM K(2) AND *ARRANGEMENT*

- Application by non-Participants, "in practice", of interest rates provisions of *Arrangement*
  - Main concern of panels – transparency and certainty for all WTO Members
  - Information on Participants' actions not available to non-Participants. So non-Participants' application, in practice, of interest rates provisions must be able to be judged from text of *Arrangement* (a public document) and CIRRs (publically available). Not with reference to Participants' actual transaction terms and conditions.

WTO DISPUTE PANELS – INTERPRETATION OF ITEM K(2) AND *ARRANGEMENT*

- *Arrangement* provisions relevant to "conformity" with its interest rates provisions
  - Provisions on financing terms and conditions that support or reinforce minimum interest rates (i.e., limit generosity of the financing)
    - Minimum cash down payment; maximum repayment term; timing of principal and interest payments; maximum interest rate lock-in periods; risk premia; similar terms
    - "Permitted exceptions" – certain flexibilities, with limits explicitly defined in Arrangement: non-derogating, so "in conformity"
  - "No derogation" rule: applied to these terms and conditions
  - Derogations and matching thereof could not be "in conformity" because defined in *Arrangement* as "non-conforming"

NON-PROHIBITED (ACTIONABLE) SUBSIDIES

- All specific subsidies
- Potential counter-actions
  - **Countervailing measures** on imported subsidized goods (if cause injury) – limited practical applicability to ships
  - **WTO dispute settlement – "Adverse effects"**
    - **Serious prejudice** –displacement/impedance of exports/imports; significant price suppression/depression or lost sales
    - **Nullification/impairment** of multilateral benefits
    - **Injury** to domestic industry in importing country
    - Also can bring adverse effects case in respect of prohibited subsidies

Rules as applicable to Ships

- Shipbuilding subsidy case (EU-Korea):
  - Certain financing for particular export contracts - prohibited
    - Found to be subsidies, contingent on exportation
    - Not export credits or guarantees – provided to shipyards – so items (j) and (k) did not apply – no item (k) safe haven
    - Even if they were credits or guarantees, no *a contrario* reading of (j) or (k)
  - Serious prejudice claims - Same subsidies (plus restructuring aid that was found not to be subsidies) alleged to suppress/depress world market prices for three kinds of ships
    - Because most of the aid in question was found not to be subsidies, the export subsidies alone found to be too small to suppress/depress the world market prices

FINIS

THANK YOU!

QUESTIONS?

ITEM 4.2: INVENTORY UPDATE

Document: C/WP6(2015)2

120th session of the Council Working Party on Shipbuilding (WP6)

Paris, 11-12 June 2015

Contact: Structural Policy Division,
Mr. Laurent DANIEL
Ms. Karin STROEL

OECD

Inventory of support measures

- **Purpose**
  - Provide transparency and continuity of data on support measures for the shipbuilding industry.
  - Provide some information on support measures in place in partner economies.
- **Scope of measures**
  - Comprehensive (Annex 1 of C/WP6(2015)1).
  - Include direct/indirect financial transfers, other subsidies and non-subsidy measures.
- **Data**
  - Available from 2014 in the current format:
    https://community.oecd.org/community/inventory

Inventory update in 2015

- Among WP6 members, Associates and Participants, 18 economies submitted updated data.
- The Secretariat invited Brazil, China, Chinese Taipei and the Philippines to participate in the Inventory activity, and the Philippines and Chinese Taipei submitted responses.

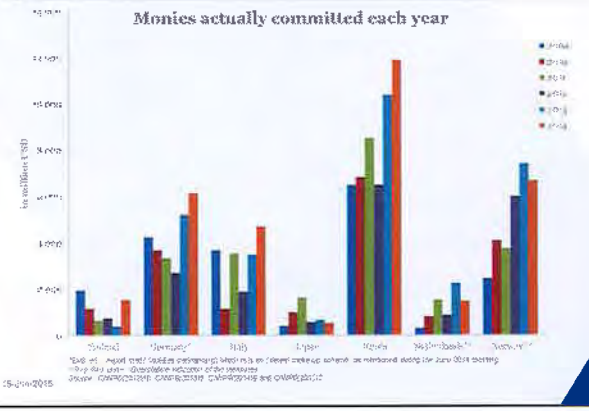
Summary of the updated Inventory

- As in the last inventory, most frequently used measures are "E: Export or Home Credits" and "K: Support for R&D".
- Rarely used measures are "B: Indirect transfer of funds by Governments", "F: Government taking-over debts" or "I: Provision by government of infrastructure".

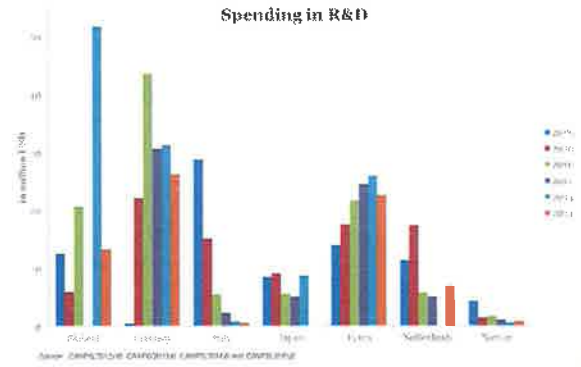
Actively used support measures

- **Export or home credits**
  - 11 economies: Denmark, Finland, Germany, Italy, Japan, Korea, the Netherlands, Norway, Poland, Portugal and Turkey.
- **Support for R&D**
  - 9 economies: Finland, Germany, Italy, Japan, Korea, the Netherlands, Norway, Poland and Chinese Taipei.

Export or Home Credits (2009 – 2014)



Support for R&D (2009 – 2014)



ITEM 4.3: POSSIBLE IMPROVEMENTS OF THE INVENTORY

Document: C/WP6(2015)3

120th session of the Council Working Party on Shipbuilding (WP6)

Paris, 11-12 June 2015

Contact: Structural Policy Division,
Mr. Laurent DANIEL
Ms. Kenn STRODEL

OECD

15-Jun-2015

Thank you.

Inventory of support measures – background

- **WP6 Inventory**
  - **Goal** : transparency
  - **Coverage** : expected to be comprehensive
  - **Inventory participants** : WP6 members, and some WP6 Invitees (Chinese Taipei and the Philippines in 2015)
- **Process has been successful** since its frequency became annual in 2010,
- but some **room for improvement** exists.
- **The document 3 discusses possible options to improve the Inventory**

Previous discussions at the WP6 about the Inventory – comprehensiveness

- The WP6 agreed in 2009 that the Secretariat should **supplement the information** in the Inventory through a review of "publicly-available sources".
- In 2012, the WP6 agreed to also **cover emerging economies with significant shipbuilding industries**.
- In 2010, 2011 and 2012, the **Secretariat listed a number of measures reported in the media**.
- The Secretariat stopped updating these documents after 2012 due to **resource constraints**.

15-Jun-2015

Previous discussions at the WP6 about the Inventory – classification

- In June 2012, some delegations were in favour of identifying **measures that distort the market**.

Previous discussions at the WP6 about the Inventory – encouraging discussions

- The WP6 agreed in 2009 that governments should have the **opportunity to ask questions and submit information**.
- In 2012, many WP6 delegates stressed the importance to **respond in detail to queries regarding possible unreported practices**.
- But, the **discussions were relatively short** and didn't allow complementing the entries provided by countries.

15-Jun-2015

Proposal 1 : encouraging discussion

- **Goal** : Encouraging discussion and verification of the Inventory entries.
- **Proposal** : **Developing a process managed by the Secretariat to gather questions on submitted Inventory entries** in order to encourage discussion.

Proposal 2 : Improvement of the Inventory's coverage

- The Secretariat would list in a new document apparent **policy measures not reported in the Inventory**.
- Various sources could be used, including **press sources** and specialised databases on support measures (for instance The **Global Trade Alert**).

Proposal 3 : Classification of measures

- Examining support measures which could be expected to have **distorting** effects.
- An external and independent consultant, possibly GTA, would undertake an **assessment of the potential impact on global trade** in shipbuilding.
- The assessment would stay **confidential** and would not commit the WP6.
- This would have **resource implications**.

Proposal 2 : Improvement of the Inventory's coverage

- **Producing documents (in addition to the Inventory) listing support measures** based on press and specialised sources.
  - They would be prepared by the Secretariat and/or an external consultant such as GTA.
  - The report would notably identify measures that may have implications for the shipbuilding sector.

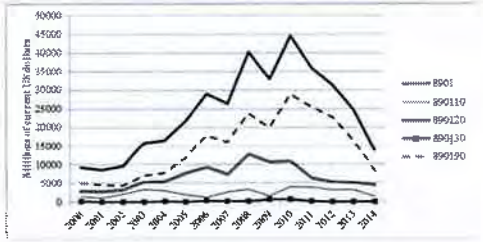
Proposal 3 : Classification of measures

- **Assessing the potential impact of support measures on global trade in shipbuilding.**
- An external and independent consultant, possibly The Global Trade Alert, would undertake this assessment on the basis of two possible levels of analysis:
  - The GTA could estimate the **amount of global trade in shipbuilding that has been affected by different types of policy intervention**.
  - GTA could **estimate the effects of implementing different types of government intervention on the value of shipbuilding trade.**

The Global Trade Alert

- The Global Trade Alert (http://www.globaltradealert.org/) provides information on state measures which are likely to discriminate against foreign trade.
- Global Trade Alert is co-ordinated by the Centre for Economic Policy Research, a think-tank based in London, UK.

Total value of shipbuilding trade since 2000, overall and by six digit tariff line



Source: The Global Trade Alert
8901 Cruise ships, excursion boats, ferry-boats, cargo ships, barges and similar vessels for the trans-port of persons or goods
890110 Cruise ships, excursion boats and similar vessels principally for the transport of persons
890120 Tankers
890130 Refrigerated vessels, other than those of subheading
890190 Other vessels for the transport of goods and persons

The Global Trade Alert

- The GTA database includes for now **67 government measures implicating the four digit tariff line for shipbuilding** (8901).
- The GTA also includes government measures that affect shipbuilding but which may be part of a broader package of government actions.

GTA's methodologies : searching and reviewing

- For **searching** for support measures, the GTA team :
  - Monitors the websites of government ministries and the reports and submissions to international organisations.
  - Uses "big data" techniques to search online sources for announcements of policy changes.
- For **reviewing** measures
  - In almost every case, they identify an official source for the government intervention in question.
  - The GTA team tests whether the measure introduces, expands, reduces, or eliminates a difference in treatment between a foreign firm and domestic rivals in the same line of business.

The process used by the GTA to investigate trade policy changes

Determination of the trading partners potentially affected by a measure

- It **depends on the type of measure** as different measures affect different types of commerce (imports vs. exports, trade in goods versus FDI etc) and different market segments.
- The GTA team looks at the UN Comtrade database and identify **trading partners exporting more than 1 mn USD** to the country

Assessment of the impact of support measures on trade

- Estimation of the **amount of global trade in shipbuilding that has been affected by a measure** (see steel note as an example).
- Estimation of the effects of a measure **on the value of shipbuilding trade** (no detail received by GTA on the methodology at this stage).

GTA's database for tariff line 8901 : examples of measures (1/4)

- **China: Adjustments to the import tariff rates of several products**
- Measure #7578 | Published 25 Oct 2014 | Inception 1 Mar 2014 ▲
- Description
- On 24 February 2014, the Chinese government announced plans to abolish import tariffs and import value-added taxes on semi-submersible drilling rigs, liquefied natural gas tankers and other facilities used for the exploration of natural resources
- Tariff Lines:
- 8901

GTA's database for tariff line 8901 : examples of measures (2/4)

- **China: Tax refunds for exported vessels**
- Measure #7085 | Published 23 Aug 2014 | Inception 1 Apr 2010 ▲
- Description
- On 30 March 2010, the Ministry of Finance, General Administration of Customs and State Administration of Taxation issued the "Notice about Carrying out the Pilot Program on Export Tax Refunds for the Leased-financed Vessels in Tianjin&qu
- Sectors:
- 49
- Tariff Lines:
- 8901

GTA's database for tariff line 8901 : examples of measures (3/4)

- **China: Nationwide VAT & Consumption Tax Refunds on Exported Vessels under Financial Leasing**
- Measure #8806 | Published 11 May 2015 | Inception 1 Oct 2014 ▲
- Description
- On 1 October 2014, China extended the tax refund policy on leased vessels and marine structures nationwide. The policy was previously restricted to a pilot program in the Tianjin area (see related measure).
- Sectors:
- 49
- Tariff Lines:
- 8901

GTA's database for tariff line 8901 : examples of measures (4/4)

- **United States of America: Subsidies to the merchant marine and Buy-American requirements**
- Measure #8347 | Published 1 Mar 2015 | Inception 16 Dec 2014 ▲
- Description
- On December 16, 2014 President Obama signed into law the "Consolidated and Further Continuing Appropriations Act, 2015" (H.R.83). This omnibus spending bill provides (among many other things) for subsidies to the U.S.
- Sectors:
- 49
- Tariff Lines:
- 8901
- 8906

Thank you.

Policy developments for the French shipbuilding industry

120th session of the WP6

Guillaume Decorzant
Directorate General for Enterprise - French Ministry of Economy, Industry and Digital Affairs

DGE

The shipbuilding industry strategic committee (SISC)

- A government initiative:
  - Initiated by the Minister for Industry in 2010
  - Presidents: Ministers for the Industry and for Transports
- ... relying on the industry stakeholders
  - The pilot of the committee is the president of the French Marine Industry Group (GICAN)
  - Members include: industry, workers' unions, research labs, innovation clusters ...
- The ISC is a framework for dialogue:
  - It contributes to the definition of the public policies,
  - with the objective of perpetuating growth and creating jobs in France
- 6 main actions in the shipbuilding industry contract:
  1. Promoting solidarity between large companies and SMEs;
  2. Elaborating a competitive growth strategy and lead actions to strengthen SMEs;
  3. Developing SMEs on international markets;
  4. Maintaining and promoting key know-how in the shipbuilding industry;
  5. Improving competitiveness through collaborative conception and production actions;
  6. Promoting innovation around priority research topics

DGE

The French shipbuilding industry: key figures

- 42 000 jobs
- 8,5 bn euros in sales
- Export-oriented:
  - 80% for passenger ships,
  - 30% for military vessels.
- 500 companies:
  - Main shipyards (STX, DNCS, ...)
  - Suppliers and subcontractors
  - design offices and engineering consultants
- Small businesses (<250 employees) account for 90% of these companies.

DGE

2 operational initatives for the SISC

- The CORICAN:
  - The council for research and innovation in the shipbuilding industry.
- Océans 21:
  - A program to strengthen SMEs
- All 6 actions are covered:

		CORICAN	Océans 21
1	Promoting solidarity between large companies and SMEs;	X	X
2	Elaborating a competitive growth strategy and lead actions to strengthen SMEs;	X	X
3	Developing SMEs on international markets;		X
4	Maintaining and promoting key know-how in the shipbuilding industry;		X
5	Improving competitiveness through collaborative conception and production actions;	X	X
6	Promoting innovation around priority research topics	X	

DGE

15/06/2015

15/06/2015

The CORICAN

- Also government-initiated:
  - It was created in 2011;
  - Its presidents are the Ministers for Industry and Transports.
- Its goal is to define a long-term innovation strategy, relying on 10 technological roadmaps in diverse areas:
  - main ship functions (clean, efficient, safe & smart ships);
  - MREs;
  - Competitiveness tools.
- It promotes collaborative innovative projects, through:
  - Providing guidance for the private partners aiming at leveraging state and EU funding;
  - Organizing feedback from the industry to the administration and public agencies, so that public policies are tuned to the specificities of the shipbuilding industry.

Thanks for your attention

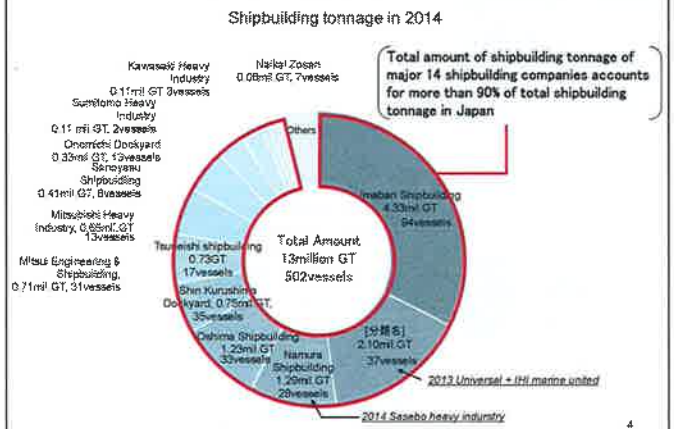
The Océans 21 program

- This initiative aims at strengthening the competitiveness of the French industry.
  - It has been designed and is being operated by the Marine Industry Group,
  - and is supported by the State.
  - The program is being implemented on the field with the support of competitivity clusters.
- The program is shaped following 4 themes:
  - The strategic positioning of companies of the French shipbuilding ecosystem;
  - International development;
  - Developing, maintaing and promoting key shipbuilding competences;
  - Innovation and competitiveness, through the promotion of collaborative actions.
- Actions are being realised at different levels:
  - Individual diagnosis and counseling for businesses;
  - Support of groups of companies;
  - Organizing events and creating knowledge/information for the shipbuilding industry as a whole.

Policy developments in Japan

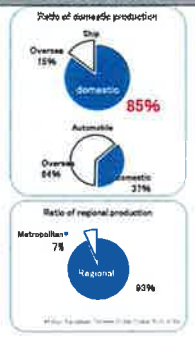
Kei ITO
Shipbuilding and Ship Machinery division
Ministry of Land, Infrastructure, Transport and Tourism, Japan

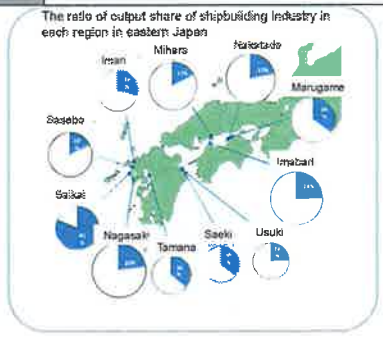
Share of shipbuilding outputs, by company



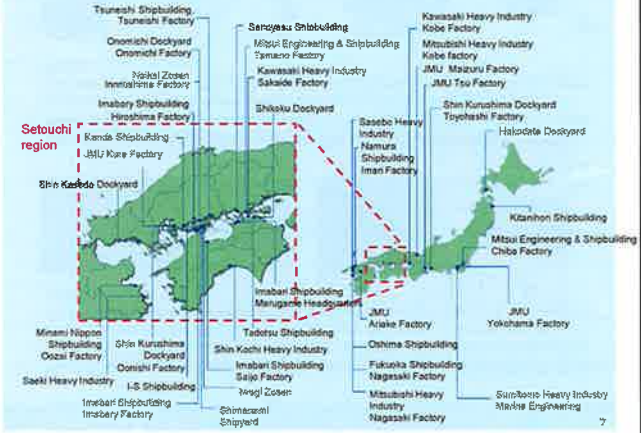
Overviews of Japanese Shipbuilding Industry

Number of shipbuilding companies	994 companies (as of 2014.4)
Working population	78,561people (as of 2014.4)
Sales Amount	22 billion USD （FY2013）





Geographical distribution of major shipyards (38 factories of 14 companies)



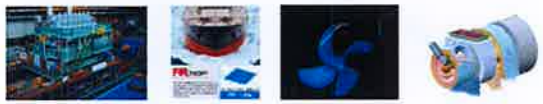
Oversea investment by Japanese shipbuilders

Overview of recent measures

1. R&D support
2. Capturing new market
3. Securing Human resource
4. Utilizing financial support (Export credit)

R&D support for green ship and offshore technologies

- **Grant for research and development of more fuel-efficient ships**
  started from 2009, is provided to shipbuilding and ship machinery companies which carry out research and development of high level technologies for the reduction of CO2 emissions from the international shipping sector (grant intensity is up to 33% of eligible costs).



- **Grant for research and development of offshore technologies**
  started from 2013, is provided to shipbuilding and ship machinery companies which carry out research and development of high level offshore technologies, aiming to promote innovation for offshore development (grant intensity is up to 50% of eligible costs).

Measures for capturing new demand

- New demand for F S R U in Japan
  - Expected shale gas import to Japan could increase the FSRU demand as well as LNG carrier demand.

FSRU

In order to ensure the safe operation of FSRU, operators need guidelines for
- Complying with various safety regulations applicable to FSRU
- Emergency responses in case of flooding from tsunami

- Liquefied Hydrogen transport in the future

Hydrogen is expected to be a next clean energy in the future, but IMO IGC code does not include the hydrogen.

Japan and Australia developed and agreed safety standards in order to transport liquefied hydrogen from Australia to Japan

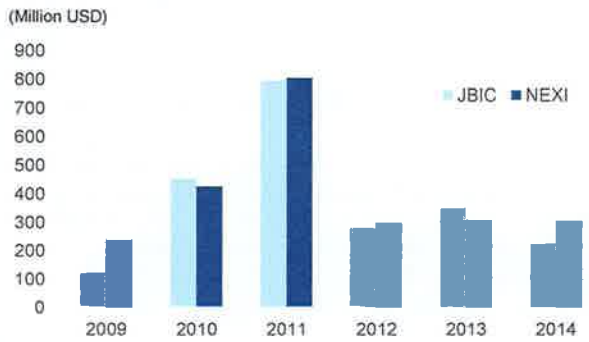
Liquefied Hydrogen carrier:

Securing Human Resources for Shipbuilding industry

Amount of new building and number of skilled workers in Japan

- Short term measures: Expanding employment of foreign workers
- Long term measures: Job training cooperating with academic sector, utilizing 3D task simulator for training of advanced techniques.

Financial support (Export credit)



Thank you for your kind attention.

ITEM 6.1: GREEN SHIPS

120th session of the Council Working Party on Shipbuilding (WP6)

Paris, 11-12 June 2015

Contact: Structural Policy Division,
Mr. Laurent DANIEL, Laurent.DANIEL@oecd.org
Ms. Klara STROBEL, Klara.STROBEL@oecd.org

Outline of the presentation

1. Background on the project
2. Climate Change Mitigation
3. Ballast Water Treatment
4. Oil Spill Recovery
5. Air Pollution
6. Concluding remarks

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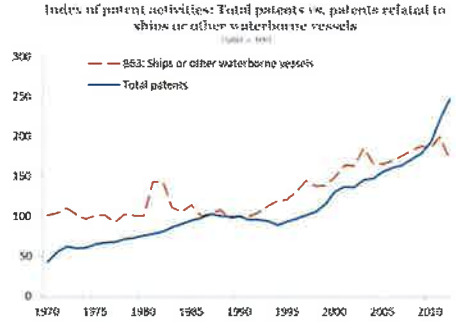
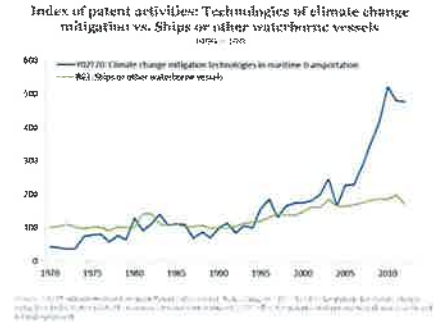
Background on the project

- Green ships in the WP6 PWB 2015–16
- **Goal** :
  - Identifying market conditions and policies leading to innovation in maritime transport.
  - Initial focus on 4 categories of green innovation.
- **Methodology** :
  - Extraction of the patents for several categories (in the database Patstat) of green innovation by the Secretariat.
  - Analysis of policies that possibly drive innovation which lead to greener ships by Pr. James Corbett.

Comparing patent activity: *total versus maritime transport*



Acceleration of patent activity for climate change mitigation in maritime transport



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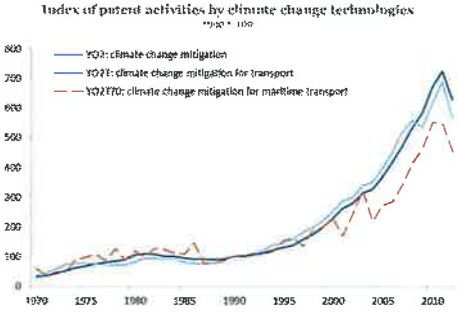
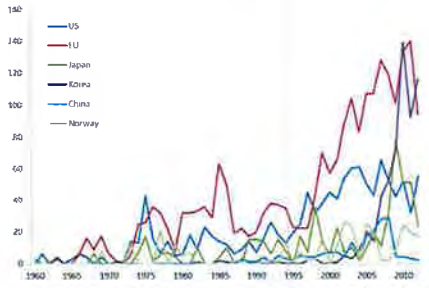


15/06/2015

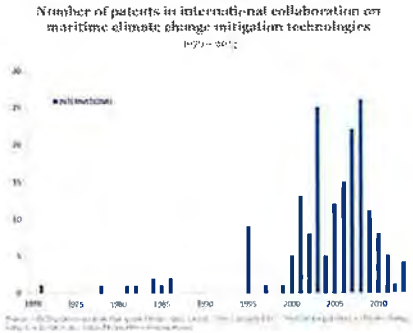
Climate change mitigation patent activity by inventor countries

Number of patents on maritime climate change mitigation technologies by inventor countries



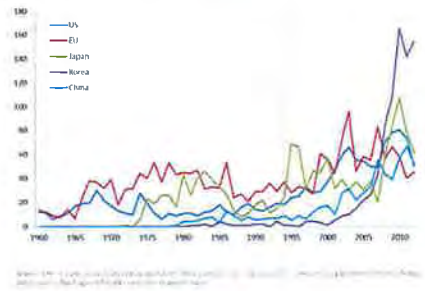
International climate change mitigation patent activity

Number of patents in international collaboration on maritime climate change mitigation technologies



Climate change mitigation patent activity by IP offices

Number of patents on maritime climate change mitigation technologies by IP offices



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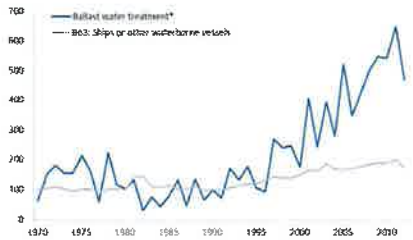
Ballast water treatment patent activity

Index of patent activities: Technologies of ballast water treatment vs. Ships or other waterborne vessels



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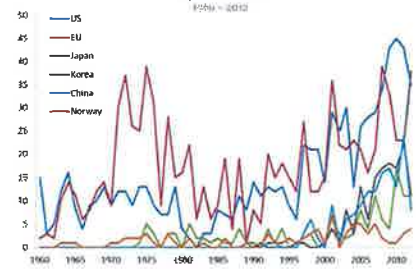

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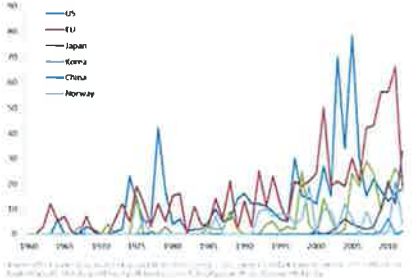

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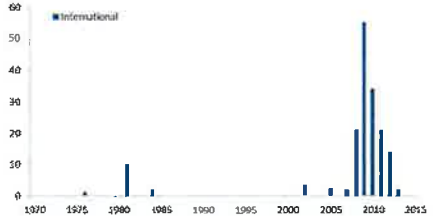

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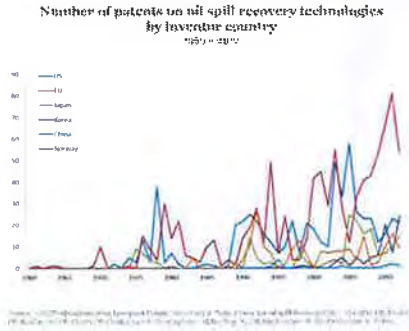
Oil spill recovery patent activity by inventor countries



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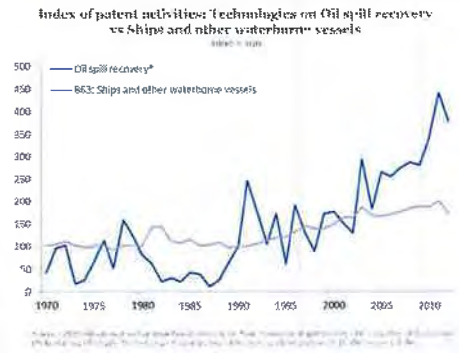
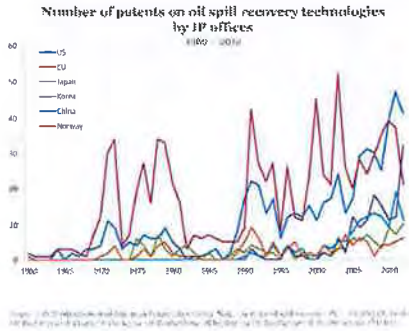
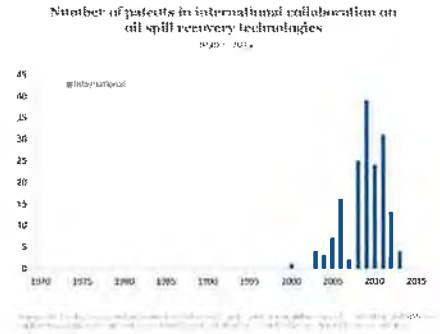


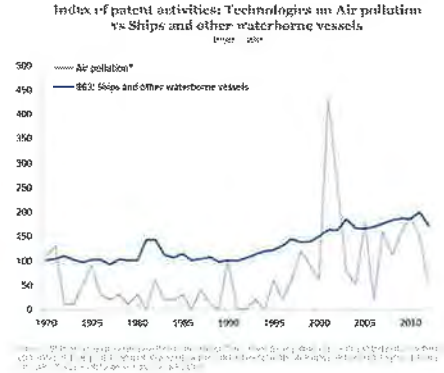
Oil spill recovery patent activity by IP offices



International oil spill recovery patent activity



Patents to reduce local air pollution by ships



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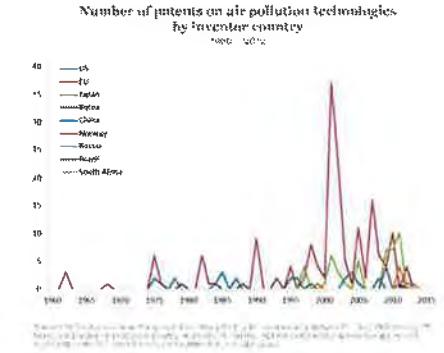

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6. **Concluding remarks**

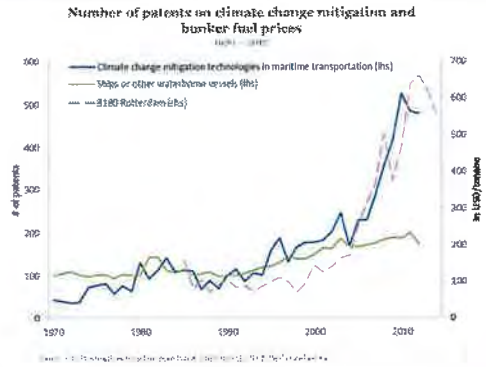
15/06/2015

Thank you.

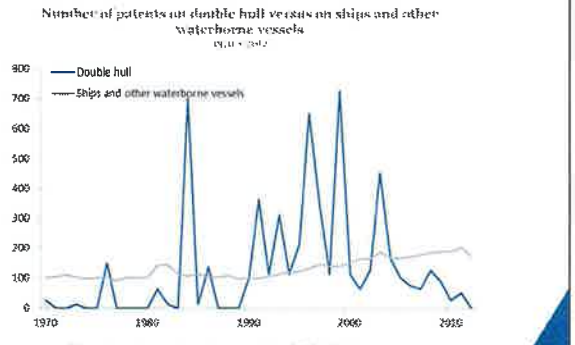
Concluding remarks

- **Next Steps of the project**:
  - Construction of **policy indicators** for all four categories based on national and international regulations (e.g. IMO MARPOL Annex 1~6) by Pr. Corbett.
  - Empirical **analysis** of the link between innovation (i.e. patent activities) and policies, with control variables (e.g. bunker fuel prices, seaborne trade, ...)
  - **Report** on innovations leading to greener ships presented at the 10 November WP6 meeting.

Backup: Patents on climate change mitigation and fuel price development



Backup: Double hull patents



ENERGY INSTITUTE UCD

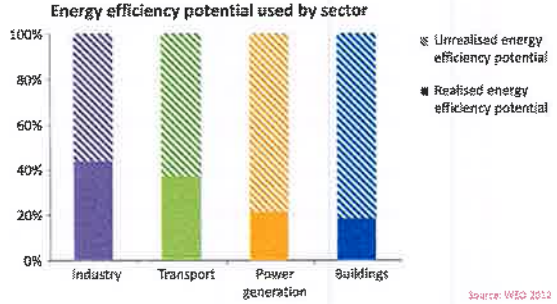
Split Incentives in Energy Efficiency

Lisa Ryan, UCD Energy Institute
11th June 2015.

Outline

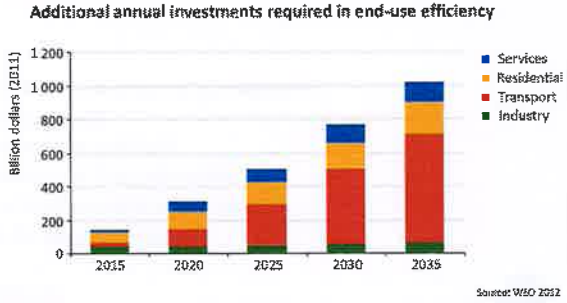
- Energy efficiency context
- Introduction to split incentives
- Examples of split incentives
  - Construction of building
  - Use of building
- Policies to overcome split incentives

Energy efficiency – unrealised potential



Two-thirds of the economic potential to improve energy efficiency remains untapped in the period to 2035

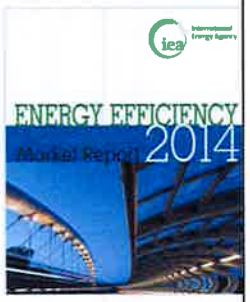
…but not enough to unlock energy efficiency's potential



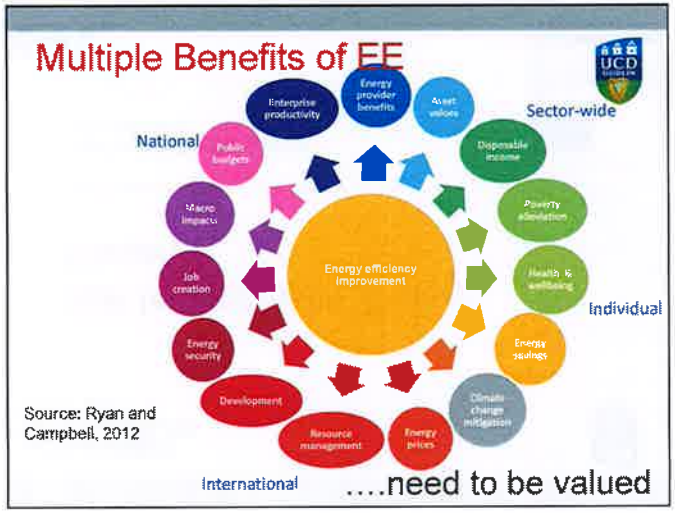
Additional investments required in end-use efficiency are $11.8 trillion over 2012-2035

Energy efficiency investment is more than people think.....

- Energy efficiency market estimated value to be between USD 310 billion and USD 360 billion
- Most investment self-financed but third-party financing estimated in range of USD 120 billion and set to grow
- Energy efficiency market: diffuse, extensive and anticipated to grow



Multiple Benefits of EE



Source: Ryan and Campbell, 2012

….need to be valued

Why is private finance in energy efficiency so hard to mobilise?

- Market failures
  - Split incentives
  - Absence of clear legal responsibility
  - Subsidies and price distortions
- Information failure
  - Consumer awareness on the benefits of EE
  - Lack of information on comparative efficiency of products
  - Lack of training
- Financial barriers
  - Externalities
  - Long payback periods
  - Lack of collateral
  - Perceived risk
  - Project size
  - Transaction costs
  - Capacity within the financial sector

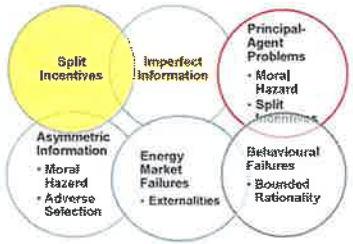
What are Split Incentives?

- Split incentives: when participants in an economic exchange do not share the same goal (Charlier, D. 2014. Split Incentives and Energy Efficiency: Empirical Analysis and Policy Options Document de travail ART-Dev 2014-07.)
- $Total\ cost = \underbrace{K(E)}_{\text{Capital costs}} + \underbrace{O(E, PP_E) x\ D(r,T)}_{\text{Operating costs}} + other\ costs$

Paid by different people

- Split incentives are an important barrier to reducing energy consumption in the residential sector (IEA, 2007).

The EE challenge – why so much untapped? Market failures in energy efficiency



Prices important for removing certain barriers, e.g. ***negative externalities***

- Other market failures, i.e. informational failures and principal-agent problems, can prevent price signal from reaching consumers
- The person experiencing increased prices may not be the one making decisions on energy use (split incentives problem)

Split incentive in residential buildings: Landlord tenant energy use problem

- When the owner and the occupier of a housing unit are different people, a split in incentives occurs.
- Landlord wants to minimize the purchase cost of energy

Evidence from research

- *Mind the Gap* (IEA, 2007): <30% energy savings potential untapped
- 2005 Residential Energy Consumption Survey (2005) in the US: renters significantly less likely to have energy-efficient refrigerators, clothes washers and dishwashers than homeowners; controlling for income, demographics, energy prices, weather and other controls
- Gillingham et al. (2012) found that owner-occupiers 20% mroe likely to insulate and 16% more likely to turn down heating at night.

Types of split incentives in residential buildings

Rental properties

Energy technology purchase → / Energy use ↓	End user can choose technology	End user cannot choose technology
End user pays the energy bill	x	✓
End user does not pay the energy bill	✓	✓

New construction: builder vs future owner

Split incentives in construction of new buildings

- When the builder or construction developer and future building owner are separate entities
- Builder's incentive: to construct building for least cost within constraints of regulation
- Future owner's incentive: to minimise costs of purchase and operation of building
- Information and contractual barriers do not help
- Results in higher energy building than optimal

Example: Appliances electricity use

- Extent of Market failures
  - Present in both technology and use
  - Main market failures: Principal-Agent (i.e. Split incentive) problems could affect 20% of U.S. tenants;
    - Informational failure: Japanese study shows little awareness of impact of energy efficiency on electricity costs
- Policies to address these – costs and effectiveness
  - Energy/carbon pricing will not solve these issues
  - Regulations and information, ie Standards and labelling. programmes have achieved energy savings in IEA countries
  - Energy performance standards estimated to be highly cost-effective in the U.S.
  - Real-time informational tools can save 5-12%

Split incentives: Landlord-tenant problem

Are renters less likely to have energy efficient appliances than homeowners?	
Energy Star refrigerator	-6.7%
Energy Star dishwasher	-9.5%
Energy Star air conditioner	-0.9%
Energy Star washing machine	-3.3%
Energy efficient lighting	-4.9%

Source: Davis, L. W. (2010) "Evaluating the Slow Adoption of Energy Efficient Investments: are Renters Less Likely to have Energy Efficient Appliances?" *NBER Working Paper No. 16114.*

EE policy interaction with carbon pricing - appliances

Market failures → / Policies ↓	Energy market failures: negative externalities	Principal-agent problems: Split incentives Asymmetric information	Information failures: Insufficient information Inaccessible information Aggregated energy price	Behavioural failures: Bounded rationality
Carbon pricing	H	-	L	-
MEPS	-	H	H	H
Labelling & Informational tools	-	L	H	M

Source: IEA, 2011

Addressing market failures with policy packages

Market failures → / Policies ↓	Negative externalities	Split incentives	Information failure	Behavioural failure
Carbon pricing	H	-	L	L
Building standards	-	H	H	H
Labelling, information programmes	-	M	H	M
Fiscal policies: subsidies, tax rebates	M	-	-	M
Targeted measures for new construction	L	H	M	H

Takeaway message....
...Policy packages needed

Energy/Carbon prices for least-cost demand/carbon mitigation

+

Complementary policies for Energy Efficiency

- MEPS*
- Labelling
- Grants/ subsidies
- Greening taxes
- Finance

* = Minimum energy performance standards

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THANK-YOU

Lisa.ryan@ucd.ie

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Where efficiency levels may be sensitive to price, split incentives c their uptake

	Existing multi-dwelling	Existing 1-2 dwelling
Short-run	-0.07	-0.21
Long-run	-0.40	-0.31

Residential price elasticity low across buildi and imperfect information:

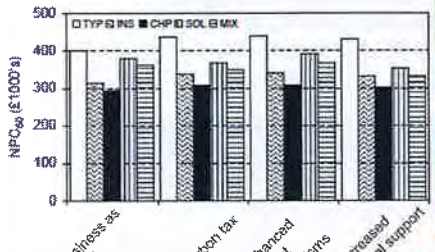
- Short-run price elasticity significantly lower in multi-dwelling buildings (more tenants) than in one- and two-dwelling buildings (more home-owners)
- 99% of tenants in multidwellings do not pay individual energy bills – PA issue
- Heating expenses on average between 3 and 4 percent of total household expenditures - energy efficiency improvements have a small impact on the overall household budget
- New buildings EE levels stagnated – builders no incentive for low LLC and information barrier
- Energy and carbon prices not able to address all these issues (Nassen, Sprei and Holmberg, 2008)

Overcoming split incentives: Pricing may not best exploit energy-efficient opportunities

- Builders, consumers etc may not understand the benefits of EE and know which is the best product (imperfect information):
  - Newell, Jaffe and Stavins, 1998: energy price changes (along with MEPS and AI) impacted on energy efficiency of US room air conditioners and gas heaters but responsiveness increased *after* energy-efficiency labelling requirements for these appliances took effect.

- In the UK building sector, an increase in energy prices would make investment in low-carbon, energy-efficient refurbishment options much more economically sensible than business-as-usual; yet typical design and build contracts do not consider this

Figure compares net present cost over 60 years for different market scenarios and building types



TYP: Building regulations 1995 (Part L)

INS: Improved insulation; efficient boiler, hot water storage, lighting and heating controls

CHP: Gas-fired micro-CHP system

SOL: Solar energy plus meeting 2002 Building Regulations

MIX: Microgeneration using solar and wind plus efficiency measures

Source: Atkinson, J.G.B., T. Jackson and E. Mullings-Smith (2009). "Market influence on the low carbon energy refurbishment of existing multi-residential buildings". Energy Policy 37: pp. 2583 - 2593.

Survey of residential price elasticity of energy demand

McKinsey 2007 study on energy productivity

- Residential price elasticity is low in the short and long run due to various market imperfections
- Concluded that standards may be more appropriate for this sector in addition to carbon pricing.

	US Bernstein/Griffin-RAND	Global survey Espey/Espey*	Beijing residential by Qi Chhui	Jinan China residential by Yang Lijun	Indian urban household	
Short-run electricity	-0.24	-0.26	-0.40	-0.35	-0.29	
	US Bernstein/Griffin-RAND	Global survey Espey/Espey*	Australia – Akmal/Stern	Ontario – Ryan and Wang	New York – Dumagan and Mount	NEMS model
Long-run electricity	-0.34	-0.81	-0.60	-0.23	-0.07	-0.41

* median of ~125 estimates of price elasticity

Source: McKinsey Global Institute (2007), *Curbing Global Energy Demand Growth: The Energy Productivity Opportunity*, McKinsey Global Institute, San Francisco

Proposal for future activities in terms of green ship promotion

Kei ITO
Shipbuilding and Ship Machinery division
Ministry of Land, Infrastructure, Transport and Tourism, Japan

Ministry of Land, Infrastructure, Transport and Tourism

Earlier discussion at the WP6

Discussion based on the Japanese proposal

- The 113th WP6; Discussed based on the proposal* by Japan

  *Proposal for Promoting Low CO_2 Emission Ships through the SSU

- The 115th WP6; agreed to postpone the discussion and to see the impact of the IMO EEDI regulation which came into force from January 1st 2013.

Discussion based on the DNV report

- After the discussion above, the WP6 had discussion based on the report, prepared by DNV, focusing on the policy tools to reduce GHG emissions from ships.

Two items to be considered

- Definition of "Green Ships"
  - What environmental indicators would be used to define "green ships"?
    - CO2, SOx, NOx, Ballast water treatment system, ship recycling, etc.
- Policy tools
  - What policy tools would be appropriate to promote "green ships"?
    - Export credits, R&D support, support for pilot project, reduced port fees, etc.

Recent international developments on green ship promotion

Country/ Organization	Policy tools	Definition of green ships
Korea (KEXIM)	Loans or Equity	Unclear (EEDI only?)
Korea (KoFC)	Loans	Unclear
Finland (MOT)	Unclear	Unclear
GAF	Reduction of port fee	Air emission, ballast, ship recycling, etc.
WPCI	Reduction of port fee	NOx, SOx, CO2

Future works

Information collection on recent movements

- to collect detailed information on the green ship promotion policies in terms of both the definition and policy tools.
- to submit information to the Secretariat by the next session of the WP6.

Study on policy tools

- to look at similar policies in other sectors such as road transport, building and aircraft.

120th Session of the WP6

New Forms of Financing in the Shipbuilding Industry

HDA CONSEIL
Henri d'Ambrières

11 June 2015

SUMMARY

A. Existing channels to draw liquidity to MLT Investments

B. Drivers for an investment in shipping

C. Specifities of Ship Finance

D. Trends for the years to come

Existing Channels to draw liquidity to MLT Investments

A. Providers
   A. Banks
   B. Non-banks

B. Instruments
   A. Equity
   B. Capital markets
   C. Loans

C. Conditions of access
   A. Expected returns
   B. Financial regulations
   C. Other regulations
   D. Other drivers

D. Volumes and trends

Drivers for an investment in shipping

A. Industrial Approach
   A. Revenues / Capacity (volumes of trade, passangers,...)
   B. Opex (Control of)
   C. Regulations

B. Financial Approach
   A. Return on Investment
   B. Available financings
   C. Tax advantages

C. Public support
   A. On shipbuilding
   B. On financing of investment. Via ECAs, Development Banks,...

Specifities of Ship Finance (1/2)

Is it a unique market ? Or a fragmented one ?

A.Approaches : Corporate, Cash-Flow driven, Asset-backed

B.Funding sources : Commercial banks ? Capital markets and non banks ? Public institutions ?

C.Funding tools (seen from the owner side)

Equity, capital markets, loans

D.Other financing tools (seen from the provider side)

Technical bonds, LCs, Prefinancings,...

Specifities of Ship Finance (2/2)

A. The role of public financial institutions

Their responsibility vs shipbuilders, ship-owners and operators

Management of market failures via subsidiarity ? Creation of market disruptions ?

A need for more, less support ? A need for a level-playing field ?

B. Evolution over the last years (since the publication of the 2007 report)

1.Returns, duration, equity ratio, loan to value ratio

2.Changes in funding tools

Trends for the years to come

A. Funders
   A. Will commercial banks remain the important funders ?
   B. Who might step in ?
      A. Public funders ? Roles of ECAs, Development banks ?
      B. Capital markets
      C. Hedge funds

B. Parties involved in the financing
   A. Shipbuilders
   B. Ship operators
   C. Financial sponsors

C. Instruments
   A. Equity : Quasi Equity ?
   B. Private equity
   C. Debt driven by capital markets
   D. Traditional bank debt backed by mortgages ? Bank debt backed by cash-flows ? Corporate ?
   E. New geography of funds

D. A more unified market ? A more fragmented one ?

International Transport Forum

The Impact of Mega-Ships

Olaf Merk
11 June 2015
OECD Working Party on Shipbuilding
Paris, France

OECD

International Transport Forum

Mega-ships

- Where are we?
- How did we get here?
- What is the issue?
- Where are we heading?
- How to make this work?

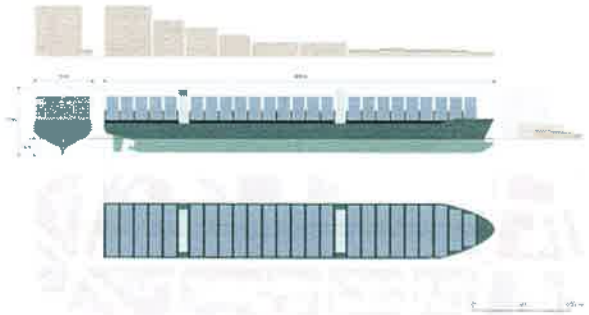
International Transport Forum

"The Impact of Mega-Ships" Report

International Transport Forum

Where are we?

How big are mega-ships?



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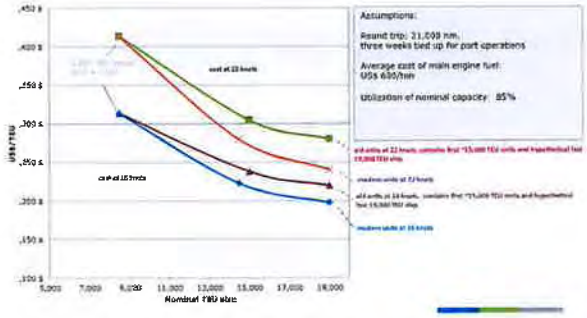
How did we get here?

International Transport Forum

Vessel cost savings are decreasing



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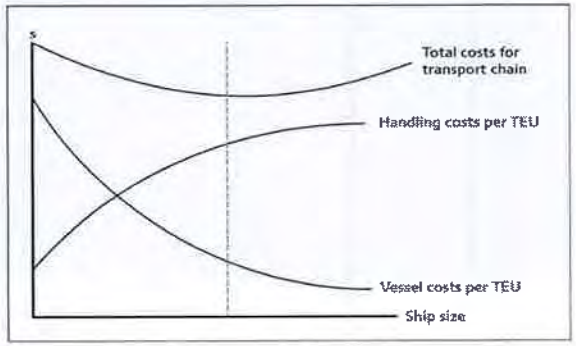
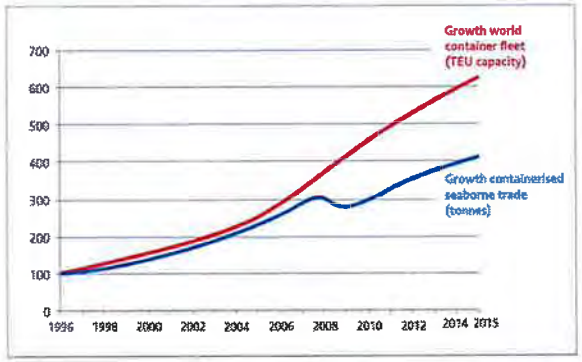
What is the issue?



International Transport Forum

Can these ships be filled?



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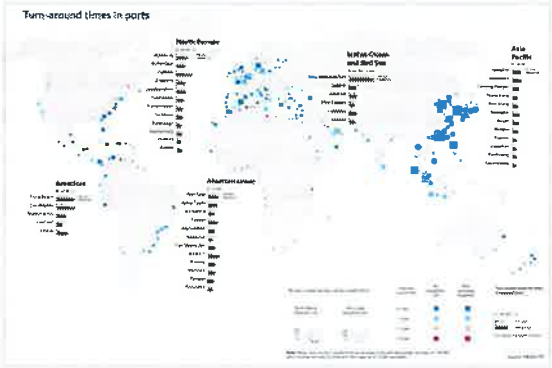
Supply chain costs and risks increasing



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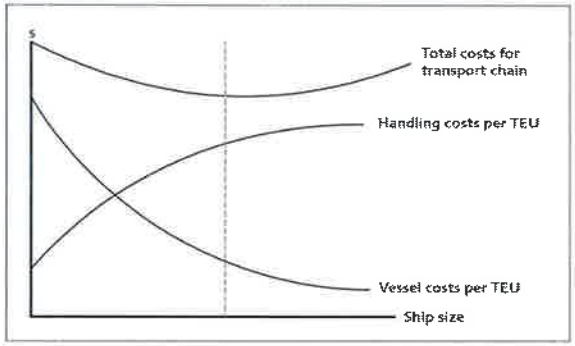
Back to the issue



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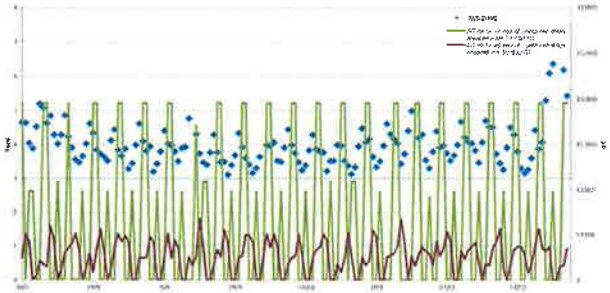
Peaks



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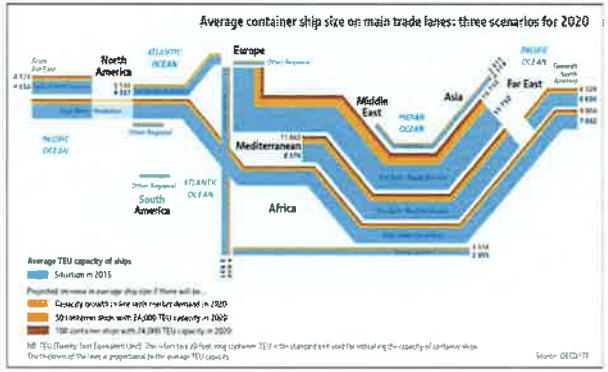
Where are we heading?



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How to make this work?

- More balanced decision-making
- Align incentives & costs to public interests
- Policy support for supply chain productivity
- Collaboration at regional and port-level
- Forum for liners, terminals, ports & others

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Links with shipbuilding

- Anecdotal evidence on how shipyard overcapacity has fuelled new mega-ships
- Excess supply not only a challenge for ship building industry, but important knock-on effects along the whole transport chain.
- This incurs additional public costs. How to factor these in?

International Transport Forum

Thank you

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OECD

Worldyards

Dock productivity as the measure of Shipbuilding Supply; A Data-based Practical and Policy Approach

Prepared by Matthew Flynn
Worldyards.com Pte Ltd
12 June 2015

Worldyards

Problem statement

"Previous attempts by the WP6 to conduct a comprehensive measurement of shipbuilding capacity were limited by data or methodological constraints."
(OECD, 2014)

Worldyards

Problem statement

Historically, the OECD adopted a very clear and detailed way of measuring capacity that was agreed to by the WP6 and all the key OECD shipbuilding associations (with the exception of the Chinese participants because they were not participants at the time.)

Worldyards' review of the methodology is that it is based on a process that requires extensive inputs and interpretations of the importance of factor inputs.

Worldyards

Worldyards Methodology

This document presents an statistically objective single parameter namely dock productivity. Dock productivity is an method of total factor productivity based on two data points, total dock area and total output in CGT terms. Note that for purposes of this presentation, the term "dock" includes drydocks, floating docks, slipways and skidways. The purpose is to capture all space in the shipyard used for constructing the vessel after keel laying.

Note that the approach is based on the availability of data in the Worldyards database on shipyards and output of shipyards.

Worldyards — Total Factor Productivity

In economic terms, "productivity" can refer to output per unit of a particular input like labor, or output per unit of all inputs, which includes labor, capital, and all other inputs employed in production. Our methodology is intended to capture all inputs thus represents total factor productivity.

TFP captures the output on a unitised basis of all inputs combined.

While Total Factor Productivity can be used to gain insight into national or enterprise level productivity, our main purpose is to calculate supply. (There are also numerous advantages for commercial application, however, the purposed application in this case relates to provided a practical data-based practical and policy approach to shipbuilding supply.)

Worldyards — TFP in other sectors

Total Factor Productivity is widely used in agriculture and we believe it is appropriately applied to shipbuilding.

"During the 2003/04–2008/09 period agricultural production in Ethiopia grew annually at 9.3 percent while cultivated area expanded at 4.7 percent. The remaining growth resulted from intensive use of other inputs, increased productivity, increased efficiency, or a combination of these factors."

Source: Growth in Total Factor Productivity in the Ethiopian Agriculture Sector: Growth Accounting and Econometric Assessments of Sources of Growth, Author Fantu Nisrane Bachewe (2012)

Worldyards — TFP in other sectors

In farming terms, the simple measure is bushel per acre or hectare for different crops. Fortunately, shipbuilding has CGT measure to normalise outputs so that bulker output and container output can be compared apples to apples rather than corn to soybean

Table 1. Projected 2014 Returns Under Different Cash Rent Levels.

	Expected 2014 Yields and Returns[1]			Average Rent		High Rent	
Region	Corn Yield	Soybean Yield	Operator and land Return	Cash Rent[2]	Farmer Return[3]	Cash Rent[4]	Farmer Return[3]
	Bu/acre	Bu/acre	$/acre	$/acre	$/acre	$/acre	$/acre
Northern	185	58	284	275	9	350	-66
Central-High	195	58	330	300	30	375	-45
Central-Low	186	53	284	275	9	350	-66
Southern	161	48	181	208	-27	283	-102

[1] Calculated from 2014 Illinois Crop Budgets using a $4.60 per bushel corn price and a $11.00 per bushel soybean price

[2] See the September 10, 2013 FarmdocDaily article entitled 2013 Count Cash Rents: Levels, Variability, and 2014 Cash Rent Decisions

[3] Operator and land return minus cash rent

[4] Average cash rent plus $75 per acre

Source: *High Cash Rents and Farmer Returns; 3 December 2013.* http://farmdocdaily.illinois.edu/2013/12/high-cash-rents-farmer-returns.html

Worldyards — Methodology Calculation

Worldyards' distinguishes supply at the level of dock and we specifically look at dock productivity in terms of potential annual output in compensated gross tonne (CGT) terms.

Dock productivity simply takes the total annual CGT output of shipyard as the numerator and the square meterage of the docks or slipyards as the denominator.

Worldyards is able to conduct this calcuation on an historical basis because its data set includes docksize, annual output of shipyards. Worldyards also has a methodology to conduct a forward estimation of supply based on historical dock productivity.

The forward equation is: shipyard productivity + organic growth rate +/- yard development +/- country growth

Worldyards — Application of Methodology

As demonstrated, Worldyards shipbuilding capacity and utilization estimate is not a result of mathematical forecast, but rather result of a sum-of-all-parts approach collecting micro developments in each and every shipbuilder and capturing each and every completed export vessel above 3000 dwt.

For statistical and policy approaches, the outcome of the inquiry into total factor productivity is a reliable reference for shipbuilding supply, which we call "capacity" or "theoretical output potential" both which represent the maximum output given the facilities of the total data set of shipyard producing commercial vessels.

Worldyards — Industry practice

SIDEBAR

The following points relate to industry practices related to docks (but their discussion does not affect our assertion that dock productivity is a valid metric for shipbuilding supply.)

We consider "facilities" the real bottleneck in output rather than shorter term (but important) issues such as lack of main engine and manpower shortage, lack of financing capability to issue refundment guarantees etc.

Theoretical output potential is what the shipyards themselves refer to normally as "number of ships per year" for each facility and production line. So in our view theoretical output potential does not really go down, but utilisation goes up and down given market conditions. Capacity is therefore the sum of effective capacity (actual output each year) + dormant capacity.

Worldyards — Forward projections

Worldyards data provides a basis for either historical or current capacity. For future or potential capacity, we have developed an in-house methodology for projections.

The Worldyards practice for calculating "potential capacity" has been to first calculate a realistic organic productivity growth for existing yards, then examine all productivity investments, such as reliance on block factories, bigger cranes, etc.

In addition to baseline capacity, we try to allow for one-off developments which we call "capacity-significant events": introduction of new production methods/processes; introduction of facilities/equipment (bigger cranes for instance); closure of facilities; shifting of strategic focus from merchant shipbuilding to other activities, etc.

Our practice is to include greenfield projects were counted once they have government approvals and confirmed finance.

Worldyards — Data collection

Worldyards evaluates the impact of such events on capacity, they can be viewed under the "Background" box of each shipbuilders in our website.

For startup facilities, we assume a "learning curve" whereby the productivity of their facilities can be improved overtime (if they want to), for instance they can grow from baseline (first year of deliveries) per year until they reach their theoretical output potential. (It typically takes three years).

Worldyards' Methodology

When Worldyards published a shipbuilding capacity forecast in September 2005, many market participants responded by suggesting that the forecast exaggerated the potential shipbuilding capacity.

In the end, despite the external perception that Worldyards' projections were exaggerated, after several years, it was clear that our 2005 projections of output in 2009 actually fell far short of what actually happened.

Where the capacity surge came from was from the new facilities and extra productivity that were generated by lucrative newbuilding prices. This was all rooted in basic economics; supply gets very elastic when pricing is at the top end of the scale.

Shipbuilding Economics

Worldyards' database on shipbuilding expansion (both in terms of new facilities and also improved efficiencies) indicates that there was a strong elasticity of shipbuilding supply during the first decade of the new millennium.

The rapid expansion through new facilities and heightened efficiency was a characteristic of the 2006 to 2009 period.

Naturally, we believe that policy makers should put a priority on ensuring they are fully informed on the expansion of shipbuilding capacity.

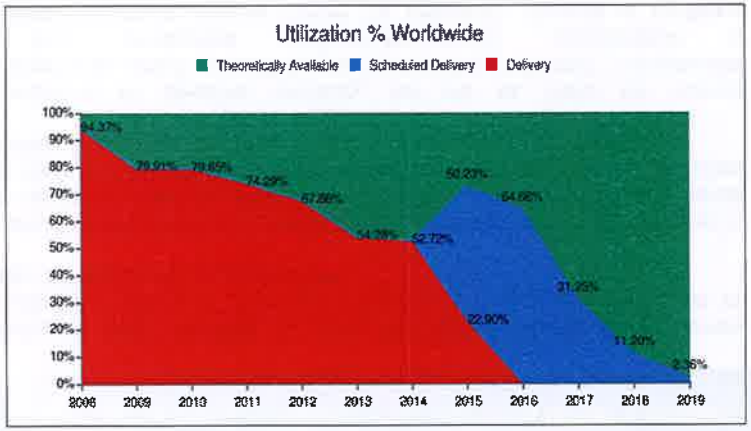
This is particularly important as market participants would have a tendency to encourage a belief that there is a shortage of global capacity.

Cumulative Measurements

- The Worldwide, Continent-wise and Country-wise estimates are just a summation of resultant estimates of individual builders.

- This is only for commercial builders. For builders who can do both commercial and offshore, WY estimates percentage of capacity allocated to offshore.

Capacity and Utilisation



Figures as at 07 June 2015

Worldyards — Historical analysis

Worldyards use the shipyard production in 2008 as the base of estimation. It was assumed that the shipyards are fully utilizing their facilities in that year except for the few builders who have just started production in mid to end of 2007 and a number of builders who have actually have higher production in 2007.

Worldyards — Capacity and Utilisation

Growth in 2008-2012 – even during financial slump, there were already significant investments for new facilities in 2007-2008.

Drop of capacity 2013-2014 – (1) closure of yards especially small shipyards (2) "big yards" allocated their capacity to offshore (3) there are also small yards who shifted to offshore (AHTS and other small structures).

Worldyards — Capacity and Utilisation

Year	Capacity (Theoretical Output Potential in CGT)	Annual Growth	Delivery (CGT)	Scheduled Delivery (CGT)	Capacity / Utilization
2008	42,797,786	-	40,390,044	-	94.37%
2009	51,897,561	21.26%	41,472,610	-	79.91%
2010	59,498,371	14.65%	47,392,585	-	79.65%
2011	62,408,718	4.89%	46,366,336	-	74.29%
2012	63,294,878	1.42%	42,952,957	-	67.86%
2013	59,846,096	-5.50%	32,467,358	-	54.25%
2014	57,834,954	-3.31%	30,492,838	-	52.72%
2015	58,839,921	1.74%	13,477,271	29,567,804	73.14%
2016	60,356,041	2.58%	17,532	39,008,318	64.66%
2017	60,307,979	-0.08%	-	18,846,987	31.25%
2018	60,307,979	-	-	6,752,865	11.20%
2019	60,307,979	-	-	1,420,282	2.36%

Worldyards — Expansionary Bias

While policy support for Total Factor inputs are not the subject of this presentation, we would note for policymakers that though there is generally an expansionary tendency resulting from government support measures, the Worldyard's Market Distortion Framework would naturally see different Supply-Demand & Macro-Micro measures under different market conditions.

In times of weak demand for ships (real economy) or illiquid financial conditions (financial economy), then governments will have different approaches according to the framework that we have outlined above and have been detailed in the OECD references on state support measures.

Worldyards — Policy guidance

By directing our attention to utilization, policy makers and issuers of refundment guarantees can then start to have an improved clarity on the risk of shipbuilding contracts at different cycle point in the market. The period of the 2000s resulted in a substantial expansion of capacity. With utilization of this capacity dropping significantly, then there is a greater likelihood of governments taking some of the actions as detailed above in the market distortion.

It is well known that the greater the orderbook backlog, then the stronger position the shipbuilders will be in when negotiating and concluding shipbuilding contracts. Under such a scenario, full cost pricing is more likely.

In periods of weak order backlog, then variable cost pricing is more common and this will result likely in governement support and a prolongation of the market slump.

Worldyards — Policy Steps

We have seen different approaches to government intervention to also restrict the output of yards

- Merging of shipyards – whilst technically this will not significantly affect the overall capacity (facilities is just the same) but this could improve the position of the shipyard financially and improvement in design/technology (sharing)

- China

(1)China laid out a detailed three-year plan to restructure its massive shipbuilding industry, urging local governments to halt approvals of new projects and firms to build higher quality vessels.

(2) They released their "white list " shipyards that are deem worthy of favourable policy support (such as export tax rebates and bank credit).

Worldyards — Policy Steps

Japan

(1) Operational Control
  (a) Permission for building a vessel
  (b) Prohibition of parallel construction
  (c) Limitation of shipyard operation

(2) Physical Control
  (a) Basic law for physical control (The Shipbuilding Act)
  (B) Disposal of shipbuilding capacity

(3) Purchase of facilities

Worldyards

WE INVITE YOU TO ENGAGE FURTHER WITH WORLDYARDS FOR METHODLOGY AND DATA TO SUPPORT YOUR POLICY REQUIREMENTS.

Thank you.

matthew.flynn@worldyards.com

Newbuilding Requirement Forecast (SAJ2014)

Takeo Suzuki
Japan Ship Centre, JETRO London
- On behalf of The Shipbuilders' Association of Japan (SAJ)

JETRO London THE SHIPBUILDERS' ASSOCIATION OF JAPAN

Introduction of Organisations

JETRO Japan External Trade Organization

Japan External Trade Organization (or JETRO)

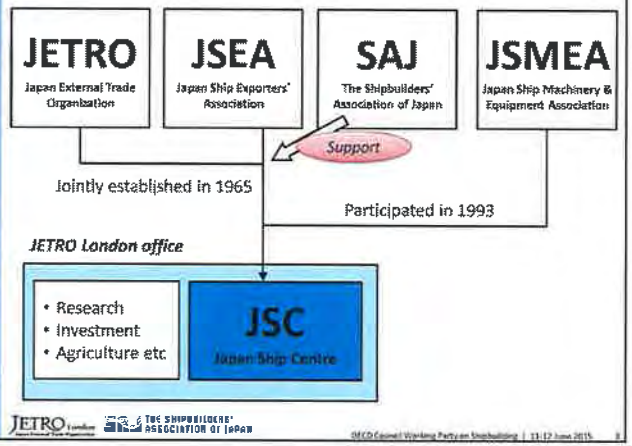
- ✓ A government organisation that works to promote mutual trades and investments between Japan and the rest of the world
- ✓ Has 44 branch offices in Japan and 76 offices in overseas

Japan Ship Centre (or JSC)

- ✓ Jointly established in London by JETRO and JSEA (Japan Ship Exporters' Association) in 1965
- ✓ Specializes in dealing with maritime issues (e.g. shipbuilding and ship machinery) and provides support for promotion of both industries for international field

Japan Ship Centre (JETRO London)

Introduction of Organisations (cont.)



Japan Ship Centre (JETRO London)

SAJ's Newbuilding Requirement Forecast

- ✓ Has periodically been done since 1960's, for long-term business strategies of SAJ's member companies.
- ✓ Is based on both forecasts of future seaborne trade and future replacement demand.
  - → Speculation orders and short-term market volatility are **NOT** taken into account.

FYI

THE SHIPBUILDERS' ASSOCIATION OF JAPAN (or SAJ) was established in 1947. Its membership consists of 17 companies and an association. Completions among SAJ member companies occupy approx. 90% of Japan's total outputs.

Japan Ship Centre (JETRO London)

Rough Sketch of SAJ's Forecast Methodology

Newbuilding Requirement by Ship Type Derived from... *Seaborne Trade*

Based on various factors such as...
- GDP Growth
- Energy Consumption
- Population Increase
- Crude Steel Production/Consumption

Newbuilding Requirement by Ship Type Derived from... *Replacement Demand*

SAJ's Demolition Model

Ship Type (example)	Age
Oil Tankers (200k+)	25
Bulk Carriers (100k+)	24
Containerships	28

50% of vessels assumed to be scrapped at above age

Newbuilding Requirement

Japan Ship Centre (JETRO London)

JETRO London | THE SHIPBUILDERS' ASSOCIATION OF JAPAN

OECD Council Working Party on Shipbuilding | 11-12 June 2015 5

Assumption of GDP Growth

GDP Growth Forecast (%)

	2013-35	2013-20	2020-25	2025-30	2030-35
OECD	***2.2***	2.5	2.1	2.0	2.0
Non-OECD	***4.9***	5.7	4.8	4.6	4.2
World	***3.6***	4.0	3.5	3.4	3.3

Based on economic outlooks of various organisations such as IMF, IEA and EIA

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Seaborne Trade Forecast by Main Cargoes (1)

	2013	2020(f)	2025(f)	2030(f)	2035(f)	13/35 (CAGR)
Oil	2,804	3,034	3,301	3,603	3,745	**1.3%**
5 Major Bulk	2,759	3,385	3,735	3,895	4,067	**1.8%**
(of which)						
- Iron Ore	1,156	1,540	1,749	1,740	1,743	**1.9%**
- Coal	1,086	1,269	1,346	1,448	1,547	**1.6%**
- Grain	395	400	432	469	491	**1.5%**
Other Dry (mainly container)	2,491	3,382	4,101	4,926	5,862	**4.0%**
LNG	246	393	434	477	517	**3.4%**

Oil
- Consumption until 2035: OECD almost flat. Asia 2.6%. RoW 1.1%
- Average distance until 2035: slightly increase (but decrease compared to previous SAJ-forecast, considering such factors as shale gas, intra trade)

Japan Ship Centre (JETRO London)

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Seaborne Trade by Main Cargoes (2)

Major bulk (iron ore, coal and grain)
- China's crude steel production: decrease from 2025 (iron ore imports decrease too), India: increase
- Both China's and India's coal seaborne imports: increase 3.0% yoy and 2.7% yoy respectively
- Grain: stable increase of 1.5% yoy until 2035 due to population increase

Container
- Estimated from correlation between GDP and container movements by route (transpacific, transatlantic, Asia-Europe, intra Asia and so on)
- Larger vessels in both Asia - Europe and transpacific
- Strong growth in intra Asia trades

LNG
- Seaborne trade of LNG in 2035: 517m ton. 3.4% yoy
- Increase from N. America to Far East and other Asia – ton-mile increase

Japan Ship Centre (JETRO London)

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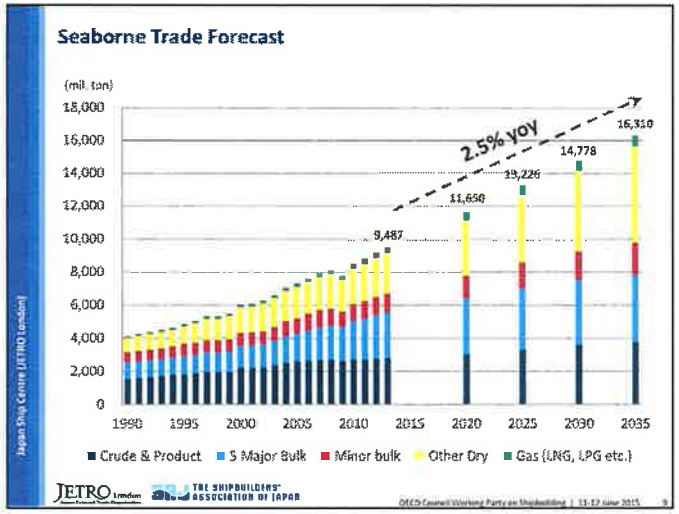
Seaborne Trade Forecast
(mil. ton)
18,000
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
2.5% YoY
9,487
11,650
13,226
14,778
16,310
1990
1995
2000
2005
2010
2015
2020
2025
2030
2035
Crude & Product
5 Major Bulk
Minor bulk
Other Dry
Gas (LNG, LPG etc.)
Japan Ship Centre (JETRO London)
JETRO London
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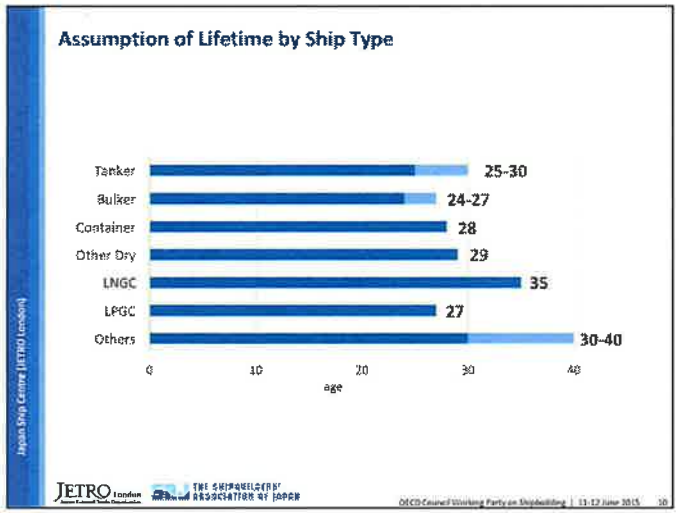
Assumption of Lifetime by Ship Type
Tanker
Bulker
Container
Other Dry
LNGC
LPGC
Others
25-30
24-27
28
29
35
27
30-40
0
10
20
30
40
age
Japan Ship Centre (JETRO London)
JETRO London
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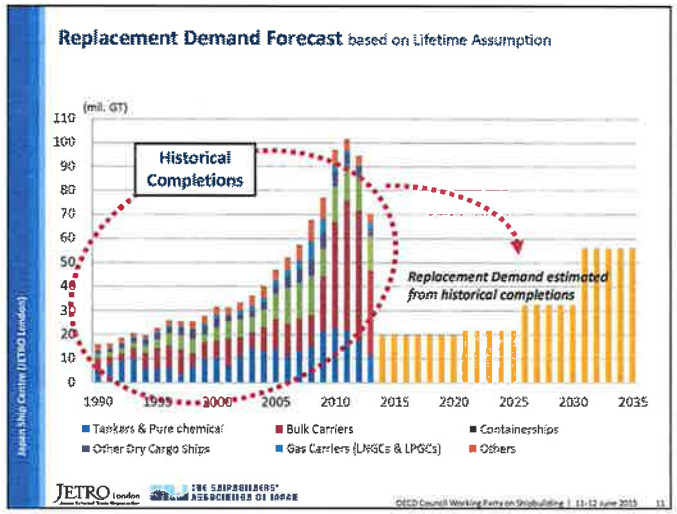
Replacement Demand Forecast based on Lifetime Assumption
(mil. GT)
110
100
90
80
70
60
50
40
30
20
10
0
Historical Completions
Replacement Demand estimated from historical completions
1990
1995
2000
2005
2010
2015
2020
2025
2030
2035
Tankers & Pure chemical
Bulk Carriers
Containerships
Other Dry Cargo Ships
Gas Carriers (LNGCs & LPGCs)
Others
Japan Ship Centre (JETRO London)
JETRO London
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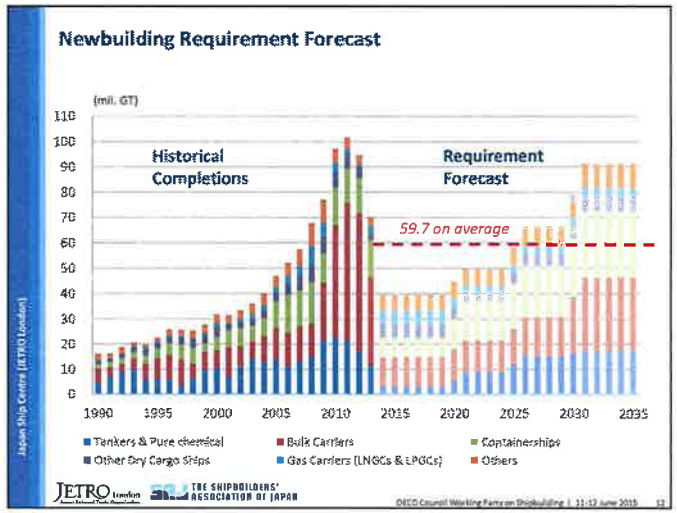
Newbuilding Requirement Forecast
(mil. GT)
110
100
90
80
70
60
50
40
30
20
10
0
Historical Completions
Requirement Forecast
59.7 on average
1990
1995
2000
2005
2010
2015
2020
2025
2030
2035
Tankers & Pure chemical
Bulk Carriers
Containerships
Other Dry Cargo Ships
Gas Carriers (LNGCs & LPGCs)
Others
Japan Ship Centre (JETRO London)
JETRO London
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15-Jun-2015

Information | Analytics | Expertise

IHS WORLD INDUSTRY SERVICE — JUNE 2015

OVERCAPACITY IN CHINA'S SHIPBUILDING INDUSTRY

A case study of policy effort dealing industrial overcapacities

Yuan Gao, senior economist
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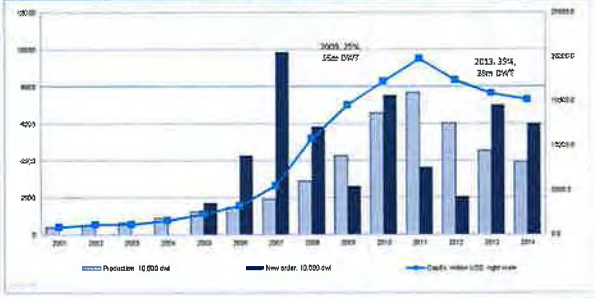
Unsustainable factors leveraged investments during 2008-2011

- Policy support on industrial development and exports
- Loosening monetary measures boosted credit inflow
- Different interests between central and local governments

- **Policy support**
  - ✓ "Shipbuilding industry revitalization plan" by State Council, June 2009
  - ✓ Overcapacity and inefficient investment recognized but pro-growth measures were the policy focus
  - ✓ Export tax-rebate resumed
- **Flooding credits**
  - ✓ Stimulus package plus loosening monetary measures boosted capital inflow in shipbuilding sector
  - ✓ Surging demand in commodities derived up shipping demand
- **Central vs. local Govt.**
  - ✓ Central government would check total capacity and encourage improvement in efficiency and technologies
  - ✓ Local governments consider ship yards being GDP booster and employment feeder

History: not all capacity expansion justified by demand

Fixed investment versus demand in China's Shipbuilding Industry

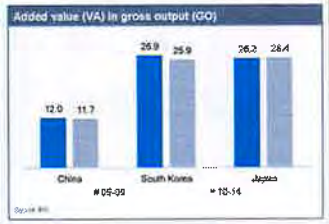


Low utilization rate and worsening demand outlook were seen in early 2009, but fixed asset investments in the sector grew strongly until 2012.

Competitiveness in comparison to Korea and Japan

Gross profit in gross output (profit margin)

Added value (VA) in gross output (GO)



A low profit margin should discourage investment sentiments and drive out the uncompetitive players

A low ratio of VA over GO in China is evidence of China's focus on low end of the value chain

Recent policy effort dealing with overcapacity

"Shipbuilding industry restructuring plan (2013-2015)" by State Council, June 2013

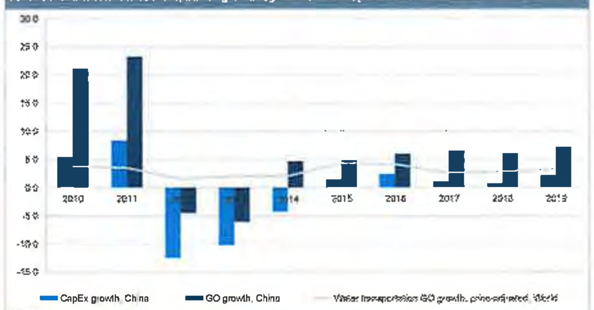
These guidelines in 2013 plan are similar to the 2009 plan, but it became more restrictive on capacity control; in addition, the market environment also changed

- **No approval for new capacities in 2013-15**
- **Encourage domestic demand with subsidies**
- **Financial support**
- **Guidance for restructure**

New orders recovered well in late 2013 and early 2014, but its sustainability was doubtful. The policy guidance benefited mostly to the "state owned enterprises (SOE)". Small and private yards were even less competitive due to the biased practice

Outlook: moderate growth and higher degree of concentration

Fixed investment in China's Shipbuilding industry vs. world transportation revenue



Investment growth will turn positive but remained at very low over midterm. Future asset investment will focus on moving up the value chain; higher degree of industry concentration is expected

15-Jun-2015

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SEA Europe
Ships & Maritime Equipment Association

SEA SMRC
Ship Maintenance, Repair and Conversion

OECD WORKING PARTY ON SHIPBUILDING

SMRC, demand linked to new regulations and on capacity issues with reference to the Ballast Water convention and Emissions Control Areas

Sieger Sakko, Excecutive Secretary SMRC Group

12/06/2015

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SMRC is not NEW Buidling

- It is a short term activity
- Taking place in outside environmental conditions
- Has characteristics of a service industry
- Aims to ensuring safe shipping and clean seas
- Is less affected by the financial crisis

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Agenda

1. Number of EU SMRC-yards
2. IMO Water Ballast Convention Industry Status
3. Number of EU Drydocks
4. IMO Ballast Water Convention
5. Emission Control Area's

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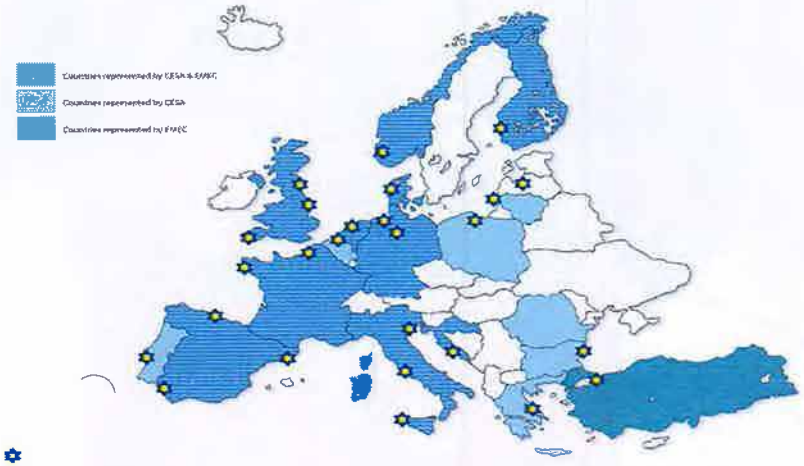
1. Number of EU SMRC Yards



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2. IMO WB: Industry Status

- Roughly 70.000 ships to be converted 12 months after ratification
- 70.000 BWMS to be produced and installed
- Several IMO Approved BWMS (37)
- Convention not yet ratified
- Liquidity problems shipowners

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Number of EU SMRC Yards

42 yard entities in the European Union

Lloyd Werft · Blohm+Voss · LISNAVE Estaleiros Navais S.A. · DAMEN · ASTANDER · FINCANTIERI

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- The IMO Ballast Water Management (BWM) Convention will enter into force 12 months after ratification by 30 States, representing 35 per cent of world merchant shipping tonnage.

- SEA Europe expects this to happen imminently and would like to share its position from the point of view of the European maritime technology industry1 regarding the readiness of the sector for meeting the requirements of the BWM Convention

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3. Number of EU Drydocks:

Capacity issue IMO WBMS:

80 Dry-docks (120 mtr and 35 mtr beam)

- 70.000 ships, 50.000 approaching EU.
- In 5 year after ratification 50.000 ships
- 50.000/5 = 10.000 ships a year
- 10.000/80= 125 ships per drydock.

1 day for installation when ship is dry, rest to be completed by riding crew

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4. Emission Control Area

North Sea Sulphur Emission Control Area:

- Entered in to fore 1-1-2015, (0,1 % Sulphur)
- Capacity: 1100 ships estimated a retrofit

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Capacity(2)

- Dry-docking of vessels is seen as the preferred method for retrofitting BWM systems.
- Implementation time of the Convention and the existing requirements for vessels to be dry-docked in every gives ample time and capacity to retrofit the necessary vessels globally.
- The relevant skills and competencies for the dry-docking and retrofitting of BWM systems are available in European yards within the dry-docking packages offered.
- 'Postponement of entry into force date as set out in the Convention has already had a negative impact on European maritime technology manufacturers'

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- SMRC yards have gained experience in Scrubber Retrofitting.
- Waiting until the last day will cause capacity issues
- Liquidity issues at shipowners
- Persistent low fuel prices delay the retrofit need

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Ships & Maritime Equipment Association

END, Questions?

SEA SMRC Group

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Lindø – the transformation of a shipyard

into a

high tec industrial park (and repair yard)

Ove Poulsen

History

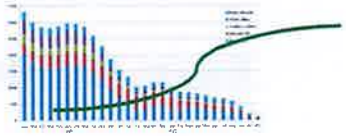
1918 Odense Steel Shipyard (OSS) founded by A.P.Møller Mærsk
2012 700 ships built until 2012
2009 Decision to close shipbuilding
2009 Lindø Industrial Park (LIP) established

Last milestones - shipbuilding

6-2009 8 container ships- 11000 TEU (world largest at time)
2012 Last ship leaves yard

Today - New industrial park and offshore cluster

today -2000 new jobs created
-80 companies
-building and testing worlds largest wind turbines



National policies for green growth

- broad political consensus on energy issues

- ambitious transition of energy system
- 100 % renewable energy from 2050
- establish large offshore wind power plants
- full integration of energy systems
- smart grid structures and smart grid technology
- energy technology

Government base supporting restructuring the Lindø complex
- Ministry of Business and Growth [growth and job creation]
- Ministry of Climate, Energy and Building [green transition and growth]

Shipbuilding and Denmark
- No specific national policy frame for restructuring and/or closing shipyards.
- Lindø (OSS) was the last and biggest yard being closed

The Danish "green energy" policy provided needed momentum

1. Social drivers – massive unemployment
2. Shipyard owner committed (social corporate responsibility)
3. Industrial policy drivers
4. Early formation of a task force [policy, society, industry]

1. Social drivers – massive unemployment

- more than 2000 workers lost their job (15 % of local workforce over 3 years)
- in a small local community entirely dependent on shipyard
- sub suppliers also severely hit

- few other industries in the local area to reabsorb dismissed workers
- Renewable energy seen as catalyst for industrial growth

✓ local and regional authorities launched job replacement campaigns
  - welders and the offshore industry

✓ early initiatives to establish industrial park with new jobs

✓ independent task force established

2. Shipyard owner committed (corporate social responsibility)

How to establish new activities in existing infrastructure?
- ✓Access to the entire processing chain of steel plates and profiles
- ✓Handling of structures up to a weight of 1000 tons
- ✓Surface treatment of structures up to 34m x 34m
- ✓Availability of large storage area
- ✓Available dock facility
- ✓Access to sea with loading capacity up to 1000 tons
- ✓Availability of both engineering knowledge and skilled labor

How, in addition, to established *new and advanced* infrastructures?

How to introduce *new industries* to Lindø – a least favoured region (EU)?

2. Shipyard owner was committed (continued)

Mærsk decision to establish industrial park (LIP) was essential
- starting from scratch! as early as 2009, 3 years before closing yard

✓Ship repair [first major new activity was FAYARD – using all 4 dry docks]
✓Wind turbines / Renewable energy
✓Offshore
✓Lindø Industrial Services

The early decision to establish industrial park was important
- infrastructure (cranes, buildings, transport etc.) was fully operational
- early momentum in attracting new industries
- early momentum in establishing new advanced infrastructures

Lindø Industrial Park (LIP) was sold to Odense Harbor in January 2014
- new investments planned [new harbor terminal, portal crane upgrade]

3. National industrial policy drivers

The 2008 fiscal crisis was a national eye opener
- the knowledge society did not materialize [know, can and do]
- the offshoring of production had gone too far
- need for reindustrialization [engineering and blue collar work places...]

Lindø shipyard closure seen as a national wake-up call
- ✓ Government and regional authorities became aware of threats
- ✓ the offshore renewable industry was activated
  - initiator was Poul Nyrup Rasmussen, former PM & member of EP
  - participants were offshore renewable industries, Mærsk and universities
  - state involvement was
    - Ministry of Business and Growth
    - Ministry of Climate, Energy and Building
    - Growth Forum, Region of Southern Denmark
    - strong bipartisan support from local and national politicians
    - strong support from unions (Dansk Metal)

4. Early formation of a task force [policy, society, industry]

- LORC (Lindø Offshore Renewables Center) was established in Dec. 2009
  - A non-for-profit business foundation
  - A knowledge center with an European dimension
  - Advanced offshore renewable energy solutions (wind and (wave))
  - Scientific and technical R&D and advanced testing facilities
  - Utilize the unique technical and logistics infrastructure at Lindø
  - Establish corporation with universities
  - Establish formal networks between public and private offshore actors
- Board established
  - Chairman: Poul Nyrup Rasmussen, former PM and member of EP
  - members from all major industrial players

LORC shall create growth by assisting the green offshore industry with a constant focus on *cost of energy*.

- Strengthen national wind energy hub
- complement national and international test infrastructure
- provide independent verification

LORC shall act as a catalyst in attracting offshore industries to locate production facilities in LIP

LORC shall establish investment funds to build advanced test and innovation facilities
- state aid, private foundations and industrial donations and loans

LORC as catalyst in attracting offshore industries (as of Q2-2015)

Nacelle testing

Foundations and substructures

Laser welding

MHI Vestas

V 164 8.0 MW*

- ✓ The most powerful wind turbine in the world – 8.0MW
- ✓ Named Best Offshore Turbine 2014 by Windpower Monthly Magazine
- ✓ World Record holder – 24 hour energy production
- ✓ Prototype installation shows excellent availability

Siemens Wind Power

D6 and D7

- ✓ offshore leader
- ✓ innovative direct drive technology

Bladt Industries

Baltic 2 windfarm

- ✓ 800 tons heavy foundations assembled and welded @ Lindø

LORC – financing of new test facilities – 47 M€

- state aid (44 %); competitive founding , EU notified actions
  - The Market development Fund (Ministry of Business and Growth)
  - Green Labs DK (Ministry of Climate and Energy)
  - Growth Forum (Region of Southern Denmark)
- gift from foundations and industrial donations (24 %)
- direct private investments (32 %)
- test facilities operated fully commercially
  - *cost+* market calculation
  - depreciated over 10 years
- key elements in success
  - board with all (commercially competing) players around the table
  - chairman with strong impact into the government and region

LORC – test infrastructure

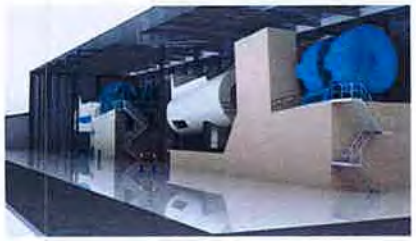
- Development of novel production methods
  - laser welding (32 kW laser/robotic control)
- Test of full scale offshore foundations
  - strong floor – 1000 tons dynamical loads; MN range
  - climatic hall (largest in Europe)
    - ✓ -38→+60 °C, humidity and corrosive environment
- Test of large nacelles (<10 MW)
  - function test, incl. advanced grid test
  - HALT testing
- Verification

40m

LORC and Lindø Industrial Park (LIP) – a strong synergy

- strong industrial culture and business mind-set
- basic infrastructure
- new advanced test facilities
- diverse industrial composition
- globally oriented production

- internationally leading

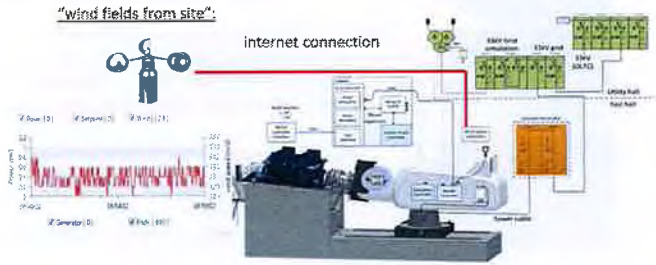


Offshore wind – the international scene

- Denmark the leading wind energy hub in the world
  - 50.000 new jobs in wind industry
  - global market
  - offshore nacelles very heavy(<400 tons) and large
  - require harbour access (no road transport)
  - require advanced testing facilities

- LORC and LIP are not alone
  - 4 next generation large test facilities being constructed internationally
  - all are established in former shipyard structures (harbours)
    - UK: NAREC, Blyth Harbour [18 MW, in construction]
    - US: Clemson, North Charleston [15 MW, in construction]
    - DE: Fraunhofer, IWES, Bremerhafen [10 MW, in construction]
    - DK: LORC, Lindø [12 MW, in operation, testing V164. 8 MW MHI Vestas turbine]

State-of-the-art functional testing of large nacelles



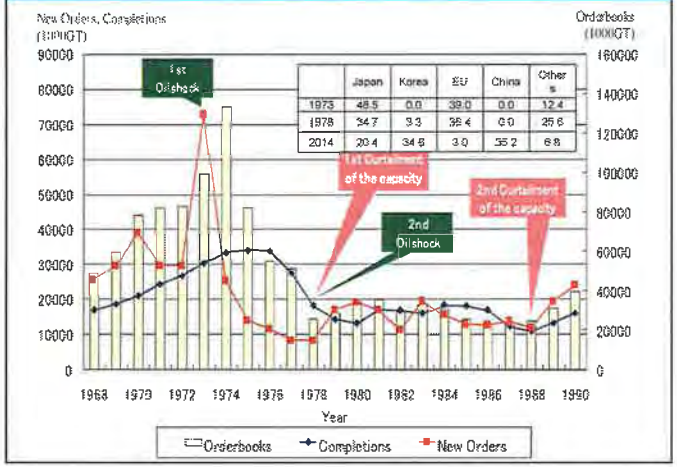
Measures taken by Japan to address overcapacity after 1st and 2nd oil crises

Kei ITO
Shipbuilding and Ship Machinery division
Ministry of Land, Infrastructure, Transport and Tourism, Japan

Overviews of measures taken by Japan to address overcapacity

	Operational control	Physical control	Structural change support
1973	1st oil crisis	Since 1950, permission for expansion of dock	
1974	Since 1953, permission for building new vessel		
1975			
1976			
1977	Prohibiting parallel construction		
1978	2nd oil crisis	1st capacity disposal measure	Ship recycle promotion
1979	Putting upper limit of man-hour planning		Employment measures (Job change support)
1980			
1981			
1982			
1983			
1984			
1985			
1986			
1987		2nd capacity disposal measure	
1988			
1989			

Market situations after 1st and 2nd Oil crises



	Japan	Korea	EU	China	Others
1973	48.5	0.0	39.0	0.0	12.4
1978	34.7	3.3	35.4	0.0	25.6
2014	20.4	34.8	3.0	35.2	6.6

Operational control

- Prohibition of parallel construction
  Administrative guidance issed by MOT in 1975
  - prohibited construction of vessels more than 1.5 vessels in parallel.
- Limitation of shipyard operation
  Recommendation issued by MOT in 1977
  - put an upper limit of man-hour planning to each shipyards which were capable of building a vessel of 10,000 gross ton or larger

Physical control

- Disposal of shipbuilding capacity (Purchase of facilities)

The Association for the Stabilization of Specified Shipbuilding Enterprises was established for purchasing superfluous docks. Japanese government provided financial support for the association.

<Overviews>

- Terms: 1st implementation:1978-1980, 2nd implementation:1987-1988
- Scope: Dock and building berths which has a capability to build vessels of 5,000 gt or larger
- Target: 3.4 million CGT per year

The result of capacity disposal

1st capacity disposal | 2nd capacity disposal

	1978 (before the 1st capacity disposal)	1980 (after the 1st capacity disposal)	1988 (after the 2nd capacity disposal)
Number of companies	61 companies	44 companies	26 companies
Number of docks	138 docks	73 docks	46 docks
Building capacity	9.77 mil CGT	6.19 mil CGT	4.60 mil CGT

Structural change support

- Change from shipbuilding to ship recycling

The Association of the Ship Scrapping Promotion established in 1978

- offered a grant to shipbuilders which worked for ship scrapping of ocean going vessels, aiming to promote structural change from shipbuilding to ship recycling.

- Employment measures

Law on Temporary Measures for the Structural improvement of Specified industries (structural improvement law) enacted in 1978

- designated shipbuilding industry as one of the specified depressed industries; and
- provided them subsidies for recess, training and temporary transfer

Thank you for your kind attentions

ITEM 9: OVERSUPPLY IN THE SHIPBUILDING INDUSTRY

Document: C/WP6(2015)4

120th session of the Council Working Party on Shipbuilding (WP6)

Paris, 11-12 June 2015

Contact: Structural Policy Division
Mr. Laurent DANIEL
Ms. Karin STRODEL

OECD

Outline of the presentation

1. **Measurement of excess supply**
2. Estimations of historical oversupply
3. Forecast of new vessel requirements
4. Potential causes of the gap
5. Suggestions for future work
6. Concluding remarks

Outline of the presentation

1. Measurement of excess supply
2. Estimations of historical oversupply
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5. Suggestions for future work
6. Concluding remarks

1. Measurement of excess supply

- Data limitations and methodological constraints during previous attempts to measure excess capacity (OECD, 2014a)
- Suggested approach by Japan at the November 2014 WP6 meeting:

Oversupply$_t$ (in GT) =

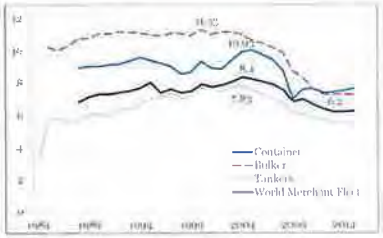
Vessel new-buildings ~ **completions$_t$** *(IHS)* − **Actual new-building requirements$_t$**

Seaborne trade$_t$ *(Clarkson)* + **Replacement demand$_t$** *(IHS)*

15-Jun-2015

3. Forecast of new vessel requirements
Conversion factor t/dwt and dwt/gt

tonnes/dwt



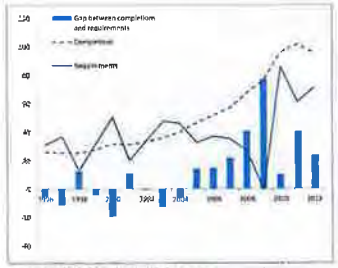
dwt/gt

- 0.71 dwt/gt as historical average for 1996 – 2013.
- Variation among ship types: 0.56 dwt/gt for tankers, 0.90 dwt/gt for bulkers and 0.89 dwt/gt for containers (SAJ, 2011).

15 Jun-2015

2. Estimations of historical oversupply
Global shipbuilding market

Gap between vessel completions and requirements (1996 – 2012)



- In 2009, largest oversupply with 77.4 mio gt (i.e. 100% of total completions).
- Cumulated oversupply of 244 million gt between 2005 and 2012 (i.e. 23% of world fleet in 2012).

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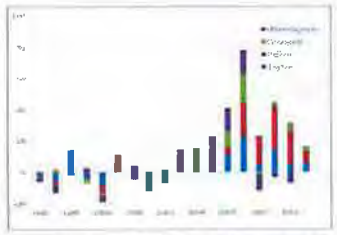
Outline of the presentation

1. Measurement of excess supply
2. **Estimations of historical oversupply**
3. Forecast of new vessel requirements
4. Potential causes of the gap
5. Suggestions for future work
6. Concluding remarks

15 Jun-2015

2. Estimations of historical oversupply
By ship categories

Gap between vessel completions and requirements by ship categories (1996 – 2013)



- Tankers: cumulated oversupply of 83 mio gt in 2005-2013 (i.e. 35% of world fleet in 2013).
- Bulkers: cumulated oversupply of 113 mio gt in 2005-2013 (i.e. 29% of world fleet in 2013).
- Containers: shortage in 2010 of 1.54 mio gt; cumulated oversupply of 48 mio gt in 2005-2013 (i.e. 26% of world fleet in 2013).

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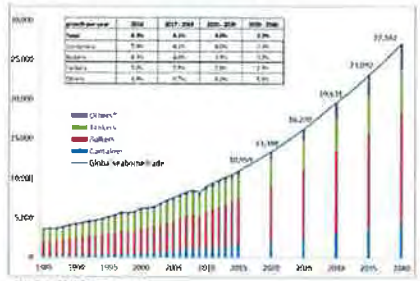
Outline of the presentation

1. Measurement of excess supply
2. Estimations of historical oversupply
3. **Forecast of vessel requirements**
4. Potential causes of the gap
5. Suggestions for future work
6. Concluding remarks

3. Forecast of new vessel requirements
Predictions of seaborne trade

Seaborne Trade projection (1985 – 2040)



3. Forecast of new vessel requirements
Methodological approach

Future new-building requirements $_t$

Seaborne trade expansion $_t$
(Clarkson)

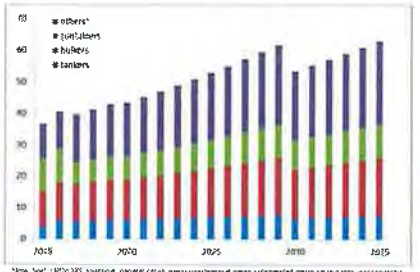
- Based on **correlation coefficients** using historical real GDP growth
- $Y = \beta_1 * X + e$
  where Y depicts seaborne trade, X refers to real GDP growth, β_1 represents the correlation coefficient and e is an error term
- Estimated seaborne trade growth equal to **1.1 x real GDP growth** (OECD Economic Outlook, Nov 2014)

Replacement demand $_t$
(IHS)

- Based on the assumption that **disposals** in time t represent **completions** in t-27; 27 years as average vessel age
- **disposals$_t$ = completions$_{t-27}$**

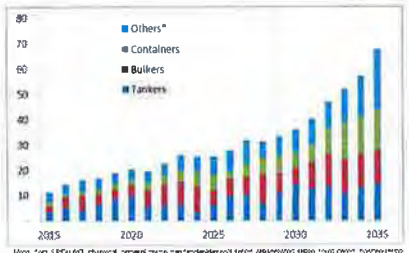
3. Forecast of new vessel requirements
Linked to seaborne trade expansion

Forecast of newbuilding requirements linked to trade expansion (2015-2035)



3. Forecast of new vessel requirements
Linked to demand for vessel replacement

Forecast of vessel requirements linked to fleet replacement (2015-2035)



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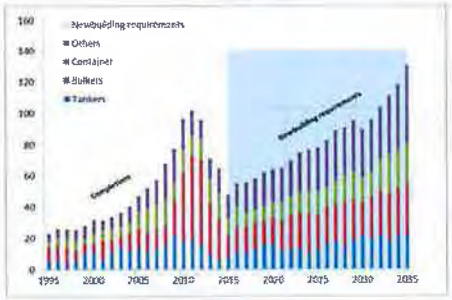
Outline of the presentation

1. Measurement of excess supply
2. Estimations of historical oversupply
3. Forecast of new vessel requirements
4. **Potential causes of the gap**
5. Suggestions for future work
6. Concluding remarks

3. Forecast of new vessel requirements

Past vessel completions (1995 – 2014) and future newbuilding requirements (2015 – 2035)



4. Potential causes of the gap
Support measures

- On the supply side :
  - Artificially lowering the cost of factor inputs
  - By providing for instance cheap finance, raw materials, lands or other types of subsidisations
- On the demand side:
  - Mandatory use of locally built ships
  - Supports for shipowners

4. Potential causes of the gap
market distorting measures

Key government market distorting measures

Supply Side		Demand Side	
Macro	Micro	Macro	Micro
(1) Exchange Rates	(1) Support for [illegible]	(1) Cabotage rules/flag requirements	(1) Export credit for individual projects
(2) Interest Rate (tax/active objective interest rate)	(2) Access to financing at low interest for shipbuilders	(2) Industrial Policy (National cargo/National shipping movements)	(2) Several countries [illegible]
(3) Land	[illegible]	(3) Direct ordering of ships by Agents of the State in response to certain state objectives	(3) Increased demand national shipyards via 'locally built' requirements for national mining or offshore exploration projects
(4) Other subsidized factor costs (water, electricity)	(4) Direct subsidies to state-lead builders	(4) The ownership structure (agency problem of state-owned entities) which leads to over-investing	

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Outline of the presentation

1. Measurement of excess supply
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4. Potential causes of the gap
5. **Suggestions for future work**
6. Concluding remarks

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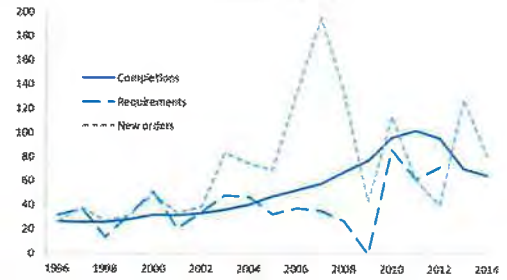
4. Potential causes of the gap
Speculative orders

Global shipbuilding new orders, completions and vessel requirements



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5. Suggestions for future work

Forecast of Oversupply$_T$ =

Completions$_T$ – **Actual new-building requirements$_T$**

Statistical estimations of the impact of historical predictions of future seaborne trade on actual vessel completions of the subsequent year

Seaborne trade$_T$

Trade simulation models, e.g. OECD METRO model as a computable general equilibrium model (OECD/TAD, 2015), gravity model (Tinbergen, 1962).

Replacement demand$_T$

Survival function that allows assessing the probability of a vessel at a certain age to be disposed (see e.g. Miller, 2011)

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Outline of the presentation

1. Measurement of excess supply
2. Estimations of historical oversupply
3. Forecast of new vessel requirements
4. Potential causes of the gap
5. Suggestions for future work
6. **Concluding remarks**

6. Concluding remarks

- Existence of **oversupply** in the global shipbuilding industry during the last years (i.e. cumulated for 2005 – 2013: 23% of world fleet)
- Variation of the extent of cumulated oversupply (2005-2013) **by shipcategory:**
  - Tankers: 35% of total world fleet in 2013
  - Bulkers: 29% of total world fleet in 2013
  - Containers: 26% of total world fleet in 2013
- **Potential reasons** for the historical gap: Speculative orders and government support measures.
- **Possible extention of analytical work on predictions** by more sophisticated econometric approaches including impact factors (i.e. cyclical and structural determinants).

6. Concluding remarks

- Possible **Chair's Statement** to be issued at a future WP6 meeting/workshop possibly including:
  - An assessment of the **magnitude and the causes** of oversupply (past, current, prospects).
- Possible **process** :
  - Nov. 2015 : draft prepared by the Secretariat on the basis of the main results of the analytical work
  - Nov. 2015 and June 2016 : discussion at WP6 meetings
  - June 2016 : Statement issued

Example: extract of the Steel Committee Chairman's Statement – 12 Dec. 2014

- **Excess capacity will remain a central challenge to the steel industry**

- (...) The growing gap between global steelmaking capacity and demand has led to a deterioration in the financial situation of steelmakers, and has raised concerns about the longer-term economic viability and efficiency of the industry. (...)

Example: extract of the Steel Committee Chairman's Statement – 12 Dec. 2014

- The Committee (...) highlighted the need to address the key priority of the excess capacity challenge with a sense of urgency and called for further work;

- (...) A fair share of these expansion projects are potentially financed with the support of governments, either of the home economy or the economy where the project is being executed (...).

Thank you for your attention.

References

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- Clarkson (2015b). *World Shipyard Monitor, April 2015*
- IHS Maritime & Trade (2014). *World Fleet Statistics*
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- Miller Jr., Rupert G. *Survival analysis*. Vol. 66. John Wiley & Sons, 2011
- OECD (2012). *Worldwide shipbuilding market distortion framework: a supply, demand & market ... analysis*
- OECD (2014). *Short summary of recent work by the WP6 on the measurement of capacity in the shipbuilding industry*
- OECD (2014). *Economic Outlook*
- OECD/TAD (2015). *Metro Version 1 Model Documentation*. TAD/TC/WP(2014)24/FINAL
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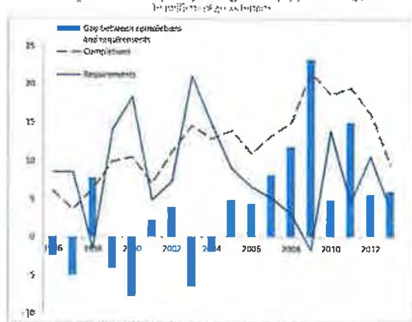
- Tinbergen, J. (1962). *Shaping the world economy*. The International Executive, 5(1), 27-30.

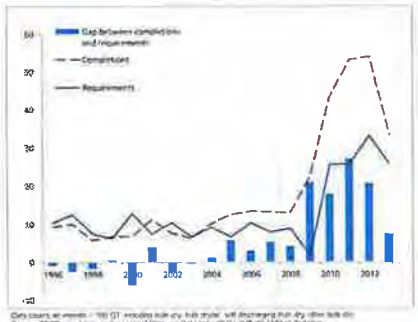
Backup: Oversupply tanker market

Tankers*: Gap between vessel completions and requirements by ship categories (1996 – 2013)



Backup: Oversupply bulker market

Bulkers*: Gap between vessel completions and requirements by ship categories (1996 – 2013)



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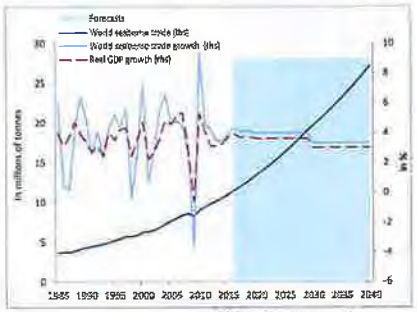
Backup: Seaborne Trade and GDP

World Seaborne Trade and GDP (1985 – 2040)



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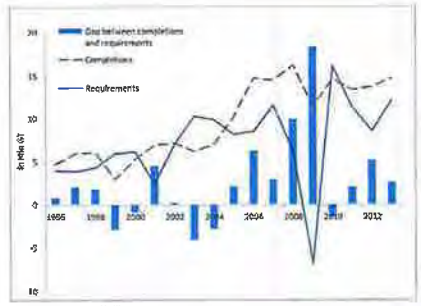
Backup: Oversupply container market

Container: Gap between vessel completions and requirements by ship categories (1996 – 2013)



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ITEM 10: INSTRUMENT REVIEW

Documents: C/WP6(2014)4, C/WP6(2014)7

120th session of the Council Working Party on Shipbuilding (WP6)

Paris, 11-12 June 2015

Contact: Structural Policy Division
Laurent DANIEL

OECD

The issue

- 2 WP6 instruments from 1982/83:
  - Revised General Arrangement for the Progressive Removal of Obstacles to Normal Competitive Conditions in the Shipbuilding Industry
  - Revised General Guidelines for Governmental Policies in the Shipbuilding Industry
- Not legally binding – were considered to have insufficient weight to deal with perceived market distortions
- Current situation - not actively used by WP6, not monitored, not regularly reviewed...

Content of current instruments

- Key principles: progressively removing obstacles to normal competitive conditions; no new assistance measures; solidarity, fairness and international responsibility in tackling overcapacity...
- But also some outdated references e.g. to the Sub-Group on Supply and Demand, to convening of special sessions of WP6 at request of one Member...

WP6 decisions to date (1/2)

- Agreed to start a review process [C/WP6/M(2011)1/REV1]
- Of possible options, agreed to retain and review existing instruments [C/WP6/M(2011)2]
- Put review on hold during mandate renewal [C/WP6/M(2012)2/REV1]
- Agreed to restart the process with consideration of a discussion document [C/WP6/M(2013)2]

WP6 decisions to date (2/2)

- In 2014, background document by the Secretariat [C/WP6(2014)4] and submissions by delegations [C/WP6(2014)7]
- **The WP6 decided in June 2014 to leave the instruments as they were for one year and to discuss the issue again in June 2015** [C/WP6/M(2014)1]

Possible issues for discussion

- Can delegates agree to work towards a revised shipbuilding instrument?
- Would delegates like to put forward goals and key concepts that they would support in a revised instrument?

THE FUTURE OF THE OCEAN ECONOMY

- EXPLORING THE PROSPECTS FOR EMERGING OCEAN INDUSTRIES TO 2030/50

-- UPDATE --

PRESENTATION TO 120TH SESSION OF THE COUNCIL WORKING PARTY ON SHIPBUILDING(WP6) 12 JUNE 2015

OECD
STI/STP

OECD

"The Future of the Ocean Economy" The Project in a Nutshell

- OECD playing its part in addressing many of the grand challenges facing the world in the coming decades, challenges such as supporting economic growth, feeding extra 2bn people, combating poverty, mitigating the effects of climate change, managing natural resources sustainably, finding renewable sources of energy, – the ocean is indispensable in addressing these future challenges
- But growing the ocean economy needs to be done in a responsible way because oceans /marine eco-systems already under stress
- Aim: Forward look (to 2030/50) at the development of the ocean economy and its traditional and emerging sectors: shipping, shipbuilding, fisheries, traditional ocean and coastal tourism, ports, as well as off-shore wind, deep/ultra-deep oil & gas exploration and extraction, ocean energy, marine bio, aquaculture, sea-bed mining, ocean monitoring, ocean tourism)
- Focus on: ocean sectors' contributions as potential sources of economic growth, employment creation and innovation; likely impacts on marine eco-systems and sustainability; future implications for managing ocean activities.

Project summary

- Start date: end-October 2013
- Finishing date: end-2015/early 2016
- Cross-OECD collaboration – fisheries, shipbuilding, biotechnology, energy, tourism, environment...
- Financed by voluntary contributions
- Supporting countries: Norway, Korea, France, Portugal, Ireland, Sweden, UK, Canada (Quebec), Belgium, Indonesia, South Africa, Chinese Taipei...
- Plus foundations, research institutions, business, NGOs

Emerging ocean industries = growing specialisation in vessels and structures?

- Drill ships and rigs - especially for deep- and ultra-deep water operations
- LNG vessels, floating LNG processing facilities
- Offshore supply vessels – servicing increasingly remote oil, gas and sea-bed mining operations, off-shore wind farms
- Cable laying vessels, turbine installation vessels and operations and maintenance vessels, related to offshore wind farms and ocean energy devices
- Ocean cruise ships
- Ice resistant vessels
- Science and research
- Surveillance and control

Particular focus on "emerging" ocean industries, i.a. through in-depth workshops

- Offshore wind (experts group April 2014, Paris)
- Ocean renewable energy - wave, tidal etc. (May 2014, Paris)
- Offshore O&G - deep-water, Arctic (June 2014, Trondheim)
- Open ocean aquaculture (September 2014, Bergen)
- Seabed mining for metals, rare earths (November 2014, Kiel)
- **Maritime safety industry (May 2015, Seoul – 9th SIMF)**
- **Marine spatial planning and ocean monitoring (June 2015, Lisbon)**
- Innovation in ocean and coastal tourism (June 2015, Sweden)
- Marine biotechnology (September 2015, Bilbao)

› *Cross-sectoral implications/synergies with other ocean-related economic activities - incl. shipbuilding*

Future of Maritime Safety Industry (Seoul, May 2015) : Key Themes

- Factors driving the development of maritime transport to 2030
- Changing risk landscape of maritime transport to 2030
- Factors driving the development of the maritime safety industry globally
- E-navigation – systems innovation and digital infrastructure
- Satellite tracking of vessels
- The evolving regulatory framework
- Global co-operation strategy

Future of Maritime Spatial Planning (June 2015, Lisbon) : Key Themes

- Growing multi-use of ocean and coastal sea-space to 2030 - increasingly crowded waters
- Current progress in MSP around the world
- Innovations in **governance** of MSP
- Applying **economic tools** to MSP and MSAs
- Developing **data**, information and **technological infrastructures** to support MSP (data requirements; gaps in scientific knowledge; satellite remote sensing/earth observation/navigation....)
- Port issues
- EIA/Strategic Environmental Assessment

Co-operation with members of the Council Working Party on Shipbuilding

Contribution of the project to work of WP6:

- Support for WP6 workshops e.g. Future of Shipbuilding November 2012, and also 2014;
- Collaboration on WP6 Secretariat's offshore industry project (DW)
- Regular progress updates to WP6

Contribution of WP6 to Ocean Economy project:

- Presentations to Ocean Economy advisory group
- Assistance with workshops (e.g. maritime safety)

Thank you

Barrie.Stevens@oecd.org

Web site: www.oecd.org/futures

EMERGING POLICY ISSUES: LOCALISATION BARRIERS TO TRADE

120th Session of the WP6
12 June 2015

Susan Stone, Dorothee Flaig and James Messent
Development Division, TAD

OECD

15/06/2015

OVERALL LCR EFFECTS

Purpose of the Report

1. **Measure** the impact of localisation policies on global markets.
   - Industry measures focus on quantitatively restricting imported inputs or provide price preferences for using domestic inputs.
   - Government procurement uses a variety of methods, both at the national and sub-national level, to support the use of domestic inputs.
   - Data restrictions are usually via some kind of commercial presence requirements (e.g. processing using domestic servers).
2. **Impact** Analysis focuses on Industry input measures. Identify those measures which are:
   - Currently in-force
   - Binding
   - Trade-focused (i.e. no investment or labour measures)

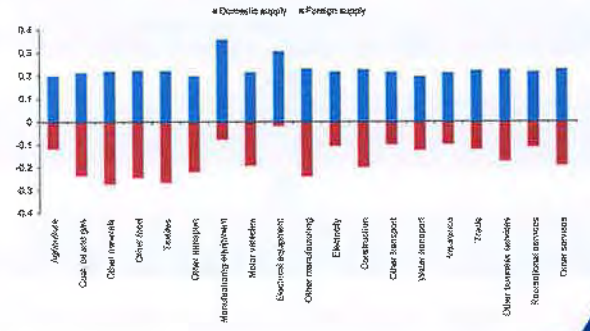
Example – India's Electricity LCR

84% of inputs to electricity sector to be sourced domestically

Imported inputs to Electricity go down 48%	Coal, Oil and Gas Output goes up 3.4%	Electricity Prices increase 0.33%
↓		
Domestic Market Adjusts		
Output of electricity falls 0.26%	Domestic production costs go up 0.04%	Domestic sales of Coal, Oil and Gas to households decline 2.7%
↓		
International Markets Adjust		
India's exchange rate appreciates 0.3%	Coal, Oil and Gas sector increases imports by 5%	Exports of Coal, Oil and Gas increase 0.05%
↓		
Net Outcomes		
India's Trade declines	Exports of Electricity decrease 0.35%	India's PPI increases 0.07%

Domestic Economic Adjustments

Change in sourcing of LCR inputs for non-Communications Sectors



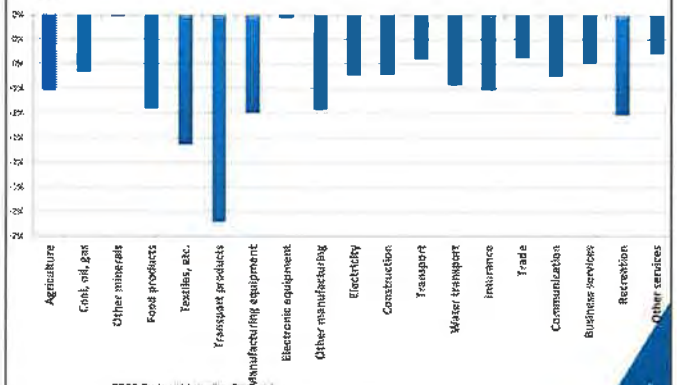
Example: Brazil Communications

Reallocation leads to suboptimal outcomes

- Manufacturing equipment
  - As domestic use of manufacturing equipment increases in communications, it decreases in other sectors
  - Imports of manufacturing equipment increase
  - Price of manufacturing equipment rise (intermediate prices increase 0.04%)
  - Labour demand in sectors using manufacturing equipment fall.
- Electronic equipment
  - Same trends

International Markets Adjustments

Exports of other Russian Sectors from MVH LCR



Ongoing work in TAD

- Discriminatory Government Procurement
  - Will attempt to measure size of GP markets, and assess evidence of discrimination
  - Measure benefits of liberalisation in GP markets
- Data Localisation Policies
  - To identify and categorise current regulations restricting cross-border data flows;
  - To measure the trade impact of this emerging regulation to inform future policy decisions;

Insights from the Analysis

- Reallocation effects
  - can concentrate production
  - can undermine value chain objectives
- Difference in outcomes between intermediates and final demand
- LCRs can serve as a platform to increase exports.
- Influence of exchange rates
  - can undermine competitiveness of other export sectors

Thank you for your attention

www.oecd.org/trade

Trade and Agriculture Directorate

OECD

ITEM 11: SHIPBUILDING AND THE OFFSHORE INDUSTRY

Document: C/WP6(2015)5

120th session of the Council Working Party on Shipbuilding (WP6)

Paris, 11-12 June 2015

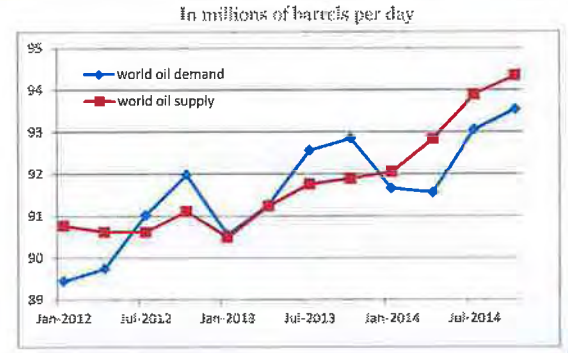
Contact: Structural Policy Division
Mr. Laurent DANIEL
Ms. Karin STROGEL

OECD

Introduction

- On 24 November 2014, the WP6 hosted a workshop on shipbuilding and the offshore industry.
- This document:
  - summarizes the key points discussed at the workshop,
  - updates the analyses in the context of a lower oil price, and
  - proposes some issues for discussion in particular on government policies that have an impact on the offshore sector.

Oil supply demand balance



Source: International Energy Agency

Crude oil Brent price

Source: Datastream

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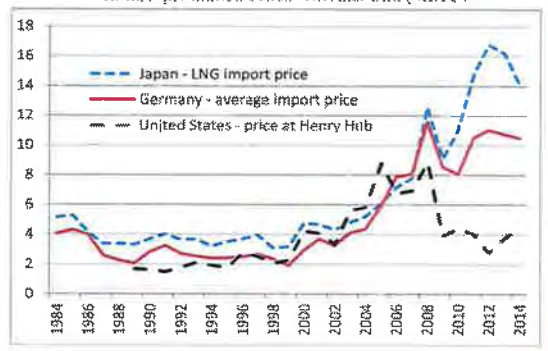
Natural gas prices in Japan, Germany and the United States

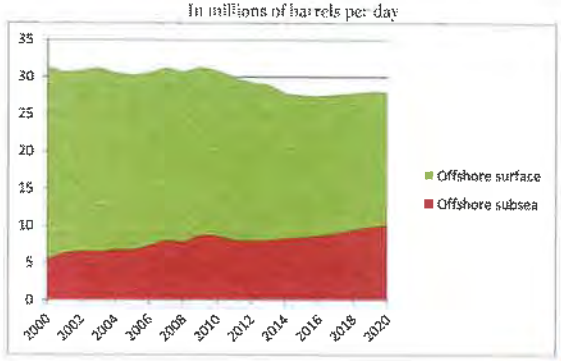
In USD per million British Thermal Unit (MBTU)



15-Jun-2015 Source: BP Statistical Review of World Energy

Offshore crude oil production

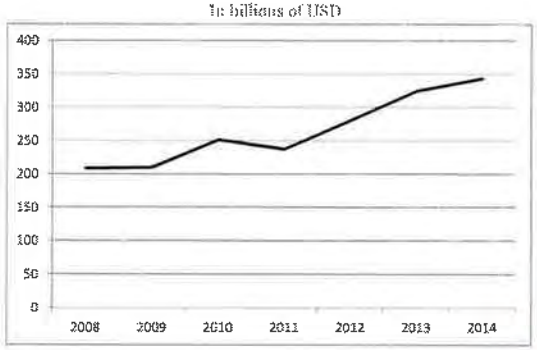
In millions of barrels per day



15-Jun-2015 Source: Douglas-Westwood

Offshore oil E&P spending

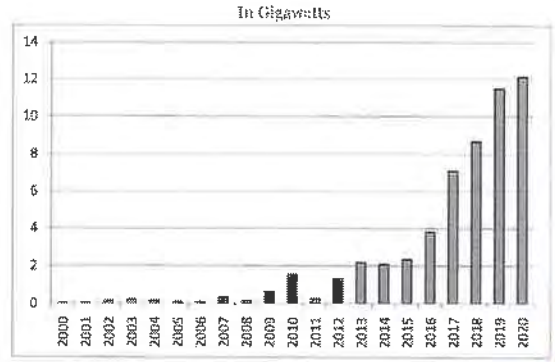
In billions of USD



15-Jun-2015 Source: Douglas-Westwood

Prospects for offshore wind installation

In Gigawatts



15-Jun-2015 Source: Douglas-Westwood

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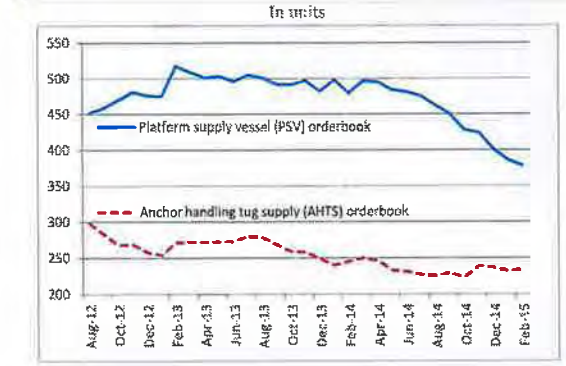
Example of new offshore markets

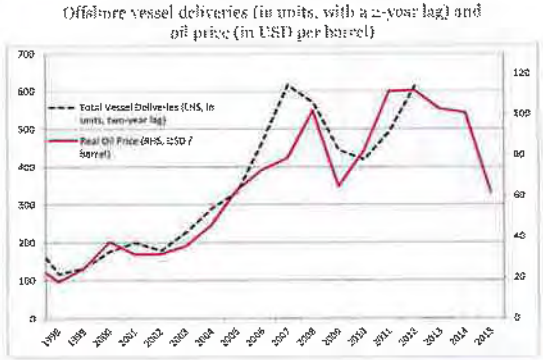
- Mr. Toshifumi Kokubun, Deloitte,
  - expects the floating desalination plant market to reach btw USD 1.5 and 4 bn per year until 2025.
  - expected production facilities for hydrogen to be located near offshore gas fields and to generate new markets for marine industries.
  - mentioned the synergies between floating LNG plants and desalination plants as the former can work as an electric power source for floating desalination plants.

Orderbook for selected offshore support vessels



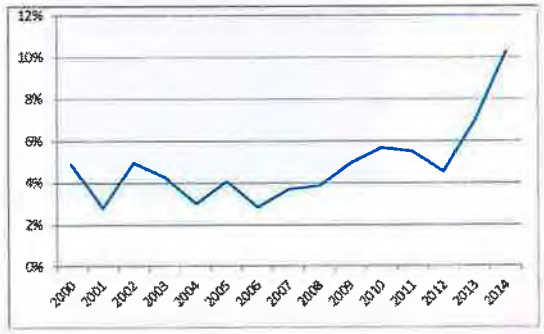
Source: Clarkson

Offshore vessel deliveries and oil price



15-Jun-2015 Source: Douglas-Westwood

Share of offshore in total (marine + offshore) vessel completions



Source: Douglas-Westwood

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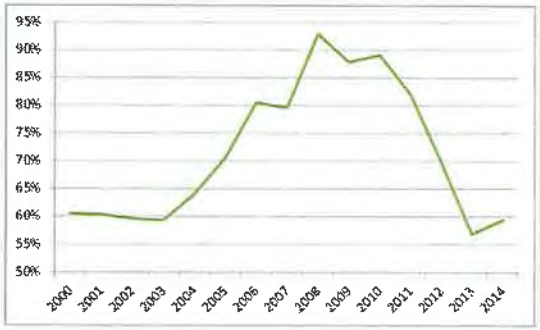
Capacity utilization ratio in the shipbuilding industry



Source: Douglas-Westwood

Competitiveness factors

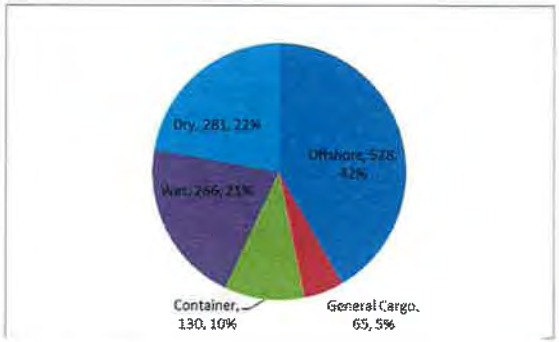
- The reorientation of shipyards into offshore involves risks, linked to some specificities :
  - **customization** requirements
  - complicated construction **processes**
  - strict safety and environmental **regulations**
  - more design and production **flexibility**
  - higher project **volume**
  - highly **skilled experts** difficult to find
  - continuous investment in **R&D**.

Selected local content requirements (LCRs) by region

- **North America** – LCRs included in the US Coast Guard, Mineral Management Service, and the Jones Act.
- **Africa** - South Africa implemented Revised Preferential Procurement Policy Framework Act regulations for Shipbuilding.
- **Latin America** – Brazil has introduced several LCRs in an attempt to strengthen the local industry.
- **Asia** – examples of LCRs : Indonesia requires all drilling vessels to be Indonesian-flagged. Malaysia requires supplies and service providers to have a valid license produced by Petronas

Source : Douglas-Westwood

Outstanding exposure by shiptypes In billions USD (January 2014)



Source: Tufton

Main industry challenges : Cost increase

Cash return on cash invested in the oil industry

15-Jun-2015 Source: Douglas-Westwood

Thank you.

15-Jun-2015

Selected issues for discussion

- What will be the effects of **cost pressure** by clients on the shipbuilding?
- What **has worked (and not worked) regarding the reorientation** of shipyards into the offshore market?
- What is the **role of government financing** notably in the context of low interest rates?
- What are the causes and effects of **market distortions** in the offshore industry?

15-Jun-2015

ITEM 12: WP6 PROJECT UPDATES

120th session of the Council Working Party on Shipbuilding (WP6)

Paris, 11-12 June 2015

Contact:

OECD

2015 Peer review of Germany

- Schedule :
  - Questionnaire sent – December 2014
    - The generic questionnaire was used [see C/WP6(2012)5, Annex 1]
  - Response to Secretariat in March 2015
  - Mission in Germany in April 2015
  - Draft report in July 2015
  - Draft report to WP6 for November 2015 meeting

WP6's main Output Results in 2015-16 (C/WP6(2014)5/REV2)

- Monitoring of the support measures to the shipbuilding industry at the country level
  - Yearly Peer Reviews
- Delivering policy recommendations to improve environmental sustainability of the shipbuilding industry
  - Work on "Green ships"
- Promotion of transparency and normal competitive conditions in the shipbuilding industry
  - Inventory of support measures, maintenance of the SSU
  - Reports on new forms of finance and on demand & supply in the shipbuilding industry
- Enhancement of the links with Partner economies and other stakeholders notably through yearly workshops

Peer review in 2016

- The **Philippines** is the fourth shipbuilding economy in tonnage and would be the first non WP6 member under peer review.
- The Philippines has shown interest in being under peer review.
- The Secretariat and the Philippines are in contact about the possible peer review.
- The Philippines would be in capacity to indicate its decision to be under peer review at the November 2015 WP6 meeting.

WP6's inventory improvements

- Implementation of the proposals of the Secretariat and of Japan to **encourage discussions** at future meetings notably on the most important policy measures.
- Trial of proposal 2 by the Secretariat (reporting of other measures) provided:
  - it is compatible with resources constraints
  - the methodology employed is compatible with WP6 practices
  - It does not hurt the current Inventory process

Green ships : proposal by Japan

Information collection on recent movements

- to collect detailed information on the green ship promotion policies in terms of both the definition and policy tools.
- to submit information to the Secretariat by the next session of the WP6.

Study on policy tools

- to look at similar policies in other sectors such as road transport, building and aircraft.

Green ships

- Report on the **policies leading to innovation for greener ships** to be presented at the November 2015 WP6 meeting, based
  - Patent counts by years and by countries for the categories climate change mitigation, ballast water treatment, oil spill recovery and local air pollution.
  - policy indicators designed in function of international regulation and national policies
  - Control variables (banker fuel price, ...)
  - Empirical analysis of the correlations

Analytical report on the new forms of finance in the shipbuilding industry

- The analytical report could include information regarding **recent ship finance practices** and attempt to identify **trends in access to finance**
  - notably government policies regarding export credits,
  - and innovative solutions for vessel purchases
  - Analysis of the **correlation between ship finance and new orders**, and the vessel types
- Possible discussion after Henri d'Ambrières' presentation

Proposal by Henri d'Ambrières

A. The role of public financial institutions

Their responsibility vs shipbuilders, ship-owners and operators

Management of market failures via subsidiarity ? Creation of market disruptions ?

A need for more, less support ? A need for a level-playing field ?

B. Evolution over the last years (since the publication of the 2007 report)

1.Returns, duration, equity ratio, loan to value ratio

2.Changes in funding tools

Proposal by Henri d'Ambrières

A. Funders
   - A. Will commercial banks remain the important funders ?
   - B. Who might step in ?
     - A. Public funders ? Roles of ECAs, Development banks ?
     - B. Capital markets
     - C. Hedge funds

B. Parties involved in the financing
   - A. Shipbuilders
   - B. Ship operators
   - C. Financial sponsors

C. Instruments
   - A. Equity : Quasi Equity ?
   - B. Private equity
   - C. Debt driven by capital markets
   - D. Traditional bank debt backed by mortgages ? Bank debt backed by cash-flows ? Corporate ?
   - E. New geography of funds

D. A more unified market ? A more fragmented one ?

Possible next steps for the work on supply and demand

- Using new **models** to assess oversupply
- Taking into account **offshore**
- Discussing the possibilities to improve the **CGT** system
- Work on the **sources** of overcapacity
- Analysis of pressures for the introduction of policies which lead to **market distortions**
- Consideration of capacity and **structural adjustment issues**.
- Preparation of a Chair's **statement** to be issued by the WP6 in June 16

2015 Workshop

- A workshop on supply and demand in the shipbuilding industry?
- Meetings of the Steel Committee and the WP6 back-to-back in June 2016 : possibility of a joint workshop ? Possibly on excess capacity?

Joint work OECD-DRC

- Project on **fostering green growth in China in a context of industrial upgrading**
- Workshop in Beijing on 23-24 June

- The shipbuilding and steel units are in charge of a module on
  - adopting good practices in fostering **industrial upgrading**
  - managing **industrial restructuring** processes
  - **addressing over capacity issues**

WP6 PWB to discuss

1. 2016 Peer Review
2. Policy recommendations for encouraging **green ships**
3. **2016 Inventory** of support measures
4. Analytical report on the **new forms of finance** in the shipbuilding industry
5. Analytical report on **demand and snpply** in the shipbuilding industry
6. **2015 & 2016 workshops**