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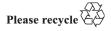**Working Party on Regulatory Cooperation
and Standardization Policies session**

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**Risk Management in regulatory systems:
Report of Activities under the Group of Experts
on Managing Risks in Regulatory Systems**

Report of the ICES/ECE Working Meeting on Management Tools and Standards in Support of SDG 14

Submitted by the Group of Experts on Risk Management in Regulatory Systems

Summary

This document contains the report of the International Council for the Exploration of the Sea /ECE Working Meeting on Management Tools and Standards in Support of SDG 14, held in Reykjavik, Iceland on 9–11 October 2018.

I. Background

1. The International Council for the Exploration of the Sea and the United Nations Economic Commission for Europe (ECE) convened a working meeting to discuss management tools and standards in support of SDG 14. The International Council for the Exploration of the Sea/ECE meeting was held at the Marine and Freshwater Research Institute in Reykjavik, Iceland on 9–11 October 2018.

2. The following ECE countries were represented at the meeting: Belgium, Denmark, Germany, Sweden and the United Kingdom of Great Britain and Northern Ireland.

3. The participants of the following non-ECE countries were also present: Australia, China and New Zealand.

4. The following organizations participated: European Environment Agency, Fisheries New Zealand, Forschungszentrum Jülich GmbH, Helmholtz-Zentrum Geesthacht, International Council for the Exploration of the Sea, **Joint Programming Initiative Healthy and Productive Seas and Oceans**, Marine and Freshwater Research Institute, Marine Stewardship Council, MATIS, Nichols, Sun Yet-Sen University, Swedish Agency for Marine and Water Management and the ECE Group of Experts on Risk Management in Regulatory Systems. The list of participants of the meeting is available in Annex II to this document.

5. The world's oceans, seas and marine resources are crucial to making the planet habitable for humankind, with their temperature, chemistry, currents and life impacting much of the water we drink, the food we eat, and the oxygen we breathe. Carefully conserving and sustainably using these key resources thus proves instrumental to achieving a sustainable future for all.

6. Sustainable Development Goal (SDG) 14 on *Life below Water* addresses this complex issue by aiming at, among others, preventing and reducing marine pollution, managing and protecting marine and coastal ecosystems, addressing the impacts of ocean acidification, restoring fish stocks, as well as increasing research capacity and marine technology.

7. The purpose of this report is to provide the background of the working meeting, highlighting the main takeaway messages from the discussions, and presenting the recommendations proposed by participants on the use of risk management tools within regulatory frameworks, aimed at supporting the achievement of SDG 14 on *Life below Water*.

8. The agenda, as well as presentations delivered at the meeting, are available on the ECE's Working Party on Regulatory Cooperation and Standardization Policies (WP.6) webpage.

II. Introduction

9. The **Director of the Marine and Freshwater Research Institute** opened the meeting, highlighting the crucial role fisheries has historically played in Iceland and the challenges the country has faced in managing fisheries activities. He provided the attendees with an overview of the Institute and further discussed their research priorities, which mostly related to future challenges concerning both the global marine environment in general and Icelandic waters in particular. These include climate change, acidification of the oceans, and the adverse impact that these two factors have on fish stocks and fish migrations.

10.   The **Head of the Science Support Department at the International Council for the Exploration of the Sea** introduced the organisation, along with its mission, products, vision, strategic plan and priorities for the future. Moreover, he reported on the Council's contribution to the Ocean Conference, which was held at the United Nations Headquarters in New York in June 2017. He further elaborated on a number of projects on which the organization is currently working, including the LME:LEARN project. It aims to improve global ecosystem-based governance of Large Marine Ecosystems and their coasts by creating knowledge, strengthening capacity, mobilizing public and private partners, and supporting South-to-South and North-to-South learning exchanges.

11.   The Secretary of the **ECE's Working Party on Regulatory Cooperation and Standardization Policies** introduced her organization and its work on "Risk-based regulatory systems", aimed at integrating a risk management perspective in the work of regulatory bodies and public administrations. She explained that the work was entrusted to the Group of Experts on Risk Management in Regulatory Systems that she invited participants to join in and introduced its deliverables to date. She explained, in detail, the steps that a regulator or policymaker can take to make decision processes fully risk-informed. She also referred to another area of ECE work that was relevant to the participants, the UN/CEFACT standard FLUX, which helps improve fisheries information management, and plays a key role in preventing overfishing and the collapse of global fish stocks.

III.   Thematic Presentations

12.   The **Acting Executive Director of the Joint Programming Initiative Healthy and Productive Seas and Oceans** outlined the platform's research and innovation agenda, featuring both its key strategic areas and its contribution towards the 2030 Agenda. The core part of the presentation was devoted to three science policy-driven projects the Initiative has been working on, which address the quality of European waters, the monitoring of microplastic in the marine and coastal environment, and the ecological aspects of deep-sea mining. She concluded by elaborating on the Blue Bioeconomy Cofund, whose long-term ambition is to unlock the potential of aquatic bioresources by: (i) contributing to their increased production, consumption and sustainability; (ii) creating a knowledge community; (iii) improving professional skills within the blue Bioeconomy and (iv) contributing to policymaking in research, innovation and technology in the field.

13.   The **Director of the United Nations University Fisheries Training Programme** (UNU-FTP) highlighted the relevance of today's training and capacity building in fisheries to solve tomorrow's problems. The mission of UNU-FTP is twofold: assisting partner countries in reaching their development goals, while strengthening institutional and individual capacity to promote sustainable use of living aquatic resources. This is done via established six-month postgraduate trainings that UNU-FTP has been offering over the past twenty years.

14.   The **Chief Research Officer of Research and Innovation at Matís** presented the MareFrame project, which involves 28 partner organizations across 14 countries and 3 continents, and aims at providing models, tools, as well as evaluation and educational resources towards the co-creation of ecosystem-based fisheries management solutions. MareFrame has delivered an innovative, multi-stage decision support framework driven by a holistic approach that considers environmental, economic, social and governmental aspects. In achieving this, challenges included lack of social indicators, data-poor fisheries, and existing gaps between social, natural and legislative scientists.

IV. Achieving SDG 14: Risk Management and Regulatory Challenges

15.   The **Chairman of the ECE's Group of Experts on Risk Management in Regulatory Systems** discussed the role risk management can play in achieving the targets of SDG 14. Considering risk management as an integral part to any organization's decision-making process, he emphasised the multiple goals that risk management itself strives to achieve: maximising the opportunities and minimising downside risks, while protecting people, systems and processes, as well as recognising capabilities, perceptions, and intentions of the people that make each organisation different.

16.   An executive from the private sector outlined the challenges facing the implementation of SDG 14 from a legal and regulatory context perspective, both at the national and international level. In so doing, he provided three examples: (i) the 2020 International Maritime Organisation fuel sulphur regulation; (ii) the regional fishery management developed by the International Commission for the Conservation of Atlantic Tunas and (iii) the work carried out by the International Whaling Commission.

V. Assessing and Managing Risks of Achieving SDG 14 Targets

17.   The discussion led by the lead organizer of the event, from the **Institute of Coastal Research at Helmholtz-Zentrum Geesthacht** emphasized that the implementation progress of SDG 14 cannot be assessed unless there is a clear understanding of existing legislation and policies that are currently used to manage human activities in the marine environment. This will entail an analysis of the stakeholders involved, as well as whether the regulatory framework is effective when enforced, controlled, and by whom. The purpose of risk management, and its application in regulatory processes, is developing a well-balanced, efficient system of controls and procedures, as opposed to one that fluctuates between two extremes, such as excessive or insufficient regulation.

18.   A presentation on the bow-tie analysis as elaborated in **IEC/ISO 31010** followed. It paid special attention to control assessment techniques that facilitate the identification of sources, causes and consequences of risks, with a focus on prevention, mitigation and recovery controls. In this context, attendees underscored that the risk of not achieving SDG 14 targets may be linked to the fact that Member States do not have suitable legislation or policies in place that can be conducive to the accomplishment of the Goal itself.

19.   A member of ECE Group of Experts on Risk Management in Regulatory Systems presented how key performance, key risk and key control indicators ('KxIs') have been used in the financial services sector for informed decision-making. He introduced definitions for key performance, risk and control indicators, outlined design principles for selecting them and shared KxI framework considerations with meeting participants. Experts discussed next steps for transferring this methodology to an ecosystem risk management context and encouraged further research into this area.

20.   During the working meeting, discussions took place on the applicability of the EU Marine Strategic Framework Directive as a comprehensive framework to assess the current status of the SDG 14 targets and analyse national regulatory framework that address the targets. In the implementation process of SDG 14 strategies, concerns were raised as to how such strategies would be framed within the context of developing countries and small and island developing states. Experts further noted that accountability for external pressures, including unforeseen factors, need to be considered.

21.   A presentation by Institute of Estuarine and Coastal Studies and University of Hull, UK, emphasised the need for vertical integration across governance regimes from the local to the international, and horizontal harmonisation across different stakeholders to successfully implement SDG 14. The representative questioned whether the targets adopted for SDG 14 were sufficiently SMART (specific, measurable, achievable, realistic or time bound) and discussed the effect this may have on determining whether the targets had been achieved. He also indicated the level of integration required and the effort for each target (Annex I). Further, representatives considered the SDG 14 indicators - adopted by the United Nations General Assembly - and the range of indicators adopted by the EU through EUROSTAT.

22.   A comparison was used to illustrate the similarities of the two parallel processes (i.e. the SDG targets and the Marine Strategy Framework Directive targets) in Europe. This entailed assigning each Directive descriptor a number, on a scale from one to five, with regards to the level of knowledge and availability of information (1 = more information would be helpful; 5 = it is not possible to move on in absence of further information). The following results were collected:

(Source: Presentation by Institute of Estuarine and Coastal Studies)

Marine Strategy Framework Directive Target	Result on a Scale
Biological diversity	1
Non-indigenous species	3
Commercial exploitation of fish and shellfish within safe biological limits	3
Marine food webs and assurance of long term abundance of species and retention of reproductive capacity	2 (for description) and 4 (for understanding)
Eutrophication	1
Sea-floor integrity	3
Hydrographical conditions	2 (general)/ 5 (acidification and climate change)
Contaminants	3
Contaminants in fish and seafood for consumption	1 (concerns raised over the set standard, based on human health risk assessment levels)
Marine litter: what is meant by harm to the marine environment	1
Energy including noise, not adversely affecting the environment	5

VI.   Applying ECE Best practice in support of SDG 14: Lessons Learned and Recommendations

Risk-based policy making and regulatory frameworks in support of SDG 14

23.   Experts at the meeting agreed that a risk management approach needs to be applied to regulatory decision-making processes to achieve SDG 14 on *Life under water*.

24.   The implementation of risk management practices through regulatory regimes, standards and guidelines remains a challenge given the divergent use of definitions, methods, and jargon in such processes. Risk management approaches such as ISO 31000 as well as ECE Recommendations R, P and T, and other standards such as ISO 31000 as well as ECE Recommendations R, P and T, and UN/CEFACT FLUX - would provide the needed coherence and accountability.

25.   They agreed that "Recommendation T", which was developed by the ECE Group of Experts on Risk Management in Regulatory Systems, should be implemented in the context of SDG 14 – following its approval by Working Party 6.

26.   A pre-requisite for implementing a risk-based approach in this sector is an in-depth study of the current regulatory frameworks related to SDG 14 in the ECE Member States (as presented by the Institute of Estuarine and Coastal Studies, especially the Directive).

27.   Attendees to the meeting agreed that it was important to analyse the regulatory landscape in terms of risk management best practice. This analysis should be undertaken by applying ECE Recommendation T. The achievement of SDG 14 should be set as the goal of the regulatory system. The national policies, conventions (i.e. regional and international), and regulations should then be assessed in terms of their contribution to the effective management of related risks.

Scientific research in support of SDG 14

28.   The Director of the Marine and Freshwater Research Institute pointed out the importance of science in decision-making processes, providing the specific example of Icelandic fisheries and ecosystem-based management.

Next steps

29.   Experts discussed the possibility of creating a Group of Experts that would be mandated to assist in the implementation of Recommendation T in the context of SDG 14 and the strategies needed to do so. It would need to closely cooperate with the Group of Experts on Risk Management in Regulatory Systems and ECE Team of Specialists on Sustainable Fisheries and relevant International Council for the Exploration of the Sea.

30.   Such a group should explore the best ways to apply ECE recommendations to building regulatory frameworks in support of SDG 14 and to appraise recommendations that could be used by regulatory agencies and policymakers. It was noted that in doing so, the potential expert group should further analyse the Directive targets and their relevance to SDG 14 (Annex I), the ecosystem indicators developed by the International Council for the Exploration of the Sea and apply the expertise of UN/CEFACT and specifically its "FLUX" standard for the achievement of SDG 14.

31.   Attendees also recommended that further scientific research is carried out to support the implementation of SDG 14 at international and regional level, especially in the areas with the highest scores in the table in paragraph 22 above.

Annex I

SDG 14 targets and policy integration needs for their achievement

Source: International Council for the Exploration of the Sea

Target	Policy Integration Needed
#1. By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution	- Point-source pollution controls – discharge standards - Diffuse pollution source controls – land-use - standards, controls on nutrient and pesticide use - Catchment controls on run-off, land-use - IPPC – land, air and water discharge standards - Controls on aerial deposition - Societal controls on litter – increased education - Economic incentives - Controls on noise pollution - Manufacturer controls, recycling and reuse targets. - Sewage treatment plant controls for microplastics - Disposal at sea controls – dredging, vessels - Emissions (Greenhouse gas, litter, ballast water)
#2. By 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans	- Determine and assign protection levels and areas (Marine protected areas, particularly sensitive sea areas) - Define and protect priority habitats and Species - Increase coastal resistance and resilience from climate change effects - Control resource removal (biological and physical resources) - Coastal flood and erosion protection schemes - Proactive coastal (in) habitation schemes (setback building regulations) - Impose legislations to restore habitats
#3. Minimize and address the impacts of ocean acidification, including through enhanced scientific cooperation at all levels	- Exogenic unmanaged pressure (not addressing impacts). - Create source controls on greenhouse gas. - Encourage science to detect effects, yet society needs to control the causes. - Increase global cooperation. - Acknowledge geopolitical differences in aerial discharge levels.
#4. By 2020, effectively regulate harvesting and end overfishing,	- Fisheries controls – derive and implement

Target	Policy Integration Needed
illegal, unreported and unregulated fishing and destructive fishing practices, as well implement science-based management plans, in order to restore fish stocks in the shortest time feasible, at least to levels that can produce maximum sustainable yield as determined by their biological characteristics.	- Increase regulations - closed areas, seasons, species, sizes - Increase reporting and monitoring at quayside - Increase vessel-tracking (Vessel monitoring system on all vessels) - Increase aerial surveillance, Type-A and Type-B ecoengineering (protect habitats and re-stocking) - Accommodate the paradox – if it is illegal, unreported and unregulated then not known - Increase cooperation on straddling stocks and transboundary/high seas controls. - Increase national funding, equipment and support for fish stock monitoring especially in small and under-developed states
#5. By 2020, conserve at least 10 per cent of coastal and marine areas, consistent with national and international law and based on the best available scientific information	- Increase marine protected area legislation and implementation within a state - Conservation area designation and Monitoring - Check and implement risk-based Management - Implement internal regulations and laws. - Implement regional laws - Implement international agreements and protection of transboundary sites - Trade-offs between countries/regions
#6. By 2020, prohibit certain forms of fisheries subsidies which contribute to overcapacity and overfishing, eliminate subsidies that contribute to illegal, unreported and unregulated fishing and refrain from introducing new such subsidies, recognizing that appropriate and effective special and differential treatment for developing and least developed countries should be an integral part of the World Trade Organization fisheries subsidies negotiation	- Determine which fisheries subsidies occur as well as the location - Reform of national fisheries policies. - Identify illegal, unreported and unregulated fishing and whether there are subsidies - Overcome paradoxes (if illegal, unreported and unregulated then how are the subsidies given) - Reform WTO rules - Include developing and least-developed countries in WTO - Consider how to challenge internal state economies using international controls
#7. By 2030, increase the economic benefits to Small Island developing States and least developed countries from the sustainable use of marine resources, including through sustainable management of fisheries, aquaculture and tourism	- Reform economic incentives - Ensure economic benefits stay inside a country - Increase policy for sustainable management. - Greater pollution and environmental impact assessment controls on aquaculture effects and consequences - Integrate land-management and planning for areas for differing marine resources - Implement legislation on Maritime Spatial Planning - Increase management controls on fisheries

Target	Policy Integration Needed
	- Overcome the conflict between environmental and economic effects of tourism - Overcome the paradox of tourism ('more tourists required by a state which then degrades the reason for tourists to visit') - Increase maritime spatial planning legislation on transboundary basis.
#8. Increase scientific knowledge, develop research capacity and transfer marine technology, taking into account the Intergovernmental Oceanographic Commission Criteria and Guidelines on the Transfer of Marine Technology, in order to improve ocean health and to enhance the contribution of marine biodiversity to the development of developing countries, in particular small island developing States and least developed countries	- Increase profile and funding for science (cf. Borja and Elliott, 2017) - Knowledge transfer from scientifically-developed nations - Increase transparency and knowledge dissemination - Increase data availability and open-access especially from industrial sources - Ensure marine technology available for poorer states - Change marine management in states to be more receptive to new knowledge - Implement science-policy strategy committees (or learn from developed, maritime states) - Less-developed states to adopt the marine - Management legislation (e.g. for Maritime Spatial Planning and Good Environmental Status) from developed states (reduce 'wheel re-inventing')
#9. Provide access for small-scale artisanal fishers to marine resources and markets	- Derive and implement local agreements for fisheries - Increase local control on fishing resources to prohibit industrial fishing - Legislate for changes to economic incentives. - Increase legislative and administrative controls on fishing areas in less-developed states - Increase stakeholder cooperation to achieve economies of scale
#10. Enhance the conservation and sustainable use of oceans and their resources by implementing international law as reflected in the United Nations Convention on the Law of the Sea, which provides the legal framework for the conservation and sustainable use of oceans and their resources, as recalled in paragraph 158 of The Future We Want	- Coordinate national and international conservation controls - Adhere to international agreements by local and national action - Coordinate fisheries and conservation legislation - Coordinate fisheries and conservation administrations - Conflict of allowing fisheries and protecting areas - Increase national enabling legislation towards holistic and transboundary marine management - Less-developed states to adopt the marine management legislation (e.g. for Maritime Spatial Planning and Good Environmental

Target	*Policy Integration Needed*
	Status) from developed states (reduce 'wheel re-inventing')

Annex II

List of participants

Name	Institute	Country
Andreas Kannen	Helmholtz-Zentrum Geesthacht	Germany
Andrew Minkiewicz	Kelley Drye	USA
Anna Davies	International Council for the Exploration of the Sea	Denmark
Anna Kristin Daníelsdóttir	MATIS	Iceland
Bjarki Thor Elvarsson	Marine and Freshwater Research Institute	Iceland
David Gislason	MATIS	Iceland
Floor Ten Hoopen	Swedish Agency for Marine and Water Management	Sweden
Francis Neat	Marine Stewardship Council	United Kingdom
Grimur Valdimarsson	Marine and Freshwater Research Institute	Iceland
Jacky Wood	Joint Programming Initiative Healthy and Productive Seas and Oceans	Belgium
Jianzhang He	Sun Yet-Sen University	China
Joachim Harms	Forschungszentrum Jülich GmbH	Germany
Kedong Yin	Sun Yet-Sen University	China
Kevin Knight	Economic Commission for Europe Group of Experts on Risk Management in Regulatory Systems Chair	Australia
Lorenza Jachia	Economic Commission for Europe	Switzerland
Markus Krebzs *(online participant)*	Economic Commission for Europe Group of Experts on Risk Management in Regulatory Systems	United Kingdom
Mike Elliott	Institute of Estuarine & Coastal Studies	United Kingdom
Nikolaj Bok	European Environment Agency	Denmark
Pamela Woods	Marine and Freshwater Research Institute	Iceland
Pamela Mace	Fisheries New Zealand	New Zealand
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Name	Institute	Country
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Wojciech Wawrzynski	International Council for the Exploration of the Sea	Denmark