

Much has been written about the impact of the global recession on the international shipping industry and about the slow recovery and how that may shape the future of the industry. However in the background there is another dynamic which has yet to be adequately considered, the ultimate influence of which on the conduct of world trade may be equally significant. It is a matter not simply of regulation but of the combined impact of a number of barely related pieces of legislation that will most likely become effective in the next 5 to 10 years.

It is a reflection of society's demands that almost all pending regulation of shipping is in some way related to the impact of ships on the environment in local or global terms. The industry has faced squarely up to its environmental impact over many years becoming in the process not only the world's most environmentally friendly transport mode but also its most efficient in terms of cargo carried per kilometre. Industry fully supports the development of regulatory means to reduce yet further its impact on the environment with an ultimate objective of zero pollution. This objective recognises that safety regulation, through its accident prevention role, contributes much to the prevention of environmental damage.

Consider now recent environmental regulation, and in particular, the provisions of MARPOL Annex VI on air pollution. The regulation, which has already entered into force, mandates a stepped reduction in the permitted sulphur content of marine fuel with significant steps in 2015 (0.1% in ECAs) and globally in 2020 (possibly 2025) when the permitted maximum sulphur content drops to 0.5%. This means that by 2025, at the latest, all ships will be burning distillate fuel instead of the current heavy fuel oil. This is a much more expensive fuel and at current prices probably implies a price increase of around 170%. This figure takes no account of the expected shortage of distillate fuel in the transitional period as 60,000 ships start to create a new market for distillate fuel causing a price increase for all other current users of this type of fuel ashore.

MARPOL Annex VI also bears down strongly on the permitted level of NOx emissions over a similar timeframe. NOx emissions cannot be reduced by a fuel change and instead technical adjustments must be made to marine engines. These adjustments imply a reduction in the overall efficiency of the engine and some commentators talk about a 2% loss in efficiency to meet the NOx requirements. Loss of efficiency immediately brings an increase in the fuel bill.

There are a number of international conventions whose text has been adopted at IMO and ILO but which have yet to enter into force simply because insufficient States have given the necessary parliamentary time to adoption into national law and to ratification.



全球經濟蕭條對國際航運的影響以及經濟復蘇緩慢及對航運業未來的影響已經有過太多的討論。但是有一個重要的背後動力沒有引起大家足夠的重視，這個動力對世界貿易的影響也同樣重要。這個動力不僅僅事關法規這麼簡單，它涉及未來 5-10 年生效的一系列法規所引起的合併影響。

作為社會需求的反映，幾乎所有新的航運法規都與本地或全球船舶對環境的影響有關。航運業在發展過程中經受了環境保護的考驗，現在已經發展成為世界上最環保和噸海里效率最高的運輸方式。航運界完全支持通過立法的方式進一步降低船舶對環境的影響，最終達到零污染的目標。而要達到這個目標，安全法規及其事故防範作用將在防治環境破壞方面作出很大的貢獻。

最近的環保條例，特別是 MARPOL 關於空氣污染的附則六的生效，規定了逐步減少燃油硫含量的時間表，即：到 2015 年，排放控制區 (ECAs) 燃油硫含量降到 0.1%，2020 年 (可能 2025 年) 全球的燃油硫含量降低到 0.5%。這意味著最遲到 2025 年，所有的船舶必須使用蒸餾油取代目前的重油。然而，這種新的燃料價格昂貴，以目前的價格計算將要增加 170% 的成本。這個數字還未包括預期的蒸餾油短缺所造成的價格上漲。據估算，在過渡時期，大約有 6 萬艘船需改用蒸餾油，這會大大增加市場需求，造成蒸餾油價的大幅上漲。

MARPOL 附件六也對氧化硫的排放規定了類似的時間表。更換燃料油並不能降低氧化硫的排放，必須對船舶主機進行技術改造，而這些技術改造將會降低主機的動力。據有些評論員估計，為了符合氧化硫排放的要求，有關的技術改造將會使船舶主機損失大約 2% 的動力。動力損失將會造成燃油成本的上升。

國際海事組織和國際勞工組織出台了許多國際公約，但是由於許多國家來不及通過本國立法程序使之成為本國法律，這些公約一直無法生效。從某種意義上來說，這些公約已經失控，沒人知道甚麼時

In a sense, these conventions are out of control; nobody can determine when they will enter into force and consequently planning for outfitting the compliant technologies is a difficult commercial decision. Often the required equipment is costly to buy and costly to operate. The most compelling example of these conventions is the Ballast Water Convention which has been in a state of limbo since the text was adopted in 2004. The indications appear to suggest that it will achieve its entry into force criteria in the not too distant future. At its adoption, the Convention was innovative in two respects; firstly, it required equipment to be fitted to achieve a standard of cleanliness in ballast water that simply did not exist in 2004 and secondly it set compulsory dates for ballast water treatment regardless of the date of entry into force of the Convention. The net result of this innovation has been extremely costly ballast water treatment equipment with high energy demands that deplete the ship's innate efficiency standard. It is also worrying that the required dates for some specific ship types to be fitted have already passed and will be subject to retrospective application in some States.

Another such Convention is the Hong Kong Ship Recycling Convention. This Convention matches the industry's aspiration to ensure that ships are recycled to the maximum extent possible when they reach the end of their commercially viable life. The Convention places an obligation on the owner, *inter alia*, to obtain an inventory of hazardous material from the builder (or to put a slightly simpler one in place on existing ships) and to maintain it throughout the ship's life before obtaining a 'ready to recycle' certificate prior to sale of the ship to the recycling facility. The Convention has complex ratification criteria including a requirement for a proportion of the world recycling capacity to be represented. It has yet to achieve a single State signatory and it is impossible to begin to predict when it will become enforceable. This situation makes it difficult for owners to decide when and how to complete the inventory but nevertheless ICS recommends completion of the inventory early as a demonstration of self regulation.

It is worth drawing attention to the ILO's Maritime Labour Convention. The Convention is likely to achieve its ratification criteria within the next few years and there is going to be enormous pressure on administrations and on recognised organisations to inspect and certify ships in the period before the Convention becomes enforceable. The Convention places significant administrative burdens on existing ships for compliance and on new ships in terms of design and construction. There is a clear need to ensure that ship's staff are trained in the requirements of the Convention in order to correctly and adequately address compliance and port State control inspections.

The current situation can thus best be characterised by uncertainty; uncertainty over compliance requirements and uncertainty over operational cost juxtaposed with the dramatic certainty that fuel prices are going to increase.



候將會生效。因此業界很難決定甚麼時候按照公約要求作技術改進。而公約所要求的設備價格昂貴，經營成本高。典型的例子就是2004年通過目前處於被遺棄狀態的壓載水公約。公約通過的時候有兩項創新，即：要求新安裝的壓載水設備保證壓載水的清潔度達到2004年還不存在的標準。其次，它規定了壓載水處理的強制實行日期而無需考慮公約的生效日期。直接的後果就是昂貴的、高能耗壓載水處理設備耗盡了船舶原有的效率標準。更令人擔憂的是，要求某些種類船舶安裝有關設備的期限已過，船東將會面臨某些國家追溯懲罰的危險。

另外一個例子是《香港船舶再循環公約》。該公約符合業界的期望，保證船舶在達到最大商業壽命後才進行拆船。公約還為船東制定了一項責任，即向造船廠索取一份危險材料的詳細清單（或在現有船上備有一份略為簡單的清單），在獲得“可循環”證書前和將船舶賣給拆船廠前永久保存。該公約的批准標準十分繁復，包括要求有一定份額的拆船廠代表等。該公約目前還沒有獲得任何一個國家的批准，目前很難預計公約甚麼時候生效。這種情況使船東很難決定何時及如何完成有關的清單。國際航運總會(ICS)建議為了表明業界的自律，船東還是應該盡快完成公約所要求的詳細清單。

另外值得一提的是《國際勞工公約》。該公約在未來幾年將達到公約生效的標準。這對有關政府和核准機構造成巨大的壓力，在公約生效前檢驗和核准船舶的工作將十分繁重。公約給現有船舶的履約和新造船的設計和建造增加了巨大的壓力。很有必要保證船上工作人員獲得足夠的履約培訓，以便準確合適地應對履約工作和港口國監控檢查。

總之，目前的形勢可以歸納為不明朗，履約要求的不明朗，經營成本的不明朗。戲劇化的是，另一方面，燃油價格上升卻是肯定的。

Finally we need to consider the greatest uncertainty of all; the matter of ensuring that shipping's CO<sub>2</sub> emissions are reduced or in other words that ships demonstrate a marked increase in what is already an impressive measure of efficiency. IMO is working hard to deliver into regulation a package of technical and operational measures that will continuously improve the efficiency of individual ships. Whether IMO can in fact complete this task hangs in the balance as the high level political debate continues to be polarised between those States that already have an obligation to pay for and deliver efficiency improvement (the so called developed States) and those States that have been excused such an obligation regardless of their CO<sub>2</sub> inventory. It is unsatisfactory for the shipping industry to have its quest for efficiency and its will to make a contribution to climate change mitigation thwarted by politics that rightly belong at UNFCCC and not at IMO. Hopefully at the eleventh hour, shipping will be given the chance to adopt efficiency measures to a known timetable. The last thing that is required in the present climate is any more uncertainty. Unfortunately one more source of uncertainty still remains to be considered.

The Copenhagen Accord creates a mechanism whereby funds should be raised to pay for CO<sub>2</sub> mitigation in the developing world. Among the sources identified for an annual contribution to an overall figure of \$100 billion per annum are the two global transport modes, shipping and aviation. The precise magnitude of this additional burden on shipping is not known although a figure of around US\$ 7 billion has been mooted in some quarters. There has also been debate in the IMO on a market based mechanism (MBM) that could be used to incentivise shipowners to be more efficient in their operations and thus assist in addressing climate change. The industry needs to be wary that it does not end up with two parallel but independent economic measures; one at IMO and the other under the Copenhagen Accord.

What does all this mean for the future of the shipping industry? Uncertainty is never good for commercial decision making. Some of the pending regulation will bring requirements for new equipment and other regulation will require administrative measures and additional crew training. All of these imply expense. The magnitude of the expense is unknown but it has the potential to change the face of shipping.

If the impact of uncertainty is to be so far-reaching then there is an urgent need to ensure that future regulation does not compound the problem. This in turn suggests that some procedural measures should be taken now. Not least is that every new piece of regulation must be accompanied by a cost-benefit analysis which considers not just the measure itself but also its inter-relationship with other regulation. Finally it is unhelpful and unproductive to have adopted legislative text pending for years until the text is ratified. Perhaps it would concentrate the minds of government delegations if a draft Convention had a finite shelf life of perhaps five years, after which if it had not been ratified it would be deleted.

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最後，我們要考慮的是最不明朗的部分，如何保證船舶二氧化碳的排放，換句話說如何表明航運界在業已十分高效方法的基礎上，再提高效率。國際航運組織正在起草一項法規，包括在技術和操作層面來改善船舶的效率。國際海事組織能否完成這項任務取決於有義務承擔效率提升責任的國家(即所謂的發達國家)和那些不用承擔這些責任的國家高層政客的爭論能否達到平衡。航運界十分不滿其尋求效率和願意為氣候變化作出貢獻的良好願望為各種政治因素所阻擾，這些政治因素來自聯合國氣候變化框架公約(UNFCCC)而非國際海事組織。希望最後時刻航運界能夠有機會按照一個明確的時間表，落實自己的效率措施。然而，還有另外一個不明朗因素需要考慮。

《哥本哈根協議》為發展中國家降低二氧化碳排放制定了一個融資機制。其中兩個最大的資金貢獻方均來自全球運輸業，海運和航空，達每年 1000 億美元。這項賦予航運業的額外負擔的具體數字目前尚不清楚，但是據瞭解有些業界需要承擔大約 70 億美元。國際海事組織還在討論一項激勵機制，鼓勵船東在經營方面提高效率以幫助正視氣候變化問題。航運對此必須採取謹慎的態度，最後產生的不可能是兩種平行的經濟方法而是獨立的方法，分別來自國際海事組織和哥本哈根協議。

這對航運界的未來意味著甚麼？不明朗因素對商業決定永遠不是好事。有些未決的法規將會要求新的設備，有些法規會要求行政方法和額外的船員培訓。所有的這些都會涉及經費。經費的具體數字尚不清楚，但這將會改變航運的形象。

如果不明朗因素在短期內可以解決，那麼就有保證未來的法規不會增加這些不明朗因素必要。這就需要採取程序方面的措施。這些措施不僅要保證新的法規基於本利分析，這種分析不但分析方法的本身而且還應該分析方法與其他法規之間的相互關係。最後，不應該將通過的法律條文在正式批准前擱置數年。也許應該讓政府代表瞭解，起草的公約是有期限的(例如五年)，如果過了這個期限公約未獲批准，有關的公約將會作廢。

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