Twenty-first meeting of the United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea

"Sea-level rise and its impacts"
14 to 18 June 2021

Biographies and abstracts of panellists (in alphabetical order, by segment)

Segment 1: Sea level rise: understanding the issue, its impacts and related challenges

Mr. Pierpaolo Campostrini

Managing Director, CORILA

Bio

Pierpaolo Campostrini was born in Venice in 1960 and lives there.

Educated in classic studies, took an Electrical Engineering degree from Padua University (IT) in 1984and then a post-lauream Diploma in Plasma Physics (1986).

In the first part of his professional life, he was a researcher in the field of Nuclear Fusion (with a tenure position in the National Research Council-CNR, since 1987) and also taught in the Universities of Padua and Udine. He was also visiting scientist in the University of Madison, Wisconsin (USA).

Since 2000, he is the Managing Director of CORILA, an association of Universities and public research bodies for managing research on Venice, supervised by the Ministry of Research of Italy.

He is also member of the Board for the maintenance of St. Mark's Basilica in Venice, appointed by the Ministry of Interior, since 2015.

He is member of the Management Board of JPI Oceans and of the Italian delegation in the EU Program Committee of H2020-SC 2 (appointed by the Ministry of Research).

He is also member of the Steering Group of the BLUMED initiative, of the Monitoring Committee of the INTERREG program Italy-Slovenia.

He's member of the Editorial Board of scientific journals, ISI-rated and author of several scientific publications.

He participated in more than 30 EU Projects, in different leading roles, and he was/is the coordinator of the EC-DG MARE projects on Maritime Spatial Planning in the Mediterranean (ADRIPLAN, SUPREME and MSPMED).

He participated as invited speaker in many international conferences, also organised by UN agencies, (UNESCO and UNDRR). In particular, he was the European panellist in the plenary session on "Resilient Cultural Heritage" of the Third UN World Conference on Disaster Risk Reduction, occurred in Sendai in 2015.

He received the award "Pearl of excellence" from the Italian's manager association, in 2009.

Abstract

"Venice, a clear example of impacts of SLR and a new paradigm of adaptation"

Venice is not a low-level lying city as many others, is the result of a continuous adaptation process in the last 1000 years. The long-lasting ability to build splendid palaces in a difficult environment, to conserve and innovate the city shape in a constant dialogue with the Sea, allow the present generation to experience and admire the culture of past different centuries, form the Roman-Byzantine period to the Gothic, the Renaissance, the Baroque and all the cultural evolution up to the modern times.

The SLR occurred In Venice after the II Word War is almost the double of what occurred in the previous century, for both local and global conditions: the limit of Venice's resilience is close to be reached, as the last event of November 2019 demonstrated. The risk is not only to lose human lives or economic resources. Cultural Heritage is a fragile and not replaceable value.

The Third UN World Conference on Disaster Risk Reduction, occurred in Sendai in 2015, dedicated a specific working session on "Resilient Cultural Heritage", in which cultural heritage was recognized as a *"driver of resilience*", able to provide *"important insights and opportunities for enhancing disaster risk reduction, post-disaster rehabilitation and recovery, building back better and for stimulating local economic and social development"*

Definitively, the Venice's experience represents an easy and immediate way to communicate the complexity of impacts of SLR on coastal cities and the need to cope with climate changes.

Ms. Rosemarie Cardogan

Legal Adviser (maritime boundaries), Trade, Oceans and Natural Resources Directorate, Commonwealth Secretariat

Bio

Rosemarie Cadogan is a legal and policy advisor in the Ocean and Natural Resources team of the Commonwealth Secretariat's Trade, Ocean and Natural Resources Directorate. In discharge of its mandate, ONR assists member countries to sustainably manage their natural resources in the ocean and on land, bolstering national resilience to economic and social crises for the benefit of present and future generations. With over 15 years project and transactional experience in public policy, ocean governance, and maritime jurisdiction and enforcement in the Caribbean, Canada, West Africa and the Pacific, Rosemarie is focused on finding practical solutions to long-term issues in oceans and environment matters, at the intersection of law, climate policy and governance.

Abstract

"Commonwealth initiatives and sea level rise adaptation"

This Submission is prepared by the Commonwealth Secretariat in response to the invitation by the United Nations for participation in the twenty-first meeting of the United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea.

The Secretariat is pleased to provide additional information on its activities and interventions on this issue in keeping with Paragraph 352 of Resolution 75/239, as well as its previous Submission to the Report of the Secretary General on Oceans and the Law of the Sea and the focus of this meeting: 'Sea level rise and its impacts'.

More particularly, in keeping with this panel's focus on sea level rise: understanding the issue, its impacts and related challenges, we are pleased to provide information on measures being taken to address relevant environmental, social and economic impacts of sea level rise for low-lying coastal Commonwealth Small Island Developing States (SIDS) and communities in least developed countries. We are keen to highlight the linkages between efforts to combat sea level rise and progress towards the attainment of the 2030 Agenda for Sustainable Development (SDGs) in regional contexts.

We take note of the findings of the Special Report on the Ocean and Cryosphere in a Changing Climate, issued by the Intergovernmental Panel on Climate Change in 2019 (IPCC) and highlight initiatives undertaken by our Oceans and Natural Resources, Climate Finance Access Hub and Commonwealth Blue Charter (CBC) teams in Eswatini, Fiji, Guyana, Kiribati, Mauritius, Namibia, Seychelles, Solomon Islands, Tuvalu, Vanuatu Zambia, and the member countries of the CBC Action Groups. These cross-regional examples serve to illustrate similarities and differences in impacts and adaptation approaches to addressing climate change-induced sea level rise.

Background

The Commonwealth is a voluntary association of 54 independent and equal countries. It is home to 2.4 billion people and includes both advanced economies and developing countries. Our members work together to boost trade and create prosperity, protect the environment, promote democracy and good governance, amplify the voice of small states, and celebrate diversity.

- Commonwealth countries have a marine coastline and contain about one-third of all marine waters in national jurisdiction;
- 32 of our members are small States;
- 25 of our members are small island developing States, ('SIDS'), sometimes referred to as 'Large Ocean States.'

As indicated in its previous submission, the Commonwealth Secretariat provides technical assistance support to member countries in the development of policies, laws, design of fiscal regimes and strengthening of national institutions as they seek to implement the Sustainable Development Goals.

Strengthened resilience and adaptive capacity to climate-related hazards and natural disasters in all countries is one of the targets of SDG 13.2 Building on early Commonwealth work in this area, the Secretariat is engaging in research with Guyana, Kiribati and Tuvalu, 3 SIDS impacted by sea level rise for whom rapid assessments were previously conducted.

These countries present examples of cross regional geographic similarities faced by coastal communities (in the case of Guyana, Kiribati and Tuvalu); biological differences (e.g., coral reefs, tropical forests in Tuvalu and Guyana) as well as types of adaptive responses employed, including hard and soft infrastructure (Guyana, Kiribati).

Guyana's low-lying coastal plain is of critical importance because it concentrates major administrative and economic activities, primarily agriculture, and houses essential infrastructure, including power generation, potable water, telecommunications, health and education. The capital city, Georgetown, and other important towns, New Amsterdam, Rose Hall, Corriverton and Anna Regina are all located within the coastal plain where approximately 90% of the population lives, with about one-third residing in the coastal towns. The coastal plain is permanently between 0.5 to 1 metres below sea level at high tide.

As with other developing economies in the region, natural disasters pose a great threat to the reversal of economic and social gains at the national and local levels. When the effects of climate-induced sea-level rise are added in this context, this is projected to exacerbate the frequency and magnitude of flooding events. The Intergovernmental Panel on Climate Change (IPCC) projects with high confidence that under all emissions scenarios, extreme sea levels that are historically rare will become common by 2100 with many low-lying cities and small islands at low latitudes experiencing such events annually by 2050. The Panel also estimates with high confidence, that rising sea levels will cause the frequency of extreme sea-level events at most locations to increase. It also estimates with very high confidence, that the frequency, severity and duration of hazards and related impacts caused by sea-level rise will increase.

Some commentators on Guyana estimate a change in return period for high-water levels at coast reducing from 15 years to 1 year, using global, regional, and local estimated sea-level rise projections. This suggests that extreme events which occur every 1 to 2 decades could become annual events. It is projected that fiscal risks emanating from coastal flooding could derail growth and development efforts in agriculture and agro-processing, as these sectors affected by climate related impacts are in coastal locations which places them at risk from flooding. Accordingly, the development of climate-resilient infrastructure, good governance, sustainable coastal zone management, and the implementation of climate-smart policies are key measures to reduce such risks.

These assessments project the likelihood of significant increases in the impact of coastal flooding on human settlements, infrastructure, shoreline erosion and recession, particularly in areas not protected by hard infrastructure such as seawalls. Additionally, there is need to incorporate 'soft infrastructure' ecosystem-based adaptation measures, such as mangrove forests, which are particularly vulnerable due to coastal population density and the impact of human activities.

As previously noted in the 1989 Report of the Commonwealth Group of Experts *Climate Change: Meeting the Challenge* ('the Holdgate Report'), greater climate variability and more extreme events also have costs, with many future problems arising because of the uneven distribution of these costs. The Report posited that poor countries, and poorer groups within countries, have less capacity to adjust, with poor countries being in general, more vulnerable since their economies are more dependent on agriculture and natural resources. Actions required to correct underlying problems of poverty and achieve sustainable development would become even more difficult'.

Commonwealth research is examining these aspects. As one of 12 Pacific countries which contain 84% of the region's indigenous mangroves, Kiribati commenced formal adaptation planning much earlier than most other countries in 1995 after ratifying the UN Framework Convention on Climate Change (UNFCCC). Through a series of adaptation plans (Kiribati Adaptation Programme or KAPs) between 2005-2016, Kiribati identified ten priority areas for adaptation, including inundation and coastal erosion.

The Secretariat's Kiribati research focuses on coastal infrastructure from an ecosystem-based adaptation perspective, more particularly the use of mangrove replanting and mangrove profiles as a means of increasing coastal resilience, climate change adaptation and disaster risk reduction. As with many SIDS, 'soft infrastructure' (as opposed to hard coastal protection measures) are developed with support from donor agencies. This evaluation examines the delivery of these measures at the national/local government level with input from national and international agencies, and it is expected that research outcomes will support recommendations on improving the process of measuring effectiveness of climate change adaptation projects in Kiribati, and to some extent, re-imagining effective climate change adaptation in the region.

SDG 13 target 13.b addresses the promotion of mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and SIDS, including focusing on women, youth and local and marginalized communities. The Secretariat's research on climate change adaptation in Tuvalu spotlights community engagement and the incorporation of traditional knowledge into food security as part of ecosystem-based adaptation. As noted by Grantham et al. 2011, these bottom-up initiatives build on community involvement, and foster increased awareness through community participation.

Climate Finance Access Hub

Improved access to climate finance through the Commonwealth Climate Finance Access Hub (CCFAH) remains at the heart of support for small and other vulnerable states across the Commonwealth. we have provided support to fifteen (15) Commonwealth countries, with thirteen (13) National Climate Finance Advisers deployed within relevant government departments across the African, Pacific and Caribbean Regions, who support grant applications and the implementation of climate change adaptation and mitigation projects. This targeted support builds human and institutional capacity and furthers cross-regional cooperation and knowledge sharing.

Many Pacific Islands and SIDS in general are in the process of planning and operationalising national adaptation programmes to reduce vulnerabilities to the expected impacts of climate change and variability through the UNFCCC process, with additional support from multilateral and

bilateral financial institutions (Sem 2007). Little is known about the extent to which institutional arrangements for managing adaptation ensures coordination between various actors and integrates diverse sources of knowledge. (Vogel, Moser et al. 2007; Heltberg, Jorgensen et al. 2008). Such evaluation is crucial to minimize vulnerability of social and ecological systems, to facilitate learning and adaptive management, and as a means of increasing accountability in policymaking, which relies heavily on evidence. (Preston et al., 2010)

The utility of satellite data for calculating baselines and referencing conditions for measuring the direction and rate of change for projects relating to sea-level rise, flooding, land degradation, fisheries, coastal protection, food security, exclusive economic zones (EEZs) and maritime boundary agreements is well known.

However, unless such earth observation (EO) data and information is made accessible and comprehensible for member countries, and there is the capacity to utilise the data to source climate finance for projects and programmes, then most vulnerable nations remain at risk. Without access to quality data, policymakers, decision-makers, project designers and technical support staff in ministries, lack the requisite information for making sound, evidenced-based climate change proposals with concrete justifications to enhance access to climate finance for bankable policies, projects, and actions. Improved use of data can help contribute to turning country priorities and Nationally Determined Contributions (NDCs) commitments into climate finance investment plans and projects, addressing the financing gap where the implementation of many NDCs depends on external financing.

Through the CCFAH, the Secretariat uses the geospatial-based CommonSensing platform to provide technical assistance to Fiji, Solomon Islands and Vanuatu for enhanced access to climate finance. The Platform's consortium comprises international partners including the UK Space Agency, United Nations Institute for Training and Research (UNITAR - UNOSAT), Catapult Satellite Applications, Devex, Met Office, Sensonomic, Spatial Days and the University of Portsmouth. As at May 2021, the CCFAH has helped member countries to access approximately US42.71 million of climate finance for 27 approved projects in 6 countries (14 adaptation, 3 mitigation and 10 cross-cutting projects) with 63 pipeline projects in 8 countries.

In Africa, this support covers:

- Climate Public Expenditure and Institutional Review (CPEIR) to support national planning and budgeting, especially identifying and tracking budget allocations that respond to climate change, and the Development of a Strategy to enhance private sector engagement in NDC implementation in Eswatini;

- Climate finance mapping and development of a climate finance monitoring, reporting and verification (MRV) toolkit, project information notes and a pipeline of NDC funding project proposals in Zambia;

- Strategic technical assistance to facilitate a coordinated approach on financing around the three Rio Conventions on biodiversity, climate change and desertification, focusing on climate action on land in Namibia; and

- Technical support for strengthening institutional processes and structures for sourcing and utilizing climate finance in Mauritius and Seychelles.

The four main inhabited islands of Seychelles consist of steep plateau terrain surrounded by narrow coastal strips, upon which most economic activities, and approximately 85% of residential property, tourism assets, and critical infrastructure are concentrated. In addition, a lack of suitable land for locating infrastructure close to the capital city of Victoria, has led to extensive land reclamation in the surrounding areas.

Rising sea levels are projected to displace a significant portion of the population, with increasing saltwater intrusion in valuable coastal agricultural lands, coastal inlets and aquifers, and leading to the submergence of low-lying islands and cays. Sea level rise, coupled with projected increases in the intensity and frequency of cyclones, storm surges, and rainfall events, is also expected to result in severe damaging seasonal flooding, and extensive erosion in wetlands and along beaches.

The CCFAH is currently assisting Seychelles to access finance to reduce the impacts of sea-level rise along its low-lying agricultural lands, within a larger effort to build overall climate resilience within its agriculture sector.

Other Ongoing initiatives

Law and Climate Change Toolkit

The Law and Climate Change Toolkit initiative between the UN Climate Change Convention Secretariat, UN Environment, and the Commonwealth Secretariat is a global resource to help countries with legal frameworks necessary for effective domestic implementation of the Paris Agreement and their nationally determined contributions (NDCs). National governments, international organizations, experts assisting countries to implement national climate change laws, as well as academia and research institutions can utilize it for analysing the growing body of climate change-related instruments. It is open access and available once user registration is completed.15

Youth Policy Capacity Building

In recognition of the multiplier effect on small states due to climate change and the disproportionate impact of threats posed by COVID-19 such as disruptions to tourism, public welfare and healthcare services, the Secretariat has embarked on the Commonwealth Small States Youth Climate Policy Boot Camp project with the University of Cambridge. The project combines group systems' design exercises and creative decision-making frameworks to achieve resilience, sustainable development, good governance and responsible innovation by improving critical thinking on complex issues such as climate change. Through this, it is hoped that governments can increase allocations towards improving the lives of youth in small States and incorporating youth perspectives into climate change project proposals.

Commonwealth Blue Charter (CBC) Training Courses

Warming oceans and ocean acidification are widely recognized as key threats to the long-term survival of coral reefs (Langdon et al., 2018; UNEP/EA.4/18). Projected rates of change are

unparalleled and to survive corals will have to adapt faster than in the past (Langdon et al., 2018). Future impacts of climate-related drivers such as ocean warming, ocean acidification, sea-level rise and more intense tropical cyclones and rainfall events will exacerbate the impacts of other non-climate–related drivers (Hoegh-Guldberg et al. 2014).

Mangroves are especially important to low-lying island nations vulnerable to climate change and sea-level rise and maintain important functional links with adjacent coastal habitats.17 Coastal development and human impacts make mangrove species already adapted to living on the landward margin of mangrove forests particularly vulnerable to sea-level rise if, owing to coastal development, their dispersal and resettlement inland is impeded. Commonwealth Blue Charter (CBC) training courses in coral reef and mangrove mapping for managers and technicians, focus on remote sensing and GIS technologies to help with mapping and monitoring local and regional coral reef ecosystems and mangrove forests.

Living Lands Charter

Managing the effects and mitigating the impacts of sea level rise is complex across regions and at the country level. The Secretariat notes that the land sector generates about a quarter of net carbon emissions caused by humans, through activities such as logging, raising methane-producing livestock, and unsustainable soil management. These contribute to climate change, with impacts such as extreme weather, drought and floods further degrading soil, forests and wildlife.

Commonwealth leaders are working towards adoption of a 'Living Lands Charter', which includes a programme of action on climate change impacts on land incorporating aspects under the three Rio Conventions on biodiversity, climate change and desertification.

Summary

The pursuit of these ongoing activities against the backdrop of the disparate effects of COVID-19 across the Commonwealth and beyond affords them greater urgency and relevance. As noted in the Report of the Secretary General, given the potential indirect effects among interconnected social, governance, economic, ecological and physical systems, the impacts of sea-level rise could indirectly impede the achievement of other Goals. Striving to remain on course for attainment of the SDGs will require awareness of these interfaces and sustained cooperation and partnerships at every level. The Commonwealth Secretariat welcomes the efforts of the United Nations on this topic and looks forward to further collaboration in the future.

Mr. Carlos Garcia-Soto

Director Joint Global Change Unit (Spanish National Research Council - University of the Basque Country)

Joint Coordinator of the Group of Experts for the third cycle of the UN Regular Process (World Ocean Assessment III)

Bio

Dr. Carlos Garcia-Soto is a Professor of Satellite Oceanography in the University of the Basque Country, and Director of a Global Change Unit in the Spanish National Research Council (IEO, CSIC).

He has been involved in several UN processes and bodies:

- The Climate Change COPs (Paris, Marrakech, Katowice, Madrid)
- The UN PrepComs and Intergovernmental Conference for Conservation and Sustainable Use of Marine Biodiversity in BBNJ
- The first Intergovernmental Ocean Conference for SDG-14
- The International Seabed Authority
- The Regular Process, of which he has been a member of the Group of Experts of the second and third cycle in charge of elaborating World Ocean Assessments 2 and 3.

He has been the President of the European Centre for Information on Marine Science Technology, Vice-Chair of the European Marine Board, Chair of the Steering Committee of the European Network of Excellence Euromarine, and member of the National Council of Maritime Safety of the Spanish Government.

He has produced more than 90 scientific works and supervised as a Principal Investigator for 6 International Research Projects on Climate Change, Remote Sensing and Marine Ecology.

Guest Editor of the scientific journal Deep-Sea Research 2, and Member of the Editorial Board of the scientific journal Continental Shelf Research. He is currently Editor of the scientific journal Frontiers of Marine Science in the topic "The UN Decade of Ocean Science for Sustainable Development (2021-2030). The key role of SDGs 13 and 14 for the success of the initiative

He has been awarded a Mention of Honour by the Spanish Foundation for Science and Technology, the Spanish Royal Society of Physics and the Spanish Royal Society of Mathematics.

Abstract

"Sea level Rise in UN World Ocean Assessment and other UN Assessments"

The presentation summarizes some key observations, projections and implications about Sea Level Rise from three recent UN Assessments: (i) The Technical Abstract of the First Global Integrated Marine Assessment, WOA I, entitled *The impacts of climate and related changes in the atmosphere and the oceans* (UN, 2017), (ii) the Second World Ocean Assessment, WOA II, recently published (UN, 2021), and Chapter 4 of the IPCC Special Report on Oceans and Cryosphere entitled *Sea Level Rise and Implications for Low-Lying Islands, Coasts and Communities* (UN, 2019). The most recently updated observations based on satellite altimetry (1993-2019) show that the global mean sea level has been raising since 1993 at a mean rate of 3.1 ± 0.3 mm per year, with a clear superimposed acceleration of approximately 0.1 mm per year.

Satellite altimetry also reveals strong regional variability in the rates of sea level change, with regional rates up to 2–3 times more than the global mean in some regions. A high emission scenario (RCP 8.5) would lead by 2100 to a mean sea level rise of nearly 1 m. Sea level rise poses a

significant threat to coastal systems and low-lying areas around the world through inundations, the erosion of coastlines and the contamination of freshwater reserves and food crops. More than 150 million people are estimated to live on land that is no more than 1 m above current high-tide levels, and 250 million at elevations within 5 m of that level. Entire communities on low-lying islands (including Kiribati, Maldives and Tuvalu) have nowhere to retreat within their islands.

Ms. Madeline Garlick

Chief, Protection Policy and Legal Advice Section, Division of International Protection, UNHCR

Bio

Dr. Madeline Garlick is Chief of the Protection Policy and Legal Advice Section in the Division of International Protection of the Office of the United Nations High Commissioner for Refugees (UNHCR). Among other functions, she has served as UNHCR's Assistant Representative for Protection in Iraq and was responsible for UNHCR's liaison to the EU institutions on asylum law and policy from 2004-2013.

She served with the UN in Cyprus, and in Bosnia and Herzegovina, on legal issues related to the rights of displaced people. She teaches at Sciences Po, Paris, the Refugee Law Studies Centre in Oxford, and at the College of Europe in Bruges. She holds a PhD degree from Radboud University, Nijmegen, the Netherlands, a Masters degree in law from Cambridge University, UK, and Arts and Laws (Honours) degrees from Monash University, Australia. She is qualified as a barrister and solicitor in Victoria, Australia.

Abstract

"Human mobility and international protection in the context of sea level rise"

Sea level rise has the potential to affect the lives of millions of people around the globe. UNHCR will speak to some of the key legal questions and challenges that it raises, as examined in section C of the Report, and in particular, paras 32 and 33.

In the first place, it will look at the risks of increased statelessness (as referred to in para 32). Based on UNHCR's mandate under to the 1954 Convention on the rights of Stateless Persons and the 1961 Convention on the Reduction of Statelessness, it will reflect on the risk of statelessness linked to the theoretical physical disappearance of states. Importantly and more immediately, however, it highlights the risks of statelessness that are likely to be associated with increased forced displacement, which leads to many people every year being deprived of nationality, or prevents them from registering the birth of and securing a nationality for their children.

Secondly, it will examine the legal implications of displacement (para 33) in the context of wider human mobility. It will look at ways in which the international community has examined questions of migration, relocation and displacement to date, and what legal opportunities and gaps could arise. Pursuant to its mandate function of providing guidance on the interpretation and application of international refugee law, UNHCR in October 2020 released Legal considerations regarding

claims for international protection made in the context of the adverse effects of climate change and disasters. Drawing on these legal considerations, the intervention accordingly will highlight circumstances where international refugee and human rights law may be relevant to the determination of international protection needs of people displaced in the context of disasters and the adverse effects of climate change.

Based on interpretation of the criteria in the refugee definition under the 1951 Convention, as well as regional instruments (the OAU Convention and the Cartagena Declaration), it examines situations where people displaced across borders in the context of climate change or disasters may have a well-founded fear of persecution or are otherwise compelled to leave. This includes in cases where disasters or climate change interact with conflict or violence, and where the State is unable or unwilling to provide protection. The intervention will also refer to the potential relevance of human rights law and complementary forms of protection, as well as temporary protection mechanisms.

Mr. Blair Greenan

Director, Agro Canada Program, Fisheries and Oceans Canada

Bio

Dr. Blair Greenan is a research scientist with Fisheries and Oceans Canada. He is based at the Bedford Institute of Oceanography in Halifax, Nova Scotia. In 2012, Blair co-managed a large research group to assess the vulnerabilities, opportunities and impacts of climate change throughout the Atlantic Canada region. He was the lead author on the oceans chapter of Canada's Changing Climate Report that was released in 2019. Recently, his research has focused on developing climate change adaptation tools to provide science advice on issues related to coastal infrastructure and fisheries management. Blair has managed a diverse group of researchers that focus on ocean stressors ranging from marine oil spills to climate change effects such as ocean acidification. He is the Scientific Director for the Argo Canada program which contributes to the International Argo program in advancing global real-time observations of the ocean with autonomous instruments. Blair received his Ph.D. from the Department of Physics at the University of Toronto.

Abstract

"A Canadian perspective on understanding the issues, impacts and challenges of sea level rise"

Relative (local) sea-level change for coastal communities and other locations in Canada incorporates the effect of global sea-level rise as well as differences from one area to another due to vertical land motion. The projected changes for Canada over the coming century vary significantly with some regions expected to experience almost 1 metre of relative sea level rise while other regions are projected to undergo a similar amount of sea level fall. The impacts of these changes are now evident with an increasing number extreme water level events where relative sea level is rising and these are expected to intensify, particularly in Atlantic Canada and the western Arctic

region. Canada's long coastline, and paucity of instrumentation and data for much of this, presents challenges in providing science advice at the spatial scale required for decision-making. Developing science-based adaptation plans and tools remains a challenge for the organizations responsible for managing coastal infrastructure and ecosystems. These organizations include various levels of government with overlapping mandates, the private sector and NGOs.

Mr. Jens Kruger

Deputy Director, Ocean and Maritime Programme, Pacific Community (SPC)

Bio

Jens Kruger is the Deputy Director for the Ocean and Maritime Programme of the Pacific Community (SPC). Jens is a graduate of the University of the South Pacific, Fiji and completed an MSC at the University of Waikato, New Zealand. He has over 20 years of experience leading multi-disciplinary applied research projects and has a particular interest in the use of marine science and technology in managing the development challenges of Pacific Small Island Developing States. Jens has shaped the regional approach to maritime boundaries for many years and is passionate about collaborative approaches to ocean governance in the Pacific. In 2018 he was appointed a member of the executive planning group for the United Nations Decade of Ocean Science for Sustainable Development.

Abstract

50% of the population of the Pacific islands and territories live within 5km of the coast. This figure rises to 90% when Papua New Guinea is excluded. More than half of the mid-ocean islands in the Pacific basin are low-lying reef islands. Existing baseline data are not sufficient to make detailed coastal hazard assessments required for adaptation planning. A Lidar survey of the Funafuti atoll in Tuvalu has shown that the elevation of the land has been previously overestimated. The mean elevation of the atoll has now been surveyed to 1.9m above mean sea level. Using this recent data, hydrodynamic modelling carried out by SPC confirmed that the frequency of severe flood events is expected to increase significantly over the coming decades. The modelling also supported the design of reclamation and protection works providing raised, safe, flood-free land. Climate change, including sea-level rise, is a barrier to sustainable development and will push many atolls to the brink of habitability in the second half of the 21st century. As the stability of land is under threat it is critical that the maritime zones are not challenged or reduced as a result of sea-level rise and climate change as Pacific island countries and territories have planned their development in reliance on the rights to their maritime zones guaranteed in the Convention.

Mr. Robert Nicholls

Director, Tyndall centre for Climate Change Research, University of East Anglia

Bio

Robert Nicholls is Director of the Tyndall centre for Climate Change Research, comprising a partnership of four UK Universities and being based at the University of East Anglia. He is an expert concerning impacts and responses to sea-level rise. Much of his work has considered integrated assessment approaches allowing consideration of other changes (growing population, urbanisation, etc.) and how they interact with sea-level rise, facilitating policy analysis. He has led many research projects such as the Tyndall Coastal Simulator, the iCOASST (Evolving coastal geomorphic sediment systems) and the OpenCLIM (Open CLimate IMpacts modelling framework Project). Internationally, he led the ESPA Deltas and the DECCMA which examined the sustainability of deltas, with a strong focus on Bangladesh. He has advised national governments (e.g., UK, Netherlands, Bangladesh, Singapore, the Maldives) and intergovernmental organisations (e.g., OECD) on climate change and coastal issues He was a lead author to five reports of the Intergovernmental Panel for Climate Change (IPCC) assessment process, a review editor to the fifth IPCC assessment and a contributing author to recent the IPCC Special Report on the Oceans and Cryosphere (2019). He currently co-leads the World Climate Research Programme Sea-Level Rise Grand Challenge to deliver sea-level science to support better coastal impact and adaptation assessment and is a member of the ASCE/COPRI Coastal Engineering Research Council.

Abstract

"Sea-level rise and coastal communities"

Coastal areas concentrate people with more than 600 million people living beneath the 10-m contour. These areas also host many of the world's biggest cities and the ports which glue the global trade system together. Hence, sea-level rise is a major threat to these areas. The talk will briefly consider the nature of the threat and how we can best respond in terms of climate mitigation and adaptation.

Ms. Corinna Schrum

Director of the Institute of Coastal Systems -Analysis and Modelling, Helmholtz-Zentrum Hereon
Professor, Universität Hamburg, Hamburg Germany

Bio

Professor Corinna Schrum is an expert in interdisciplinary coastal research. She is the Director of the Institute of Coastal Systems -Analysis and Modelling at the Helmholtz-Zentrum Hereon, located in Geesthacht, and Professor at the Universität Hamburg in Germany. With her team she studies past environmental states, develops prediction methods and projects future scenarios for coastal

systems using coupled complex mechanistic models as well as a range of data, statistical models and state-of-the-art AI methods. Together with her team she analyzes how coastal systems changed in the past and how they might evolve in future from physical, ecological and socio-economic perspectives. This research supports strategic and informed decision-making in public and private sectors both methodologically and scientifically.

Professor Schrum is currently principal investigator and steering group member for the DFG Cluster of Excellence CLICCS- Climate, Climate Change and Society, at Universität Hamburg.

Abstract

"Past and Future Sea-level Rise – Causes, Uncertainties, Impacts and Challenges"

Sea level is not static but varies substantially over a wide range of time scales with often drastic consequences for coastal societies. Global mean sea level changes due to ocean volume and ocean density changes. Regional and local sea level might also rise or fall due to land movement relative to the sea (subsidence or uplift) and due to redistribution of the water due to dynamic processes such as ocean circulation, tides and extremes such as surges and storm tides.

Over the past 100 years, the global mean sea level has risen an average of about 18 cm. Sea level rise is accelerating, the last 50 years contributed about 12 cm and the current year's global mean sea level is the highest since data availability began. Global Mean Sea Level is projected to rise in future. However, uncertainty exists about the magnitude of future sea level rise and the upper bound of projected increase. According to the *IPCC Special Report on the Ocean and Cryosphere in a Changing Climate* (IPCC SROCC, 2019) the upper bound of the increase by 2100 was assessed to be likely not more than 1.1m, but sea level will continue to increase after 2100. The largest contribution to rising future global mean sea level are expected from ocean warming and resulting thermal expansion and from melt water flows from glaciers and Greenland and Antarctic Ice Sheets. Major uncertainties in estimating future sea level rise are due to the contribution of melt water from the Antarctic Ice Sheet and due to future carbon dioxide emissions.

Locally and regionally sea level rise might be very different from mean sea level rise, sea level might even fall locally. Hence, site-specific adaptation concepts are needed, that consider local risks arising from subsidence and exposure to cyclones and storm surges and the impact of global sea level rise on the frequency of their occurrence

Mr. Fernando Siringan

Professor, The Marine Science Institute, University of the Philippines

Bio

Fernando Siringan is a professor of geological oceanography at the Marine Science Institute of the University of the Philippines in Diliman, Quezon City, and a member of the National Academy of Science and Technology of the Philippines. Most of his research work with students and collaborators deal with various aspects of the coastal environment.

He has studied the evolution of coastal plains and the processes that shaped them from geological to historical time scales. His works involving the reconstruction of relative sea-level changes, from the Last Glacial Maximum to modern times, established the occurrence of rapid rises and higher-than-present sea level still-stands during the period 7.5 to 1.4 thousand years ago. His work on present-day processes includes coastal erosion, coastal-plain subsidence, and its link to worsening floods. He has translated his research on coastal erosion into training materials to help communities identify cause/s and possible solutions. His work has helped local leaders and environmental managers reach informed decisions

Abstract

"Sea-level rise, its impacts, and compounding factors in the Philippines"

The Philippines is in the region where sea level is rising at rates three to four times faster than the global average rate. The expected impacts of sea-level rise, such as coastal erosion, coastal flooding, and salinization, are already felt in different parts of the country. However, direct attribution to sea level rise is difficult as there are numerous compounding local factors. In the coastal plains of Manila Bay, enhanced compaction driven by excessive groundwater withdrawal and aquaculture ponds has resulted in subsidence rates of several cm/y. Subsidence has worsened floods in these areas in terms of frequency (i.e., floods occur even with just high tide) and duration (i.e., floods lasts for several weeks to months).

The frequent passage of storms, typically 20 per year, causes floods and coastal erosion. But coastal erosion, which is prevalent in the country, is also driven by other factors which often operate in combinations. Decimeter scale abrupt subsidence due to earthquakes, either through liquefaction or crustal block movement, has also been reported causing permanent inundation and severe erosion in some areas. Although relative sea-level rise and its negative impacts are already taking place, the country has yet to formulate policies that will direct development in the coastal zone that takes it into account.

Mr. William Sweet

Oceanographer, Scientist, NOAA, National Ocean Service

Bio

Dr. William Sweet is an oceanographer and lead sea-level rise scientist at NOAA's National Ocean Service. His work is critical for studying and understanding the changes in coastal flood risk. Dr. Sweet is the lead author on NOAA's annual high tide flooding report, and he was a chapter author for the 4th National Climate Assessment. He also represents NOAA in several interagency efforts to better understand the risks of coastal inundation on our Nation's federal agencies. As one example, Dr. Sweet has lent his expertise to a partnership between NOAA and the Department of Defense to assess future coastal flood risk for military installations worldwide.

Abstract

"Sea level rise: understanding the issue, its impacts and related challenges"

Within the renewed U.S. priorities of climate change, adaptation, and resilience, sea level rise is an important component. In recent decades, rates of global sea level rise have been increasing due to melting of the Antarctic and Greenland ice sheets, as well as continued melting of alpine glaciers and thermal expansion of the ocean. Global mean sea level rose by more than 15 cm (0.5 foot) in the last 100 years and is expected to rise an additional 45-95 cm (about 1.5-3 feet) or more by the end of the century. Regionally, relative sea level rise is also amplified by other factors like land subsidence. For example, along U.S. coastlines land subsidence has contributed to a national median relative sea level rise of almost 30 cm (1 foot) in the last 100 years, with an additional 20-40 cm (0.7-1.3 foot) likely in the next 30 years.

Sea level rise has negative ecological, social, and economic impacts for coastal communities, particularly increased frequency of tidal flooding and higher-reaching storm surges. Though sea level rise is a global issue, our societal responses to these threats collectively require consistent, localized and up-to-date data, modeling, and mapping that quantifies and communicates risks to community stakeholders and decision makers. Improved understanding of present day and future coastal risks, as well as global coordination and cooperation, are needed to mitigate and adapt to sea level rise.

Mr. Patricio Winckler

Associate Researcher, Research Centre for Integrated Disaster Risk Management

Bio

Patricio Winckler is a member of the Ocean Engineering School at Universidad de Valparaiso, Chile. He earned a Civil Engineering degree from UTFSM, Chile (2002), a MSc. in Environmental Technology from University of Wolverhampton, England (2002), a Master in Port and Coastal Engineering at CEDEX, Spain (2004) an MSc. and a PhD. in Civil Engineering with specialization in environmental fluid mechanics, at Cornell University, United States (2015). His research interests cover coastal, port and environmental engineering, as well as on the impacts of earthquakes, tsunamis and climate change on the coast.

He has been involved in more than 80 engineering projects worldwide, has published several scientific papers and books and has participated in advisory committees to define building design and disaster risk assessment reduction standards. He has been a research fellow at the Civil and Environmental Engineering School at the National University of Singapore (2016), at the Earthquake Research Institute at The University of Tokyo (2017-8) and visiting professor at various Latin-American universities. He has been awarded prestigious international scholarships, such as Fulbright (US), The Matsumae Foundation (Japan), Alpha Grant (EU) and Becas Chile. He is currently an associate researcher at the Research Center for Integrated Disaster Risk Management (CIGIDEN).

Abstract

"Climate-driven impacts along a tectonically active coast: The Chilean case"

The Chilean coastal zone is subjected to a complex spectrum of anthropogenic, geophysical and climate-driven perturbations. The territory is characterized by strong latitudinal gradients, with a climate ranging from the most arid region worldwide (18°S) to the rainforests of Patagonia (55°S). Its ~106 000 km of coastline, shaped by the tectonically active Peru-Chile trench, is formed by both a nearly rectilinear coastline facing the narrowest continental shelf worldwide and an extensive fjord region.

The relatively frequent occurrence of large earthquakes and tsunamis, along with the steadily increasing sea level rise and highly energetic coastal storms, provide unique conditions to investigate impacts on human and natural systems from a multi-hazard perspective. Relative mean sea level trends (measured since 1944) are spatially heterogeneous and shaped by the seafloor deformation during earthquakes, which is comparable in magnitude to centuries of climate-driven SLR. In the last decades, coastal storms have increased in frequency and intensity, explaining the erosion of ~80% of the beaches and augmenting operational shutdowns of major ports in the country. Recent studies show these trends will be enhanced during the XXI century, calling for an urgent need to strengthen the implementation of mitigation and adaptation actions.

Segment 2: International cooperation and coordination in addressing the impacts and challenges related to sea level rise.

Ms. Snjólaug Árnadóttir

Postdoctoral Fellow, Lecturer, Reykjavik University

Bio

Dr. Árnadóttir is a Postdoctoral Fellow and Lecturer at Reykjavik University. Courses taught: International Environmental Law (postgraduate), Public International Law (undergraduate), Law of the Sea (postgraduate) and The Philip C. Jessup Int. Law Moot Court Competition (postgraduate). Dr. Árnadóttir has over eleven years of teaching and research experience in various contexts. Dr. Árnadóttir has a PhD in Public International Law from the University of Edinburgh with a thesis that analyses the effects that geographic changes have on unilaterally declared maritime limits, bilateral maritime boundaries and the delimitation of such boundaries.

Dr. also has a Diploma from the IFLOS Summer Academy at the International Tribunal for the Law of the Sea, Hamburg and a Diploma from the Rhodes Academy of Oceans Law and Policy.

Abstract

"Stability or Instability of Maritime Limits"

Maritime entitlements are generated by the increasingly unstable coastal front. Maritime limits are established by reference to baselines along relevant coasts and they are generally believed to be ambulatory, which means that they recede with coastlines when sea levels rise. This understanding has been endorsed by the ILA Baselines Committee, the ILA Committee on International Law and Sea Level Rise and numerous scholars. It is also supported by State practice dating back to at least 1920. Furthermore, the ILC recently invited the comments of States on this issue, at the request of the ILC's Study Group on Sea-Level Rise in Relation to International Law, and the responses demonstrated a broad understanding of the ambulatory nature of maritime limits. However, several States have expressed the view that maritime entitlements should be stabilized.

The theory of ambulatory baselines has inequitable consequences because it particularly affects low-lying island States that bear little responsibility for climate change and because the only current option for stabilizing all maritime limits involves costly sea defenses. The loss of maritime entitlements due to sea level rise and coastal erosion does not seem to have been contemplated when UNCLOS was negotiated. Therefore, it has been proposed that once maritime limits have been lawfully established, States should not be obligated to adjust them. This arguably involves a departure from UNCLOS and is consequently a matter of great severity. Arguments in favour of freezing maritime limits are quite clear but it is less evident whether the proposed changes can be implemented without jeopardizing the integrity of UNCLOS. The international community should determine whether any changes are necessary and if so, coordinate efforts to implement the changes. An UNGA Resolution could synchronize State practice in this regard and influence the interpretation of UNCLOS. However, formal amendments or an implementing agreement might be required to ensure legal certainty.

Mr. Bogdan Aurescu

Professor Dr. Bogdan Aurescu, Minister of Foreign Affairs of Romania, Member of the UN International Law Commission

Bio

Dr. Bogdan Aurescu is Professor of Public International Law at the Faculty of Law, University of Bucharest, having started his teaching activity in 1998.

He is member of the UN International Law Commission, elected in November 2016 for a five years' mandate (2017-2021). During the current mandate as member of the International Law Commission (2017-2022), Professor Aurescu has actively and significantly contributed to the body of work of the Commission, including through promoting the topic "Sea-level rise in relation to international law" on the agenda of the Commission. Professor Aurescu is currently acting as co-chair of the Study Group of the Commission on this topic.

He is also substitute member of the European Commission for Democracy through Law (the Venice Commission) of the Council of Europe, in this capacity being rapporteur or co-rapporteur for 29 reports, opinions or studies of this body. He is also member of the Permanent Court of Arbitration and arbitrator designated by Romania according to article 2 of Annex VII to the UN Convention of the Law of the Sea.

He is president of the Romanian Branch of the International Law Association (London) and editor-in-chief of the Romanian Journal of International Law (Bucharest).

Bogdan Aurescu has an extensive diplomatic career, holding the diplomatic rank of ambassador and exercising his second mandate as Minister of Foreign Affairs of Romania since November 2019, after holding the same position between 2014 and 2015. From 2016 to 2019, Prof. Dr. Bogdan Aurescu served as Presidential Advisor for Foreign Policy to the President of Romania.

Previously, he held the position of Secretary of State in the Romanian MFA – Secretary of State for Strategic Affairs (2009-2010, 2012-2014), Secretary of State for European Affairs (2004-2005, 2010-2012) and Secretary of State for Global Affairs (2012).

Between 2003 and 2004, he was Under-Secretary of State in the Romanian MFA – Government Agent for the European Court of Human Rights. Between 2004 and 2009, Bogdan Aurescu was the Romanian Agent before the International Court of Justice in the case *Maritime Delimitation in the Black Sea*.

Between 2010 and 2011, he was the head of the Romanian delegation for the negotiations on the Romanian-American *Ballistic Missile Defense Agreement*, and of the *Joint Declaration on the Strategic Partnership for the 21st Century between Romania and USA*.

Abstract

"International Law Commission Study Group on Sea-level Rise in relation to International Law"

Presentation of the mandate of the International Law Commission Study Group on Sea-level rise in relation to international law, and on the progress made so far in its work. Structure and content of the First Issues Paper on sea-level rise issues related to the Law of the Sea, elaborated by the Co-Chairs of the Study Group, Bogdan Aurescu and Nilufer Oral, and published by the International Law Commission in 2020.

Mr. Paul Holthus

Founding President and CEO, World Ocean Council

Bio

Paul Holthus founded the World Ocean Council (WOC) – the Global Blue Economy Business and Investment Organization – the international business leadership alliance on ocean sustainable development, science and stewardship. The WOC brings together investment, shipping, fisheries,

aquaculture, tourism, offshore energy, mining, submarine cables, ports, and other sectors for global business community leadership, collaboration and action on “Corporate Ocean Responsibility”.

Paul has been involved in climate change issues since the 1980’s, e.g. coordinating the UNEP Pacific Regional Task Force on Climate Change, organizing the first Pacific Regional Conference on Climate Change (Majuro, 1989), organizing the first small island sea level rise vulnerability assessment (Marshall Islands, 1990), representing the Pacific region at the 2nd World Climate Conference (Geneva, 1990) and UNFCCC PrepComs. More recently, as WOC CEO, he has been ensuring ocean industry involvement in the UNFCC COPs, including as a speaker for side events and the World Climate Summit. The WOC focus is on responsible business and investment re 1) Ocean CO2 Removal and 2) Adaptation and resiliency of ports and coastal infrastructure in relation to extreme weather events and sea level rise, especially for islands and developing countries.

Abstract

“Port and Coastal Infrastructure Adaptation: Private Sector Collaboration to Advance Action, Investment and Nature-Based Solutions”

The global ocean business and investment community is working to develop the collaboration needed to ensure that ports and coastal infrastructure are adapted to ensure resiliency to extreme events and sea level rise, especially in small islands and developing countries. These efforts are focused on developing and implementing a “Grey/Green/Blue” approach to coastal infrastructure adaptation, i.e. responsible “Grey” construction and engineering works + “Green” Infrastructure (Nature-Based Solutions) + optimizing “Blue” Carbon benefits. Important considerations include how the private sector and the ocean business and investment community can best engage with the public finance community to advance coastal infrastructure adaptation, e.g. Green Climate Fund, multilateral/bilateral development assistance, national governments, etc.

Mr. Kevin Horsburgh

Climate Science Lead, Green Climate Fund

Bio

Kevin Horsburgh is the Climate Science Lead at the Green Climate Fund (CGF) where he leads a network of experts to strengthen the climate impact of CGF investment programming and strategic planning. His role is to ensure the quality of climate science, modelling and impact assessment methods used in the development pathways for developing countries. Before joining the CGF, Kevin was Chief Scientist for International Development at the UK National Oceanography Centre where he led many multi-agency projects harnessing marine science in support of sustainable development. He has published over 100 peer-reviewed papers and articles on all aspects of coastal flood hazards and extreme sea levels. For ten years, Kevin led a World Meteorological Organisation (WMO) Expert Team on disaster risk reduction, delivering multi-hazard warning systems and capability to several of the world’s most vulnerable regions.

Abstract

"Sea level rise and climate financing for adaptation actions"

Sea level rise is one of the most visible, global, and irreversible effects of climate change. It poses an existential threat to hundreds of millions of people living in coastal communities, and in particular to many small island states. Sea level rise dramatically increases the flood risk from storm surges and tsunamis. Around the world, we are already seeing increased coastal flooding, coastal erosion and saline intrusion which is affecting agriculture and aquaculture and causing loss of habitats. It is vitally important that we develop plans to adapt to the many impacts of sea level rise. It is equally important that scaled-up climate finance is available to make those plans become reality. This talk will describe a range of adaptation actions to cope with sea level rise and will provide an outline of the funding mechanisms of the Green Climate Fund (GCF), the world's largest dedicated multilateral climate fund. The presentation will give an overview of four GCF-funded projects that are helping developing countries to adapt and to remain climate-resilient in the face of sea level rise.

Mr. Thomas James

Research Scientist, Geological Survey of Canada (GSC)

Bio

Dr. Thomas James is a Research Scientist with the Geological Survey of Canada (GSC) and is based near Victoria, British Columbia. He leads a project focussing on coastal change in the GSC's Climate Change Geoscience Program, where he carries out research on sea-level projections and oversees colleagues' research on national analyses of coastal sensitivity and investigations of coastal change in the environmentally sensitive Beaufort Sea region. Thomas is presently leading an initiative to develop national sea-level guidance with the involvement of representatives from provinces and territories, practitioners, and Indigenous groups.

Thomas's research interests include the mass balance and history of the Antarctic ice sheet, which is a potential major source of future sea-level rise. He represents Canada at meetings of the Scientific Committee on Antarctic Research. As Chair of the Canadian Committee on Antarctic research, he advises the Canadian federal government on Antarctic science and works to promote Canada's collaborative activities within the Antarctic Treaty System. He is an active member of the World Climate Research Program (WCRP) Grand Challenge on Sea Level, which is engaged in co-development of guidance on high-end projections of sea-level rise with scientists and practitioners. Thomas received his Ph.D. from Princeton University in 1991.

Abstract

"A Canadian Perspective on International Cooperation in Addressing the Challenges and Impacts of Sea-level Rise"

Global sea-levels are projected to rise under all scenarios of future greenhouse gas concentrations, and the amount of projected sea-level rise increases with increasing concentrations. As well, there

is ‘deep uncertainty’ in the amount of sea-level rise that could be generated from Antarctica given potential instabilities in the Antarctic Ice Sheet (AIS). The additional amount of sea-level rise may amount to many tens of centimetres by 2100 and could amount to many metres of global sea-level rise by 2300 under a high-emission scenario.

Under the Antarctic Treaty System, which reserves Antarctica for peaceful scientific research, the Scientific Committee on Antarctic Research (SCAR) oversees research in Antarctica carried out by numerous nations. In recognition of the sea-level rise uncertainty, and noting the severe societal implications, SCAR has recently launched a Scientific Research Program called “Instabilities and Thresholds in Antarctica” (INSTANT) focussed on Antarctic ice sheet change. Although projections of likely sea-level rise are useful for many planning and engineering purposes, high-end projections of sea-level rise have been incorporated into sea-level guidance at many levels of government internationally, with many different approaches, suggested values, and time ranges.

The World Climate Research Program (WCRP) Grand Challenge on Sea Level is considering the high-end case and ways to harmonize the approach to the high-end case. Informed by these discussions, development of national guidance on sea-level rise is underway in Canada. The process emphasizes the co-production of guidance, with representatives of provinces and territories, planning and engineering practitioners, and Indigenous groups, joining scientists to develop the guidance.

Ms. Erica Lucero

Diplomat, Foreign Service, Argentina

Bio

Is a Career Diplomat in the Foreign Service of the Argentine Republic since 2010 with an expertise in international public law, in particular law of the sea issues, including negotiations in FAO, IOC-UNESCO, BBNJ, CDB, among others. She previously served in the Office of the Legal Adviser, Ministry of Foreign Affairs, International Trade and Worship, Argentine Republic, in charge of law of the sea issues (2010-2013) and in private law firms with a focus on corporate law and international arbitration.

Erica has a Masters Degree in International Studies (pending thesis), Torcuato Di Tella University, Buenos Aires, Argentina, Law Degree, School of Law, (international law orientation), University of Buenos Aires, Argentina and was the Former Assistant Professor of International Public Law, University of Buenos Aires, Argentina. Erica can speak fluent English, Portuguese, French and basic Dutch.

Abstract

“Sea-level rise and international law”

Sea-level rise has a direct impact on land and marine ecosystems in their surface and integrity. By increasing the level of sea, the ratio land-water might be modified due to the fact that many coasts,

islands and other territories could get flooded or even completely submerged. Furthermore, the integrity of ecosystems might be affected, especially in cases of coastal ecosystems whose capacity to adapt to major increases in the level of sea could be compromised by other factors linked with climate change, such as warming and acidification of the oceans.

In this sense, this issue has been tackled by UN Member States in the 2030 Agenda for Sustainable Development (A/RES/70/1, paragraph 14) where it is pointed out that this phenomenon is seriously affecting coastal areas and low-lying coastal countries, including many least developed countries and small island developing States and therefore, setting aside the path to sustainable development. In the same vein, UNGA (A/Res/73/124, paragraph 192) noted that sea-level rise and coastal erosion are serious threats for many coastal regions and islands, particularly in developing countries and in this regard called upon the international community to enhance its efforts to address these challenges. In this context, the presentation will focus on challenges and aspects that need to be carefully addressed in order to have a comprehensive analysis of the topic from the perspective of international law, in particular law of the sea. To that purpose, relevant provisions of existing legal instruments and research documents will be undertaken, including the report of the Secretary-General "Sea-level rise and its impacts" (A/75/70).

Mr. Filimon Manoni

Deputy Secretary General, Pacific Islands Forum

Bio

Dr Filimon Manoni was appointed Deputy Secretary General at the Pacific Islands Forum Secretariat on May 21, 2021. Dr Manoni also held the position of International Legal Adviser at the Forum Secretariat from December 2018 and was responsible for providing legal policy advice and analysis in areas such as Oceans governance, nuclear issues and other regional issues covered by the Forum Secretariat.

Dr. Manoni has served both at the national and regional levels. Prior to joining the Forum Secretariat, Dr Manoni served as the Attorney General for the Government of the Republic of the Marshall Islands, providing both legal and policy analysis on regional and international matters, inclusive of regional and international treaties negotiations and agreements. Prior to that Dr. Manoni served as Legal Adviser at the Pacific Islands Forum Fisheries Agency (FFA)

Dr. Manoni holds a Bachelor of Laws Degree (LLB) from the University of Papua New Guinea, a Masters in Law (LLM) in International Maritime Law from the International Maritime Law Institute at the University of Malta, and a Doctorate in Oceans Resources & Security, from the Australian National Centre for Oceans Resources and Security (ANCORS) University of Wollongong. in NSW, Australia.

Abstract

The Pacific Island region comprises 22 countries and territories, spread across a vast expanse of ocean, occupying an array of environments from mountains, to the atolls and lagoons in Polynesia and Micronesia, delicately sitting on long dead volcanic ocean mountain ranges that in the majority of cases, barely peak above sea level. Forum Island countries are most vulnerable due their small size, geographic isolation and natural disaster vulnerability. Not to be inhibited by these challenges, the Forum Island Countries have often touted themselves as large ocean states, with a combined Exclusive Economic Zone area estimated at approximately a third of the world's ocean.

If the pending extended continental shelf claims lodged with the Committee on the Limits of the Continental Shelf are approved, the Pacific could see an additional 2 million square kilometers of area added to its combined area. Notwithstanding, these large oceans areas contrast markedly with even the combined area of land mass of all Pacific Islands countries combined, exceeding the land mass by an average factor of 300-1. The ocean and coastal seas have long been integral to the Pacific way of life. Epeli Hau'ofa in his 'Our Sea of Islands' once eloquently expressed that, 'No people on earth are more suited to be guardians of the world's largest ocean than those for whom it has been home for generations.' (Hau'ofa 2008). In this sea of islands, the people of the Pacific have from time immemorial, developed a unique and special relation with the ocean.

To the Pacific, the ocean as a shared resource, continues to be a source of cultural significance and inspiration. Most importantly, the ocean remains the exclusive source of life and vitality for the peoples of the Pacific. Forum Leaders and generations of today, continue to recognize the inseparable links between the oceans, seas and Pacific island peoples, their values, traditional practices and spiritual connections. In the view of the peoples of the Pacific, this special connection confers on them a unique mantle, that of stewards and custodians of some of the world's richest biodiversity and marine resources, to hold for the benefit of our present and future generations.

With this mantle no doubt, must come duty and responsibility to protect, defend, and maintain the health and resilience of the oceans and its resources for the benefit of future generations. True to form, Pacific Islands as a collective, has been at the forefront of global oceans governance initiatives. As parties to the 1982 LOSC, Pacific Islands Forum members recognize the importance and the centrality of the of the Convention, as the Constitution of the Oceans, promoting the peaceful and orderly uses of the Oceans, with the objective of, among others, realizing an international economic order that takes into account the special interests and needs of developing countries.

Pacific Islands Forum Members are united in their resolve to ensure that they too, regardless of combined size of land territory, or the level of economic development, that they enjoy to the fullest, the rights and jurisdictions conferred upon them as coastal States stemming from maritime zones established under the Convention. „ Members recognize that the full enjoyment of rights and jurisdictions in their maritime zones, to fuel economic development and nation building aspirations could not be possible outside the framework of the 1982 LOSC, and the applicable general principles of international law. The tasking by the Forum Leaders for collective action to help shape and influence the development of international law, is a clear reflecting of the desire by the Leaders to participate under a rules based international order.

As States Parties to the 1982 LOSC, Pacific Islands Forum Members have chosen to exercise their rights under the Convention, to delimit boundaries and to delineate their maritime zones with the objective to harness the full benefits that are derived from these zones, not only on the legal basis that they are States Parties, but more fundamentally, in recognition of the special and inseparable links between the oceans and the vitality of peoples of the Pacific, in the context of their values, traditional practices and spiritual connections, handed down from past generations, as alluded to above. Fort the majority in the Pacific, the oceans serve as the sole and exclusive source of vitality and livelihood, and in terms of economic development and national building aspirations. For instance, under the Nauru Agreement Concerning Cooperation in the Management of Fisheries of Common Interest (PNA) Vessel Day Scheme, parties are maximizing revenues from their skipjack fishery. In Kiribati, where fisheries revenues account for approximately 75% of national budget, Kiribati has seen its fisheries revenues rise from approximately $US29.1 million in 2009 to approximately US$207.1 million in 2015.

The adverse impact of sea level rise on its baselines has the potential to seriously undermine Kiribati's efforts, and all Pacific Islands Forum Members' efforts for that matter, to fully realize maritime interests, made available under international law. The region has initiated, and Members are implementing, oceans governance and resource management policies and initiatives in a transformative way, gaining recognition as Leaders in oceans governance. At the regional and sub-regional levels, Members have adopted cooperative sub-regional and regional treaties on conservation and management of resources, treaties on monitoring, control and surveillance of oceans resources; treaties on prohibiting destructive fishing practices in the oceans; prohibition and regulation of transboundary movement of nuclear and hazardous material, the protection of natural resources and the environment and established a nuclear free zone in the region, prohibiting the testing and or storage of nuclear material intended for weapons.

At the national level, Members have enacted policy and legal frameworks implementing and enforcing policies, regulations and legislation in the various oceans governance sectors, protecting the health and resilience of the oceans and resources and promoting the conservation and management of, and sustainable use of resources within their respective zones, to support economic development and nation building aspirations.

The recent endorsement by Leaders of the Blue Pacific Identity and Blue Continent narratives, and the Boe Declaration on Regional Security has now provided an added impetus for Members to engage as a collective, in governance of the oceans and resources found therein, in a transformative way. At the wider international level, Members also participate in multilateral Treaties, Conventions and Agreements, implementing provisions of the 1982 LOSC, recognizing that the ocean as a shared resource, requires the meaningful participation of the Members to ensure that that their particular interests are not undermined.

The United Nations Sustainable Development Goal 14 is an example of the region's global leadership in oceans governance front, to get international cooperation on more work to protect the marine environment, coastal ecosystems from pollution, and other impacts of climate change such as acidification, and the effective conservation and sustainable use of oceanic based resources.

The urgency underpinning the Pacific Islands Forum Leaders commitment to urgently conclude work on the region's maritime boundaries and the delineation of maritime zones, stems from a two-pronged challenge. First, on the realization that Sea Level Rise impact on baselines could potentially undermine the security of maritime interests derived from maritime zones established under the 1982 LOSC, and secondly, that the 1982 LOSC and international law generally has no clear guideline on the question of certainty of baselines, an therefore the certainty of coastal States interests in these maritime zones, in the eventuality that sea level rise does in an extreme way, causes coastlines (and therefore baselines) to recede permanently. 'The United Nations recognizes that Climate Change is one of the greatest challenges of our time and its adverse impacts undermine ability of all countries to achieve sustainable development.

Increases in global temperature, sea-level rise, ocean acidification and other climate change impacts are seriously affecting coastal areas and low-lying coastal countries, including many least developed countries and small island developing States. 'The survival of many societies, and of the biological support systems of the planet, is at risk." For the Pacific, the potential loss of territory, jurisdiction and sovereign rights, would have far-reaching consequences for the region and its peoples, in terms of their survivability, identity, tradition and custom; stewardship; food security, maritime domain threats, conservation and management of resources; effective oceans governance; and economic development and nation building aspirations.

The meaningful application of the oceans governance initiatives, treaties and agreements, and national policies and legal frameworks that currently exist to protect the oceans and the interests of Members face is likely to be seriously challenged by the impact of sea level rise on baselines and coastlines. In recognition of this predicament, Leaders have called for, and resolved to commit, to collective effort, among others, to take the necessary steps to help shape and influence the progressive development of international law, in favor of their call to permanently secure the limits of the Blue Pacific.

Ms. Joanna Post

Programme Management Officer, United Nations Framework Convention on Climate Change (UNFCC)

Bio

Joanna Post is Programme management officer at the secretariat of the United Nations Framework Convention on Climate Change (UNFCCC). She has led support for the research and systematic observation agenda under the Subsidiary Body for Scientific and Technological Advice since 2014. She also leads support for ocean-related activities and engagement, including as the secretariat's focal point with UN-Oceans.

Prior to joining the secretariat, Dr. Post was communications manager for a number of national and international scientific research and educational projects in both the UK and Germany. She holds a Ph.D. in environmental science from the University of Newcastle Upon Tyne, UK.

Abstract

"International cooperation and coordination in addressing the impacts and challenges related to sea level rise: Efforts under the UNFCCC"

The ocean has long been our ally in addressing climate change and has taken the brunt of the impact of human-made global heating. It has absorbed about 90% of the heat generated by rising greenhouse gas emissions trapped in the Earth's system and taken in about 30% of carbon emissions. As outlined in the Intergovernmental Panel on Climate Change Special Report on the Ocean and Cryosphere (IPCC SROCC), this has caused systemic changes, including ocean warming and cryosphere melt leading to sea level rise, with devastating impacts on coastal and island ecosystems and communities' lives and livelihoods. The dominant cause of global mean sea level rise since 1970 is anthropogenic forcing.

The IPCC SROCC identified that global mean sea level is rising and accelerating in recent decades. The global mean sea level rise projected in 2100 under a low emission scenario is around 43 centimetres above the mean sea level over the period from 1986 to 2005. For a high emission scenario, the corresponding rise is 0.84 metres and the likely range extends to 1.10 metres in 2100. However, sea level projections show different regional levels. Sea level is projected to continue to rise, including beyond the end of this century even if emissions were to stop. The amount of future sea level rise is dependent on the level of anthropogenic emissions.

Impacts of increasing global mean sea level rise include those on communities facing increasing frequency of extreme sea level events and on coastal and marine ecosystems. The projected range of sea level rise must be considered for planning and implementing coastal responses and take into account the risk tolerance of stakeholders. For example, for critical infrastructure, stakeholders must consider global and local mean sea level rise at the upper end of the likely range for adaptation planning. Planned responses to sea level rise are already being implemented including hard protection, sediment-based protection, ecosystem-based adaptation, coastal advance, coastal accommodation and even in some places retreat. In developing countries people with the highest exposure and vulnerability often have the lowest capacity to respond. However, there are limits to adaptation and, in regard to sea level rise, risk thresholds are being reached and will continue to be reached over time.

The Paris Agreement is the legally binding agreement under the UNFCCC for Parties to limit global temperatures to well below 2 degrees Celsius and pursue efforts to limit the temperature increase to 1.5 degrees Celsius compared with pre-industrial levels. This temperature limit must be accompanied by increasing countries' ability to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development whilst making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development. (Paris Agreement Article 2).

Full implementation of the Paris Agreement, based on the best available science, is needed to address sea level rise This includes urgently reducing greenhouse gas emissions to limit the scale of climate change impacts on the ocean and cryosphere and limit the increase in sea level. Of equal importance to mitigation under the Paris Agreement is building resilience including through

adaptation to the current impacts and future risks of sea level rise. As Parties submit their nationally determined contributions under the Paris Agreement, there is a critical opportunity to increase national ambition as well as strengthen ocean-related mitigation and adaptation strategies and financing moving forward.

Ms. Penelope Ridings

Barrister and International Lawyer; Honorary Professor, University of Auckland, New Zealand

Bio

Dr Penelope Ridings is a New Zealand International Lawyer practising in the field of public international law, including law of the sea, fisheries, environmental law, international trade and investment law, and international dispute settlement. She has broad experience in international law as a career diplomat and former New Zealand Chief International Legal Adviser. Dr Ridings is New Zealand's candidate for the International Law Commission for the term 2023-2027. She has extensive practical experience in developing, implementing and adjudicating international law. Dr Ridings has represented New Zealand in multilateral negotiations, including on port state measures, marine biodiversity beyond national jurisdiction, regional fisheries management and in international dispute settlement. She was Agent for New Zealand before the International Court of Justice in *Whaling in the Antarctic (Australia v Japan, New Zealand Intervening*) and before the International Tribunal for the Law of the Sea in the *Request for an Advisory Opinion submitted by the Sub-Regional Fisheries Commission*. She served as New Zealand's Ambassador to Poland, Estonia, Latvia and Lithuania (2008-2011) and High Commissioner to Samoa (2001-2004). She is currently Legal Advisor to the Western and Central Pacific Fisheries Commission and also a member of the pool of arbitrators of the WTO Multi-Party Interim Appeal Arbitration Arrangement.

Abstract

"Coordinating Responses to the Challenge of Sea-Level Rise: Some Examples from the Pacific Region"

Sea-level rise is a global phenomenon and a global challenge which requires international cooperation and coordination in order to address its impacts. In the Pacific region, sea-level rise poses significant risks and challenges to the coastal States of the region, including small island developing States. Various regional initiatives seek to address the impacts and challenges stemming from sea-level rise. This presentation identifies some examples from the Pacific region of what can be achieved through effective coordination and cooperation. It draws from these examples to highlight some key elements which are necessary for successful cooperation and coordination across different areas.

This includes the development of appropriate political and policy frameworks for addressing sea-level rise, the elaboration of scientific, technical and technological responses to sea-level rise, and adaptation and building resilience to the impact of rising seas. The presentation goes on to identify

the legal principles drawn from the United Nations Law of the Sea Convention which could guide the legal response to the impact of sea-level rise.

Mr. Hide Sakaguchi

President, Ocean Policy Research Institute of the Sasakawa Peace Foundation

Bio

Dr. Hide Sakaguchi is the President of the Ocean Policy Research Institute of the Sasakawa Peace foundation since April 2021. Previously, he was Executive Director of the Japan Agency for Marine-Earth Science and Technology (JAMSTEC, 2018-2021). He joined JAMSTEC in 2003 and led various earth science programs as Director of the Institute for Research on Earth Evolution and Director of the Department of Mathematical Science and Advanced Technology. He specializes in granular and fracture mechanics, simulation science and programming, earthquake mechanisms and plate tectonics and oceanography. He worked as a Principal Research Scientist at the Commonwealth Scientific and Industrial Research Organisation (CSIRO), Australia (1998 - 2002) and Adjunct Professor at Earthquake Research Institute, University of Tokyo (2002 – 2003). He has a PhD from the Graduate School of Agriculture, Kyoto University.

Abstract

"International partnerships for capacity development and social innovation to mitigate the impacts and overcoming the challenges related to sea level rise"

Low-lying island countries and communities are threatened by the sea level rise and other climate change associated events and phenomena. Maritime entitlement must not be undermined by the coastward retreat of baselines and outer maritime limits. It is vital to promote the development and implementation of a marine spatial plan without undermining the rights and obligations of other countries under the UNCLOS. The seawall construction is seen as a part of the countermeasures to the sea level rise and the measures to preserve the baseline. However, there are concerns over the adverse ecological impacts of sea wall construction and the impairment of ecosystem services. The cost of such measures also restricts the ability of developing island and communities to employ measures to preserve the baseline. Nature based mitigations need to be experimented to control coastal erosion such as the measures to increase a vegetation coverage. The improvement of sewage and wastewater treatment can also help sustaining foraminifera, a tiny living organism that provides limestone shell and reinforce a coastal line in the long term. The coastal line erosion and its implication to the maritime boundary would not be the only issues that give rise to the small island developing states and island communities. The capacity needs to be enhanced to comprehend broadly the impacts of sea level rise. Innovative approaches are also required to overcome the challenges of sea level rise. International partnerships must be promoted to enhance the social capacity, promote innovative countermeasures while reinforcing mechanisms to safeguard the maritime entitlement against sea level rise.

Mr. Vu Thanh Ca

Principal Lecturer, Hanoi University

Bio

Dr. Vu Thanh Ca earned his Bachelor of Science in Oceanography at Hanoi University, his Masters Degree in Coastal Engineering from the Asian Institute of Technology, and his PhD in Environmental Engineering from Saitama University.

After earning his PhD degree, He worked at Saitama University, Japan, as an associate professor. He continued to work in Viet Nam as the President of the Viet Nam Institute of Seas and Islands and Director General of the Department of International Cooperation and Science-Technology, Viet Nam Administration of Seas and Islands. He currently serves as a Principal Lecturer of Natural Resources and the Environment at Hanoi University.

He is an expert of the High-Level Panel for a Sustainable Ocean Economy, and Chair of the International Session of the Partnerships in Environmental Management for the Seas of East Asia (PEMSEA). He is also a member of the United Nations Group of Experts, The Regular Process for Global Reporting and Assessment of the State of the Marine Environment, including Socio Economic Aspect.

His research interests include coastal and ocean natural hazard management and mitigation, climate change impact, risk and vulnerability assessment and adaptation measure development, integrated environmental and natural resource management, including integrated coastal management, and numerical modeling of environmental processes, and sustainable development

Abstract

"International Cooperation and Coordination for Adaptation to Sea Level Rise and Mitigation of Climate Change in the Coast of Viet Nam and East Asia"

In recent decades, sea level rise has very serious impacts to Viet Nam and other coastal States in East Asia, especially China, Cambodia, Thailand and Indonesia. The most serious sea level rise impacts are increase in flooding due to high spring tides and storm surge, coastal erosion and salinity intrusion. The reduction in freshwater discharge and sediment loads to the coasts from rivers due to upstream dam construction, and the ground surface subsidence due to the withdrawal of ground water and high-rise buildings in cities make impacts of sea level rise more serious.

Other serious consequent of sea level rise to the coasts is the degradation or damage of important coastal ecosystems such as mangrove, seagrass and coral reefs. Accompany with the above-mentioned impacts of sea level rise are various socio-economic problems for coastal residents. Results of analysis of projected sea level rise impacts in coming decades under different climate change scenarios show that if no measure taken, mass displacement of coastal residents with huge socio-economic consequences can happen.

Through evidences in Viet Nam and other East Asia coastal States, it has been proved that international cooperation and coordination have effectively strengthen the coastal resilience for the

adaptation to sea level rise and ensure a sustainable socio-economic development. The international cooperation and coordination have been implemented in various aspects, from technology transfer, financial aid to human resource building etc. Through international cooperation and coordination, Viet Nam and other East Asia coastal States, especially developing states, have better managed coastal resources and environment, protected coastal ecological services and improved livelihood of coastal residents.

Farther than adaptation, international cooperation has helped increasing clean energy use and coastal mangrove reforestation, and thus, reduced greenhouse gas emission and climate change. Future international cooperation and coordination are required more concentrated in technology transfer, financial aid to human resource building to better address impacts of sea level rise.

Ms. Piera Tortora

Coordinator, Sustainable Ocean for All Initiative, OECD

Bio

Piera Tortora is the Coordinator of OECD's Sustainable Ocean for All Initiative, aimed at supporting a transition to a global sustainable ocean economy that also the poorest and most vulnerable countries can benefit from. Piera has worked at the OECD since 2011 where, prior to leading the Sustainable Ocean for All Initiative, she led on Financing for Sustainable Development work on Small Island Developing States, Multilateral Development Finance and Transition Finance. Piera was the lead author and coordinator of a number of OECD flagship publications and reports, including Sustainable Ocean for All: Harnessing the Benefits of Sustainable Ocean Economies for Developing Countries (2020), Multilateral Development Finance report 2018 : Towards a New Pact for Multilateralism (2018); Making Development Co-operation Work for Small Island Developing States (OECD, 2018); Climate and Disaster Resilience Financing in Small Island Developing States (OECD-WB, 2016), and OECD DAC 2015 Multilateral Aid Report: Better Partnerships for a post-2015 World.

Prior to joining the OECD, Piera conducted and managed economic analyses on policy issues relating to economic development in low- and middle-income countries. In 2008-2010, she worked at the Food and Agriculture Organisation of the United Nations (UN-FAO) providing policy advice to the Governments of Togo, Burkina Faso, Kenya and Syria on food security and poverty reduction policies. Previously, she worked as an independent consultant on the economic strategy for the North Kordofan State in Sudan (2007) and for the Italian natural resources management agency and the Italian water resources management organisations, mainly conducting ex ante policy impact analyses. In 2006, Piera served at the United Nations Economic Commission for Europe, where she conducted studies on migrations and violence against women. Piera has a passion for teaching: she lectured at the Graduate Institute of Geneva, the Master in "Human Rights and Conflict Management" of the University Sant'Anna in Pisa and at the University of Rome "La Sapienza".

Piera holds a PhD in Economics from the University of Rome “La Sapienza”.

Abstract

“International development cooperation for a sustainable ocean economy and for addressing sea level rise: trends and opportunities”

International development co-operation can play a key role in supporting developing countries address sea level rise and other impacts from climate change and growing anthropogenic pressures on oceans, as well as help conserve and sustainably use the ocean to create quality jobs, cleaner energy and enhanced food security. By drawing on evidence from the OECD Sustainable Ocean for All Initiative, this presentation will focus on how international development cooperation is fostering a sustainable ocean economy and helping address sea level rise, and how the effectiveness of such support can be enhanced going forward.