

**Input from the UNFCCC secretariat to the
2012 report of the Secretary General on Oceans and the Law of the Sea**

As requested in letter 'LOS/SG report/2012', the following provides information for the report of the Secretary General on oceans and the law of the sea on matters which may require further consideration in the context of climate change and oceans as well as

2. Climate Change: its impact on oceans

In its 2007 Fourth Assessment Report (AR4), the Intergovernmental Panel on Climate Change (IPCC), provides scientific evidence on the current and future impacts of climate change on oceans, coastlands and marine ecosystems.¹ The IPCC projects that the “anthropogenic warming and sea level rise would continue for centuries due to the time scales associated with climate processes and feedbacks, even if greenhouse gas (GHG) concentrations were to be stabilized”.

According to the IPCC, sea level rise impacts on coast lines, small islands and river deltas such as coastal erosion, inundation and other coastal hazards is expected to amplify over time. Due to global population growth and a trend to move to coastal areas, more people than today are projected to experience floods and the impact of sea level rise every year, in particular in the densely populated mega-deltas of Asia and Africa. The AR4 also reports on observed effects of climate change on most oceans where many natural systems are being affected particularly through temperature increases. These include shifts in “ranges and changes in algal, plankton and fish abundance in high-latitude oceans; increases in algal and zooplankton abundance in high-latitude and high-altitude lakes; and range changes and earlier fish migrations in rivers.”

Since oceans are natural carbon sinks, the anthropogenic increase of carbon in the atmosphere leads to an increasing uptake of carbon by the oceans which results in ocean acidification. The IPCC reports that the progressive acidification of oceans has negative impacts on marine shell-forming organisms and their dependent species and thus that climate change has contributed significantly to increasing the stress on coral reefs. On the other hand, the continuous warming of oceans started a positive feedback of the carbon cycle which could further increase atmospheric CO₂ concentration and accelerate climate change. According to the IPCC, the continuous warming of the earth surface and oceans reduces over the long term their ability to take up atmospheric CO₂. Reducing the function of oceans to act as carbon sinks in the long run, results in turn in a larger fraction of anthropogenic emissions remaining in the atmosphere than it would have been without warming.

3. UNFCCC: its relevance for ocean affairs and the law of the sea

To address the challenge of global climate change and to limit and reduce global GHG emissions is beyond the sole responsibility and capacity of a single country. It requires global and joint action across all sectors and levels of societies and their economies. Cooperatively stabilizing atmospheric GHG concentrations to prevent dangerous climate change and supporting adaptation activities to a changing environment are the major objectives of the United Nations Framework Convention on Climate Change (UNFCCC).² The Convention further states that "such a [GHG concentration] level should be achieved within a time-frame sufficient to allow ecosystems to adapt naturally

¹ For further information on the IPCC and its assessment reports, see: <http://www.ipcc.ch>.

² For further information about the UNFCCC, its secretariat and related activities, see: <http://unfccc.int>.

to climate change, to ensure that food production is not threatened, and to enable economic development to proceed in a sustainable manner."³

All Parties to the UNFCCC agreed to promote and cooperate in the sustainable management and the conservation of oceans as well as coastal and marine ecosystems. This agreement is enshrined in Article 4, paragraph 1(d) of the Convention.

Developments in a broad range of areas under the UNFCCC are of relevance for the field of ocean affairs and the law of the sea. Mitigation of GHG emissions in general and in particular for emissions from international maritime transport contributes to reduce the adverse effects of climate change on oceans, coastal and marine ecosystems. Adaptation to a changing climate is of outmost importa

- negotiations. They have also set the deadline of 2020 for the entry into force of this new agreement.
4. The infrastructure needed to support developing countries in a fully functioning climate regime evolved significantly as the COP adopted decisions on three key issues:
 - the governing instrument of the Green Climate Fund;
 - the terms of reference of the Climate Technology Center and Network, which is the implementing arm of the Technology Mechanism; and
 - the launch of the Adaptation Committee, which will coordinate and guide adaptation action.

During 2012, countries are expected to work expeditiously on each of these issues by developing the policies, processes and guidelines of the Green Climate Fund so that it can be capitalised; identifying a host for the Climate Technology Center and Network; and having the initial meetings of the Adaptation Committee.

Parties also recognized the need to increase their level of ambition in limiting or reducing GHG emissions, resulting in an immediate work programme on increasing mitigation action. This work will be informed by the review of the adequacy of limiting the global temperature increase to 2°C, to be carried out in 2013-2015, as well as by the next assessment report of the Intergovernmental Panel on Climate Change.

The outcome of the Conference included broad reference to ocean related aspects of climate change in the areas of mitigation, adaptation, research and systematic observation and capacity-building.

3.2 Mitigation: greenhouse gas emissions from international maritime transport⁵

Mitigation of GHG emissions from international maritime transport is one important element of the comprehensive mitigation strategy that implies joint international activities across all sectors and levels of societies and their economies.

According to the Second IMO GHG Study 2009,⁶ international maritime transport contributes about 2.7% of the global GHG emissions and this share is expected to further increase due to growing demand for international transport services. As a result, emissions from fuel used for international maritime transport are addressed under the UNFCCC. At its first meeting in 1995, the COP requested the Subsidiary Body for Scientific and Technological Advice (SBSTA) to address the allocation and control of emissions from international aviation and maritime transport (Decision 4/CP.1). The issue of emissions from fuel used for international aviation and maritime transport has since then remained on the SBSTA agenda with work focusing on methodological aspects of addressing emission from this sector. Under the SBSTA agenda item

⁵ For further information on emissions from international aviation and maritime transport see: http://unfccc.int/methods_and_science/emissions_from_intl_transport/items/1057.php.

⁶ The Second IMO GHG Study 2009 can be found here: http://www.imo.org/blast/blastDataHelper.asp?data_id=27795&filename=GHGStudyFINAL.pdf.

“Emissions from fuel used for international aviation and maritime transport”, Parties continuously receive information from the International Maritime Organization (IMO) on relevant work.

With the adoption of the Kyoto Protocol (KP) in 1997, emissions from international maritime transport are addressed under its article 2.2.⁷ Article 2.2. requests Annex I Parties to the KP to “pursue limitation or reduction of emissions of greenhouse gases not controlled by the Montreal Protocol from aviation and marine bunker fuels, working through the International Civil Aviation Organization and the International Maritime Organization, respectively”. By negotiating the Article, Parties developed a compromising pathway to control and regulate GHG emissions from international maritime transport by recognizing the role of IMO in limiting and reducing the sector’s emissions.

Since 2008, in addition to the methodological work on the sector’s emissions under the SBSTA, the political dimension of this matter is addressed in the context of cooperative sectoral approaches and sector-specific actions under the Ad Hoc Working Group on Long-term Cooperative Action (AWG-LCA).⁸ Under the AWG-LCA, Parties have focused their discussion on the important aspect of how to define the roles and responsibilities of the UNFCCC regime and the International Maritime Organization (IMO) in addressing the sector’s emissions and on the principles that should guide approaches to regulate and reduce GHG emissions from international maritime transport.

An important aspect of the work to address emissions from international maritime transport is the link to and the cooperation with the secretariat of the IMO. The UNFCCC secretariat maintains close relations with the IMO secretariat. Cooperation between the two organizations is based on a reciprocal exchange of information. The secretariat of the IMO has been continuously providing reports and information on relevant work to the SBSTA. Moreover, the secretariat of the IMO organized expert meetings to address methodological issues relating to the estimation, compilation and reporting of GHG emissions data from international maritime transport

During COP17/CMP7 in Durban governments agreed to continue considering the issue of emissions from international aviation and maritime transport.⁹ This is the first decision by

3.3 Adaptation: work programme on loss and damage¹⁰

Together with enhanced action on mitigation, action and international cooperation on adaptation is a critical objective of the UNFCCC process.¹¹ Therefore, Parties adopted the Cancun Adaptation Framework (CAF) as part of the Cancun Agreements at the Climate Change Conference 2010 in Cancun, Mexico (COP16/CMP6).¹² In the Agreements, Parties affirmed that adaptation must be addressed with the same level of priority as mitigation and that effective action on adaptation needs to be designed and implemented through a continuous and flexible iterative process, consisting of a full range of actions.

As part of the Cancun Adaptation Framework Parties established a work programme to consider approaches to address loss and damage associated

A process was initiated to generate an adequate knowledge base of climate change impacts in developing countries that are particularly vulnerable to the adverse effects of climate change. This process, under the work programme on loss and damage, offers several opportunities for stakeholders in the field of ocean affairs to contribute to the process and add further technical input. Under the work programme the following activities will take place throughout the course of 2012:

- Expert meeting on assessing the risk of loss and damage associated with the adverse effects of climate change, to take place in the end of March 2012;
- Regional expert meetings to consider a range of approaches to address loss and damage associated with the adverse effects of climate change, including impacts related to extreme weather events and slow onset events, to take place in Africa, Asia, LAC and small island developing States (Pacific and Caribbean), in the period June - October 2012;
- Literature review/compilation of information on existing knowledge and lessons learned on a range of approaches to address loss and damage, including impacts related to extreme weather events and slow onset events, in different regions, to be developed in June-October 2012;
- Technical paper on slow onset events, to be developed in October-November 2012.

3.4 Science, research and systematic observation¹³

Better understanding of the science behind climate change based on additional evidence acquired from observation and analysis of the physical, natural, social and economic aspects of climate change provide an essential foundation for addressing matters under the UNFCCC. Worldwide systematic observation of the climate system is a key prerequisite for advancing scientific knowledge on climate change. The need for a better understanding of the global climate system and more accurate data on its variability and change are addressed in the Convention. The Convention calls on Parties to promote and cooperate in research and systematic observation of the climate system, including through support to existing international and intergovernmental programmes and networks or organizations and exchange of information (see Articles 4.1(g and h) and Article 5). A key dimension for the implementation of those Articles has been the cooperation with the Global Climate Observing System (GCOS) secretariat of the World Meteorological Organization (WMO) and other agencies participating in WMO's Climate Agenda. In this regard, the UNFCCC secretariat works in close collaboration with a variety of international and -regional research programmes and organizations active in climate change-related research and facilitates dialogue and communication on the research needs and priorities expressed by Parties of the Convention to the scientific community.

Activities under the SBSTA agenda item on research and systematic observation during 2011 included the continuation of the annual research dialogue at the 34th session of the

¹³ For further information on activities related to research and systematic observation under the UNFCCC, see: http://unfccc.int/methods_and_science/research_and_systematic_observation/items/3461.php and http://unfccc.int/methods_and_science/research_and_systematic_observation/items/3462.php.

SBSTA, with a related pre-sessional workshop.¹⁴ Matters of relevance to oceans, coastal- and marine ecosystems addressed during these events included:

- Recent results in cryospheric research, such as key findings of the Arctic Council's Arctic Monitoring and Assessment Programme's Snow, Water, Ice and Permafrost in the Arctic Assessment (SWIPA) and a report on the State of the Arctic Coasts;
- Ocean acidification, including recent results of the EPOCA project by the 7th Framework Programme of the European Union; and
- Information provided by the International Geosphere-Biosphere Programme (IGBP) on ocean fertilization as a geoengineering t(IGA(of thji(Dqe cea.i87C-8.7.y scn0oring and A

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of the sea are embedded in a number of key decisions and conclusions. These decisions have high relevance for developing countries that are particularly vulnerable to the adverse effects of climate change, such as Least Developed Countries (LDCs) and Small Island Development States (SIDS).

At COP16/CMP6 in Cancun, 2010, Parties agreed on the need to support formal education in schools and institutions at all levels, non-formal and informal education on climate change and the development of educational and public awareness materials according to national circumstances and cultural context²⁰. One of the observations made during a UNFCCC workshop on the implementation of Article 6 of the Convention (Seychelles, November 2010),²¹ is that notable results are achieved when integrating climate change in formal education, and children become promoters of behaviour modification in the society.

At COP16/CMP6 in Cancun, Parties recognized that education and training can represent a medium and long term solution to the challenges of climate change. As a key approach