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**FOR INFORMATION**

# Proposed themes for Special Reports during the Sixth Assessment Report (AR6) cycle

(Submitted by the Acting Secretary of the IPCC)

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**FOR INFORMATION**

Proposed themes for Special Reports during the Sixth Assessment Report (AR6) Cycle

## Background

At the 41st IPCC Session in Nairobi, February 2015, the Panel decided (Decision IPCC XLI-4) that the identification of Special Reports, including those with a focus on regional information and priorities, should be made as early as possible in the AR6 cycle and in the context of all of the deliverables of the cycle. The Panel further requested the IPCC Secretariat to invite Member States to submit views on potential themes for Special Reports during the AR6 cycle and to also seek input from the Working Group Co-chairs. The Panel agreed to further discuss the issue at its 43rd Session in early 2016.

By its correspondence of 6 July 2015, the IPCC Secretariat invited Member States and Observer Organizations to submit proposals for Special Reports. The submissions received as of 27 August 2015 in response to the Secretariat's invitation are compiled in this Information document. Inputs from Working Group Co-chairs for the AR6 cycle will be solicited following their election in October 2015.

## Summary Table of Proposed Themes

The proposed themes are presented in alphabetical order of proposing Member State or Observer Organization.

| **Proposals by Member States** | | | |
|---|---|---|---|
| **Annex Number** | **Country** | **Title** | **Relations to other proposals** |
| 1 | Algeria | Climate Change and Desertification | Related to the proposal from Saudi Arabia (Annex 10) and UNCCD (Annex 21) |
| 2 | China | Impact of Climate Change on the Cryosphere | Related to the proposals from South Africa (Annex 12) and from the USA (Annex 16) |
| 3 | China | Climate Change and Human Health | |
| 4 | China | Climate Change and Ocean | Related to the proposals from Monaco (Annex 8) and Spain (Annex 14) |
| 5 | Germany | Integrating adaptation and mitigation in comprehensive near term solutions to climate change | |
| 6 | Ireland | Special Report on Climate Change, Food and Agriculture | |
| 7 | Japan | Japan's view on potential themes for Special Reports | |
| 8 | Monaco | Ocean and Climate Change | Related to the proposals from China (Annex 4) and Spain (Annex 14) |
| 9 | Netherlands | Carbon Pricing | |

| | | | |
|---|---|---|---|
| 10 | Saudi Arabia | Special Report on Desertification with Regional Aspects | Related to the proposal from Algeria (Annex 1) and UNCCD (Annex 21) |
| 11 | South Africa | Special Report on Adaptation Costs in Developing Countries | |
| 12 | South Africa | Special Report on Antarctic/ Southern Ocean Region | Related to the proposals from China (Annex 2 and 4), Monaco (Annex 8), Spain (Annex 14), and USA (Annex 16). |
| 13 | South Africa | Special Report on Managing the Diversity and Contradictions of Climate Change Data and Information | |
| 14 | Spain | Oceans and Climate Change: Special Report on the Evidences, Impacts and Adaptation to the Climate Change of the Oceans | Related to the proposals from China (Annex 4) and Monaco (Annex 8) |
| 15 | UK | Update of key policy-relevant messages in AR5 in support of review and assessment procedures in new UNFCCC agreement | |
| 16 | USA | Global and Regional Consequences of Changes to the Frozen World | Related to the proposals from China (Annex 2) and South Africa (Annex 12) |
| **Proposals by UN and Observer Organizations** | | | |
| **Annex Number** | **Organization** | **Title** | **Relations to other proposed themes** |
| 17 | CAN International | Decarbonisation and low carbon development (incl. on 1.5°C-warming scenarios) | |
| 17 | CAN International | Food security and climate change | Related to the proposal from Ireland (Annex 6) |
| 17 | CAN International | Sea level rise and glacial melting | Related to the proposal from the USA (Annex 16) |
| 18 | European Union | Special Report on Aviation and Maritime | |
| 18 | European Union | Special report on AFOLU | |
| 19 | State of Palestine | The Impact of Climate Change on National, Regional and International Security | |
| 20 | State of Palestine | Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation – Update | |
| 21 | UNCCD | Climate Change and Land Degradation – An Assessment of the Inter-linkages and Integrated Strategies for Mitigation and Adaptation | |
| 22 | UNEP | Global Adaptation Outlook | |

**ANNEX 1**

**ALGERIA PROPOSAL: CLIMATE CHANGE AND DESERTIFICATION**

**Details of Submitting Official**

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**Title of proposed Special Report**

Climate Change and desertification

**Relevance of the topic for climate change**

Climate change and desertification are closely linked. Climate change contributes to the land degradation which in turn affects climate change. The climate change, on the one hand, enhances land degradation, especially in arid venerable regions, and desertification, on the other hand, exacerbates climate change due to the diminution of vegetation cover.

Fertile soil and healthy ecosystems are known as an important global carbon sink thus minimizing the presence of $CO_2$ in the atmosphere. Healthy soils are important regulator to climate system. However, the capacity of soil as climate regulator is undermined by degraded land and arid ecosystem. It is also assumed that desert dust particles are also contributing to the warming of the planet.

The climate change and desertification nexus is particularly alarming considering that, in case of Africa, 65 % of the continent surface is occupied by arid zones and more than 85 % in North Africa. Therefore, climate change and desertification enhance the vulnerability of these regions and put the life of mankind, fauna and flora in the present and the future in hypothetical situation.

In line with the conclusions of **SBSTA 41 agenda item 8(a) Matters relating to science and review of the Fifth Assessment Report of the Intergovernmental Panel on Climate Change**, Algeria invite IPCC to dedicate a Special Report on the link between climate change and desertification considering arid and semi-arid areas as vulnerable ecosystem regions deserving a special attention and not just embedded in what is mentioned as “land degradation”. The impact of climate change through further enhancement of temperature increase and the intensification of drought and heat wave events in the arid and semi-arid regions are well scientifically established. In addition to the land degradation, the increase of the soil salinity and the advance of desert, the sand storms and the short and long-range transport of desert dust particles constitute another serious problem that many regions of the world are facing. The desert dust particles constitute the greater portion of the atmospheric aerosols, atmospheric components, in which the fifth IPCC assessment report outlined the highest uncertainty with regards to their positive and negative feedback to climate change as well as their warming or cooling capacity.

Particular attention should be given to examine in deep details what would be the warming or cooling capacity of desert dust particles and what would be their effects on precipitation and hydrogeological cycles, on human health and the degradation of ecosystems within the context of enhanced climate change.
The desert dust particles through modification of solar radiation and soiling and degradation of renewable energy equipments can harm the efforts of semi-arid and arid regions to curve carbon emissions and to make a successful transition to renewable and clean energy. Furthermore, it is now well established that enhancement of desertification due to climate change through the reduction of vegetation cover, the degradation of biodiversity and biomass, modifies the land surface and therefore impact the carbon sequestration capacity. On the other hand, the vulnerability of water resources is exacerbated by the evapo-transpiration and water salinity.

Desert dust particles influence the radiative balance of the planet, either directly by scattering and absorbing incoming solar radiation, or indirectly by changing the optical properties of clouds which are in turn an important player in the climate system. Desert dust particles also contain iron, an important fertilizer for the growth of phytoplankton, a significant global carbon sink. Desert dust not only affects climate, but also is influenced by it. Its generation and short and long-term atmospheric transport and dry and wet deposition are sensitive to climatic conditions.

Desert dust particles can also play an important role as a passive recorder of climate change under different climatic conditions in the past. Addressing and understanding the links between desert dust particles and climate in the past will be crucial to evaluate the future impacts of desert dust particles on the Earth's climate system in a warming world.

From the aforementioned exposure, it is clear that the link between climate change and desertification is cross linked topic that involves the three IPCC working groups. Scientific elements related to increasing temperature, hydrogeological cycles, extremes events, drought and heat waves exacerbated in arid regions along with the role of desert dust particles in warming climate among others, are all within the subject of WGI. The vulnerability of arid regions, the land degradation, the degradation of biodiversity and biomass, soil salinity, water scarcity,... can be covered by WGII while the WGIII can address the mitigation potential of arid regions and the effect of desertification on the deployment of renewable energy.

It is also important to underline that since several years, the number of peer-reviewed scientific paper and technical reports documenting the link between climate change and desertification is increasing dramatically. All these materials are qualitatively and quantitative sufficient enough deserving to be documented in an IPCC special report.

**Relevance of the topic for policy making**

Desertification and land degradation affect billion of people in particular in African countries. More than 130 countries are affected by desertification and land degradation. It has far reaching implication on the livelihood and well being of the poorest among the poor. It has an impact on food security and social, economical and political stability of the countries are affected. It is well recognized that climate change will lead to severe weather events including drought and heat waves. The countries affected by desertification have not contributed to climate change but will be most severely affected by its negative impacts. They will be also affected owing to the limited carbon sequestration capacities of the degraded land. African countries, in particular, will have to adapt to more arid and semi arid ecosystem and promote national adaptation plan to be mainstreamed into their national development strategies and economic priorities including at regional and local level. Desertification is an issue of outmost relevance to all African leaders.

The foreseen report should address the link of climate change and desertification under different climatic scenarios and underline the vulnerability of the impacted regions in terms of soil degradation, water scarcity, food security, population settlements, economical fragility, and political

stability. The report should highlight the limited capability of many regions of the world to adapt to the desertification and to sink carbon because of desertification. The development of renewable energy technology should consider the impact of desertification on the operation of renewable equipments (photovoltaic panels, thermal collector and receptor and wind turbines).

**Justification of the need for a Special Report**

**If the relation between carbon sequestration and tropical forests is far well addressed, t**he link between climate change and desertification is not well documented in the previous IPCC reports as also outlined in the conclusions of SBSTA 41 agenda item 8(a) Matters relating to science and review of the Fifth Assessment Report of the Intergovernmental Panel on Climate Change, " The SBSTA noted that the AR5 identified some information gaps, including in developing countries, especially in Africa, and on emerging issues, such as the links between climate change and desertification." " The SBSTA invited the IPCC and relevant international and regional research organizations to inform Parties about efforts undertaken to address the information gaps identified in the AR5, including as referred to in paragraph 4 above, for example at the meeting of the research dialogue at SBSTA 42 (June 2015)."

**IPCC has a leadership role to play in promoting a better scientific understanding between climate change and desertification. A special report on this issue is urgently required and** will certainly provide a perfect synergy between two UN Conventions: Climate Change and Desertification.

**Key issues proposed to be addressed in the Special Report**

**The special report may focus on the soil of the desert as a carbon sink as well as on the long term impact of climate change on the countries affected by desertification based on simulation model until the end of the 21$^{st}$ century. The study may also address the role played by desert dust particles on the warming of the planet as well as their role in fertilizing marine ecosystems.**

The special report may address the following issues but not limited to:

- The warming scenarios in arid regions considering desertification,
- The impact of climate change on desertification and vice versa,
- The role of desert dust particles in warming the climate,
-The role of desert dust particles as fertilizers of the ocean ecosystems
- The vulnerability of arid and semi-arid region to desertification under the context of climate change
- The impact of desertification on the deployment of renewable energy

**Potential Partner Organizations**

**The study can be undertaken in collaboration with the Algerian government as a host of the expert meeting in a desert area and in partnership with the relevant international organization dealing with desertification including scientific body of the United Nations Convention to Combat drought and desertification in particular in Africa.**

**Time schedule**

216-2018

**Budget estimates**

To be determined latter

**Possible donors**

Relevant UN organizations, relevant research institutions, donors from governments,…

**ANNEX 2**

## CHINA PROPOSAL: IMPACT OF CLIMATE CHANGE ON THE CRYOSPHERE

**Details of Submitting Official**

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**Title of proposed Special Report**

Impact of Climate Change on the Cryosphere

**Relevance of the topic for climate change**

- As one of the five spheres of the climate system, the cryosphere comprises important climate variables.
- Due to the regional characteristics of the climate change, changes of the cryosphere bear different features in different regions.
- Changes of the cryosphere at regional and global scales also influence the climate change, especially in the regions with sea ice, snow cover and permafrost.
- Changes of the cryosphere are closely related to sea surface, hydrology, ecology and carbon, all of which have certain impact on the climate system.

**Relevance of the topic for policy making**

1. Changes of the cryosphere have already influenced more than three forth of the world population.
2. Changes of the cryosphere have posed great influence on many aspects of the socioeconomic development, including ocean sailing route, engineering and infrastructure projects in cold regions (railways, pipelines, ports, etc.), disasters (glacier collapse, blizzard, coastal ice crackling, etc.), fisheries, ecological protection, water supply, agriculture, culture and tourism, etc.

**Justification of the need for a Special Report**

- A comprehensive assessment report on the cryosphere, its impact, and the potential adaptation measures is still not available.
- A decision-oriented report on the cryosphere is greatly needed in many countries/regions, especially coastal regions, low lying countries and arid/semi-arid regions where melt water accounts for a large proportion of the total amount of water supply.
- The more accurate the understanding of the impact of the cryosphere is, the more the people will benefit in the 21st century at global and regional scales.

**Key issues proposed to be addressed in the Special Report**

- New understanding of the changes of the cryosphere at global and regional scales
- Assessment of the impact of the above changes
- Projection of the impact under the new scenarios of IPCC
- Potential adaptation and mitigation measures that are applicable and feasible

**Potential Partner Organizations**

- IPCC Working Group I, Working Group II and Working Group III
- World Glacier Monitoring Service (WGMS)
- IUGG International Association of Cryospheric Sciences (IACS- IUGG)
- IUGG International Association of Hydrological Sciences (IAHS-IUGG)
- International Permafrost Association (IPA)
- State Key Laboratory of Cryospheric Sciences (SKLCS) of Chinese Academy of Sciences

**Time schedule**

2016-2019

**Budget estimates**

Four working groups will be established with around 60 participants in each group and 300, 000 Swiss francs for each group. The total budget estimate is around 1.2 million Swiss francs.

**Possible donors**

**ANNEX 3**

**CHINA PROPOSAL: CLIMATE CHANGE AND HUMAN HEALTH**

**Details of Submitting Official**

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**Title of proposed Special Report**

Climate Change and Human Health

**Relevance of the topic for climate change**

Human health is the most direct key area that is influenced by climate change and other environmental factors, such as air, water and soil pollution, and the changes of natural ecosystems. Many institutions and research projects have studied the possible impact of the climate change on human health, such as the Climate Change and Human Health Program developed by WHO. IPCC needs to integrate long sequences of weather and climate data, environment index and socioeconomic conditions to strengthen the research on the impact of the climate change on human health.

**Relevance of the topic for policy making**

Human health will be most probably set as a critical development area in the Post 2015 Sustainable Development Goals (SDGs), which is to be formally adopted in September 2015. IPCC is supposed to put forward relevant advice and suggestions concerning the impact of the climate change on human health.

**Justification of the need for a Special Report**

The impact of the climate change on human health has been kept in a multi-scale, all round and multi-level manner. Data released by WHO on 25 March 2014 demonstrated that the death toll caused by air pollution-triggered diseases had reached approximately 7 million, which meant that 1 out of 8 deaths in the world was evoked by air pollution. The global climate change will also influence human health by aggravating the existing health problems, therefore making the already poor health conditions even worse in many regions, especially in Least Developed Countries (LDCs).

**Key issues proposed to be addressed in the Special Report**

- The latest development of the relationship between global/regional scale climate and human health
- Assessment of the impact of the observed climate change and extreme climate events on human health and its vulnerability
- Projection of the possible impact and risks of the climate change on human health under IPCC new scenarios
- Possible adaptation and mitigation measures taken on the global and regional scales

**Potential Partner Organizations**

World Health Organization (WHO)
International Association of National Public Health Institutes (IANPHI)

**Time schedule**

2015-2016: preparation period
2017-2018: compilation period
2019: reviewing and releasing period

**Budget estimates**

Around one million Swiss francs.

**Possible donors**

**ANNEX 4**

**CHINA PROPOSAL: CLIMATE CHANGE AND OCEAN**

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**Title of proposed Special Report**

Climate Change and Ocean

**Relevance of the topic for climate change**

Oceans pose significant influences on global climate change through the ocean-atmosphere exchange of heat, energy and materials. Oceans and coastal zones are also critical areas for socioeconomic activities. Sea level rise and changes in marine environment, marine disasters, marine ecosystem and marine biodiversity, caused by the climate change, have brought enormous impact on socioeconomic activities. Therefore, it is necessary to assess the multi-scale, all-round and multi-level changes occurred in the ocean under the background of global climate change. It bears substantial significance for the understanding of the impact of climate change on the oceans as well as the response of the ocean to the climate change.

**Relevance of the topic for policy making**

The special report can inform decisions-makers to take ocean-oriented mitigation and adaptation measures to tackle the climate change.

**Justification of the need for a Special Report**

Being the key sphere constituting the earth's climate system, oceans are vital components of the earth resources and the environment. Changes of oceans bear enormous influence on the climate system and the socioeconomic development. Meanwhile, changes of the marine environment are also affected by the global climate change and anthropogenic activities. Protecting the climate goes hand in hand with protecting the ocean. The cause of understanding and responding to the changes of the marine environment needs to be carried out in a scientific, holistic and farsighted manner. The tasks of responding to marine disasters, preventing marine pollution, and preventing the deterioration of marine ecosystems and the reduction of marine biodiversity need to be dealt with effectively. All these aim to offer policy suggestions for decision-makers to take ocean-oriented mitigation and adaptation measures to tackle the climate change.

**Key issues proposed to be addressed in the Special Report**

1. Trends and risks of marine disasters under the background of the global climate change
2. The impact of and adaptation to sea level rise
3. The impact of climate change on coastal zones and vulnerability assessment
4. Changes of marine ecosystems
5. Ocean acidification and its ecological effects
6. Marine pollution and its response
7. Marine management
8. Oceans in 2100: the projection of marine environment changes

**Potential Partner Organizations**

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|---|
| International Maritime Organization (IMO)<br>Global Ocean Observing System (GOOS)<br>ICSU Scientific Committee on Oceanic Research(SCOR-ICSU)<br>UNESCO Intergovernmental Oceanographic Commission(IOC-UNESCO)<br>Intergovernmental Ocean Carbon Coordination Project (IOCCP)<br>Surface Ocean – Lower Atmosphere Study (SOLAS)<br>IUGG International Association of Meteorology and Atmospheric Sciences (IAMAS-IUGG)<br>IUGG International Association for the Physical Sciences of the Oceans(IAPSO-IUGG)<br>IUGG International Association of Hydrological Sciences(IAHS-IUGG) |

**Time schedule**

| |
|---|
| 2015-2016: preparation period<br>2017-2018: compilation period<br>2019: reviewing and releasing period |

**Budget estimates**

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|---|
| Around one million Swiss francs. |

**Possible donors**

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**ANNEX 5**

**GERMANY PROPOSAL: INTEGRATING ADAPTATION AND MITIGATION IN COMPREHENSIVE NEAR TERM SOLUTIONS TO CLIMATE CHANGE**

**Details of Submitting Official**

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**Title of proposed Special Report**

Integrating adaptation and mitigation in comprehensive near term solutions to climate change

**Relevance of the topic for climate change**

- This Special Report would provide a scientific assessment of the climate policy options and experiences available for implementing solutions that include both adaptation and mitigation in the next decades and that correspond to the ultimate objective of the UNFCCC and the long term global goal specified by the Paris Agreement.

**Relevance of the topic for policy making**

- This Special Report would provide information on the effectiveness of climate policy measures and support policy makers in prioritizing and deciding about mitigation and adaptation actions in the next decades.
- It would provide information on how to create synergies between adaptation and mitigation measures, and on how to avoid tradeoffs and conflicts between them.
- It would provide a scientific basis for assessing policy and technology options within the context of the UNFCCC.
- It should also help understanding the relevance and potentials of various initiatives and the growing engagement of both state and non-state actors bearing in mind that a range of actors' actions could form an integral part of the contributions to UNFCCC and allow Parties to become more ambitious post 2020.

**Justification of the need for a Special Report**

- The Fifth Assessment Report of the IPCC has shown that urgent and ambitious action is needed to avoid dangerous anthropogenic interference with the climate system. The motivation for this proposal for a Special Report is the urgent need of comprehensive and reliable scientific information on near term actions and solutions to the climate change challenge. This proposal provides the basic conceptual idea for a Special Report that would provide such information.
- It is expected that a comprehensive assessment of this topic needs particular attention from all WGs, in particular by WG2 and WG3. This cross cutting approach can best be implemented within a Special Report. The key findings of the Special Report could then be

capitalized by all WGs in their contributions to the Sixth Assessment Report of the IPCC.

- In addition, an integrated perspective on mitigation and adaptation to reduce climate change risk in line with the ultimate objective of the UNFCCC and in the context of sustainable development could also enhance cross-cutting conceptual work between the IPCC-WG communities, which would provide the basis for future integrated research in this field.

**Key issues proposed to be addressed in the Special Report**

Initial list of topics:

- Understanding mitigation and adaptation experiences and activities to reduce climate change risk in line with the ultimate objective of the Convention and in the context of sustainable development
- Interactions and integration of mitigation and adaptation in key sectors and regions in different institutional contexts
- Human dimensions: understanding the roles of different actors across regions, considering values, cultures, goals, risk perceptions, and behaviors
- Drivers, enablers, barriers and risks of transformation
- Empowering decision making under uncertainty
- Foundations for implementing appropriate action, for monitoring and evaluating policies, and technology options for adaptation and mitigation

**Time schedule**

To be adopted by 2018/19, taking into account the needs of the UNFCCC.

**ANNEX 6**

**IRELAND PROPOSAL: SPECIAL REPORT ON CLIMATE CHANGE, FOOD AND AGRICULTURE**

Comhshaol, Pobal agus Rialtas Áitiúil
Environment, Community and Local Government

Mr. Martin-Novella,
IPCC Secretariat,
World Meteorological Organisation,
7bis, Avenue de la Paix,
P.O. Box 2300,
1211 Geneva 2,
Switzerland.

20th August 2015

**Re: Proposed Special Report on Climate Change, Food and Agriculture**

Dear Mr. Martin- Novella,

The Government of Ireland wishes to welcome the report on the Expert Meeting on Climate Change, Food, and Agriculture which was held in Dublin from the 27-29 May 2015. The report reflects a wide range of new information that has emerged from the scientific community since the publication of the IPCC 5th Assessment Report (AR5). The report also indicates that it would be timely to produce a Special Report on this topic.

Following the Expert Meeting's report and discussions relating to the Report, I wish to inform you that the following Governments jointly support the submission of a Special Report on Climate Change, Food and Agriculture:

- The Government of Ireland;
- The Government of Tanzania;
- The Government of New Zealand; and
- The Government of Costa Rica.

Adequate and robust food production systems are central to human survival and development. The AR5 has identified evidence that climate change is already impacting on food production systems and that these systems are likely to be increasingly vulnerable to future impacts. Food production systems are themselves direct and indirect sources of greenhouse gas emissions and a key driver of land use change. There is a need for better understanding of these impacts, the measures required to enhance the adaptive capacity and resilience of agricultural systems to climate change, and an understanding of the challenges and opportunities associated with reducing emissions and enhancing sinks in the agricultural sector. Through the production of a Special Report on the topic of Climate Change, Food and Agriculture the IPCC can make a significant contribution to advancing global understanding of these issues and potential solutions that might apply.

At a policy level the threat that climate change poses for food production is recognised in the objectives of the UNFCCC. It is self-evident that a Special Report on this topic would be of interest for the Parties to the UNFCCC and can complement its work in this area and inform its future actions.

The report from the Expert Meeting has identified a number of key issues that could be addressed in a special report. These come under the remit of all three Working Groups. The topic can therefore provide an integrating framework to address areas of fundamental science, impacts and adaptation, and mitigation of climate change.

We consider that a number of potential partner organisations can contribute to this report. The FAO has a particular role in this area and could be involved in informing and supporting the provision of a Special Report. The Global Research Alliance on Agricultural Greenhouse Gases, with 46 member countries, could also be approached to assist with mobilising global expertise.

In relation to the time schedule and costs, we would wish and expect that the IPCC should at its session in October 2015 mandate the new bureau to produce a scoping document for such a Special Report. This scope should be available for a decision in early 2016. The secretariat should also provide details on costs for the production of the report at that time so that Governments can make an informed decision. It is our view that the SR would be progressed in 2016 and aim to be completed in early 2018.

Yours sincerely

John O Neill
Head of Delegation
Government of Ireland

**ANNEX 7**

## JAPAN'S VIEW ON POTENTIAL THEMES FOR SPECIAL REPORTS

Previous Special Reports have played an important role in the IPCC, providing the latest scientific findings to policymakers in the world by supplying information focused on specific topics prior to the publication of the comprehensive assessment report in each assessment cycle. Special Reports within the next assessment cycle should also be based on maintaining appropriate themes and timings.

Special Reports should be prepared in an efficient manner, taking into account the limitations of financial resources and the burden on the authors, as well as avoiding unnecessary duplication. Therefore, the publication should be limited to those truly needed.

The topics of future Special Reports should be selected from areas in which new scientific knowledge has been accumulated after the cut-off date of reference documents for the Fifth Assessment Report (AR5). It would be beneficial to consider the following aspects when taking up each topic for the theme of future Special Reports.

If the Special Report on the Ocean, requested at the 41st Session by the Principality of Monaco, is to be approved, it should have a clear focus, based on scientific advancement and social needs. Notably in recent years, governance for sustainable use of the ocean has been a subject of international attention. Accordingly, research is becoming more transdisciplinary, building upon enhanced knowledge of the ocean's physical, chemical and biological dynamics and reflecting inputs from multiple stakeholders in order to provide a comprehensive understanding of the impacts of anthropogenic activities on ocean systems. In this light, it would be extremely useful for the Special Report to focus on "ocean sustainability", with an aim to acquire knowledge needed to benefit from marine and coastal ecosystem services. Such report could help us better predict, mitigate and adapt to future changes in the ocean and their impacts on human societies and the environment.

Collaboration with relevant international organizations such as UNESCO/IOC, the Global Ocean Observing System (GOOS), Global Climate Observing System (GCOS), Future Earth, the World Climate Research Programme (WCRP) and the Group on Earth Observations (GEO) would be essential in making the proposed Special Report on the Ocean.

If the Panel decides to initiate the process to produce a Special Report on Climate Change, Food and Agriculture, regarding which the experts had a fruitful discussion at the meeting in Dublin at the end of May, further consideration should be carefully given in scoping of the report in order to select meaningful topics and keep the focus of the report from becoming blurred. In terms of structure, the report should discuss mitigation and adaptation in a balanced way.

On equilibrium climate sensitivity (ECS), the AR5 WGI Report found a likely range of 1.5-4.5°C, which is larger than the ECS concluded by the AR4 WGI, and indicated no best estimate. Despite this large uncertainty, the WGIII/Table SPM.1 assumed a value of 3.0°C, and important policy decisions have been made recently based on this value (e.g. G7 Elmau Summit). Given that ECS has wide policy implications, it is desirable to promptly discuss and further analyze, amongst others: the current limitation of future projection due to uncertainty, studies on reducing its uncertainty (such as studies on radiative forcing of aerosols which largely affects this uncertainty) and ways to interpret and have it reflected in long term scenarios.

Considering impacts from climate change are place-and context-specific, and some regions might face more severe impacts than other regions, climate change impacts on especially vulnerable regions could be a theme of future reports. If the Parties agree to produce such a report, cooperation with existing international organizations/networks should be considered to collect scientific data and information in an effective and comprehensive manner.

**ANNEX 8**

**MONACO PROPOSAL: OCEAN AND CLIMATE CHANGE**

## 1. Details of Submitting Official

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## 2. Title of proposed Special Report

**"Ocean and climate change"**

***Background***

As a part of a much larger system, the ocean plays a key role in climate mechanisms. It provides many crucial ecosystem services but, at the same time, numerous inhabitants of the planet are affected by the impacts of climate changes on ocean, particularly those living in coastal areas, in islands and developing countries. As it is facing huge adaptation challenges, particularly in coastal areas, and providing mitigation opportunities, there is an urgent need to update scientific knowledge on the critical roles of the ocean and the associated challenges. This would provide a useful reference point for policy makers and organizations managing global marine issues, particularly marine ecosystems and maritime activities; enabling the implementation of policies that ensure sustainable development of populations and preserve our main legacy.

A Special Report on "Ocean and Climate Change" would, in a cross-working group approach, address for the first time this important component of the Earth System. The Report would integrate and update the assessment of AR5 using the abundant new literature published since the cut-off dates, bringing new information into one place. Moreover, this will accelerate the production of science and will be a stepping stone facilitating the preparation of AR6.

At its 41st session in Nairobi (24-27 February 2015), the IPCC examined the official request put forward by the Government of Monaco for the establishment of a Special Report on the Ocean. Twenty or so countries expressed their opinion during the session, providing their support for a special report on the Ocean. However, several countries requested that further information be provided with regard to the project.

The present proposal addresses this request. It has been produced with the cooperation of numerous experts and scientists including several Coordinating Lead Authors (CLAs) and Lead Authors (LAs) of the 5th Assessment Report.

## 3. Relevance of the topic for climate change

The Ocean stretches across 70% of the earth's surface. It is also a critical part of the whole climate system, driving weather systems, stabilizing global temperature, and regulating atmospheric gas content. It plays a crucial role in life on Earth, through its impacts on terrestrial ecosystems, as well

as the marine ecosystems. Regarding climate change issues, the challenge is not to think of the ocean as its own independent system but as a vital part of a much larger system.
By exchanging huge amounts of heat, water, oxygen and greenhouse gases with the atmosphere, the ocean plays a fundamental role in climate variability across multiple time-scales, as exemplified by its role in the recent warming hiatus. One of the largest limitations in our ability to predict the timing of climate change impacts is linked to our understanding of ocean processes and ocean interactions with other components of the Earth System, such as the atmosphere and cryosphere. An improved and sustained monitoring of the global ocean is, therefore, imperative to the development of future projections of our weather and climate.

It has recently been estimated that the annual "gross marine product" (GMP) – equivalent to a country's annual gross domestic product – is at least US$2.5 trillion; the total "asset" base of the ocean is at least US$24 trillion. Underpinning this value are direct outputs (fishing, aquaculture), services enabled (tourism, education), trade and transportation (coastal and oceanic shipping) and adjacent benefits (carbon sequestration, biotechnology). It is estimated that 3 billion people obtain at least 20% of the protein requirements from the ocean.

The ocean is home to 226,000 described eukaryotic species, including 35 animal phyla, 14 of which are exclusively marine. Marine ecosystems also support livelihoods of people through fisheries, aquaculture, coastal protection, tourism, and related activities. An estimated 3 billion people receive at least 20% of their protein needs from oceanic organisms.

The inertia of the ocean to change is huge, yet IPCC AR5 concluded with high confidence that the current rate of change in ocean temperature and chemistry is the fastest it has ever been in the last 65 million years, if not 300 million years. These changes represent huge challenges to organisms and ecosystems.

An important portion of the Earth's total carbon is also stored in the ocean reservoir. The ocean carbon inventory is more than 60 times larger than the inventory of the preindustrial atmosphere and oceanic processes and thus, dictates the natural $CO_2$ concentration of the atmosphere. Prior to the Industrial Revolution, this reservoir was in a relatively steady state.

The ocean acts as a climate integrator. It has stored more than 90% of the Earth's additional heat resulting from the increased greenhouse effect since the 1970s, offsetting much atmospheric warming but increasing ocean temperature and sea level. It also slows down the greenhouse effect by absorbing about 30% of anthropogenic emissions of carbon dioxide.

This buffering process is not without consequences for the ocean physics, chemistry, life and ecosystem services of the ocean, as well as the whole climate system. The ocean is getting warmer, sea ice is melting, and sea level is rising. Seawater pH decreases due to $CO_2$ absorption and it is less oxygenated due to surface warming and increased stratification.

Such changes in ocean properties have strong impacts on organisms, ecosystems and subsequently people's well-being through effects on fisheries, aquaculture, tourism, and other economic activities associated with the ocean. These changes will also have an on-going impact on the global climate system and, therefore, terrestrial ecosystems and life on earth.

Climate change impacts in the ocean and ocean change impacts on the global climate system will continue to intensify in the 21$^{st}$ century, especially if the future emissions of greenhouse gases continue following "business-as-usual" scenarios. Particularly high risk of impacts are expected for sensitive ecosystems such as coral reefs or Arctic sea-ice systems and for dependent human communities.

Thus, there is an urgent need for mitigation and adaptation measures.

The ocean provides potential mitigation options, which have not yet been explored to any great extent. On technological aspects, solutions have begun to be tested in maritime transport, renewable marine energy and carbon sequestration. Taking into account that the ocean is acting as a carbon sink, nature-based mitigation solutions are also emerging, such as marine protected areas in coastal zones and in the high seas.

Given its importance to the Earth system, as well as the present and projected changes, an advanced and integrated understanding and monitoring of the ocean is required to predict the evolution of our global climate and the effect of climate change in the ocean and its services.

## 4. Relevance of the topic for policy making

The ocean is one of, if not the most important regulator of climate on Earth. Without the ocean's role in making the planet habitable, human life would not be possible. Yet, for most people, the ocean seems too large to be affected by human activities. In addition, even though the ocean provides critical services for all people, including those living far from the coast, the ocean is insufficiently understood and is underrepresented in discussions about climate change policies.

A Special Report would be of considerable interest and relevance to a very wide audience of international organizations and decision-makers.

First, the UNFCCC, whose parties agreed to *"promote and cooperate in the conservation and enhancement, as appropriate, of sinks and reservoirs of all greenhouse gases not controlled by the Montreal Protocol, including biomass, forests and oceans as well as other terrestrial, coastal and marine ecosystems"*, to *"Cooperate in preparing for adaptation to the impacts of climate change; develop and elaborate appropriate and integrated plans for coastal zone management"* and to *"give full consideration to what actions are necessary under the Convention, (…/…) to meet the specific needs and concerns of developing country Parties arising from the adverse effects of climate change and/or the impact of the implementation of response measures, especially on: (a) Small island countries; (b) Countries with low-lying coastal areas; (…/…)"*[1]. Nevertheless, compared to the terrestrial ecosystems, there are few references to the ocean in discussions relating climate change policies.

Many UN bodies are committed to ocean issues related to climate change and could benefit from a report on ocean.

According to its mandate of the UN specialised organisation in oceanography, IOC-UNESCO is compiling the Global Ocean Sciences Report, is the lead agency on the Global Ocean Observing System, and, together with WMO, runs a number of marine services. IOC-UNESCO is also promoting marine spatial planning, coastal zone management, ocean disaster risk reduction (all of which are strongly dependent on climate) and facilitates ocean data exchange, education, capacity development and transfer of marine technology that may help ocean assessments and related adaptation and mitigation.

UNEP and IOC-UNESCO are collaborating with international and local partners to develop ecosystem–based solutions to mitigate and adapt to impacts of climate change. Enhancing sequestration by and reducing emissions of "blue carbon" from carbon-rich coastal ecosystems provide opportunities for addressing mitigation challenges. Ecosystem-based adaptation and disaster risk reduction activities are developed for long-term climate change resilience and adaptive capacity of ecosystems and humans. Many of these activities are undertaken under the auspices of the Regional Seas Programme. A Special Report would help state parties to Regional Sea Conventions to set up new additional Climate Implementing Agreements.

[1] Articles 4. 1. d), 4. 1. e), and 4.8. of the Convention.

Other activities that strive to increase the resilience of marine and coastal ecosystems to the effects of climate change and ocean acidification include the Convention on Biological Diversity (CBD). It facilitates the implementation of the Strategic Plan for Biodiversity 2011-2020 and achievement of Aichi Biodiversity Targets in marine and coastal areas. Especially, target 15, related to *"the contribution of biodiversity to carbon stocks (…/…) thereby contributing to climate mitigation and adaptation"*; target 10, related to minimizing *"the multiple anthropogenic pressures on coral reefs, and other vulnerable ecosystems impacted by climate change or ocean acidification"*

The United Nations Development Programme (UNDP) and the International Maritime Organization (IMO) are cooperating in a global effort to transition the shipping industry towards a lower carbon future, through the GloMEEP project.

The FAO is assisting States to increase the knowledge base on climate change implications for fisheries and aquaculture, and adaptation options relevant to the sector. The FAO and other members of UN-Oceans also participate in the Global Partnership on Climate, Fisheries and Aquaculture (PaCFA). The FAO is also assisting the fisheries sector to understand its own climate footprint and supports the sector in the transition towards energy efficiency and blue carbon potentials.

The post-2015 development agenda and the Sustainable Development Goals (SDG) will be adopted during the United Nations summit in September 2015, in New York. One of these SDGs, Goal 14, aims to *"Conserve and sustainably use the oceans, seas and marine resources for sustainable development"*. A special report on the ocean will be particularly relevant for the implementation of Goal 14.3 which aims to: *"Minimize and address the impacts of ocean acidification, including through enhanced scientific cooperation at all levels"* And Goal 14a which aims to *"Increase scientific knowledge, develop research capacity and transfer marine technology, …in order to improve ocean health and to enhance the contribution of marine biodiversity to the development of developing countries, in particular small island developing States and least developed countries".*

The Report would also enable governments, cities and local authorities in coastal areas, in particular in Small Islands Developing States and Least Developed Countries to implement adaptation activities and proceed confidently in a systematic and well targeted fashion.

It would also provide ocean economy stakeholders (fishing, shipping, tourism, insurance…) with the relevant information to anticipate appropriate steps, on technical and economic aspects facing adaptation and mitigation challenges.

It would identify key knowledge gaps that need to be addressed, helping governmental and private funding institutions to support the observation and science programs to fill those gaps.

At the international level, a Special Report would send a very strong signal, encouraging the international community to continue its efforts to understand the ocean especially in response to climate change impacts and in its good governance and preservation. At regional levels, it would provide very helpful information for policy makers in order to face the huge challenges linked to the impacts of climate change on ocean and coastal areas, and to implement the most accurate adaptation measures.

## 5. Justification of the need for a Special Report

Fundamental large-scale changes have been detected in the ocean, despite the fact that the thermal inertia of the ocean system is extremely large. Despite these changes, most of the literature on climate change has focused on terrestrial and atmospheric questions, with only 5% of the literature being focused on the oceans[2]. Even if this literature is growing fast, there is consequently,

[2] Hoegh-Guldberg and Bruno 2010 (Science).

a great and urgent need to rapidly catch up on our understanding of the ocean's role in climate change and the impacts of climate change on the world's ocean.

An integrated perspective is required to address the immediate need for increased understanding of ocean systems. A Special Report on the ocean should be cross-cutting through the physics, impacts, mitigation and adaptation, rather than following the current structure of the three working groups of the IPCC. It should integrate information and understanding that is currently spread across the three IPCC working groups and at least two other IPCC products[3,4].

The current treatment of the ocean across multiple chapters and products from the IPCC misses the opportunity to treat the ocean as a complete system and understand the associated dynamics. Given the centrality of these dynamics to the evolution of the climate, as well as to mitigation and adaptation options, it is essential that oceans are understood, first as a complete system and not just as a coastal fringing area and, second, as an integral part of a whole climate system.

There has been an exponential growth of literature on climate warming and acidification since the cut-off dates for inclusion in AR5 (starting mid 2012 for WG I). This literature covers peer-reviewed literature, academics' reports and literature that produced by agencies and NGOs. The Report would integrate and update the assessment of AR5 using this literature, bringing new information into one place. Moreover, it would help to prepare and set the stage for AR6.

Since the AR5 there has been significant advances in our understanding of:

a. An overarching picture of climate change in the ocean as well as impacts in the oceans and a wider assessment of risks for natural and human systems. Thus, is a new set of tools that has become available at the end of AR5 that could be used widely for a more detailed and sophisticated assessment of climate change and impacts on the ocean.
b. Clarification regarding ocean heat content and the mechanisms underlying the putative warming hiatus.
c. Ice sheet dynamics and the magnitude of sea level rise, with projections of changes in ocean currents becoming more realistic and prospects for predicting regional sea-level rise and its impacts.
d. Impacts on the thermohaline circulation of the ocean are now being detected, whereas the evidence was equivocal during the IPCC fifth assessment report cycle.
e. Deoxygenation, and the role of oxygen as a dominant climate-change variable affecting deep-sea biodiversity in large oceanic regions.
f. The role of the ocean in modulating tropical cyclones and extratropical storms ocean in climate anomalies.
g. Ocean as a source of climate predictability.
h. The biological carbon pump, especially its microbial component.
i. Impacts of ocean acidification are increasingly better constrained through studies that explicitly consider communities rather than individual, genetic adaptation, and multiple drivers.
j. Harmful algal blooms and related risks to people and ecosystems.
k. How the interactive effects of changes in multiple climate variables such as warming, deoxygenation and ocean acidification, impact ocean natural and human systems.
l. The evolutionary potential in some groups (especially for species with a short generation time such as bacteria and phytoplankton) under climate change and ocean acidification and its implications for ocean ecosystem dynamics.
m. The interaction of climate drivers with other local and regional human impacts such as overfishing, eutrophication and pollution.

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3 IPCC. 2011.Special Report on Renewable Energy Sources and Climate Change Mitigation.: - Ottmar Edenhofer, Ramón Pichs-Madruga, Youba Sokona, Kristin Seyboth, Patrick Matschoss, Susanne Kadner, Timm Zwickel, Patrick Eickemeier, Gerrit Hansen, Steffen Schloemer, Christoph von Stechow (Eds.) Cambridge University Press, 1075 pp.

4 IPCC, 2005 Special Report on Carbon Dioxide Capture and Storage. - Bert Metz, Ogunlade Davidson, Heleen de Coninck, Manuela Loos and Leo Meyer (Eds.)Cambridge University Press, UK. 431 pp.

n. Characterization and valuation of ecosystem services in the context of climate change, with specific relevance to ecosystem-based adaptation.
o. The economic impact of climate change on sectors of key human interest, as well its implications for food security. A detailed analysis of regional issues now becomes possible.
p. The potential for regulation/engineering and mitigation involving the oceans, more so than represented in AR5.
q. Nature-based solutions for mitigation and adaptation.
r. The specific efficacy of mitigation measures, such as atmospheric $CO_2$ removal, for addressing ocean climate change issues.

In the AR5, there was a great improvement from AR4, with several chapters in WGI and WGII dedicated to the ocean (none in the WG III), and several others in which some ocean issues are addressed. But at the same time, these chapters have paved the way and illustrated the need for more detailed information according to relevant sectors and regional issues as well as associated human interests in the riparian countries, which a Special Report on ocean would provide.
Hence, there are key gaps in important issues that are critical to address to enable the discussion about impacts, mitigation and adaptation. A Special Report would address important topics such as:

a. The roles of the oceans and ocean currents in global and regional climate regulation.
b. The climate-induced changes in upwelling systems need to be clarified, due to their importance for regional climate and ocean productivity.
c. The extent and impact of deoxygenation and stratification.
d. Sea level rise at a regional scale.
e. Changes and implications of ocean circulation changes, particularly changes to the thermohaline circulation and its consequences.
f. The information provided by the paleo record on climate variations and their impacts on the ocean.
g. The extent and impact of climate change in deep sea ecosystems.
h. Projections of biodiversity changes, abundance and distribution, in fisheries productivity and associated food security, including changes in ocean primary productivity.
i. The physiological mechanism underlying tolerance of organisms and the role of genetic processes in setting and limiting the capacity of organisms to adapt to climate change.
j. The need to detail quantitative knowledge for individual sectors in the ocean and to develop commonly agreed approaches to accomplish quantitative projections (e.g. fisheries and aquaculture productivity).
k. The need to identify and quantify the role of climate change-related processes on small islands.
l. Assessments of global aspects of ecosystem services, and economic sectors associated with the oceans.
m. Methods and technologies to assess the regional ocean carbon sinks that some countries "may propose" to include in their INDCs, as they do for forests.
n. The assessment of human adaptation strategies.
o. An understanding of how to better structure policy and legislative frameworks in order to drive adaptation as well as mitigation actions within the ocean.
p. How natural oceanic process that play a regulatory role in global climate can be used in mitigation approaches and diverse strategies of climate engineering.

An important part of the Special Report should be firmly focused on regional changes to help guide a better understanding of vulnerability, especially in islands and costals areas, as well as the adaptation and policy development opportunities. This would provide critical regional information that was omitted from AR5 due to the capacity constraints of producing such an overarching report.

The Special Report is expected to be complementary and contribute greatly to other international assessments under the above policy context, such as the Global Environmental Outlook 6 (GEO6) and the Global Biodiversity Outlook 5 (GBO5).

The World Ocean Assessment (WOA) which is to be discussed by the General Assembly of the UN in September 2015 and published by the end of 2015 under the auspices of the UNGA aims to provide a *"Global Reporting and Assessment of the State of the Marine Environment, including Socioeconomic Aspects"*. In this report, among 45 chapters, only two chapters (the 5th on the Water Cycle and 6th – on Sea/air interactions) will be dedicated to climate, and it will be *"draw heavily on the work of Intergovernmental Panel on Climate Change"*[3]. In this case, the WOA will provide information from the AR5 and would not overlap a Special Report on ocean.

Finally, the proposed Special Report is consistent with the IPCC framework and criteria for establishing priorities for IPCC reports[4]. By undertaking this Report, *"IPCC would strive to serve the policy community (UNFCCC and other) with relevant information in a pro-active fashion".* There is "*relevance of the subject for policy considerations including methodologies and other inputs for decision-making",* and there is both *"availability of sufficient scientific literature"* and *"experts".*

## 6. Key issues proposed to be addressed in the Special Report

A Scoping Group would be tasked to fully develop an outline for the Special Report. At this stage, without prejudging the scoping process, here are some issues to be addressed in the Special report:

**Global Ocean,** a transversal overview of the major issues, including:

1. Ocean heat content and transport, ocean currents and sea level, ice sheet dynamics, upwelling systems. Climate regulation, Coastal dynamics and land sea exchange.
2. Ocean carbon uptake, ocean biogeochemistry including response to warming, acidification and oxygen loss and potential mitigation strategies, interactions of climate with regional human drivers.
3. Impacts on and adaptation of ecosystems, changes in biodiversity, invasive species, conservation issues, harmful algal blooms, shifts in ecosystem function: Comparison of physical/biological subregions.
4. Food-webs, fisheries, aquaculture and food security.
5. Developing more effective policy frameworks and cooperation at international level,
6. Global economic aspects (open ocean beyond national jurisdiction, deep sea mining, transportation, sea routes, international law, and finances).
7. Mitigation and adaptation aspects both in coastal areas - especially in islands - and in the high seas (blue carbon, nature based solutions/MPAs, marine renewable energy, marine transport, carbon dioxide capture and storage).

**Regional Oceans: there are** several possible options to regionally divide the ocean, each with its own pros and cons.

- **Regional human-interest zones**: Atlantic (North and South), Pacific (North and South), Indian Ocean, Polar Oceans (Arctic and Antarctic), Coral triangle and Caribbean, Semi-enclosed seas (Baltic, White Sea, Mediterranean, Black Sea, Red Sea, possibly others), and the Deep Sea.

[3] See : « Regular process for global reporting and assessment of the state of the marine environment, including socio-economic aspects ; ANNEX C : Possible outline for a global integrated assessment of the state of the marine environment,including socio-economic aspects »

[4] IPCC, 29th Session, 2008. DECISION FRAMEWORK FOR SPECIAL REPORTS, METHODOLOGY REPORTS AND TECHNICAL PAPERS

- **Physical/biological regions (as previously adopted for AR5):** High-Latitude Spring Bloom Systems (HLSBS), Semi-Enclosed Seas (SES), Coastal Boundary Systems (CBS), Eastern Boundary Upwelling Ecosystems (EBUE), Subtropical Gyres (STG), Deep Sea (DS; >1000 m).

Within each region, the following issues would be addressed:

a. Projected physical and chemical drivers of change:
   - Changes in ocean heat content and the reasons behind the warming hiatus.
   - Changes in ocean chemistry: salinity, acidification, deoxygenation.
   - Changes in ocean structure: stratification, mixing, circulation and ocean-atmosphere interactions.
   - Regional scale sea level rise and its implications.

b. Threats and impact factors of physical and chemical changes to populations, ecosystems, economies:
   - Current impacts of multiple human stressors, (e.g. low pH, low oxygen, changes to physical structure, changes to environmental extremes, reduced food supply), on ecosystems at the habitat scale.
   - Projection of future impacts on marine biodiversity, ecosystems and ecosystem services such as fisheries, and quantification of their risks of impacts.
   - Identify key regional vulnerabilities and potential for biological adaptation.
   - Interactions between non-climate factors and those associated with climate change.
   - Importance of understanding cumulative stress across multiple factors.

c. Outline and assess policy options for mitigation and adaptation potential both in coastal areas and the high seas:
   - Coastal and open ocean carbon (mangrove, seagrass, plankton).
   - Renewable energies, desalination, geoengineering.
   - Establishment of MPAs and reduction of local stressors.
   - Genetic manipulation of population and community tolerance.
   - Adaptation potential, (e.g., changes to infrastructure, stakeholder practices and potential relocation options).

d. Policy development and international collaboration:
   - Existing intervention points.
   - Drivers of international collaboration.
   - Legislation and policy frameworks.
   - Industry and public-private partnerships.

## 7. Potential Partner Organizations

A large number of organizations involved in research and information efforts concerning climate and the ocean could take part in this initiative, in particular: IOC-UNESCO, IAEA, WMO, WCRP, SCOR, Future Earth, IUCN, and national research institutes.

## 8. Time schedule

Proposed timeline

| | |
|---|---|
| October 2015/<br>1st quarter 2016 | Decision by IPCC plenary for a scoping meeting on the Special Report |
| 1st half 2016 | Scoping workshop for the Special Report in Monaco |
| 2016 | Approval of scoping paper by plenary |
| 2016 | Selection of authors by the IPCC Bureau |

| | |
|---|---|
| 2016 | First lead authors meeting |
| 2017 | First draft, expert review |
| 2017/18 | Expert and Government review |
| 1st half 2018 | Approval by plenary |

## 9. Budget estimates

An accurate budget cannot be established at this stage. It could be adjusted once the scoping group meeting has developed an outline of the Report and specified the number of CLAs, LAs and other contributors to be involved in producing this Report.

## 10. Possible donors

- The Government of Monaco proposes to host the meeting of the Scoping Group which would be held in 2016.

- The Prince Albert II of Monaco Foundation places particular importance on lending support to young researchers from developing countries and this is the reason why, in partnership with the Cuomo Foundation, it has backed the IPCC Scholarship Program since 2011. For the same reason the Foundation is offering to support financially a part of the expenses of researchers from developing countries as part of their contribution to the Special Report.

- The Prince Albert II of Monaco Foundation would also prompt other private foundations to support part of the costs to produce, print and distribute this Report.

**ANNEX 9**

**NETHERLANDS PROPOSAL: CARBON PRICING**

**Details of Submitting Official**

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**Title of proposed Special Report**

Carbon Pricing

**Relevance of the topic for climate change**

Carbon pricing in various forms is a much-used instrument for climate policy and can play a role in achieving transformative change in climate-relevant sectors such as energy and transportation. It is used on the international level (in the Kyoto Protocol for instance), domestically, at the subnational level and in companies.

**Relevance of the topic for policy making**

At the moment, numerous countries, regions, cities and companies are implementing or considering carbon trading schemes. At the recent UN Secretary General's meeting on climate change action in September 2014, a Carbon Pricing Initiative attracted more than a hundred signatures. Carbon pricing is a potential part of the ADP Workstream 2 discussions in the UNFCCC. Various institutions are providing support for carbon pricing, for instance in the World Bank's Partnership on Market Readiness.

**Justification of the need for a Special Report**

There is a wealth of literature from different disciplines on carbon pricing, varying from critical to supportive. Economics, political science, business administration, finance, public affairs, international relations and environmental sciences are among the most prominent disciplines. However, carbon pricing also crosses disciplines; it plays a role in the energy and emissions modelling literature, in game theory, and in behavioural science, to name but a few. Given that carbon pricing in various forms has been operational for some 15 years now, empirical literature is also amply available.

Notwithstanding this wealth of information and the demand for a rigorous and reliable assessment, an overall, balanced assessment is lacking. It got sparse assessment in the AR5. It is therefore suggested that the IPCC Panel requests that IPCC WGIII prepares a Special Report on Carbon Pricing.

**Key issues proposed to be addressed in the Special Report**

There is a wealth of literature from different disciplines on carbon pricing, varying from critical to supportive. Economics, political science, business administration, finance, public affairs, international relations and environmental sciences are among the most prominent disciplines.

However, carbon pricing also crosses disciplines; it plays a role in the energy and emissions modelling literature, in game theory, and in behavioural science, to name but a few. Given that carbon pricing in various forms has been operational for some 15 years now, empirical literature is also amply available.

Various actors have become involved in carbon pricing: of course, states and regulatory agencies, but also financial institutions, project developers, NGOs, certification companies and manufacturing industries. Businesses seeking legitimation for climate action are explicitly asking for a carbon price.

Topics may include:

- Review of carbon pricing initiatives: carbon taxes, emissions trading schemes, shadow prices, sector- or economy-wide trading schemes and project-based mechanisms.
- Criticism, e.g.: ease of implementation, political feasibility, distributional effects and functionality.
- Conditions under which carbon pricing can be an effective climate policy tool
- Impacts of various forms of carbon pricing on sustainable development, technology transfer and transformational change
- Linking and harmonisation of carbon pricing schemes

**Potential Partner Organizations**

World Bank
ICAP
IETA
UNFCCC

**Time schedule**

Finalization by October 2018

**Budget estimates**

PM

**Possible donors**

PM

**ANNEX 10**

**SAUDI ARABIA PROPOSAL: SPECIAL REPORT ON DESERTIFICATION WITH REGIONAL ASPECTS**

**Details of Submitting Official**

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**Title of proposed Special Report**

Special Report on Desertification with Regional Aspects

**Relevance of the topic for climate change**

Desertification is a change in the soil properties, and vegetation which result in a persistent loss of ecosystems that are fundamental to sustaining life (Ouda, 2013). Due to the land degradation and increasing population, the desertification has been a severe stress on the population. Desertification is commonly understood as the loss of biodiversity and its services. This loss reduces carbon sequestration capacity thus contributing to climate change. Moreover, climate change itself may increase desertification. Therefore, whether cause or result, desertification is related to climate change. As such, efforts to address desertification should contribute to minimize the adverse impacts of climate change.

Desertification is a global phenomenon with wide implications on the global population. Nevertheless, desertification finds its origins in dry land regions, primarily in Africa and Asia, where its most severe impacts are experienced. Therefore, a regional approach is key to addressing to desertification.

**Relevance of the topic for policy making**

The Intergovernmental Panel on Climate Change (IPCC) predicts that the arid and semi-arid areas will expand between 5 and 8% under a range of future climate scenarios (IPCC, 2007). Climatic changes are both a consequence and a cause of desertification. The destruction of natural grass and woody vegetation cover in dry areas affects the top soil temperature and air humidity, and consequently influences the movements of atmospheric masses and rainfall. Furthermore, the drying of the soils and the destruction of soil cover encourage wind erosion. Even though the cycles of drought years and climatic changes can contribute to the advance of desertification, it is mainly caused by changes in the ways man uses the natural resources, mainly by overgrazing, land clearance, over-cropping and cultivation of marginal lands and uprooting of woody plants, and more generally using land in a way that is inappropriate for the local conditions. A substantial amount of carbon stored in the vegetation in the dry zones, averaging about 30 ton/ha/year, declines when the vegetation is depleted or disappears. Furthermore, carbon-rich soils, which are frequently found in dry zones, store an important amount of carbon (practically half the total quantity of carbon is stored in the organic matter in soil). The destruction of these soils has a very powerful effect on the carbon cycle and boosts the greenhouse effect as a result of the depletion of carbon.

Climate change coupled with demographic growth will profoundly affect the availability and quality of water resources. Acceleration in the hydrological cycle will likely make droughts longer and rainfall events more variable and intense, raising probabilities of flooding and desertification. Over-extraction of groundwater aquifers and their contamination, salinization of agricultural land, and urban water shortages have put pressure on decision-maker in policy reforms in vulnerable regions and developing countries (Sowers, 2010).

Desertification negatively impacts the health and well being of dry land populations. Dust storms and water scarcity are among the factors contributing to these negative impacts. Proactive land and water management awareness and policies can help minimize these impacts and allow affected populations to cope with desertification. Doing so will also help alleviate pressures on other regions brought about by migration of affected populations that will further strain other ecosystems.

**Justification of the need for a Special Report**

Desertification ranks among today's greatest environmental challenges with clear social and economic consequences involving dry land populations and beyond. These challenges have been growing rapidly along with their consequences. Addressing these challenges has been hampered by information gaps in some regions.

The negative impacts of desertification are experienced regionally as well as globally. However, the scale of assessments is usually too large to effectively capture regional aspects where the impacts of desertification are most severe.

**Key issues proposed to be addressed in the Special Report**

1. Environmental impacts of desertification.
2. Adaptation to climate change and desertification.
3. Mitigation co-benefits.
4. Climate change linkages with water resources, drought and desertification.
5. Economic and social consequences of desertification.
6. Policies to combat desertification.
7. Modeling and climate scenarios.

**Potential Partner Organizations**

1. United Nations Convention to Combat Desertification (UNCCD)
2. The Convention on Biological Diversity (CBD)
3. United Nations Environmental Program
4. Related academic and research institutes

**Time schedule**

| |
|---|
| 2 to 3 years. |

**Budget estimates**

| |
|---|
| Approximately CHF 500,000. |

**Possible donors**

| |
|---|
| 1. Governments<br>2. Private sector |

References:

IPCC. (2007). Climate Change 2007—The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the IPCC. Cambridge University Press.

Ouda, O. K. (2013). Water demand versus supply in Saudi Arabia: Current and Future challenges. *International Journal of Water Resources Development*,. **DOI:**10.1080/07900627.2013.837363

Sowers, e. a. (2010). Climate change, water resources, and the politics of adaptation in the Middle East and North Africa. Climate Change , 104:599–627 DOI 10.1007/s10584-010-9835-4

**ANNEX 11**

**SOUTH AFRICA PROPOSAL: SPECIAL REPORT ON ADAPTATION COSTS IN DEVELOPING COUNTRIES**

**Details of Submitting Official**

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**Title of proposed Special Report**

Special report on adaptation costs in developing countries

**Relevance of the topic for climate change**

Developing countries are particularly vulnerable to the impacts of future climate change, due to their relatively low adaptive capacity. In order to sustain and further economic growth within these countries, it is crucial to estimate the costs their economies are to incur with respect to adapting to climate change and from the direct impacts of extreme weather events under climate change. These combined costs will be referred to as “adaptation costs” in the remainder of this proposal. Future adaptation costs are directly linked to mitigation policies and in particular the success or failure in reaching the Long Term Global Goal (LTGG) of the UNFCCC (this is currently set to keep the global increase in surface temperatures below 2 °C, compared to pre-industrial temperatures). It is important for adaptation costs to be estimated for both low and high mitigation futures. In this regard, obtaining estimates for 1 °C, 2 °C, 3 °C and 4 °C worlds will be of most value for planning and to access the suitability of the LTGG for developing countries.

**Relevance of the topic for policy making**

Adaptive capacity is relatively low in developing countries, yet significant investments are most likely needed to harness their economies against the impacts of future climate change. It is therefore of crucial importance for these countries to obtain plausible estimates of adaptation costs for both low and high mitigation futures, in order to identify the relevant adaptation gaps and to obtain the required international funding to implement adequate adaptation strategies. In addition to this, particularly for the case of low mitigation futures, it should be taken into account that no adaptation strategy can fully prepare countries (even developed countries) against the expected increased impact of extreme weather events (e.g. tropical cyclones, wide-spread drought). As a consequence, the changing economic costs of such events under climate change also need to be estimated. The estimation of adaptation costs is therefore a problem in climate science and econometrics that is central to global climate change policies of the UNFCCC, including the

suitability of LTGG and the Global Goal on Adaptation (GGA) for developing countries. Moreover, it is of direct relevance for the realistic formulation of the Adaptation Intended Nationally Determined Contributions (A-INDCs) of developing countries.

**Justification of the need for a Special Report**

As motivated in the sections above there is a clear and urgent need for realistic estimates of the adaptation costs in developing countries, to inform on the extent of the adaptation gap and the acquisition of international funding to harness developing economies (to the largest extent possible) against the future impacts of climate change. This requires for a significant body of knowledge to be generated and presented under the auspices of an IPCC Special Report. Firstly, a comprehensive description of the latest insights into future climate change over developing countries is needed, including detailed projections of future changes in the frequency of occurrence and intensity of extreme (high-impact) weather events (with associated uncertainty estimates). Secondly, it is necessary to systematically document the different methodologies available to calculate adaptation costs for developing countries. This requires the analysis of available data on the existing costs of extreme events, as well as integrated assessment modelling approaches of various degrees of complexity, to estimate the efficiency of adaptation investments to reduce future costs of extreme events. This includes estimating the direct and indirect (downstream) costs of future high-impact weather events for both low and high-mitigation futures.

Although AR5 and presumably also AR6 does/will provide an analysis of the projected future changes in extreme events over developing countries, there is very little information available on the quantification of adaptation costs for these countries. Moreover, there is currently no clear guidance on coordinating and internationally standardizing of methodologies used to calculate the adaptation costs. This presents a clear case for an IPCC Special Report, to fill this void that is so crucial to develop and evaluate both international (e.g. LTGG and GGA) and national (A-INDCs) climate change policies.

**Key issues proposed to be addressed in the Special Report**

- A comprehensive analysis of projected changes in extreme and high-impact weather events affecting developing countries, using the latest available high-resolution regional climate model projections is combination with CMIP6 global model projections.
- The systematic description of the different methodologies available to calculate adaptation costs in developing countries. This will include an analysis of the present-day costs associated with climate variability and extreme events from observed data, and the discussion of integrated-assessment modelling approaches of various degrees of complexity, which can be used to calculate adaptation costs.
- Probabilistic estimates of adaptation costs for developing countries, on a

national/regional level, based on the latest projections of future climate change in combination with adaptation cost estimation-methodologies. These projections should be presented for both low and high mitigation futures, and for various global temperature worlds, e.g. 1 °C, 2 °C (LTGG), 3 °C and 4 °C worlds.

- An analysis of the implication of the projected costs in terms of the adaptation gap and the LTGG and GGA for developing countries.
- Guidelines on how transparency of adaptation support for developing countries can be improved

**Potential Partner Organizations**

CSIR Natural Resources and the Environment (proposer)

**Time schedule**

All the special reports should be completed by 2017/18

**Budget estimates**

IPCC Secretariat / TSU to advise

**Possible donors**

IPCC Secretariat / TSU to advise

**ANNEX 12**

**SOUTH AFRICA PROPOSAL: SPECIAL REPORT ON ANTARCTIC / SOUTHERN OCEAN REGION**

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**Title of proposed Special Report**

Special Report on Antarctic / Southern Ocean region

**Relevance of the topic for climate change**

The Antarctic / Southern Ocean region is key for both global and regional climate through its role in bottom water formation, carbon sequestration, and the mid- to high latitude atmospheric and ocean circulation of the Southern Hemisphere. It is also a region of high biodiversity, unique on the planet. The gradients in surface fluxes set up by the distribution of sea and land ice, and the topography of the continent are fundamental for driving this circulation as well as the weather systems that directly impact on southern Africa, Australia and South America. The Southern Ocean is thought to play a key role in the take up of carbon dioxide from the atmosphere. Another motivation for focusing on the Antarctic is that the climate change signals here are more complex than those observed to date in the Arctic and the region is less well understood than that of the north polar region.

**Relevance of the topic for policy making**

In addition to its importance for the global climate system, as the only uninhabited continent, there is an international responsibility to maintain the pristine environment and fragile ecosystems of the Antarctic and the neighboring Southern Ocean. While there are international treaties concerning human activities on the continent itself, the Southern Ocean is far less protected. Many areas of the Southern Ocean experience substantial fishing pressure from numerous countries which may be unsustainable for the long term health of the ecosystem. In addition, there are areas which may be exploited for oil and gas extraction as well as mining of the sea floor. AR5 projected that the Antarctic and Southern Ocean are regions of high impact under climate change in the coming decades. The impacts of such change, as well as that of climate modes (e.g., ENSO and the Southern Annular Mode) in the region, motivates the need for sensitive and carefully considered international policy regarding the Antarctic.

**Justification of the need for a Special Report**

Many aspects of the regional climate in the Antarctic / Southern Ocean and their interactions with the global climate system remain poorly understood. Existing climate models used in AR5 do not capture all the salient details of sea-ice formation / melt, ice sheet – ocean interactions, iceberg calving, water mass formation on the shelves and the subsequent sinking to form deep and bottom water masses, frontal zones in the Southern Ocean, katabatic winds and their impacts on the shelf ice and water, air-sea-ice flux exchanges, polar lows and mesoscale weather systems, cryospheric processes on the continent etc.

Although the observational data base in the Southern Ocean is being improved with the increasing deployment of Argo floats on an operational basis and with gliders, CPIES and other instrumentation through dedicated research cruises, these data are still insufficient to adequately test regional models. Assessing the ongoing improvements in model and observational capacity and our ability to detect and attribute climate signals in the Antarctic requires the need for a special report

**Key issues proposed to be addressed in the Special Report**

The key issues that should be addressed include:

- Improvements to the observing system (consultation with SOOS and national plans)
- Ability to detect and attribute climate change in the Antarctic and Southern Ocean
- Evaluation of the capacity of climate and earth system models to represent the essential components of the regional climate and their interactions with each other as well as with the global climate system
- Ability to reduce uncertainty in climate change projections for the region
- Regional impacts and change concerning sea level, Antarctic ice sheets, glaciers, sea-ice extent and volume, polynyas, iceberg processes, regional atmospheric circulation, katabatic winds, cyclone / anticyclone track and intensity over the Southern Ocean, Antarctic Bottom Water, Antarctic Intermediate Water, Antarctic Shelf Water, sub-Antarctic Mode Water, ocean heat content, Antarctic Circumpolar Current and regional gyres, Southern Ocean frontal zones, carbon and other biogeochemical cycling, surface gas exchange, ocean acidification etc.

**Potential Partner Organizations**

IPCC Secretariat/TSU to Advice

**Time schedule**

TSU to Advice

**Budget estimates**

| |
|---|
| IPCC Secretariat/TSU to Advice |

**Possible donors**

| |
|---|
| IPCC Secretariat TSU to Advice |

**ANNEX 13**

**SOUTH AFRICA PROPOSAL: SPECIAL REPORT ON MANAGING THE DIVERSITY AND CONTRADICTIONS OF CLIMATE CHANGE DATA AND INFORMATION**

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**Title of proposed Special Report**

Special report on managing the diversity and contradictions of climate change data and information

**Relevance of the topic for climate change**

Climate data exists in some countries. However, this information is not availed internationally, incorporated into national/regional development planning or in disaster reduction strategies. Limited human resource to produce, analyze and interpret and disseminate climate data as a result of poor investment into scientific research on climate change impacts, adaptation, and mitigation; biodiversity and ecosystems; and weak governance and surveillance of natural resources especially forests weaken the region's capacity to adapt to climate change.

**Relevance of the topic for policy making**

For developing nations interests especially, there is a critical need for a special report on managing the diversity and contradictions of climate change data and information (deliberately splitting those two terms, as they are not equivalent) in relation to the specific scales of decision making, risk management, and IAV assessment (e.g. cities, water catchments, agriculture regions, etc.). At these scales the availably information is, in many cases, nearly useless, and presents a challenge that I colloquially call a "data distillation dilemma" faced by users.

**Justification of the need for a Special Report**

The Inability of policy makers to solve sub Saharan food insecurity problems has been linked to be the core reason as to why the region fails to achieve food security with food emergency cases more than tripling since 1980s despite the fact that the region sees some of the countries growth taking upward trajectories (UNCEA, 2013). Climate change and poorly developed agriculture only make the acute problem worse. Habtzion (2009) cites limited capacity of LDC's to employ tools and methods designed by UNFCCC process to access, understand, and apply climate data to design relevant adaptation policies legislations and strategic pathways.

**Key issues proposed to be addressed in the Special Report**

The upcoming 2015 TGICA Expert meeting on how to use climate information to support adaptation/climate risk management, and the WG1 proposed expert meeting on using regional climate projections in impacts and risk analysis studies. These meetings, supported by the emerging grand challenges foci of the WCRP, establish the pressing need to comprehensively assess the value and usability of regional projections at scales of relevance to decision makers -- an assessment that would hugely benefit from a special report early on in the assessment cycle.

Consequently policy and governance constraints continue to devastate Africa's rich biodiversity and vast natural resources. Decisive confrontation of underlying governance issues with the envisioned future in mind. Policy that is inclusive, sound and directional is required to address the linkages that limit growth and development, environmental issues and climate change (UNEP, 2007).

**Potential Partner Organizations**

The world Bank

International Monetary Fund

**Time schedule**

TSU to advice

**Budget estimates**

TSU to advice

**Possible donors**

The world Bank

International Monetary Fund

**ANNEX 14**

**SPAIN PROPOSAL: OCEANS AND CLIMATE CHANGE – SPECIAL REPORT ON EVIDENCES, IMPACTS AND ADAPTATION TO THE CLIMATE CHANGE OF THE OCEANS**

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**Title of proposed Special Report**

**OCEANS AND CLIMATE CHANGE: Special Report on the evidences, impacts and adaptation to the climate change of the Oceans.**

**Relevance of the topic for climate change**

Oceans tend to mitigate climate change by storing large amounts of carbon dioxide in both the water column and the sediments. However, as a consequence of this process, its chemistry is changing at very rapid pace making water masses more acidic and, as consequence, altering the biodiversity, structure and functioning of marine ecosystems. About 25% of the greenhouse gases emitted to the earth atmosphere from the beginning of the industrial era have been absorbed by the oceans. The constant acidification of the oceans has reduced 30% their ability to absorb more GHGs. This reduction is expected to be 80% by the end of this century.

From the physical point of view, there are scientific evidences that sea level, the heat stored by the ocean, sea surface temperature and ocean acidity have increased during the last decades. The impact of these effects on the ecology of marine species and ecosystems is without any doubt unprecedented in the recent history of earth.

**Relevance of the topic for policy making**

The development and implementation of adaptation strategies is one of the major chores of policy makers regarding climate change. Dealing with the impacts of climate change in the oceans is an issue of particular relevance worldwide and an advanced understanding of these impacts and the different options to handle them is needed everywhere.

The effects of climate change on the oceans imply impacts con coastlines, fisheries, biodiversity and many other sectors, but they can also alter the role of the oceans in the mitigation of climate change itself and thus affect mitigation policies as well as adaptation strategies.

**Justification of the need for a Special Report**

Oceans cover about 70% of the Earth's surface. They influence the weather from local to global scales, and are also impacted by climate change. Approximately 40% of the world population lives within 60km near the coastline and this number is expected to continue increasing. The economy of hundreds of countries depends on the oceans (for 1000 millions of persons, fish is the main protein source; and 150 millions of jobs depend on fishing (FAO 2005)). The physical, chemical and biological alterations to which 75% of the area of our planet is been forced would lead to future scenarios, not easily predictable, that would justify by themselves the preparation of a Special Report on the evidences, impacts and adaptation to the climate change of the Oceans.

**Key issues proposed to be addressed in the Special Report**

- Analysis of trends for climate change in the ocean.
- Physical, chemical and biological evidences of the impacts of climate change on the oceans with particular attention to the effects of changes in ocean circulation, vertical mixing patterns, ocean warming, ocean acidification and alteration of marine biodiversity, species distribution and food web dynamics.
- Strategy of adaptation to climate change; mitigation
- Unknown issues that should be tackled and their prioritization

**Potential Partner Organizations**

Several Spanish research institutions address the investigation of climate change in the oceans: the two main marine research institutions in the country, the Spanish Oceanographic Institute (*Instituto Español de Oceanografía, IEO, www.ieo.es/en/home*) and the Higher Spanish Research Council (*Consejo Superior de Investigaciones Científicas, CSIC, www.csic.es/home*), a number of universities organized around Campus of International Excellence as well as a number of government departments such as our national port authority (*Puertos del Estado, www.puertos.es/en-us/Pages/default.aspx*) have a consolidated reputation as promoters of high quality research in this area.

One of the Spanish Campuses of International Excellence, *Campus do Mar* (*campusdomar.es/?lang=en*), aggregates several of the above mentioned organizations. Led by the University of Vigo and promoted by the three Galician universities, the Spanish Oceanographic Institute (IEO) and the Higher Spanish Research Council (CSIC), Campus do Mar aims at bringing together the socio-economic agents and marine researchers from the Galicia-Northern Portugal Euroregion, in order to harness the best possible potential and optimize the available resources. It sets out to energize a cross-border network comprised of research, teaching and technology transfer units, with a view to training the best professionals and researchers in the field of Marine Science, in its different economic and social aspects, and thus generate quality research and international impact, in order to provide the industry with the best tools for competing on a global scale. Research in Campus do Mar is organized around four main research clusters where the critical mass of investigators is high enough as to be competitive at the global scale. One of these clusters is “Ocean Observation and Global Change” a cluster deeply involved in the study of climate change in the ocean, as manifested in its strategic plan (see *campusdomar.es/investiga-en-campus-do-mar/?lang=en*).

Campus do Mar is the leading organization of the Spanish network of marine-related Campus of International Excellence (*www.ceimar.net*), formed also by the *Campus CEIMAR* led by the *University of Cadiz* (*www.campusdelmar.es*), *Campus Atlántico*, led by the *University of Las Palmas de Gran Canaria* (*www.ceicanarias.com*) and *Campus Mare Nostrum* led by the *University of Murcia* (*www.campusmarenostrum.es*).

**Time schedule**

One-year to elaborate it and present the main conclusions to the community, plus half a year to edit the final version.

**Budget estimates**

**Possible donors**

**ANNEX 15**

**UK PROPOSAL: UPDATE OF KEY POLICY-RELEVANT MESSAGES IN AR5 IN SUPPORT OF REVIEW AND ASSESSMENT PROCEDURES IN NEW UNFCCC AGREEMENT**

**Details of Submitting Official**

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**Title of proposed Special Report**

Update of key policy-relevant messages in AR5 in support of review and assessment procedures in new UNFCCC agreement

**Relevance of the topic for climate change**

Climate change presents a unique set of challenges due to its global scope, its long-term implications, the complexity of the climate system and the breadth of the expected impacts. As set out in Article 2, the ultimate aim of the UNFCCC is the stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. To ensure that international action to tackle climate change is consistent with this aim, it is essential that targets are informed by the best available scientific, technical and socio-economic knowledge on climate change, its causes, potential impacts and response. This report would provide the latest scientific consensus on a range of cross-cutting, policy-relevant issues, synthesizing and distilling information from across all three Working Groups to provide an update to the key messages in the AR5 Synthesis Report. As such the proposed topic is relevant to all aspects of climate change from observations, climate projections and impacts through to adaptation and mitigation.

**Relevance of the topic for policy making**

One of the key roles of the IPCC is to provide objective scientific and technical advice to the UNFCCC. In a recent Decision (Decision 12/CP.20), the UNFCCC acknowledged that the Fifth Assessment Report provides the scientific foundation for the Ad Hoc Working Group on the Durban Platform for Enhanced Action (ADP) and urged Parties to make use of the information contained in the report in their discussions under all relevant agenda items.
The ADP process is expected to conclude in December 2015 with the adoption of a new political agreement. This agreement is likely to include provisions for the review and assessment of emission reduction commitments and the periodic updating of Nationally Determined Contributions (NDC). It is important that the IPCC continues to provide the scientific foundation for this new phase of work under the UNFCC.

**Justification of the need for a Special Report**

In Nairobi in February 2015, the IPCC decided (Decision IPCC/XLI-4) that it would continue to prepare comprehensive Assessment Reports every 5-7 years. As a result, the Sixth Assessment report is likely to be published over a 12-18 month period between 2020 and 2022. The Panel also agreed that *in determining its future reports and their timing the IPCC will take into account the work of the United Nations Framework Convention on Climate Change (UNFCCC)*.

In order to have most relevance and impact on future decisions on increasing action to tackle climate change, new information needs to be available 1-2 years prior to a decision point. The details of the review and assessment process in the new UNFCCC agreement have not yet been agreed but are likely to include a review around 2020 which would be before the publication of the IPCC 6th Assessment Report.

By 2018, the AR5 will be 4-5 years old and although many messages will remain largely unchanged, some key datasets will require updating and messages revising to reflect the latest scientific consensus. An IPCC Special Report updating, and if necessary augmenting, the main findings from the AR5 Synthesis Report would provide an essential route for the IPCC to deliver the latest scientific consensus relevant to the UNFCCC at the most appropriate time.

**Key issues proposed to be addressed in the Special Report**

Until the details and timing of the review and assessment process in the new UNFCCC agreement have been agreed, it is not possible to set out in detail the proposed content of the Special Report. However, a number of key characteristics can be identified at this stage and these are set out below.

The report would be self-contained and short (no more than 20 pages). It would focus on providing updates where new information takes the science forward. It would not repeat existing messages. The report would provide an update *inter alia* on observed changes and their causes; the relationship between cumulative emissions, temperature change, and projected impact; and on the characteristics of mitigation and adaptation pathways for different levels of future warming.The report should be key part of the delivery of the 6th Assessment Report, integrated into the development of Working Group Reports, not additional to them.

**Potential Partner Organizations**

To be determined

**Time schedule**

**Dependent on timescales agreed in new UNFCCC agreement but likely to be published in 2018/19**

**Budget estimates**

To be determined

**Possible donors**

To be determined

**ANNEX 16**

**USA PROPOSAL: GLOBAL AND REGIONAL CONSEQUENCES OF CHANGES TO THE FROZEN WORLD**

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**Title of proposed Special Report**

Global and Regional Consequences of Changes to the Frozen World

**Relevance of the topic for climate change**

Earth's cryosphere (i.e., its "frozen world") is being dramatically affected by climate change. Prominent changes include the loss of sea ice and land ice (glaciers and ice sheets), reductions in snow cover, and the warming and thawing of permafrost. These changes have numerous impacts both globally and locally.

At the global level, known and hypothesized consequences of a changing cryosphere include (but are certainly not limited to): (1) increases in atmospheric GHGs from the permafrost-carbon feedback; (2) accelerated heat absorption from reduced albedo due to snow and ice melt and retreat; (3) rising sea levels from land-ice loss; (4) potential disruption of mid- and low-latitude weather patterns from shifts in the jet stream induced by polar changes; (5) feedbacks between cryospheric change and the local physical and biogeochemical responses that result in rapid changes in the polar regions; and (6) feedbacks between the polar region and global climate through cryosphere impacts on polar/extra-polar interactions.

Permafrost thaw not only threatens the release of massive amounts of carbon dioxide and methane into the atmosphere, but also has potentially dramatic impacts on human infrastructure (e.g., roads, pipelines, buildings), and threatens coastal villages because of accelerated coastal erosion and, more globally, because of rising sea levels. Declining snowpack and glacial ice threatens freshwater supplies "downstream" from the cryosphere, including those used for drinking water and hydropower in many places, while also exacerbating the threats posed by drought and other water-related issues.

In addition, huge amounts of methane are stored around the world in the sea floor (and many lake bottoms) in the form of solid methane hydrates. While these hydrates represent a large lower-carbon energy reserve that could be tapped, climate warming, could cause the hydrates to destabilize. As a result, methane would escape unused into the atmosphere and could accelerate climate change.

While Chapter 4 (Observations: Cryosphere) and Chapter 13 (Sea Level Change) of the WGI report and Chapter 28 (Polar Regions) of the WGII report of the AR5 provided a robust, traditional assessment of some of these issues, a cross-cutting look at how cryospheric changes (not just polar, but worldwide) affect ecosystems and societies around the world, including implications for transformation pathways, energy systems and agriculture (i.e., WGIII), is needed. An IPCC Special Report on these and related topics would provide a much-needed synthesis both at a

global scale and on smaller spatial scales to help inform policymakers.

There are many gaps in our understanding of the changes in the cryosphere and what they mean for humanity and ecosystems that are ripe for assessment. Moreover, significant advances in the science have been published on these topics since the publication cut-off dates for the reports of the 5th Assessment cycle. Examples include the potential linkage between Arctic warming and mid-latitude weather patterns or the potential irreversible retreat of glaciers in West Antarctica. The 2014 report by the U.S. National Academy of Sciences, *The Arctic in the Anthropocene – Emerging Research Questions*, could provide an excellent foundation on which to base a Special Report on this topic.

**Relevance of the topic for policy making**

Permafrost in the Arctic contains almost twice as much carbon as is currently in the atmosphere and 3-4 times more carbon than all vegetation globally. As the earth warms, permafrost thaws and some of its carbon is released to the atmosphere as carbon dioxide or methane. Recent syntheses (e.g., UNEP 2012; Schuur et al. 2015) have suggested that carbon release from thawing permafrost by 2100 could have significant implications for transformation pathways consistent with the long-term global goal of limiting warming to no more than 2C above pre-industrial levels.

Subsea reservoirs of methane – in the form of methane hydrates - are also present in many regions and warming their environment could lead to the destabilization of these deposits and ultimately contribute to a feedback cycle in which the methane contained in these hydrates gets released to the atmosphere, amplifying global warming.

The non-existent or limited treatment of many of these phenomena in climate models is part of the reason why the policy community has not considered them adequately. This has implications for the timescale over which emissions reductions may be needed to achieve various temperature targets. Moreover, thawing terrestrial permafrost poses serious challenges to communities whose infrastructure is being affected by these permafrost changes.

Similarly, loss of land ice (Greenland, West Antarctic Ice Sheet – WAIS, and glaciers) and freshwater incursion on a massive scale would have profound global impacts through sea level rise, biochemical alteration, and changes in the salinity of marine waters. Though this topic has received much more attention than the permafrost-carbon feedback, there is still much uncertainty about the processes responsible for ice sheet changes and how much and how quickly: (a) sea level would rise and (b) water chemistry could change, under different emissions scenarios or concentration pathways. Understanding the timing and magnitude of sea level rise and biochemical change will provide policymakers with important findings for informed decisionmaking. In addition, best practices for coastal planning could be assessed.

Emerging science suggests that changes at the poles may significantly alter the behavior of large scale atmospheric (and oceanic?) circulation patterns, potentially disrupting weather patterns including additional periods of extreme weather. Implications for community preparedness could be considered.

Millions of people in every region of the world depend on glacial ecosystems for their livelihoods – whether it's freshwater for agriculture or reservoir water to drive hydropower production. With dramatic changes already occurring in glacial basins around the world – tropical, mid-latitude and polar – communities need to understand how to thrive in these rapidly changing environments. Assessing the policies, measures and community-level actions that are working can provide valuable insights for people all over the globe, while helping to minimize maladaptation.

In addition, underwater methane hydrates pose both another possibility for lower carbon energy production, as well as a possible addition to warming temperatures if they begin to volatilize into the atmosphere.

An IPCC Special Report on this topic would help bridge the gap between cryospheric science, ocean policy and climate policy, particularly as many policymakers appear to be unaware of these connections, as well as their regional and global consequences on both physical and societal systems.

**Justification of the need for a Special Report**

It is essential that climate policy be informed by the best available science. Yet with respect to the changing cryosphere, there is a large gap between the state-of-the-art scientifically and climate policies at all scales. This Special Report would synthesize our current understanding of the global and regional impacts associated with a changing cryosphere, highlighting the risks and informing appropriate mitigation and adaptation strategies. This report would also highlight numerous areas of scientific uncertainty, potentially motivating essential research to narrow the gaps in our understanding.

In addition, the topics covered effectively cut-across the scope of the three Working Groups – assessing the physical science of cryospheric changes; the impacts from and adaptation practices to a changing cryosphere; and how a changing cryosphere might affect energy generation, as well as the implications for global mitigation efforts and transformation pathways.

Moreover, a significant body of literature exists on this topic, which has not been assessed in a cohesive way during AR5. Much of this literature has been published after the publication cut-off date for the various reports of the 5$^{th}$ Assessment cycle.

**Key issues proposed to be addressed in the Special Report**

*Permafrost-Carbon Feedback*: How much carbon is contained in permafrost? Where is it? How vulnerable is it? How much carbon is likely to be released to the atmosphere from permafrost thaw over the coming years, decades, and centuries (assuming different emissions scenarios or representative concentration pathways), with what effects on overall rates of warming? How much will be released as carbon dioxide versus methane? What mitigation and adaptation strategies are possible? How might increasing wildfires in the Arctic exacerbate changes to permafrost?

*Methane Hydrates*: How much carbon is contained in methane hydrates? Where is it? How vulnerable is it to release in the atmosphere? Can any of it be safely harvested as a lower carbon energy source?

*Ice Sheet & Sea Ice Loss and Glacial Retreat*: What are the relative contributions to global ice mass loss from glaciers, Greenland and the Antarctica? Are there thresholds beyond which further ice loss is inevitable (i.e., associated with dynamical interdependencies involving ice sheets, hydrology at the interface of ice sheets and bedrock and geomorphology of bedrock), and have we already crossed any of those thresholds? How will primary productivity change with decreasing sea ice and snowcover? What surprises are hidden within and beneath the ice? What can "break or brake" glaciers and ice sheets? To what extent will feedback loops from ice sheet and sea ice loss accelerate warming?

*Sea Level Rise:* How much is sea level likely to rise over the coming years, decades, and centuries (assuming different emissions scenarios or representative concentration pathways)? There is also the issue of the very long time (centuries) between the commitment to large amounts of sea level rise and the realization of that sea level rise.

*Ocean Circulation*: How would melting sea ice and terrestrial ice (i.e., sheets and glaciers) affect ocean circulation, salinity and biochemistry and what are the impacts of that? How could the Meridional Overturning circulation be affected due to the increased melting of terrestrial and sea ice

*Teleconnections:* How might rapid Arctic warming change the jet stream and affect weather patterns at lower latitudes, including weather extremes such as hurricanes/typhoons? How would moisture transport from low- to high-latitudes be affected?

*Societal Impacts (Agriculture, Power Generation, Cultural Practices, etc.)*: How can declines in snowpack be effectively managed by hunters, farmers and utilities (e.g., hydropower)? What new and/or updated management approaches have been successful?

*Transformation Pathways*: How do these changes impact possible transformation pathways?

**Potential Partner Organizations**

Woods Hole Research Center; International Cryosphere Climate Initiative; Arctic Council

**Time schedule**

We could envision the following timeline for delivery of this first Special Report (SR) of the AR6 cycle (drawing upon the historic timeline for recent Special Reports), though other options could be explored:
Oct 2015 – Initial discussion of SR topic proposal at the 42nd Session of the IPCC
Feb 2016 – Decision on SR topic at the 43rd Session of the IPCC
Apr 2016 – Scoping meeting for the SR
May 2016 – Call for expert nominations
July 2016 – Expert nominations due
Sept 2016 – SR author notifications issued
Nov 2016 – SR First Lead Author Meeting
Feb 2017 – SR Second Lead Author Meeting
May – June 2017 – Expert Review of FOD
Sept 2017 – SR Third Lead Author Meeting
Dec 2017 – Jan 2018 – Government & Expert Review of SOD
Mar 2018 – SR Fourth Lead Author Meeting
May – June 2018 – Government Review of FGD
Oct 2018 – SR Approval Session

**Budget estimates**

IPCC Trust Fund expenses would most definitely need to be re-evaluated pending the outcomes of a Scoping Meeting and a derived outline (i.e., how many chapters; how large the authors teams are; meeting costs; etc.). With that large caveat and building upon recent historical precedent, one can envision something of this magnitude:

Developing Country / Economies-in-Transition Travel
- Scoping Meeting (15 trips): 60,000
- Lead Author Meeting 1 (20 trips): 80,000
- LAM 2 (20 trips): 80,000
- LAM 3 (25 trips): 100,000
- LAM 4 (25 trips): 100,000
- Approval session (10 trips): 40,000

*SUBTOTAL: 460,000*

Other Expenditure
- Scoping Meeting: 10,200
- LAM 1: 13,600
- LAM 2: 13,600
- LAM 3: 17,000
- LAM 4: 17,000

*SUBTOTAL: 71,400*

*Publication: 55,000*

*Translation: 125,000*

*Distribution: 20,000*

*Outreach: 100,000*

***TOTAL PROJECTED COST: CHF 831,400***

These line items correspond with existing categories in the approved and forecast IPCC Trust Fund budgets. Other aspects (e.g., developed country travel, voluntary scientist costs, etc.) are not in this budget.

**Possible donors**

We have not identified possible donors for this Special Report topic.

**ANNEX 17**

**CAN INTERNATIONAL PROPOSALS: DECARBONISATION AND LOW CARBON DEVELOPMENT (INCL. ON 1.5°C-WARMING SCENARIOS); FOOD SECURITY AND CLIMATE CHANGE; AND SEA LEVEL RISE AND GLACIAL MELTING**


Climate Action Network-International
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18/08/2015

Carlos Martin-Novella
Deputy Secretary
Intergovernmental Panel on Climate Change
7bis Avenue de la Paix
C.P. 2300
CH- 1211 Geneva 2, Switzerland

***RE: Proposals for Special Reports in the Sixth Assessment Cycle of the IPCC***

Dear Mr. Carlos Martin-Novella,

Thank you for your letter ref: 5297-15/IPCC/GEN dated 6 July, 2015 on potential themes for Special Reports of the IPCC.

I am writing on behalf of Climate Action Network International (CAN) to offer CAN's views in this respect.

As a worldwide network of over 950 Non-Governmental Organizations in more than 100 countries working to promote government and individual action to limit human-induced climate change to ecologically sustainable levels, CAN welcomes the invitation of the IPCC to submit proposals for Special Reports to be prepared and concluded during the Sixth Assessment cycle (AR6) of the IPCC.

CAN is of the view that the IPCC's Special Reports play an extremely valuable role in informing the international climate debate, and that they should continue to provide solid, science-based, and policy relevant support to the UNFCCC in the future. In doing so, the IPCC's Special Reports should be guided by the priorities of the most vulnerable and provide scientific insights that would otherwise not easily gain the necessary prominence.

In line with this, CAN proposes three Special Report themes for the IPCC's work in AR6. As these Special Reports are part of AR6 of the IPCC, their key findings should also be included in a potential Synthesis Report at the end of the sixth cycle to be published before 2020.

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CAN would welcome Special Reports that address the following themes during the coming cycle:

**i. Decarbonisation and low carbon development (incl. on 1.5°C-warming scenarios).**

All the scenarios that limit warming at 2 degrees or below have in common that they decarbonise economies at a significant rate., Numerous countries including the G7 have recognized and committed themselves to decarbonization of the global economy over the course of this century to address climate change.

Taking an integrated approach, the proposed Special Report should demonstrate the pathways available to achieving ambitious emission reductions towards full decarbonisation while promoting sustainable development. Such a Report should in particular take into account recent technological developments and cost decreases of low- and zero-emission mitigation options, in particular renewable energy solutions, and how this can facilitate accelerated decarbonisation pathways. It should also include empirical evidence on which mitigation as well as adaptation measures have been effective, and which have failed.

Like many of the world's most vulnerable nations, CAN strongly believes that global average temperature rise should be limited to 1.5, rather than 2 degrees Celsius (the current objective of the Climate Change Convention). This view was recently corroborated by the findings of a Structured Expert Dialogue organized by the UNFCCC, which concluded that a warming of 2 degrees would already lead to catastrophic impacts, slow down economic growth and hinder poverty reduction efforts considerably.

CAN recognises that there was not enough data available during AR5 for the IPCC to examine 1.5° degree scenarios in sufficient depth, but is of the view that such scenarios should be developed as a matter of urgency before the window of opportunity for limiting global warming to this level closes completely. If the IPCC were to announce a Special Report which pays particular attention to this theme, in the context of decarbonisation analyses, the necessary research would surely continue and intensify.

Therefore, although the IPCC has previously already examined in-depth scenarios where average global warming does not exceed 2 degrees compared to preindustrial levels, we propose that the IPCC dedicate a Special Report to decarbonisation and low carbon development, including paying special attention to 1.5° degrees warming limitation scenarios.

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**ii. Food security and climate change.**

Climate change forms a clear risk to all aspects of food security (availability, access, stability, utilization to contribute to nutrition). Food insecurity adversely affects health, wellbeing, peace and stability, negatively impacting the ability of countries and vulnerable populations to advance sustainable development and secure dignified livelihoods and has even been linked to crises like the current one in Syria.

Climate change and food insecurity are complex and interrelated, yet solutions, are manifold and diverse. This special report should contribute to the understanding of how climate change, its risks and associated loss and damage, affect all aspects of food security, including the nutritional value of food produced, in different regions and agricultural contexts, and among different populations. The report should consider the potential impact on food security of changes in land use to reduce emissions. It should highlight solutions and adaptation strategies, building off the outcomes of the agriculture workshops to be held at SB44.

Adaptation strategies explored should address all aspects of food security and could include: ways to sustainably increase food production, particularly among small scale food producers. Strategies should go beyond food production to examine the underlying causes of vulnerability to climate change and food security, and the ways in which food *systems* can better support food and nutrition security in the context of climate change.

Adaptation strategies might also include policies and approaches (1) to increase access among food insecure populations, especially small scale food producers, to resources and information to enable them to adapt; (2) to support and promote more sustainable and nutritious production and consumption; (3) to reduce food waste and loss; and (4) to address gender equitable access to resources, including financial, natural, information, health, family planning and contraception.

In addition, the report should consider research in relation to loss and damage, due to climate change, beyond what can be reduced or addressed through mitigation or adaptation. The report should consider research into tipping points – when loss and damage related to food and nutrition security will occur, such as desertification or ocean acidification that will render agriculture- or fisheries-based livelihoods unviable. The report should also explore approaches to address loss and damage related to food and nutrition security.

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Finally, the report should draw from previous work and discussions of the Committee on World Food Security. Ireland and Tanzania have already undertaken considerations on food security and climate change and have organised an expert meeting on this issue. CAN supports this approach.

**iii. Sea level rise and glacial melting**

A better scientific understanding of sea level rise and glacial melting is necessary in order to accurately estimate risks and inform adaptation policies and strategies, in particular for those most vulnerable to sea level rise. Although the question of quantification of sea level rise was addressed in AR4 and AR5, it was not adequately looked into yet, and therefore warrants further examination.

CAN is aware that Monaco has proposed an IPCC Special Report on Oceans. Given the strong interlinkages between the issues, we suggest expanding this proposal to include sea level rise and glacial melting.

Thank you again for the opportunity to contribute to this process and your consideration.

Sincerely,

Ria Voorhaar

Ria Voorhaar
IPCC Focal Point on behalf of
Climate Action Network-International

## EUROPEAN UNION PROPOSALS: SPECIAL REPORT ON AVIATION AND MARITIME; AND SPECIAL REPORT ON AFOLU

The European Union[5] would like to propose to revisit two topics that were looked at in previous special reports, and broaden their scope to reflect recent policy concerns and needs. The first, one is the 1999 *Special Report on Aviation and the Global Atmosphere*. The second one is the 2000 *Special Report on Land Use, Land-Use Change and Forestry.*

Both topics are of particular interest to policy makers that need to implement climate change policies. By the time any special report is finalized, it will be almost two decades since the release of the last reports. In 20 years, knowledge and science have evolved, and at the same time both topics are of clear importance to develop future climate change policies, which we believe can benefit from the thorough review in a special report.

Regarding the special report on aviation this topic could be extended to maritime, given that there are analogies and interconnections between sectors and that both sectors are of interest to the global policy community, both are sectors where not all emissions are attributed to specific countries but rather categorized under international bunkers, and both are sectors where the interactions with other pollutants and impacts on climate are also of importance. Having better knowledge on this will help significantly future policy preparations and their implementation.

Regarding the special report on Land Use, Land-Use Change and Forestry, we note that is a sector representing a large share of global net GHG emissions. Furthermore it is a sector closely linked to agriculture, and policies developed on these issues will need to take into account interactions between the two, notably because some of the mitigation options at hand, such as biomass for energy production impact both sectors, and because in the longer term it is an important sector in terms of carbon dioxide removal technologies. Therefore we consider it of interest to revisit this sector, but expand any special report to include also Agriculture, or rather the whole range of AFOLU sectors (Agriculture, Forestry and Other Land Use).

### Relevance of the topic for climate change policy preparation and key issues to be addressed

### 1) <u>Special Report on Aviation and Maritime</u>

AR5 estimated that Aviation and Maritime emissions represent around 24% of total GHG transport emissions, or the equivalent of more than 1.5 giga ton of $CO_2$-eq. emissions (AR 5, WG III, chapter 8). These sectors represent fast growing emissions, for instance ICAO forecasts that by 2050 aviation fuel consumption could increase by 4 to 6 times compared to 2010[6]. Similarly, maritime $CO_2$ emissions are projected to increase significantly in the coming decades. Depending on future economic and energy developments, the projections show an increase by 50% to 250% in the period to 2050[7].

Furthermore both aviation and maritime emissions have their own particularities in relation to impacts on climate change, in part depending on the type of pollutants produced (for instance the

[5] Represented as special observer to the IPCC by the European Commission, without prejudice of opinions of single EU Member States as IPCC members.

[6] http://cfapp.icao.int/Environmental-Report-2013/

[7] http://www.iadc.org/wp-content/uploads/2014/02/MEPC-67-6-INF3-2014-Final-Report-complete.pdf

amount of other aerosols produced), in part dependent on the location that this pollution impacts the atmosphere (for instance the different impact of aviation emissions due to release in the upper troposphere and lower stratosphere). Mitigation options exist for both sectors and initiatives and policies have been undertaken to address GHG emissions of these sectors, but also other pollutants.

A special report should give an update of the most recent science of the emissions related to these sectors and their impact on climate, including non-$CO_2$ climate impacts. The report should give insights into the expected emission profiles, also taking into account initiatives and policies undertaken to reduce emissions and pollutants from these sectors. The report should also give insights into mitigation options available for these sectors; point out areas of interest to further develop technologies and explore what type of policies can be most efficient at achieving future mitigation potential.

**2) <u>Special report on AFOLU</u>**

Net GHG emissions from Agriculture, Forestry and Other Land Use (AFOLU) cover an even more significant share of global GHG emissions. The exact share varies depending on sources. The estimate as included in the IPCC AR5 SPM puts the share at around 21% of global GHG emissions. Emissions and absorptions from these sectors originate from all regions and approaches to measuring, reporting and accounting these emissions vary widely. These sectors are seen as a direct source of emissions, as well as an avenue for mitigation through for instance afforestation or the use of biomass for energy. Policies related to these sectors will also play an ever more important role as they are linked to the challenge of food security and other demands for raw materials from, as well as over the long term the implementation of carbon dioxide removal technologies.

There is a need to assess the current state of knowledge concerning AFOLU and in particular aspects such as: its full contribution to climate change (due to carbon balance alteration, changes in emissions/uptake of $N_2O$, $CH_4$ and short-lived climate forcers, changes in surface albedo and energy balance), climate change impacts, uncertainties in historical and future land use and land-cover change emissions, as well as its potential contribution to mitigation and adaptation action. A special report can help to improve methodology for emissions estimates based on a synthetic review of the available literature, determine emission trends, and examine their distribution (e.g. across regions and land use & forest types). It could determine which types of action are most important for mitigation both in the short and the long term (e.g. afforestation, avoided deforestation, climate-smart agriculture), identify which regions or sectors are most important, and identify impacts on other sectors. It could also identify the types and regions of land and land use that would be particularly vulnerable to climate change and those where there is greatest potential to adapt to the impacts. Finally, the report will provide a unique opportunity to bring together and synthesize knowledge on the trade-offs and win/win aspects of AFOLU practices and policies, as land-use and land-use change alters not only the climate-regulation services of ecosystems but also has huge impact on other ecosystem services such as food and timber supply, water resources, pollution, recreation, and biodiversity.

**ANNEX 19**

**STATE OF PALESTINE PROPOSAL: THE IMPACT OF CLIMATE CHANGE ON NATIONAL, REGIONAL AND INTERNATIONAL SECURITY**

**Details of Submitting Official**

| **Title** | **Full Name** | **Member State or Observer Organization** |
|---|---|---|
| **Minister's Advisor for Climate Change** | **Nedal Abdelqader Abdallah Katbehbader** | **State of Palestine / Observer State** |

| **Address** | | | |
|---|---|---|---|
| Minister's Advisor for Climate Change<br>National Focal Point/UNFCCC<br>National Focal Point/IPCC<br>Environment Quality Authority (EQA)<br>El-Bireh, P.O.Box 3841<br>Ramallah, Palestine | | | |
| **Email** | **Work Telephone** | **Work Fax** | **Mobile** |
| -mail: n72065@hotmail.com | +972 2 2403495 | +972 2 2403494 | +972 599 201541 |

**Title of proposed Special Report**

| **The Impact of Climate Change on National, Regional and International Security** |
|---|

**Relevance of the topic for climate change**

| Taking into consideration many current and previous tensions worldwide and its close relation and root causes that is strongly or weakly related to climate change and in order to draw the attention of the world leaders to this relation I recommend to produce such a report.<br><br>UN Security Council clearly addressed Climate Change as one of the threats for the international security.<br><br>Lots of studies and research were conducted in that regard.<br><br>Wealth of information are available as well. |
|---|

**Relevance of the topic for policy making**

| It is of utmost importance to draw the attention of world leaders and policy makers to this relation between CC and security in order to enhance their willingness to take serious actions now and in the future and in order to let this understanding translated into some kind of agreements/ conventions,..... |
|---|

**Justification of the need for a Special Report**

| Having a special report will attract attention and shed more light and focus on the matter which is urgently needed at the current time taking into consideration the prevailing tensions worldwide. |
|---|

**Key issues proposed to be addressed in the Special Report**

Root causes of current tensions and how it is related to CC.
Socio-Economic Impact of CC and how this is reflected and enveloped into security threat.
UN Security Council and CC.
USA, and other countries published their own reports on the CC and their impact on national Security.
Middle East tensions and its relation to CC.

**Potential Partner Organizations**

London School of Economics / Grantham Institute
IISD
UN Security Council
UN University
Many other could be highly interested.

**Time schedule**

Sorry that I am not well aware of expected schedule / time frame. IPCC expert are kindly requested to help in that regard.

**Budget estimates**

Sorry that I am not well aware of expected budget. IPCC expert are kindly requested to help in that regard in light of earlier special reports.

**Possible donors**

USA, Multilateral Funds, UK, Denmark, Norway, EU, EC,.....
Many other could be highly interested.

**ANNEX 20**

**STATE OF PALESTINE PROPOSAL: MANAGING THE RISKS OF EXTREME EVENTS AND DISASTERS TO ADVANCE CLIMATE CHANGE ADAPTATION - UPDATE**

**Details of Submitting Official**

| **Title** | **Full Name** | **Member State or Observer Organization** |
|---|---|---|
| **Minister's Advisor for Climate Change** | **Nedal Abdelqader Abdallah Katbehbader** | **State of Palestine / Observer State** |

| **Address** | | | |
|---|---|---|---|
| Minister's Advisor for Climate Change<br>National Focal Point/UNFCCC<br>National Focal Point/IPCC<br>Environment Quality Authority (EQA)<br>El-Bireh, P.O.Box 3841<br>Ramallah, Palestine | | | |
| **Email** | **Work Telephone** | **Work Fax** | **Mobile** |
| -mail: n72065@hotmail.com | +972 2 2403495 | +972 2 2403494 | +972 599 201541 |

**Title of proposed Special Report**

| **Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation - Update** |
|---|

**Relevance of the topic for climate change**

| Taking into consideration latest new records on CC and extreme weather events recorded after publishing the SREX report in a manner that very strongly support earlier understanding and in the same way of developing and aggregating knowledge and information on CC in the periodical Assessment Reports on CC, I highly recommend to publish such a report.<br><br>Lots of studies and research were conducted in that regard.<br><br>Wealth of information are available as well. |
|---|

**Relevance of the topic for policy making**

| It is of utmost importance to draw the attention of world leaders and policy makers to this relation between CC and extreme weather and climate events in order to enhance their willingness to take serious actions now and in the future and in order to let this understanding translated into some kind of agreements/ conventions,..... |
|---|

**Justification of the need for a Special Report**

| Having a special report will attract attention and shed more light and focus on the matter which is urgently needed at the current time taking into consideration the very seriuos extreme events the world witnessed lately. |
|---|

**Key issues proposed to be addressed in the Special Report**

| In a manner that benefit from earlier experience on SREX. |
|---|

**Potential Partner Organizations**

| |
|---|
| Partners joined efforts on the original SREX report. |

**Time schedule**

| |
|---|
| Sorry that I am not well aware of expected schedule / time frame. IPCC expert are kindly requested to help in that regard. |

**Budget estimates**

| |
|---|
| Sorry that I am not well aware of expected budget. IPCC expert are kindly requested to help in that regard in light of earlier special reports. |

**Possible donors**

| |
|---|
| Earlier Donors in addition to any new interested ones. |

**ANNEX 21**

**UNCCD PROPOSAL: CLIMATE CHANGE AND LAND DEGRADATION – AN ASSESSMENT OF THE INTERLINKAGES AND INTEGRATED STRATEGIES FOR MITIGATION AND ADAPTATION**

**Details of Submitting Official**

| **Title** | **Full Name** | **Member State or Observer Organization** | | |
|---|---|---|---|---|
| Dr. | Victor Castillo | United Nations Convention to Combat Desertification (UNCCD) | | |
| **Address** | | UN Campus, Platz der Vereinten Nationen 1<br>53113 Bonn, Germany | | |
| **Email** | | **Work Telephone** | **Work Fax** | **Mobile** |
| vcastillo@unccd.int | | +49-228-8152865 | | |

**Title of proposed Special Report**

Climate change and land degradation – An assessment of the interlinkages and integrated strategies for mitigation and adaptation

**Relevance of the topic for climate change**

Land degradation is generally defined as a reduction in the potential of land to provide ecosystem services, specifically as regards biological and economic productivity. The final stage of land degradation in arid, semi-arid and dry sub-humid areas is referred to as desertification. Land degradation results from unsustainable land use practices and is exacerbated by climatic factors. Hence, **climate change is recognized as a major driving force of land degradation.** Increasing temperatures, changing precipitation patterns and increased frequency and magnitude of extreme weather events exacerbate the erosion of soils through wind and water as well as biological and chemical degradation processes[8]. The intensification and acceleration of land degradation processes through climate change impairs biodiversity and the provision of ecosystem services with severe consequences for food production, water regulation, livelihoods and human wellbeing. The effects of climate change on land degradation and the provision of ecosystem services are **highly ecosystem-specific**. Areas already experiencing land degradation and desertification are likely to be particularly sensitive[9]. Given the manifold direct and indirect impacts of climate change on land degradation there is a **vast potential for land-based climate change adaptation**. Adapting land use to changing climatic conditions and making wise use of ecosystem services are widely considered to be key in building resilient societies and agro-ecosystems. In addition, land-based adaptation strategies such as sustainable land management (SLM) also render considerable co-benefits in terms of supporting rural livelihoods and preserving biodiversity[10].

At the same time, **land degradation is a major driving force of climate change**. It has been estimated that 60% of terrestrial carbon stores from soils and vegetation have been lost since the 19th century through land degradation processes[11]. These carbon releases contribute significantly

[8] IPCC (2014): Climate Change 2014: Impacts, Adaptation, and Vulnerability. Cambridge.

[9] Reed M, Stringer L et al. (2015): Climate change and desertification: anticipating, assessing and adapting to future change in drylands. Impulse Report for the 3rd UNCCD Scientific Conference, 9-12 March 2015.

[10] Cowie A et al. (2011): Towards sustainable land management in the drylands: Scientific connections in monitoring and assessing dryland degradation, climate change and biodiversity. In: Land Degradation & Development 22:248-260.

[11] Houghton RA (1995): Changes in the storage of terrestrial carbon since 1850. In: Lal R, Kimble J, Levine E, Stewart BA (Eds): Soils and Global Change. Boca Raton.

to global warming. Currently, the AFOLU sector as a whole accounts for around one-quarter of all anthropogenic greenhouse gas emissions[12]. This also means that the **potential for mitigating climate change** by reducing land degradation and restoring or rehabilitating degraded land is vast. Soils alone have the capacity to sequester between 1 and 3 $GtCO_2e$ annually[13]. Also the potential of land to sequester carbon is highly ecosystem specific (varying between forests, drylands, wetlands, agro-ecosystems etc.). Whereas the potential of forests and peatlands is well recognized, the mitigation potential of other terrestrial ecosystems received less attention and has not been systematically utilized so far. It has, however, been recently shown that semi-arid ecosystems have dominated the trend of the global land carbon sink over the last decades as their carbon balance is strongly associated with circulation-driven variations in both precipitation and temperature.[14]

**The interlinkages between climate change and land degradation are characterized by complex feedback loops**. Such processes can be self-reinforcing, e.g. when climate change induced land degradation increases greenhouse gas emissions through the further loss of vegetation cover or when rising temperatures increase soil respiration. Other feedback processes can have a mitigating effect such as the increased albedo of degraded lands or increased primary productivity due to $CO_2$ fertilization. In general, the combined effects of land degradation and climate change as well as the associated feedback processes are characterized by **high uncertainties** and vary significantly between different ecosystems[15].

**Relevance of the topic for policy making**

The challenges of climate change and land degradation continue to be top priorities on the international environmental and development agendas as expressed in the proposed **Sustainable Development Goals (SDGs)**: SDG 13 addresses climate change and SDG 15 calls for halting and reversing the degradation of terrestrial ecosystems. More specifically target 15.3 calls for a land degradation neutral world. The concept of **Land Degradation Neutrality (LDN)** is expected to guide the future implementation of the UNCCD.

In parallel, the land sector is expected to be a **critical element of a future climate agreement**. There is growing recognition that limiting global warming to 2°C above pre-industrial levels can only be realized if the mitigation potential of terrestrial ecosystems is utilized much more comprehensively, including the reduction of land degradation and the restoration of degraded ecosystems[16]. In fact, the only way many developing countries can act on climate change is through land-based activities. However, to date climate negotiations have not adequately accounted for the land sector´s contribution to mitigation and adaptation.

It is increasingly recognized that **these global goals can only be achieved if the interlinkages between climate change and land degradation are fully taken into account.** This will have to be based on authoritative scientific assessments which can inform respective policy making processes. Such an assessment is currently absent. The importance of fully accounting for the

[12] IPCC (2014): Climate Change 2014: Mitigation of Climate Change. Cambridge.

[13] IPCC (2007): Climate Change 2007: Mitigation. Cambridge.

[14] Ahlström A et al. (2015): The dominant role of semi-arid ecosystems in the trend and variability of the land $CO_s$ sink. In: Science 348: 895-899.

[15] Heimann M and Reichstein M (2008): Terrestrial ecosystem carbon dynamics and climate feedbacks. Nature 451: 289-292.

[16] Boucher D and Ferretti-Gallon K (2015): Halfway There? What the land sector can contribute to closing the emissions gap. Union of Concerned Scientists. Cambridge.

interlinkages between climate change and land degradation was expressed, inter alia, by the Parties of the UNCCD during the Third UNCCD Scientific Conference[17] and the Science-Policy Interface (SPI) of the UNCCD[18].

Against this background, there is **growing policy demand for integrated strategies** which simultaneously address climate change and land degradation. To achieve LDN and the other SDGs, climate change, land degradation and biodiversity loss must not be addressed separately but through integrated strategies which **identify and maximize synergies while realizing and optimizing trade-offs.** Such synergistic approaches would also foster the closer cooperation between the three Rio Conventions**.**

Eventually, the policy relevance of the topic is reinforced through the immense financial implications of land degradation and climate change. Land degradation alone is estimated to cause global costs of nearly USD 66 billion per year. At the same, activities for halting and reversing land degradation come at comparatively low costs and render significant benefits for food security, climate change adaptation and mitigation as well as biodiversity[19].

**Justification of the need for a Special Report**

The interlinkages and feedback processes between climate change and land degradation are highly complex and depend on specific ecosystem characteristics. There are a large number of case studies on such interlinkages with different, often diverging conclusions[20]. However, **a meta-analysis which provides a comprehensive and balanced overview of the current state of knowledge is needed**. In particular, there is the need to differentiate more clearly between land degradation processes which are predominantly driven by direct land use activities and those in which the impacts of climatic change are the prevailing force.

**The existing IPCC assessments and special reports** provide excellent insights into the interlinkages between climate change and agriculture, land use change and forestry. However, a detailed analysis regarding the feedbacks between climate change and land degradation which disaggregates for specific ecosystem types is currently absent. The strong representation of forestry in existing IPCC reports could be complemented by a more detailed analysis of the feedback processes between climate change and other terrestrial ecosystems.

It is expected that **an IPCC special report on climate change and land degradation could fill these knowledge gaps** and provide essential guidance for further research and policy-making. Against the background of the post 2015 development agenda and the SDGs such an assessment would **meet the demand for an authoritative scientific assessment** of the combined effects of land degradation and climate change including associated feedback processes. Moreover, the assessment could provide the very **scientific basis for developing strategies for the integrated implementation of the SDG agenda**. Such strategies would need to clearly reveal and analyze the synergies and trade-offs between the SDGs on climate and land. In this sense, the **combination of mitigation and adaptation aspects in one IPCC special report** would underline the need for and the potential of integrated approaches acknowledging the multifunctionality of land.

[17] UNCCD (2015): Report of the Committee on Science and Technology on its fourth special session (Third UNCCD Scientific Conference) (ICCD/CST(S-4)/3).

[18] UNCCD (2015): Outcomes and policy-oriented recommendations of the UNCCD 3rd Scientific Conference. Report by the Bureau of the Committee on Science and Technology (ICCD/COP(12)/CST/2).

[19] UNCCD (2015): Reaping the rewards: financing land degradation neutrality.

[20] Reed M, Stringer L et al. (2015): Climate change and desertification: anticipating, assessing and adapting to future change in drylands. Impulse Report for the 3rd UNCCD Scientific Conference, 9-12 March 2015.

With regard to the UNCCD and its Parties, a special report on climate change and land degradation would be **essential for ensuring that policy making processes for LDN are linked to the climate agenda**, thus enhancing synergies between the Rio Conventions. The work of the UNCCD´s Science-Policy Interface (SPI) on land-based practices for climate change mitigation and adaptation could be closely linked with the elaboration of an IPCC special report for mutual benefit[21].

Eventually, an IPCC special report on land degradation would ideally complement the on-going efforts of the Intergovernmental Platform for Biodiversity and Ecosystem Services (IPBES) to develop an assessment on land degradation and restoration. This assessment focuses primarily on the direct drivers and consequences of land degradation in terms of land use practices and biodiversity loss, whereas the detailed analysis of the interlinkages between climate change and land degradation is beyond the scope of this assessment.

**Key issues proposed to be addressed in the Special Report**

**Drivers and feedback processes**

- Climate change as a driving or exacerbating force of land degradation (globally and in different ecosystems)
- Land degradation (globally and in different ecosystems) as a driving or exacerbating force of climate change
- Positive and negative feedbacks between climate change and land degradation

**Options and strategies for land-based adaptation and mitigation**

- Options and strategies for land-based adaptation to climate change
- Options and strategies for land-based mitigation of climate change
- Synergies and trade-offs: options for combining the fight against land degradation with adaptation and mitigation activities

**Potential Partner Organizations**

- United Nations Convention to Combat Desertification (UNCCD)
- United Nations Framework Convention on Climate Change (UNFCCC)
- Food and Agriculture Organization (FAO)
- United Nations Environment Program (UNEP)
- World Meteorological Organization (WMO)
- Convention on Biological Diversity (CBD)
- International Union for Conservation of Nature (IUCN)
- Convention on Wetlands (Ramsar)
- Universities and research institutions

**Time schedule**

**Budget estimates**

Tentative estimation: € 800,000

[21] UNCCD (2015): Science-Policy Interface: progress report and work programme 2016-2017 (ICCD/COP(12)/CST/6).

**Possible donors**

Funding opportunities will be explored with, inter alia, EU commission and member countries as well as Switzerland, Norway and Korea.

The identification of possible donors might be supported by the fact that during the 41st session of the IPCC in February 2015 Algeria proposed an IPCC special report on climate change and desertification. This proposal was supported by Egypt, Saudi Arabia, Kuwait, Jordan, Mali, Chad, Switzerland, Spain and Peru.

**ANNEX 22**

**UNEP PROPOSAL: GLOBAL ADAPTATION OUTLOOK**

**Details of Submitting Official**

| **Title** | **Full Name** | | | **Member State or Observer Organization** |
|---|---|---|---|---|
| **Dr.** | **Volodymyr Demkine** | | | |
| **Address** | UNEP, Division of Early warning and Assessment | | | |
| **Email** | **Work Telephone** | **Work Fax** | **Mobile** | |
| **Volodymyr.Demkine@unep.org** | **25427624566** | | | |

**Title of proposed Special Report**

Global Adaptation Outlook

**Relevance of the topic for climate change**

Climate change results in multiple impacts on human society and natural systems and some of them are unavoidable. Society should adapt to them in a most effective way. In order to understand and address the associated risks and opportunities, governments and other stakeholders need clear understanding of what is going on now and what they could expect in future. An adaptation outlook, a global integrated assessment of the issue, will combine robust science with explicit consideration of adaptation options and "adaptation trajectories" depending on the emissions trajectories. Analysis of knowledge gaps in adaptation science will also be undertaken in the assessment.

**Relevance of the topic for policy making**

Whereas aggressive and immediate mitigation action is a fundamental precondition for avoiding unmanageable climate risks and impacts, comprehensive inclusion of adaptation as part of the global strategy on climate change is required to reduce social costs of unmanageable climate change and unavoidable impacts. In its 2014 Adaptation Gap Report UNEP showed that there was likely to be a significant adaptation gap after 2020 that could only increase by 2050 if the world fails to reduce emissions to the levels required to limit global temperature rise less than 2° Celsius above pre-industrial.

Depending on the emissions trajectory the "adaptation trajectory" will vary so will the adaptation gap. An integrated assessment of adaptation trajectories (the "adaptation outlook") is necessary to help decision-makers make informed decisions on future mitigation and adaptation action. Integrating knowledge from different sources and making it available to decision-makers in the form of the assessment report is one of the most effective ways to engage stakeholders into action. In addition a powerful science-policy interface will be created through an integrated assessment process that will allow successfully integrating the best available knowledge and delivering findings to decision-makers in the format and language they require.

**Justification of the need for a Special Report**

-Adaptation is a cross-IPCC WG theme of high interest to policymakers where science rapidly evolves

-There is a need to assess observed impacts, vulnerability and exposure and adaptation experience and discuss plausible future scenarios

**Key issues proposed to be addressed in the Special Report**

-Adaptation challenges depending of the RCP:
  -1.5 deg C
  -2 deg C
  -4 deg C
And by sector: health, energy, food security, disaster management…
-Solution space
-Adaptation gap
-Synergies and trade-offs of integration of mitigation measures and adaptation measures
-Technologies and technology transfer
-Regional adaptation
-Best practices
-Socio-economic impact of identified adaptation measures
-Maladaptation
-Links with sustainable development
-Knowledge gaps

**Potential Partner Organizations**

-UNEP (DEWA, DEPI, DTIE, DRC, collaborating centres)
-FAO, WHO, UNDP, ISDR, WB, GEF, IEA etc.
-Global/regional networks and initiatives such as GAN, PROVIA, IPBES…, regional initatives
-Private sector and civil society

**Time schedule**

2 years starting in early 2016

**Budget estimates**

USD1 mil +in kind contribution from partners

**Possible donors**

Member states