Contribution from the Secretariat of the United Nations Framework Convention on Climate Change (UNFCCC) to the report of the UN Secretary-General on oceans and the law of the sea, pursuant to General Assembly Resolution A/73/1241 entitled "Oceans and the Law of the Sea" and specifically to paragraph 358 of that resolution

Key messages

- The importance of oceans is identified in the Convention and the Paris Agreement. The role of ocean-related issues is increasingly recognized under a number of activities under the UNFCCC.
- 70% of government's current nationally determined contributions (NDCs) under the Paris Agreement include some mention of ocean/marine issues. The dominant concerns raised by governments to date are coastal impacts (95 NDCs), ocean warming impacts (77 NDCs), and fisheries impacts (72 NDCs). In 2020 Parties to the Paris Agreement will submit new or updated NDCs.
- Many developing countries have launched the process to formulate and implement National Adaptation Plans (NAPs). Eleven countries have compiled and submitted their NAPs to NAP Central through the secretariat. All of the NAPs submitted so far include adaptation related to ocean/marine issues.
- Ocean/coastal-related mitigation and adaptation and loss and damage issues will be addressed in the global stocktake.
- "Ocean and coastal zones" is a key theme of the UNFCCC global climate action agenda and has provided a platform for stakeholders to collaborate on ocean and climate change action.
- Much of the information needed to understand the changes and impacts in the ocean is also needed to understand climate change and it is important to support and fund oceanic observation and research to help understand oceans / climate change linkages and solutions.
- Ambitious action under the Paris Agreement will address ocean issues as well as enable synergistic implementation of SDGs 13 and 14, and NDCs, NAPs and long term strategies. Reducing CO2 emissions will result in reducing ocean acidification. Limiting global warming will limit the warming of the oceans.
- Dialogue should be facilitated, including at regional level, to help different stakeholders reconcile views on (transformative) ways forward based on the best available science.
- Science and research is vital to support implementation, ambition and the global stocktake under the Paris Agreement and synergise and implement SDGs 13 and 14, including through collaboration between statistical and scientific communities in data collection at the national level.
- Further research is needed to understand fully the oceans' role in climate change and appropriate action. There is a need to continue to emphasize the need for research on ocean science to support the vital role that oceans must play in implementing adaptation and mitigation and building ambition in the NDCs.
- Traditional knowledge and local communities knowledge are an important part of understanding, ocean issues and necessary action.
- The Decade could provide an opportunity to matchmake Party needs, including the UNFCCC, with scientific evidence and support NDCs, NAPs, long -term strategies and the global stocktake.
- The UNFCCC secretariat looks forward to collaborating with IOC-UNESCO and other colleagues supporting the Decade of Ocean Science for Sustainable Development, and supporting reporting on progress, including through the annual SBSTA research dialogue and other activities.

[1] http://undocs.org/en/A/73/L.35.

Background

1. IPCC

The Conference of the Parties (COP) has repeatedly expressed its appreciation for the IPCC's work and called on the Convention bodies, in particular the Subsidiary Body for Scientific and Technological Advice (SBSTA), to continue its cooperation with the IPCC and to seek its advice.

The **IPCC**, in its Fifth Assessment Report (2013-2014) provided an assessment of the Impacts, Adaptation, and Vulnerability in regards to the Ocean.[2]

The **IPCC special report on global warming of 1.5°C** (2018)[3] The report was produced as a response to an invitation to the IPCC '… to provide a Special Report in 2018 on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways' contained in Decision 1/CP.21 paragraph 21. Decision 1/CP.24 welcomes the timely completion of the special report.

The report highlights the urgent need for action and action in all areas including energy, transport, buildings, land use, . It states that we still have a small window of opportunity to limit warming to 1.5°C if increase in global CO2 emissions is reversed and emissions decrease by half by 2030 and reach net zero by around 2050. Any delay in reducing emissions of CO_2 implies global warming to overshoot 1.5°C with associated impacts. Rapid, far-reaching and unprecedented changes are required in all systems, there are no options that can be left out.

The **IPCC** are preparing a **Special report on the Ocean and Cryosphere in a Changing Climate** (SROCC) which will be available in September **2019**. It is developed under the joint scientific leadership of Working Groups I, II and III with the support of the WGII Technical support unit.[4]

2. Convention and Paris Agreement

The UNFCCC mentions oceans under Article 4.1 (commitments): all Parties shall promote sustainable management, and promote and cooperate in the conservation and enhancement, as appropriate, of **sinks and reservoirs** of all greenhouse gases, including biomass, forests and **oceans** as well as other terrestrial, coastal **and marine ecosystems**.

The Paris Agreement mentions oceans in the preambular paragraphs – "Noting the importance of **ensuring the integrity of all ecosystems, including oceans**, and the protection of biodiversity…".

Ocean plays a direct and/or indirect role in the goals under the Paris Agreement including:

Article 2

This Agreement, in enhancing the implementation of the Convention, including its objective, aims to strengthen the global response to the threat of climate change, in the context of sustainable development and efforts to eradicate poverty, including by:

(a) Holding the increase in the global average temperature to well below 2 °C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5 °C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change;

(b) Increasing the ability to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development, in a manner that does not threaten food production;

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[2] https://www.ipcc.ch/report/ar5/wg2/.

[3] IPCC special report on the impacts of global warming of 1.5 °C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty. https://www.ipcc.ch/sr15/.

[4] https://www.ipcc.ch/report/srocc/.

(c) Making finance flows consistent with a pathway towards low greenhouse gas emissions and climate resilient development.

This Agreement will be implemented to reflect equity and the principle of common but differentiated responsibilities and respective capabilities, in the light of different national circumstances.

In Article 4.1:

"In order to achieve the long-term temperature goal set out in Article 2, Parties aim to reach global peaking of greenhouse gas emissions as soon as possible, recognizing that peaking will take longer for developing country Parties, and to undertake rapid reductions thereafter in accordance with best available science, **so as to achieve a balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases in the second half of this century"**…

In Article 7.1:

Parties established the Adaptation goal of "**enhancing adaptive capacity, strengthening resilience and reducing vulnerability to climate change, with a view to contributing to sustainable development and ensuring an adequate adaptation response** in the context of the temperature goal referred to in Article 2 of the Paris Agreement." …

In Article 8.1

Parties "Recognize the importance of **averting, minimizing and addressing loss and damage** associated with the adverse effects of climate change, including extreme weather events and slow onset events, and the role of sustainable development in reducing the risk of loss and damage" …

In Article 14

The Conference of the Parties serving as the meeting of the Parties to this Agreement shall periodically **take stock of the implementation of this Agreement** to assess the collective progress towards achieving the purpose of this Agreement and its long-term goals (referred to as the "global stocktake"). It shall do so in a comprehensive and facilitative manner, considering mitigation, adaptation and the means of implementation and support, and in the light of equity and the best available science.

3. Nationally determined contributions

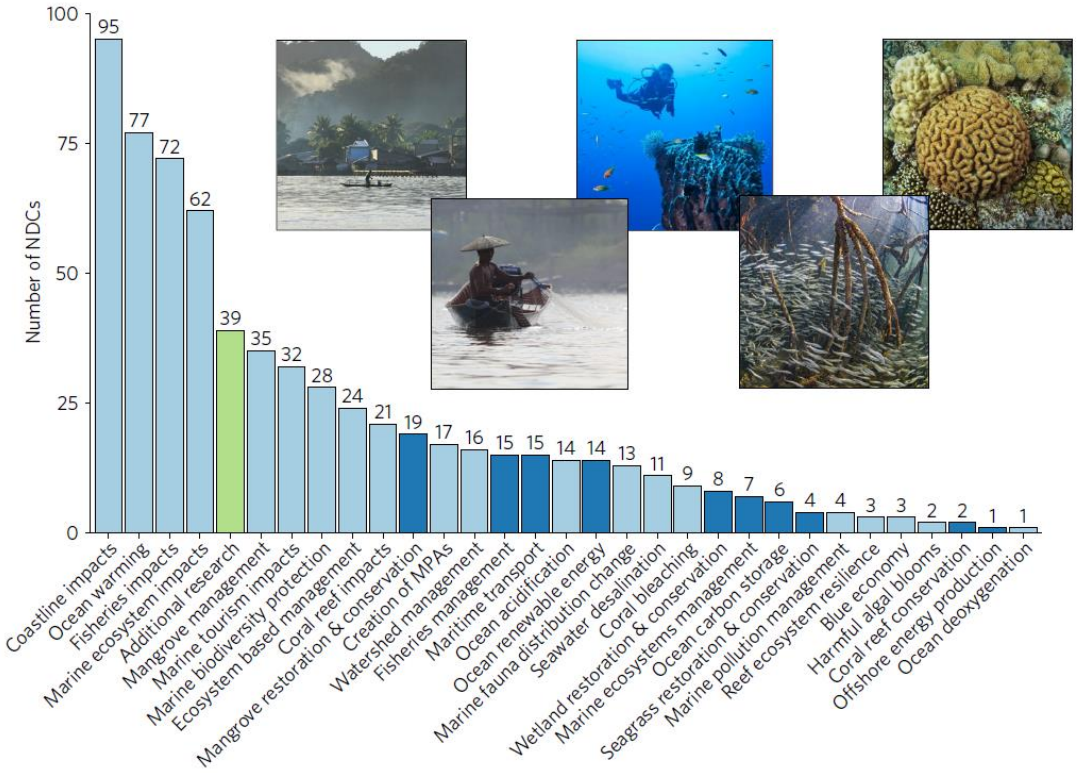
Nationally determined contributions (NDCs) are at the heart of the Paris Agreement and the achievement of its purpose and long-term goals. These efforts of all Parties will represent a progression over time, while recognizing the need to support developing country Parties for the effective implementation of this Agreement (Article 3).

The Paris Agreement (Article 4.2) requires each Party to prepare, communicate and maintain successive nationally determined contributions (NDCs) that it intends to achieve

Over 70% of the current NDCs include some mention of marine issues. The dominant concerns raised by governments are coastal impacts, ocean warming impacts, fisheries impacts and marine ecosystem impacts. About one quarter of NDCs identified the need for additional marine research (figure 1).

In 2020, Parties will submit new and revised NDCs as indicated in Decision 1/CP.24.

Figure 1
Frequency of marine mitigation and adaptation categories in NDCs as of June 2016



Source:
Natalya D.Gallo, David G.Victor and Lisa A.Levin (2017). Ocean commitments under the Paris Agreement. Nature climate change. DOI: 10.1038/NCLIMATE3422.
The frequency of different marine mitigation (dark blue) and marine impacts and adaptation (light blue) categories included in NDCs. Number of NDCs requesting additional marine research shown in green. Marine impacts and adaptation actions and concerns received much greater attention across NDCs than marine mitigation actions. Categories selected were based on multiple occurrences in NDCs and in the marine climate science literature.

4. Process to formulate and implement national adaptation plans

Many developing countries have launched the process to formulate and implement national adaptation plans (NAPs).[5] Eleven countries have compiled and submitted their NAPs to NAP Central through the secretariat.[6] A few countries have indicated that they have completed the compilation of their NAPs and are undergoing national multi-stakeholder review and/or official endorsement. Most of the other countries are still at the laying the groundwork and preparatory stages of the process to formulate and implement NAPs, and have yet to complete activities that would enable them to compile specific elements of the process into a plan

The Least Developed Countries Expert Group (LEG) of the UNFCCC developed technical guidelines for the NAP process providing a basis for the formulation and implementation of NAPs.[7] Several organizations have provided supplements to the NAP technical guidelines, those relevant for ocean issues include: The FAO on Addressing Fisheries and Aquaculture in National Adaptation Plans – Supplementary Guidelines and the

[5] https://unfccc.int/sites/default/files/resource/sbi2018inf13.pdf.
[6] https://www4.unfccc.int/sites/NAPC/News/Pages/national_adaptation_plans.aspx.
[7] Available in several languages at http://unfccc.int/7279.

Supplementary Material for Addressing Forests in National Adaptation Plans; and WMO Climate Services for Supporting Climate Change Adaptation.

5. Actions and activities in regards oceans under the UNFCCC Subsidiary Bodies.

Systematic Observation (under the Subsidiary Body for Scientific and Technological Advice (SBSTA) research and systematic observation agenda item)[8]

The **GCOS implementation plan**, recognised in Decision 19/CP.22, and its essential climate variables (ECVs) are key elements for maintaining an adequate global observing system for oceans. The oceanic observations component of the system GOOS, is maintained by the Intergovernmental Oceanographic Commission (IOC - UNESCO), which is the competent organization for marine science within the United Nations system. The success of the ARGO network for oceans is recent example of this work.

The SBSTA noted the importance of the global climate indicators, including the ocean-related climate indicators - ocean heat content, ocean acidification, sea level rise, and Arctic and Antarctic sea ice extent - for informing on the state of the global climate. It encouraged Parties to sustain observations underpinning the ocean indicators. It also noted the Ocean Conference 2017 and the importance of systematic observations related to the oceans.[9]

At COP 22, the Earth Information Day[10] provided the opportunity to optimize engagement and connect information and requirements between the science community, Party and non-Party stakeholders to benefit the intergovernmental process and Paris Agreement. It focused on providing an up-to-date picture of the status of the climate, including of oceans and a future outlook on developments and opportunities to support decision making on risk assessment, adaptation and mitigation at regional and national level.

Parties have recognized the importance of the Earth Information Day, including through submissions to the secretariat inviting it to hold further events in this regard. Parties will be negotiating further on this matter at SBSTA 50, June 2019.

B. Research (under the SBSTA research and systematic observation agenda item)

The annual **SBSTA research dialogue**, which takes place during the first sessional period of the year, is a forum for Parties, in particular developing country Parties, and regional and international research programmes and organizations active in climate change research to:

(a) Discuss needs for climate change research and research-related capacity-building, particularly those of developing countries, to support the work of the Convention;

(b) Convey research findings and lessons learned from activities undertaken by regional and international research programmes and organizations of relevance to the Convention.

The focus of the research dialogue is directed each year by Parties to the Convention through submissions to the UNFCCC secretariat, and organised by the SBSTA chair in collaboration with the secretariat.

At the **SBSTA research dialogue** several issues linked to oceans, including observation, research, modelling, action and capacity building have been discussed:

- At RD7[11] (May 2015) new findings on how oceans absorb heat was presented by the Chair of WGI.

[8] https://library.wmo.int/opac/doc_num.php?explnum_id=3417.
[9] FCCC/SBSTA/2017/7 paragraph 54.
[10] https://unfccc.int/event/earth-information-day.
[11] <http://unfccc.int/files/adaptation/application/pdf/researchdialogue.2015.2.summaryreport.pdf>.

- At RD8[12] (May 2016), updates were provided from AR5, including on sea level rise and on the CO_2 storages in the oceans.
- At RD8 (June 2017) research was shown on the contrasting futures for ocean and society as a result of slow onset climate-related changes. The level of impacts by the end of the century will strongly depend on the greenhouse gas mitigation trajectories the world will follow (see figure 2).[13]
- At RD9, updates were provided on:
    - the ice sheet changes in the West Antarctic Ice Sheet driven by the influence of both a warming ocean and a warming atmosphere;
    - the key processes in the Southern Ocean impacted by climate change and the need for further research in this region;
    - the ECVs and GCOS global climate indicators and the importance of increasing observatins of the ocean and coastal zones, including for slow onset and extreme events;
    - ongoing research on El Niño and regional ocean variability;
    - the work of GEO in providing open-access earth information data.
- At RD10, ocean was discussed in regards to science for understanding and science for action, with specific examples of ongoing work provided.[14] Key messages included:
    - Fundamental research is still needed to improve understanding of climate change;
    - Modelling is vital to understand and communicate climate change impacts from seconds to centuries and at increasing resolution;
    - Science must be supported through strong interdisciplinary research and multi-stakeholder partnerships, both informal and formal including indigenous and local communities, government and non-government stakeholders and sharing and building narratives of best practices;
    - Ongoing rapid changes in the Arctic have shifted the Arctic into a new normal, affecting the ecology, human societies and the position of the region in the global context;
    - Continued research on the ocean's role in the energy, carbon and water cycles and the impact of climate change on the ocean and ocean biodiversity is critical to understand opportunities and options for mitigation and adaptation and co-benefits;
    - A systems approach is vital when responding to the impacts of climate change. Ecosystem-based approaches can tackle mitigation and adaptation and provide co-benefits for sustainable development. Vertical integration is needed to link national policies and local actions and strengthen joint undertaking toward the objectives of the Paris Agreement and the generation of co-benefits;
    - There is an urgency to increase communication and collaboration at the science/policy interface to respond to climate change;
    - Regional institutions are important to promote and exchange information at regional, national and local level and catalyze Party engagement and support;

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12 <http://unfccc.int/files/science/workstreams/research/application/pdf/researchdialogue_2016_2_summaryreport.pdf>.

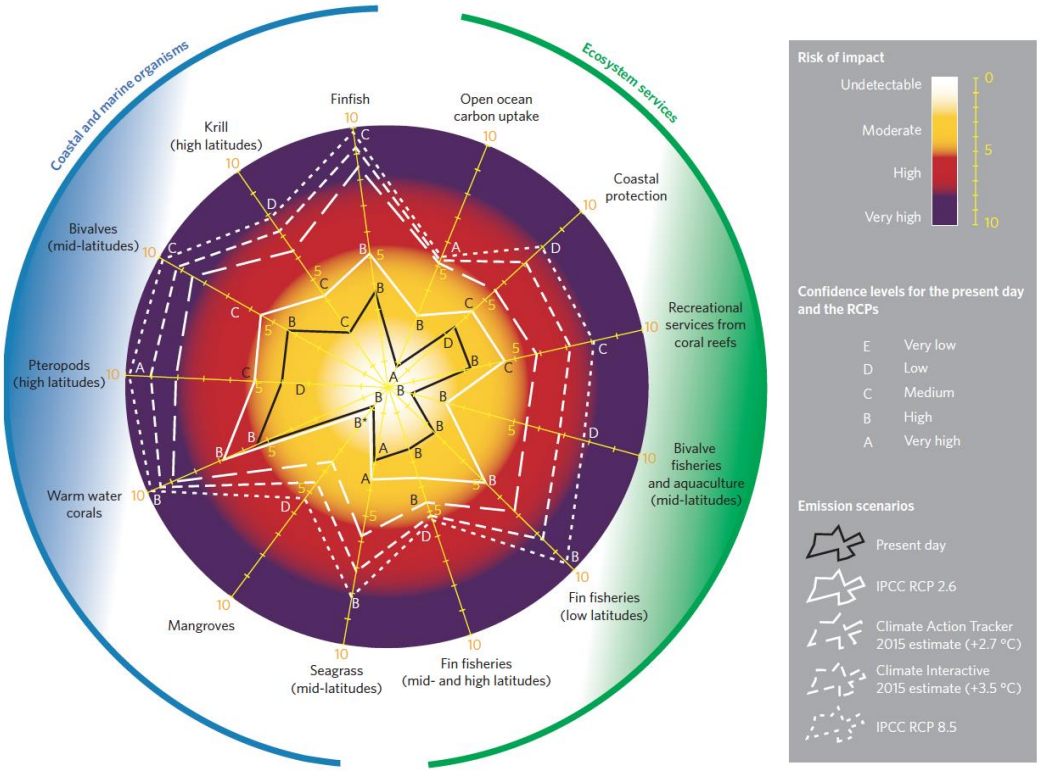
13 <http://unfccc.int/files/science/workstreams/research/application/pdf/part2_france_magnan_poster.pdf>. See also Magnan et al. (2016). Implications of the Paris Agreement for the ocean, Nature Climate Change. <http://rdcu.be/iigT>.

14 https://unfccc.int/sites/default/files/resource/RD10%20Summary%20report.pdf.

- Transdisciplinary research helps support engagement between the scientific and policy communities;
- Dialogue should be facilitated, including at regional level, to help different stakeholders reconcile views on (transformative) ways forward based on the best available science.

Figure 2

Linking ocean risks to NDCs and the global stocktake, to be assessed in the sixth assessment cycle of IPCC



Source: Magnan et al. 2016. Nature Climate Change. This figure looks at different warming scenarios, including the estimated projected global surface temperature warming of the current INDCs, estimated at 2.7 ºC and 3.5 ºC by different organizations, and assesses the risk to the oceans in terms of ocean organisms/biota (e.g. bivalves, warm water corals, mangroves etc.) in blue and ecosystem services (coastal protection, open ocean carbon uptake, fisheries etc.) in green. The figure demonstrates that the present day risk-level (represented by black lines in the centre) for the oceans is mostly moderate (except for mangroves, open ocean carbon uptake, and bivalve fisheries and aquaculture, for which the risk level is undetectable) and that although the risk level does increase, the oceans remain in this moderate category with 1.5 ºC of warming for the most part (except for warm water coral reefs, which will be at a high-level of risk). The figure also demonstrates that the two estimated pathways presented in the current Intended Nationally Determined Contributions (INDCs) would lead to high and very high levels of risk for almost all of the ocean organisms and services, and this should motivate higher ambition in climate mitigation

Nairobi work programme (NWP) (under the SBSTA)

The Nairobi work programme (NWP) is a mechanism under the Convention to facilitate and catalyze the development, dissemination, and use of knowledge that would inform and support adaptation policies and practices. The programme was established at COP11 (2005) through decision 2/CP.11 and named the "Nairobi work programme on impacts, vulnerability, and adaptation to climate change" at COP12 in Nairobi

(2006). The NWP operates under the overall guidance of the Chair of the SBSTA, with assistance from the secretariat, and contributions from Parties and other relevant stakeholders.[15]

At SBSTA 48 [16] the SBSTA concluded that future NWP thematic areas should focus on emerging issues in relation to climate change including: Oceans, coastal areas and ecosystems, including mega deltas, coral reefs and mangroves.

The Warsaw International Mechanism on loss and damage and Technology Executive Committee (jointly under the SBSTA and the Subsidiary Body for Implementation (SBI))

The work programme of the Warsaw International Mechanism on loss and damage17 includes oceans issues which are being considered under slow onset event (sea level rise and ocean acidification in collaboration with SBSTA/RSO), non-economic losses and irreversible impacts (e.g., coral bleaching).

At their seventh meeting, the Executive Committee of the Warsaw International Mechanism for Loss and Damage (Executive Committee) associated with Climate Change Impacts launched pioneering work on technology to avert, minimize and address loss and damage, through collaboration with the Technology Executive Committee (TEC). A joint working group has been set up to lead the collaborative preparation of this policy brief and a draft concept note for the development of the policy brief.[18]

Technical work towards an improved knowledge-base related to oceans is planned this year (2019) by the Expert Group on Slow Onset Events of the Executive Committee, in the context of enhancing cooperation and facilitation in relation to slow onset events, as part of Strategic workstream (a) of the five-year workplan of the Executive Committee.[19]

6. Activities under the COP / CMA

Talanoa dialogue

At COP 21 (Paris 2015) the COP decided to convene a facilitative dialogue among Parties in 2018 to take stock of the collective efforts of Parties in relation to progress towards the long-term goal referred to in Article 4, paragraph 1of the Paris Agreement. The facilitative dialogue became known as the **Talanoa dialogue.**[20]

A number of inputs to the Talanoa dialogue highlighted the importance of oceans to the climate change process and ambition under the Paris Agreement. There is “considerable potential for ocean and climate intiatives to contribute to accelerating the objectives of the Paris Agreement, with the implementation of ocean-based adaptation and mitigation.” “Ocean science must be understood in a holistic and integrated way: acting for ocean science, requires a global coordination of all matters at stake, including research budgets, infrastructures, means of disseminating science in schools and universities and policy-making.”[21]

Developing and disseminating a better comprehension of the ocean, and its specific ecosystems, is vital to respond to climate change. Knowledge exists on oceans however additional research is needed to enable action to be based on the best available science. Action should be supported through existing research and tailoring science/policy interfaces and platforms to link researchers, civil society and policy-makers.

Decision 1/CP.24 “invites Parties to consider the outcome, inputs and outputs of the Talanoa Dialogue in preparing their nationally determined contributions and in their efforts to enhance pre-2020 implementation and ambition”.

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[15] https://unfccc.int/nwp.
[16] FCCC/SBSTA/2017/7 paragraph 21.
[17] FCCC/SB/2017/1/Add.1.
[18] FCCC/SB/2018/1, paragraph 27 and see annex.
[19] https://unfccc.int/files/adaptation/groups_committees/loss_and_damage_executive_committee/application/pdf/draft-five-year-rolling-workplan-12-oct.pdf.
[20] https://unfccc.int/topics/2018-talanoa-dialogue-platform.
[21] Measuring progress on ocean and climate initiatives: An action orientated report, Ocean & Climate Initiaitves Alliance https://unfccc.int/documents/65315.

Global stocktake

Decision 19/CMA.1 is on "Matters relating to Article 14 of the Paris Agreement and paragraphs 99-101 of decision 1/CP.21." Parties decided that the global stocktake will consist of three components (paragraph 3):

a) Information collection and preparation, focusing on gathering, compiling and synthesizing information and preparing for conducting the technical assessment;
b) Technical assessment, focusing on taking stock of the implementation of the Paris Agreement to assess the collective progress towards achieving the purpose and long-term goals of the Paris Agreement, as well as opportunities for enhanced action and support to achieve its purpose and goals;
c) Consideration of outputs, focusing on discussing the implications of the findings of the technical assessment with a view to achieving the outcome of the global stocktake of informing Parties in updating and enhancing, in a nationally determined manner, their actions and support, in accordance with relevant provisions of the Paris Agreement, as well as in enhancing international cooperation for climate action.

The sources of input for the global stocktake are given in paragraph 37 of the same decision and include IPCC reports, relevant reports from UN agencies and other international organizations that should be supportive of the UNFCCC process, regional groups and institutions and non-Party stakeholders and UNFCCC observer organizations.

How ocean and coastal-related mitigation and adaptation, as well as loss and damage, will be included within the global stocktake process is not yet clear. However, the decision suggests a broad approach to the global stocktake which could include oceans.

7. Global Climate Action

The Marrakech Partnership for Global Climate Action supports implementation of the Paris Agreement by enabling collaboration between governments and the cities, regions, businesses and investors that must act on climate change. The areas of action include Land-use; Oceans and coastal zones; Water; Human settlements; Transport; Energy; Industry; and Finance. Ocean action days have been held at COP 22, 23 and 24.[22] All events incorporated information from the research community into stakeholder discussions.

[22] See COP 22 http://enb.iisd.org/climate/cop22/oceans-action-day/; COP 23 http://enb.iisd.org/climate/cop23/oceans-action-day/; COP 24 https://www.oceanactionhub.org/ocean-action-day-held-climate-change-cop-24-poland and