Good morning, ladies and gentlemen.

It is a genuine pleasure for me to address this timely conference on ‘green’ shipping, or I may perhaps call it ‘green shipping in a blue world’ – to borrow a term from the recently published report of the United Nations Environment Programme, titled *Green Economy in a Blue World*. The terms “sustainable environment” and “sustainable development” have become fashionable today, but, as this report also acknowledges, the credentials of shipping as the cleanest and most energy-efficient mode of transport carrying the overwhelming volume of world trade are long-established. This makes shipping integral to civil society’s transition to a ‘green economy’ based on sustainable development. The same report also hails the leadership role of the International Maritime Organization in supporting sustainable maritime development by setting global safety and environmental standards for international shipping and promoting their uniform implementation across the world. The significance of this role may be appreciated in view of the fact that shipping activities are expected to increase further with the predicted expansion of the global economy as development and economic growth spread in the developed world, where as much as 70-75% of the world’s merchant fleet is registered today.

It is no coincidence that small island developing states, which depend for their very survival on the health and biodiversity of the oceans and the protection and preservation of their marine and coastal resources, have become much more vocal at IMO regulatory meetings in recent years. They are increasingly concerned about the impact of the cumulative pressures such as climate change, intensified human activity and technological advances. Similarly, IMO’s Integrated Technical Co-operation Programme is experiencing a steady volume of requests from developing countries for maritime capacity-building, technical assistance in the maritime sector and strengthening of maritime education and training, as they seek to fulfil
their legal obligations for the implementation and enforcement of those IMO instruments they have signed up to. In this respect we cannot forget the sterling work of our tertiary institutions – the World Maritime University and the International Maritime Law Institute.

As regards our Integrated Technical Co-operation Programme, we estimate that over the last five years an average of 51% of has been devoted to environmental protection. This commitment may also be understood within the context of the very strong environmental agenda of IMO. The Organization has adopted 21 environmental treaties, of which 17 are in force to date.

There can be no doubt that IMO has its part to play in bringing about a paradigm shift that requires new, creative thinking about the way civil society conducts itself. While the founders of IMO conceived the Organization primarily as a technical standard-setting body – and which it still is, its work today increasingly interrelates with global societal issues, such as sustainable resource management, food and water security, gender issues and indeed poverty eradication, which lies at the heart of the Millennium Development Goals.

As many of you will be aware, the Rio+20 Conference of the United Nations will take place on 20-22 June this year and is intended to provide a renewed opportunity to reflect on these fundamental issues. I am pleased to report that we, at IMO, having actively participated in the Rio Conference of 1992, are ready to do the same at Rio+ 20 – and we will do so in close co-operation with our industry partners. At an informal meeting convened earlier this month by the new IMO Secretary-General, Mr. Koji Sekimizu, the industry’s unequivocal message was that they see themselves very much part of IMO’s contribution to the Rio+20 process.

Of course, for the industry the stakes are very high, because it has to make the right decisions about investments in innovation and new technologies, which are integral components of sustainable shipping. The cost burden of such investments can be very considerable and for ship owners already hard-pressed by low freight rates and poor earnings, as is the case in today’s abysmal economic climate, it poses an additional challenge.

There is always the danger that safety and environmental expenditure are lowered to the bare minimum, especially in times of economic hardship. There are however, limits on how far one can cut without cutting corners dangerously.

Under international law, enforcement of the international legal regime adopted by IMO is the prime responsibility of flag states. Nevertheless, the performance of flag states is open to external scrutiny from port state control. Over the past two and a half decades, a network of regionally co-ordinated port state control regimes has spread around the world, effectively functioning as a ‘safety net’ in addition to flag state implementation.

Perhaps most importantly, established port state control practice reinforces the principle of ‘no more favourable treatment’ according to which IMO convention requirements apply to all ships globally, regardless of the flag they fly, once the convention concerned has entered into force. The spread of regional co-operation in port state control around the world has helped to promote a harmonized approach to the enforcement of IMO rules and standards. Regional port state control is, therefore, entirely compatible with the notion of universality that underlies all IMO’s regulatory work and this can only be to the benefit of sustainable protection of the environment.

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Ladies and gentlemen,

As you may be aware, the 1992 Rio Conference adopted a broad agenda on environment and development which, among other things, included a set of recommendations related to shipping and the role of IMO.

IMO’s responses have been both multifaceted and robust.

For instance, in 1992 there was only one Particularly Sensitive Sea Area, today there are 14. Proposals for the designation of PSSAs by IMO must be accompanied by proposals for Associated Protective Measures. These may extend to measures specifically related to the safety of shipping traffic, such as recommended ships’ routeing measures and mandatory traffic separation schemes.

The MARPOL concept of Special Areas builds on the zero-tolerance approach of the Prohibited Zone, which was first introduced under the OILPOL Convention of 1954. A total of 19 Special Areas are in force today under the MARPOL regime. A Baltic Sea Special Area will be the 20th to enter into force, on 1 July of this year, for the purpose of more stringent protection from ships’ sewage discharges.

The Antarctic has enjoyed Special Area status since 1992 for the purpose of total prohibition of oily discharges into the sea and the overboard disposal of garbage. Its Special Area status was extended in 1994 to discharges of residues or mixtures of noxious liquid substances. In addition, a total ban on the carriage or use of heavy fuel oils took effect last year (1 August 2011), under a new MARPOL regulation.
Antarctic waters will also benefit from special measures under the new IMO Polar Code, which is currently under development and expected to become mandatory for ships operating in polar waters, both the Antarctic and the Arctic. It will cover the full range of matters relevant to maritime navigation in the uniquely pristine but extremely remote and often hostile environments surrounding the two poles.

It is interesting to note that the geographical spread of Special Areas around the world has steadily widened over the years. Furthermore, their geographical scope is not confined to enclosed or semi-enclosed seas, such as the Mediterranean Sea, Baltic Sea, Black Sea and Red Sea areas. It also extends into much larger ocean expanses, such as the Southern South Africa waters and the North West European waters. I would suggest that these are all clear indications of a strong IMO awareness of the fundamental importance of protecting and preserving the world’s seas and oceans as vital life support systems for all peoples, which will, of course, be a major theme of Rio+20.

What about the Emission Control Areas or so-called ECAs?

Designated under MARPOL Annex VI concerning air pollution from ships, ECAs are protected by special mandatory measures to prevent, reduce and control harmful atmospheric emissions of sulphur and nitrogen oxides – the so-called ‘socks and knocks’ (SO₂ and NOₓ) – and emissions of particular matter. There are currently three ECAs in force (Baltic, North Sea and North American ECAs) and a fourth is expected to enter into
force on 1 January 2013 (United States Caribbean Sea ECA). ECA compliance requires ships to use cleaner fuel oils or, as an equivalent alternative, emission abatement technologies, such as exhaust gas cleaning systems or so-called ‘scrubbers’, capable of meeting tighter restrictions than the overall applicable, global emission limits.

It is worth recalling that when MARPOL Annex VI was first being developed by IMO, in the 1990s, a major concern was to ensure that the Organization was seen to be keeping pace with air pollution controls for land-based industries. Further in this context, it was recognised that the harmful effects of sulphuric emissions from ships had a transboundary dimension reaching well beyond sea areas and extending long distances over land – many of you may recall that the term used to characterize these emissions in the mid 80s adding to the large-scale acidification of forests, for instance was ‘acid rain’.

Under the newly developed Annex VI, IMO also addressed – for the first time – global climate change concerns by prohibiting ships’ emissions of ozone-depleting substances. Having been adopted by an IMO diplomatic conference in 1997, Annex VI did not enter into force until 2005. Further reductions of air pollutants were subsequently introduced in 2008 amendments and, last year, a formidable milestone was reached with the adoption of new amendments pertaining to ships’ energy efficiencies aimed at limiting and reducing greenhouse gas emissions through technical and operational measures. These concern the Energy Efficiency Design Index, for mandatory application to newbuildings, and the Ship Energy Efficiency Management Plan, which is mandatory for both new and existing ships.

It heralded the world’s first-ever, globally enforceable control regime for an entire industry sector. IMO quite deservedly was given credit for this achievement at the Durban Conference held in December of last year to continue the United Nations-led negotiations over the establishment of a post-Kyoto Protocol regime for global climate change abatement.

The MARPOL regulations on ships’ energy efficiencies are contained in a new chapter of Annex VI, which is expected to enter into force in nine months from now, on 1 January 2013. Meanwhile, further intensive work is expected to be undertaken on advancing the development of frameworks for determining the Energy Efficiency Design Index for those ships that are not covered by the current Energy Efficiency formula, such as passenger vessels and ro-ro ships.

IMO is also committed to the conduct of an impact assessment to assess proposed market-based measures to further curtail greenhouse gas emissions from international
shipping. However, more intensive discussions are expected to aid decision-making on a clear direction for the impact assessment.

Ladies and gentlemen,

The MARPOL Convention boasts another five annexes addressing marine pollution from ships, making it the most comprehensive international instrument of its kind to date.

Annexes I and II address, respectively, vessel-source oil pollution and pollution from the bulk carriage by sea of noxious liquid substances.

Annex III is concerned with marine pollutants carried in packaged form and much work has been done to ensure consistency in the classification of marine pollutants through a harmonized approach with IMO’s International Maritime Goods Code and also taking account of new scientific knowledge.

Annex IV addresses sewage discharges into the sea. The latest amendments to this Annex are expected to enter into force on 1st January of next year and designate the Baltic Sea as the first Special Area to benefit from a general prohibition of sewage discharges, with strictly controlled exemptions for passenger and cruise ships.

Annex V regulates the disposal of ship-generated garbage and has been completely revised. The amendments are expected to enter into force also on 1 January 2013 and introduce a general prohibition of the discharge of all garbage – under the currently applicable Annex the discharge of plastics has been subject to a total, globally applicable ban. The revised Annex does however permit exceptional discharges for food waste, cargo residues, animal carcasses and cleaning agents or additives, yet these will be subject to additional requirements being fulfilled and the discarded items not being harmful to the marine environment.

It is interesting to note that the idea for such a wide-ranging convention took hold within IMO at a time of growing awareness, at United Nations level, that an all-encompassing
commitment was needed to safeguard the human environment. The 1973 MARPOL Convention was adopted one year after the first United Nations Conference on the human environment was held in Stockholm, in 1972. Forty years on, it is just as relevant as it was then.

By way of illustrating this assertion, let us reflect on the comprehensively revised Annex II, which was eventually adopted in 2004, after nearly a decade of intensive work and debate. It marked a truly momentous milestone in the ongoing endeavour to ensure that IMO regulation keeps pace with the new chemical products, mixtures and applications that are constantly emerging onto the market, requiring the allocation of scientifically determined hazard profiles and of safe and environmentally sound carriage requirements. The entry into force of the Annex II amendments, on 1 January 2007, put in place an entirely new – and greatly simplified – framework of pollution categorization, together with amended carriage requirements under the International Bulk Chemical Code to reflect the changes to MARPOL Annex II. Also new was the first-time inclusion of vegetable oils into the regulatory framework. Since then, further intensive work has been done.

The 2007 amendments came into force on 1 January 2009 and we are currently working hard to finalize the 2012 amendments. But within the context of RIO 1992 – The United Nations Conference on Environment and Development (UNCED) through chapter 19 of its agenda 21 established a programme on the harmonization of classification and labelling of chemicals which resulted in the 'UN Globally harmonized system of Hazard Classification and Communication (GHS)' as developed by the OECD (Organization on Economic Cooperation and Development). This system provides the backbone of which IMO categories bulk chemicals under MARPOL Annex II and the IBC Code, once again showing that IMO does not work in a vacuum.

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Ladies and gentlemen,

Thanks to advances in marine science, we have learned much more about biodiversity, issues of marine biosafety in general, and the vulnerabilities of marine and coastal ecosystems to man-made risks.

IMO has been actively seeking a solution to the ballast water management issue since the late 1980s and adopted voluntary guidelines in 1991, with updated versions following in 1993 and 1997. However, it took another seven years before the Ballast Water Management Convention was adopted, in 2004, and its entry into force has yet to materialise. Nevertheless, the Convention is an outstanding example of IMO regulation breaking new ground in order to counter the invasive – and possibly irreversible harmful – effects on local environments and ecosystems from the discharge overboard of ships’ ballast waters containing alien organisms and pathogens transferred from other areas in the world. IMO has also done a tremendous amount of work on the guidelines to facilitate implementation, while partnership initiatives such as Globalballast and the Global Industry Alliance have been greatly instrumental in providing technical assistance and R&D support to help individual countries and industry stakeholders with concrete solutions to make the Convention work for them.

It is however a source of great concern and disappointment that after eight years since the adoption of the Ballast Water Management Convention, ratification still falls short of the requisite 35% of the gross tonnage of the world’s merchant shipping (the combined merchant fleets of the 33 States that have so far ratified the Convention represent only 26.46% of the world’s merchant shipping). While recognizing that there may be a number of reasons for this state of affairs, any further delays will be a disincentive to the industry to make the required investments. Postponement also risks creating bottlenecks in shipyards when the Convention’s deadlines for the retrofitting of existing ships approach and this, in turn, would add to the cost of installation of the requisite shipboard ballast water management systems.

It is encouraging that the number of commercially available treatment technologies that have obtained the requisite Type Approval Certificates has steadily increased in recent years. So there really is no barrier for countries to ratify the Convention on account of availability of technologies.

Furthermore, the Organization is now also vigorously pursuing the other vector for transferring invasive species by ships – hull fouling. The first-ever international Guidelines
for the control and management of ships' biofouling to minimize the transfer of invasive aquatic species were adopted by the Marine Environment Protection Committee in July of last year.

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Ladies and Gentlemen,

Two and a half years have elapsed since the Hong Kong Convention on the Safe and Environmentally Sound Recycling of Ships was adopted. Again, IMO has ventured into new territory by embracing the regulation of land-based facilities into a comprehensive instrument addressing all safety and environmental aspects relating to the disposal of ships at the end of their life and the responsible management of associated waste streams and their disposal. Although the Convention has not, until now, secured a single ratification, there are positive indications that ratification is receiving serious consideration by a number of governments. The declared intention of the European Commission to develop a new European Regulation based on the technical requirements of the Hong Kong Convention is also very encouraging in this regard.

Ship recycling countries, in particular, should redouble their efforts to ratify the Convention in view of the environmental and safety benefits they would derive from such action. The mandatory standards established by the Convention are pragmatic and realistic – they take account of both the particular characteristics of international shipping and the commercial realities of the ship recycling industry. IMO has spent much effort to facilitate their global implementation through the development of guidelines required under the terms of the Convention. In fact, the four sets of guidelines that are critical to early, voluntary implementation of the Convention’s provisions, ahead of its entry into force, have already been adopted by the Marine Environment Protection Committee and adherence to them would start a process of incremental improvement. They pertain to the Inventory of Hazardous Materials; the Ship Recycling Plan; Safe and Environmentally Sound Ship Recycling; and Authorization of Ship Recycling Facilities.

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Notwithstanding achievements in pollution prevention and environmental protection, accidents can and do happen, because shipping is an inherently dangerous activity, with ships having to confront the worst elements thrown at them. IMO has long recognised the importance of comprehensive and well-rehearsed preparedness and response systems that are needed to ensure prompt action to minimise the impact of maritime spills. The International Convention on Oil Pollution Preparedness, Response and Co-operation was adopted by IMO in 1990, in the aftermath of the grounding of the tanker Exxon Valdez and the subsequent serious oil pollution near the Alaskan coast. The OPRC Convention, as it became known, was later supplemented by the OPRC-HNS Protocol of 2000 to cover hazardous and noxious substances. Together, these two instruments provide a truly global framework to facilitate international co-operation and mutual assistance in preparing for and responding to major pollution incidents making the link between the ship, through its shipboard emergency plans (SOPEP/SMEP) and response plans by a coastal State – the latter in cooperation with the oil, shipping and chemical industries if such exist in a coastal State. Coupled to these two instruments are the compensation and liability regimes for pollution damage - henceforth closing the circle of prevention – preparedness – response – and compensation for victims of pollution.
Ladies and gentlemen,

There is no denying that the environment no longer comes cheap. “before, we used to dump everything - the scientific connotation to this action was the oceans had assimilative capacity which was immense and in some quarters was considered infinite” Nowadays we know better and have adopted a most cautious, precautionary and ecosystem approach with seafarers at the frontline to implement an ever-wider range of environmental controls and compliance deficiencies which at times and regrettably can land them with fines, the loss of their job, or even imprisonment and criminal prosecution.

For shipping to be sustainable there must also be adequate financing of manpower, that is, investment in the proper qualification and training of seafarers, as well as moral investment – by that I mean the cultivation of a human element-oriented safety management policy so that seafarers may feel wholly supported in the vital work they do.

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I should like to conclude my address with a question.

Are the truly massive costs involved in the protection of the environment justifiable? Or do we allow ourselves to be driven too much by exciting technological advances, of which the benefits are perhaps over-estimated while their limitations are not readily acknowledged or insufficiently understood?

This is a question with a deeper, philosophical dimension which goes to the heart of the human quest for knowledge and innovation. It is inherent in human nature to feel inspired by knowledge – and the science that underpins it – and to seek to apply it to the way we live. Just think about all the wonderful engineering inventions of the Victorian age. Science and technology go hand in hand and many scientists would even suggest that they are inseparable.

A scientist myself, I very much hope that as we gradually increase our knowledge of the seas and oceans and of precious marine and coastal ecosystems, we shall commit ourselves unashamedly to safeguarding them from harmful man-made hazards and risks, deploying the latest environmental technologies and learning from their application in order to continuously improve upon them. This will require determination and courage, as well as a proper understanding of risks, costs and benefits, but the effort will have been worth it if we succeed in getting closer to bringing about the paradigm shifts that can change life to the benefit of future generations.
On this note, I conclude my address by wishing you all a very successful and enjoyable conference. As you have seen, I chose to illustrate my address with a small gallery of photo slides. I hope you liked them and they will inspire you to raise your own questions and make your own views and comments be known in the next few days. I also wish to express my sincere thanks to the organizers for inviting me to speak at this important conference in the run-up to Rio+20 and as, IMO with our industry partners, prepare ourselves for the Conference.

Thank you.