

**The International Cooperation and Development Forum on Marine Economy**  
**2019**

*Hosted by the Ministry of Natural Resources of the People's Republic of China,  
the People's Government of Guangdong Province the Shenzhen Municipal  
People's Government*

Shenzhen, 15-16 October 2019

***“Mapping out the future of the Blue Economy”***

*As of 30 August 2019*

<b>Monday 14 October 2019</b>	
17:30 – Onwards to 15 and 16 October	<b><u>Sheraton Fuitian hotel, Shenzhen</u></b>  <b><i>Registration of participants</i></b>
<b>Tuesday 15 October 2019</b>	
<b><u>08:30 – 12:15</u></b>	<b><u>Shenzhen Convention &amp; Exhibition Center</u></b> <b><i>Official opening of the Exhibition and Forum on the Marine Economy</i></b>
08:30 – 08:50	<b><i>Keynote opening speech:</i></b> <b>H.E. Mr. Lu Hao</b> , Minister of Natural Resources of the People's Republic of China
08:50 – 09:40	Tour of the China International Marine Economy Expo
10:00 – 12:15	<b><i>Shared policies for the sustainability of ocean ecosystems and of the Blue Economy</i></b>
10:00 – 11:10	<b><u>Part one</u></b> Oceans are the primary regulator of the global climate and the livelihood of more than three billion people depends on marine

11:15 – 12:20	<p>resources. They are of crucial importance for biodiversity. However, oceans and marine resources are increasingly harmed by human activities generating climate change, huge pollution, the destruction of marine ecosystems and resources. Efficient international oceans governance is an urgent priority to achieve a balance between the development of the ocean economy and the sustainability of the marine ecosystems.</p> <ul style="list-style-type: none"> <li>✓ Numerous international organizations, specialized agencies and governments are dealing with different aspects of Oceans Governance. How to ensure optimum synergy between these efforts and initiatives to achieve the sustainability of the marine ecosystems?</li> <li>✓ Can government priorities and efforts be better coordinated?</li> </ul> <p><i>A MINISTER ROUNDTABLE DISCUSSION</i></p> <p><b><u>Part two</u></b></p> <ul style="list-style-type: none"> <li>✓ What is needed to ensure the efficient involvement of the international ocean business community to address the challenge of ocean sustainability?</li> <li>✓ How to integrate and leverage quickly scientific and technological advances into institutional decision-making processes and regulatory enforcement at the national and international levels?</li> </ul> <p><i>BUSINESS LEADERS AND EXPERTS SHARE THEIR VIEWS</i></p>
<b>12: 45 – 20:30 SHERATON FUTIAN HOTEL</b>	
12:30 – 12:45	<b><i>Transport to the Sheraton Futian hotel for the participants of the <u>2019 Marine Economy Forum</u></i></b>
12:45 – 13:45	<b><i>Plenary luncheon</i></b>
14:00 – 15:30	<p>Plenary session</p> <p><b><i>Disruptive technologies as game- changers for the health and wealth of the blue economy: Leveraging Digitization, AI and cloud computing</i></b></p>

	<p>How to address the dilemma of, using marine resources to meet the world's growing needs in food, energy and transport while at the same time not adding to the pressures on our marine ecosystems? Innovations in the domains of biochemistry, artificial intelligence, robotics, big data are helping improve our understanding of marine ecosystems while improving the efficiency of marine industries and their ability to operate in more environmentally sustainable way. Innovation networks in the ocean economy are now bringing together research institutes, enterprises, universities, public agencies into networks working on a range of innovations, in marine robotics and autonomous vehicles; aquaculture; marine renewable energy; biotechnologies; offshore oil and gas, leveraging their respective skills on the ocean economy.</p> <ul style="list-style-type: none"> <li>✓ What best innovation approaches to generate win-win outcomes for marine business and the marine environment?</li> <li>✓ How can partnerships between research centers, business and government help accelerate technological and scientific innovations and their implementation and leveraging for the sustainable development of the marine economy?</li> </ul>
15:30 – 16:00	<b>Coffee/Networking break</b>
16:00 – 17:15	<p>Breakout session <b><i>Developing the business potential for sustainable fisheries and aquaculture</i></b></p> <p>Global fish resources are under severe pressures from the combined impact of over-exploitation and environmental degradation. Ensuring the sustainability of fishery and aquaculture activities involves fighting over-fishing, passing and implementing policies and laws to curtail illegal fishing practices, establishing protected areas to allow fish reproduction at sustainable levels, restoring collapsed fisheries. The aquaculture industry is among the world's fastest growing food production sector. Aquaculture production is projected to reach 109 million tons by 2030, a 37% increase from 2016 level. Fish farms have now become the main provider of seafood against wild fisheries. One crucial level of action to protect and regulate fishery and aquaculture activities</p>

	<p>are the marine areas beyond national jurisdiction which comprise close to 65% of the surface of the oceans.</p> <ul style="list-style-type: none"> <li>✓ What are the new initiatives and developments in global aquaculture production?</li> <li>✓ How could a coordination of national policies ensure a better and more generalized compliance with the FAO Code of Conduct for Responsible Fisheries adopted in 1995?</li> <li>✓ What are the best practices in sustainable fisheries and aquaculture management that could benefit other countries?</li> <li>✓ What should be done to improve and expand international coordination and cooperation for sustainable fishery in marine areas beyond national jurisdiction?</li> </ul>
16:00 – 17:15	<p>Breakout session <b><i>Policies and actions for developing the marine renewable energy sector</i></b></p> <p>Offshore wind, wave and tidal energy, bioenergy are today among the most promising areas in the marine renewable energy domain. Developments in this domain will not only contribute significantly to meet climate change challenges, they are also emerging as important contributors to economic growth and jobs creation. However, only a limited number of large-scale systems are already in operation mostly in Asia, Europe and North America. Technology and engineering challenges still exist, as well as difficulties in mobilizing the necessary level of investment.</p> <ul style="list-style-type: none"> <li>✓ What kind of support schemes to help secure the kind of investments needed for the development of the Marine Energy sector?</li> <li>✓ How Marine Renewables can be a Game Changer and what is the state of play in their implementation?</li> <li>✓ How to accelerate the development of International Standards on technology, performance, safety, etc. and the verification of compliance to these standards. That will contribute to the adoption of marine technologies on a global basis?</li> </ul>
16:00 – 17:15	<p>Breakout session <b><i>Addressing the new challenges to maritime safety and security</i></b></p>

	<p>International shipping transports about 90% of global trade. Despite decades of progress in maritime safety, fatal accidents at sea continue to be a concern and human errors are more often than not a major factor behind these accidents, as many mariners are operating under increasing time and resource pressure to meet deadlines and reduce costs and shipping supply chains are streamlined for greater efficiency. While technology is increasingly used to improve safety and risk behavior, cyber security is becoming a major concern for the maritime industry. As the United Nations agency with responsibility for the safety and security of shipping and the prevention of marine and atmospheric pollution by ships, the International Maritime Organization (IMO) sets standards for the safety, security and environmental performance of international shipping.</p> <ul style="list-style-type: none"> <li>✓ How to improve coordination between international agencies, governments and relevant business organizations to keep improving maritime safety and security?</li> <li>✓ How best to leverage new technologies for improving maritime safety?</li> </ul>
17:30 – 18:45	<p>Plenary in parallel <b><i>What future for ocean governance?</i></b></p> <p>High Seas areas, beyond the territorial waters of countries represent 65% of the world’s oceans surface and they are home of vital biological and natural resources. However, these areas known as Areas Beyond National Jurisdiction (ABNJ), are covered by very few laws, which are not only incomplete but also weakly enforced because they are beyond the remit of any single government. So, these high seas areas are being degraded by overexploitation of resources and pollution – thus endangering crucial ecosystems and leading to the fast depletion of very important resources – not even mentioning the very negative impact on climate.</p> <ul style="list-style-type: none"> <li>✓ What should be the key elements for a more effective framework for global ocean governance?</li> <li>✓ How to create consensus for concerted and efficient action to protect these high seas areas?</li> </ul>
17:30 – 18:45	<p>Plenary session in parallel <b><i>The future of green and smart shipping and ports: Mastering the technologies that are changing the industry and are ocean-friendly</i></b></p>

	<p>Smart and green ships and ports are today a key priority and necessity reshaping the shipping and port sectors as companies are under growing pressure to reduce carbon emissions and their environmental footprint, to streamline shipping routes, to increase operations efficiency, leveraging new technologies to achieve these goals. Smart equipment and systems are now being installed on vessels on an on-going basis. Until recently, people on board of vessels made most of the decision regarding the course and functioning of the ship. Now, Data collection and Data analytics are supporting decision-making and we are soon getting into a situation where machines will be able to take decisions – under the oversight and intervention of the crew. In the same way, the focus is on technologies that will reduce significantly the carbon footprint of the industry. However, moving towards the goal of autonomous and green ships involves a number of challenges to be addressed.</p> <ul style="list-style-type: none"> <li>✓ What technology and regulatory trends are shaping the Future of the Global Marine Industry?</li> <li>✓ What are the increasingly new tight green requirements?</li> <li>✓ What will digital shipping mean in terms of skills required, and how to achieve it with low enough risk levels?</li> <li>✓ How to set the appropriate parameters to choose the very complex new systems - the “right” high end and green technologies - in overhauling the sophistication and capabilities for clean and efficient vessels’ equipment?</li> </ul>
19:00 – 20:45	<b>Official banquet</b>
<b>Wednesday 16 October 2019 SHERATON FUTIAN HOTEL</b>	
09:00 – 10:30	<p>Plenary roundtable <b>Addressing the challenges facing the shipping industry</b></p> <p>The shipping industry worldwide is facing a number of challenges including quasi stagnant demand growth – due among other things to the crisis in international trade and the reshaping of global supply chains – a tightening of emissions regulations, the costs and management adjustments involved in embracing the digital age, excess capacity pushing freight rates down and creating pressures for consolidation of the industry.</p> <ul style="list-style-type: none"> <li>✓ What options for the industry to address these challenges?</li> </ul>

	<ul style="list-style-type: none"> <li>✓ Should the industry consider that the decreasing rate of growth in international trade flows is a temporary phenomenon or is it a structural trend to which it needs to adjust?</li> <li>✓ Are we going towards a shipping industry limited to just a very few global players? What would be the implications of that trend?</li> </ul>
10:30 – 11:00	<b>Networking break</b>
11:00 – 12:15	<p>Breakout session <b><i>Policies for coastal and marine tourism as a sustainable driver for blue growth</i></b></p> <p>Marine and coastal tourism is a growing global business becoming a significant growth and jobs contributor and - for some segments of population in many countries - the most important source of revenue. However, huge influxes of tourists in coastal areas generate pollution and big amounts of waste and generate considerable pressure on water and power utilities and local infrastructure. The further development of marine and coastal tourism is now facing the challenges of implementing sustainable policies to blunt the impact on the environment, to stop or even reverse the deterioration of oceans water conditions and of biodiversity.</p> <ul style="list-style-type: none"> <li>✓ What policies to expand the growing trend of eco-tourism?</li> <li>✓ What future for cruise tourism in a context of growing concerns for environmental sustainability?</li> <li>✓ Which innovations, developments or trends will be most effective in accelerating progress on tourism sustainability?</li> <li>✓ What kind of concerted “greener” policies and integrated coastal zone management for marine and coastal tourism can help achieve a more sustainable path for the sector?</li> </ul>
11:00 – 12:15	<p>Breakout session <b><i>Future prospects of the desalination industry to answer the world’s water challenges</i></b></p> <p>Desalination activities are booming around the world as many countries are facing major water scarcity - or even crisis - situations. Desalination is already playing an increasing role in aiding countries and companies to respond to water challenges</p>

	<p>and turning seawater into drinking water is seen as one of the most efficient solution to address this challenge. There are today more than 16000 desalination facilities in operation worldwide and the number keeps growing. Desalination technologies are evolving fast and plants are getting more efficient addressing two big issues involved in the desalination process: The huge amount of energy needed, and the huge volume of brine produced which is pumped back into the seawater and which is quite harmful to the oceans ecosystems.</p> <ul style="list-style-type: none"> <li>✓ After a period during which the price of desalinated water was going up can we now expect a long trend of decreasing price for desalinated water?</li> <li>✓ What are the latest technological advances in the thermal and membranes domains that could have the most significant impact on the desalination industry?</li> <li>✓ What prospects for solar thermal desalination?</li> </ul>
<p>11:00 – 12:15</p>	<p>Breakout session <b><i>Developing the potential of Deep Seabed Mining: What trade-offs with the protection ocean biodiversity?</i></b></p> <p>As the demand for base metals and minerals keeps growing, the potentialities offered by deep seabed-mining are becoming increasingly attractive. According to the US Geological Survey there is more rare earth metals, cobalt and nickel in the deep oceans seabed than in all land reserves. There are however increasing concerns about the risks that in the haste for exploiting the oceans metal and mineral resources will seriously harm marine biodiversity. The International Seabed Authority (ISA), a UN body, has been set to promote and regulate deep-sea mining and issue a mining code that will provide a framework for exploitation of deep seabed resources and regulations are scheduled to be finalized by 2020, in order to allow for the start of commercial exploitation.</p> <ul style="list-style-type: none"> <li>✓ Mapping out the economic potential for seabed mining.</li> <li>✓ What is required to achieving environmentally sound and sustainable seabed mining projects?</li> <li>✓ What are the latest technology developments with respect to prospecting and exploration of seabed resources? What are the latest methods? With what kind of results?</li> <li>✓ What key elements to achieve an internationally accepted and respected regulatory framework for deep seabed mining?</li> </ul>

12:30 – 14:00	<b><i>Plenary luncheon</i></b>
14:15 – 15:45	<p>Breakout session <b><i>Offshore oil &amp; Gas: Meeting the challenges of growing demand</i></b></p> <p>It is estimated that over the next 15 years production will have to increase by an additional 43 million barrels per day of new crude to meet global demand and about one third of this additional production will come from offshore – with a significant part from deep-water and ultra-deep-water resources. In fact, about 70% of new oil and gas resources discovered in the last few years are located offshore. One major new development in the industry is the growing of robotic applications for lower cost, more environment friendly offshore operations.</p> <ul style="list-style-type: none"> <li>✓ How is the industry responding to increasing pressures for environment sustainability?</li> <li>✓ What new technologies hold the greatest potential for offshore oil &amp; gas exploration and exploitation?</li> <li>✓ How close are we to fully unmanned platforms?</li> </ul>
14:15 – 15:45	<p>Breakout session <b><i>Making a reality of the big Blue Biotech and Pharma potential</i></b></p> <p>Oceans are home to species of plants and animals, the number and diversity of which is not yet fully explored as many aspects of life in the seas are still uncharted territory as scientists are beginning to realize that the oceans microbial diversity might be way much greater than previously thought as the use of DNA technology is allowing for more and more discoveries in the domain of marine organisms. The use of marine biotechnology in the pharmaceutical, cosmetic and agrochemical industries is just beginning to create new products and markets estimated at billions of dollars. Some even see great potential in marine bioactive for treating diseases such as cancer.</p> <ul style="list-style-type: none"> <li>✓ Where do we stand in terms of the technological capabilities for developing in laboratory conditions compounds found in marine organisms which are normally developed in sometimes extreme deep-sea conditions?</li> <li>✓ What kind of potential could Blue Biotech achieve over the next 5 to 10 years in terms of treatment of diseases or the agrochemical sector?</li> </ul>

	<ul style="list-style-type: none"> <li>✓ What could be done to incentivize more investment in the blue biotech sector, beyond government money?</li> </ul>
14:15 – 15:45	<p>Breakout session  <b><i>Marine Equipment industries: Confronting the challenges for growth and sustainability</i></b></p> <p>Slowing economic growth in most parts of the world, international trade frictions, falling oil prices and overall fleet overcapacity have put a number of pressures and creating new challenges to the shipping building and marine equipment industries in general. Increased efficiency and integration of new technologies, better integration of supply chains are among the responses that the industry can provide to cope with more difficult international conditions. In that respect, additive manufacturing, or 3D printing can not only result in more efficient machinery components but also in significant cost reductions as it would allow spare parts to be produced locally around the world, contributing to more efficient ship operations. The marine equipment industry needs also to accelerate the process towards decarbonization and digitalization to achieve the double priority of greater efficiency and reduced environmental footprint.</p> <ul style="list-style-type: none"> <li>✓ What kind of partnerships and alliances could help companies in the marine equipment sector to emerge in a stronger position from the present situation?</li> <li>✓ What long-term trends are shaping the future of the industry and what actions are needed now to be in the best position to leverage these trends?</li> </ul>
16:00 – 17:30	<p>Plenary session  <b><i>The marine economy by 2030: Scenarios for growth?</i></b></p> <p>Marine based economic activities have a high growth potential and can be a powerful driver – and beneficiary – of technological and scientific innovation. Hence the importance of accelerating their development in the coming years – and this without mentioning the positive impact this could have on the fight against climate change.</p> <ul style="list-style-type: none"> <li>✓ What are the key factors affecting the development of the ocean-based activities, and what could be the global value of the blue economy by 2030 (from the estimates of three to six trillion dollars today?)</li> </ul>

	<ul style="list-style-type: none"> <li>✓ What kind of technological and scientific innovations can be realistically expected over the next seven to ten years to support this development?</li> <li>✓ What kind of priority actions should be envisaged at the global level to help boost the medium-term – by 2030 - development prospects of the blue economy in responsible, sustainable ways</li> </ul>
17:45 – 18:30	<p>Concluding session: <b><i>Key outcomes of the Shenzhen Marine Economy Forum</i></b></p> <p>This session will highlight the key outcomes and recommendations emerging from the discussions of The International Cooperation and Development Forum on Marine Economy 2019 and will help crystallize the <b><i>“take home”</i></b> value for the participants</p>
18:45 – 20:15	<b><i>Farewell dinner</i></b>