



United Nations  
Educational, Scientific and  
Cultural Organization

# UNESCO Task Force on Climate Change

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## UNESCO ACTION ON CLIMATE CHANGE

### WORKING DOCUMENT PREPARED IN CONJUNCTION WITH THE DRAFTING OF THE UPDATED UNESCO STRATEGY FOR ACTION ON CLIMATE CHANGE

#### I. BACKGROUND

1. Following 197 EX/Dec.45, the General Conference at its 38<sup>th</sup> session invites the Director-General to present to the Executive Board at its 200th session a proposal for an updated UNESCO Strategy for Action on Climate Change taking into due consideration the outcomes of COP 21 (38 C/Res.21). Accordingly, the Director-General presented in the Annex to document 200 EX/5 Part I item C a “Proposal for an updated UNESCO Strategy for Action on Climate Change”.

2. The present Working Document has been prepared by the UNESCO Task Force on Climate Change under the leadership of the Assistant Director-General for Natural Sciences in her function as Chair of the Task Force, to provide Information on UNESCO’s ongoing climate change actions that might be useful in the strategy updating process, as well as in the elaboration of related climate change action in preparation of the draft 39 C/5.

#### II. UNESCO’S CLIMATE CHANGE ACTIONS

3. UNESCO’s present climate change actions include a wide range of actions under the Organization’s mandate reflecting the multifaceted nature of climate challenges and associated mitigation and adaptation solutions. Undertaken in synergy with the overall UN System, UNESCO’s climate change actions are and will be developed and implemented through its different Sectors, Field Offices, designated sites, Category I and II Centres, UNESCO Chairs and Networks, with the purpose of providing Member States with climate related knowledge, data and information services and policy advice to enable a shift in mindsets towards enhanced sustainability.

##### II.I. **Climate change education and public awareness programmes and policies** [SDG 13 and 4; UNFCCC Art 6; Paris Agreement Art 12]

4. Education, including skills development and awareness-raising, plays an essential role in enhancing the capacities of Member States to mitigate climate change and cope with its adverse impacts. Education enables people to understand the causes and consequences of climate change, to make informed decisions and take appropriate actions to address them, and to acquire the necessary skills to support the transition to green economies and sustainable, climate resilient societies.

5. The critical role of education in climate change responses was clearly recognized at the Paris Climate Conference (COP 21) in December 2015. Article 12 of the Paris Agreement, the outcome document of COP 21, stresses that: “Parties shall cooperate in taking measures, as appropriate, to enhance climate change education, training, public awareness, public participation and public access to information, recognizing the importance of these steps with respect to enhancing actions under this Agreement.”

6. UNESCO supports Member States to scale up the education component of their climate responses. In its work, UNESCO will be guided by three policy frameworks: (1) the Global Action Programme on Education for Sustainable Development (GAP-ESD), (2) the Strategy for Technical and Vocational Education and Training (2016-2021), and (3) the SIDS Action Plan (2016-2021).

7. The Global Action Programme (GAP) on ESD was launched in 2014 as the official follow-up to the UN Decade of ESD. It aims to generate and scale up action in all levels and areas of education and learning to accelerate progress towards sustainable development. The GAP focuses on five Priority Action Areas: advancing policy; transforming learning and training environments; building capacities of educators and trainers; empowering and mobilizing youth; and accelerating sustainable solutions at local level. Climate change is a critical thematic focus in all five areas, with a particular emphasis on the first three, which concern policy makers, learning environments, and teachers:

a. UNESCO supports policy makers so that Member States can meet their obligations under the Paris Agreement with regard to education. Together with UNFCCC and other partners, UNESCO will continue to provide guidance on the implementation of the education articles of the Climate Convention (Article 6) and of the Paris Agreement (Article 12). As part of its work at the policy level, UNESCO will also endeavour to ensure coherence between the implementation of Sustainable Development Goal 4, Target 4.7 (which addresses ESD, among others) and Sustainable Development Goal 13, Target 13.3 (which addresses climate change education). At the global policy level, as a member of the UN Alliance on Climate Change Education, Training and Public Awareness, and based on the experience acquired promoting climate change education at past United Nations Framework Convention on Climate Change (UNFCCC) negotiations and Climate Change Conferences (COPs), UNESCO will remain mobilized to continue to do so.

b. UNESCO mobilizes schools and in particular UNESCO Associated Schools (ASPnet) to implement climate change through a 'whole-school approach' using its newly developed Guidelines for Whole School Climate Actions. UNESCO will also continue to make available hundreds of climate change education materials through its newly launched GAP-ESD resource bank.

c. UNESCO's successful six-day online course Climate Change in the Classroom: UNESCO Course for Secondary Teachers on Climate Change Education for Sustainable Development is an important reference for the teacher education activities carried out as a contribution to the GAP by UNESCO and its partners.

8. One of the core priorities of the new UNESCO Strategy for Technical and Vocational Education and Training (2016-2021) is to facilitate the transition to sustainable societies. Recognizing climate change as an urgent and potentially irreversible threat, and responding to the resulting priorities of Member States to ensure a smooth transition to climate resilient societies, the Strategy engages UNESCO to foster cross-sectoral approaches that connect Technical and Vocational Education and Training (TVET) and the other Sustainable Development Goals (SDGs) and to promote green skills.

9. UNESCO ensures knowledge development and sharing of greening skills especially through the UNESCO-UNEVOC Network. The UNESCO-UNEVOC International Centre will strengthen cooperation with the Inter-Agency Working Group on Greening TVET and Skills Development and develop joint activities to advance the UNESCO GAP on ESD particularly in TVET systems. UNESCO will further provide timely and targeted support to Member States in fostering creative solutions by guiding a systematic process in incremental steps of planning, implementing and monitoring progress in ESD in TVET and other levels of education at the institutional level. The UNESCO-UNEVOC International Centre will develop appropriate training courses within its TVET leadership programme. New TVET programmes and capacity-building efforts aimed at green skills development will support Member States to implement ESD in TVET institutions guided by approaches for adopting a whole-institution transformation.

10. Among the hardest hit by climate change, SIDS require special support with regard to mobilizing education to address climate change. Across its various activities on education and climate change UNESCO will pay due attention to the needs of SIDS. This includes, in line with the Implementation Strategy of the SIDS Action Plan, ensuring that SIDS are a key part of the global community of practice through which UNESCO facilitates the implementation the GAP for ESD, and by helping to strengthen the capacities of SIDS Member States to integrate climate change into education policies, plans and programmes (see also section V.III. Priority SIDS: Climate Change in the UNESCO SIDS Action Plan).

11. UNESCO's Communication and Information Major Programme works to advance shared knowledge and understanding through all means of mass communication and to promote the free flow of ideas by word and image. UNESCO plays an important role in ensuring access to sound and unbiased climate information and enhancing the capacity of the media, especially national and community broadcasters, to understand and convey climate change information in an accurate and balanced manner. UNESCO bases its public awareness actions on the findings of the IPCC, and the definition and principles of the UNFCCC and the Paris Agreements and the 2030 Agenda. Messages will be understandable and reach out to society at large and packaged as part of climate services e.g. climate change information and data presented and packaged into specific products and tools to meet the demands of stakeholders to address risks and eventual green-economy opportunities related to climate change mitigation and adaptation.

12. Men and women have different access to public awareness information, including early warning systems. These societal and cultural issues must be an integral part of providing truly universal access to information, especially with a view to enhancing gender equality in this vital area. UNESCO therefore work to raise awareness of gender specificities in adaptation and mitigation to climate change, including through the collection and use of sex-disaggregated data, mapping of gender-specific emissions profiles, and differences in mitigation and adaptive capacities and strategies (see also section V.I. Priority gender equality).

## **II.II. Interdisciplinary climate knowledge and scientific cooperation for climate change mitigation and adaptation [SDGs 13 and 2, 3, 5, 6, 7, 9, 11, 12, 14, 15, 16,17; Sendai Framework for Disaster Risk Reduction]**

13. Science and knowledge, including local and indigenous knowledge, are key for understanding climate change and for developing technologies and spurring innovation to address climate change challenges and for reaching a common understanding and agreements on how climate change is best to be addressed.

14. UNESCO's scientific programmes (e.g. MAB, IHP, IGCP and MOST) and IOC, together with relevant Category I and Category II UNESCO Centres and UNESCO Chairs, constitute a rich body of expertise and resources for this purpose. Directly or indirectly, much of UNESCO's scientific work feed into key processes under the UNFCCC, as well as the IPCC, and the Global Framework for Climate Services (GFCS). This includes active UNESCO participation in the deliberations under the Subsidiary Body for Scientific and Technological Advice (SBSTA) of the UNFCCC; participation as a technical expert member in the Warsaw International Mechanism for Loss and Damage Executive Committee's expert group on non-economic losses under the UNFCCC; author contributions to IPCC assessments; UNESCO participation in the GFCS Partners Advisory Committee (PAC).

### **II.II.I. Climate Change, Water Resources and Water Security**

15. Water resources are under increasingly severe pressure from climate change and other global drivers. Climate change alters rainfall patterns, soil moisture, humidity, glacier-mass balance, evaporation, condensation, dew, surface-water-temperature, cloud-coverage, sea-level, and the water-volume of all wetlands, including river-flow, and water-biota-soil interactions, and also causes changes to the quality of

water and to groundwater resources discharge, recharge storage and quality. Floods and droughts are rising in frequency and intensity while the population is becoming more exposed and vulnerable. The above impacts will affect human security and livelihoods, agriculture and food security and industrial productivity, and trigger population movement (rural to urban and out-country migration) and aggravate inequalities and social unrest.

16. The above impacts will affect human security and livelihoods, agriculture and food security and industrial productivity, and trigger population movement (rural to urban and out-country migration) and aggravate inequalities and social unrest. In short, these impacts will undermine hard-gained development achievements and future sustainable development prospects.

17. UNESCO, including all Field Offices, supports Member States in addressing the above climate change related challenges through:

- a) Producing and disseminating latest available data and information regarding the state, availability and use of freshwater and water-related problems and environmental issues. This is notably achieved through the World Water Development Report (WWDR), published annually by UNESCO's World Water Assessment Programme (WWAP), on behalf of UN Water. Targeting the decision and policy makers, the WWDR continue to facilitate science-based, informed decision making by politicians/water managers and serve as a genuine example of the UN system delivering as one. This includes the future planned WWAP Synthesis Report on the progress in achieving SDG 6 on Water and Sanitation.
- b) Strengthening scientific cooperation, coordinating, and building partnerships through UNESCO's International Hydrological Programme (IHP), providing a scientific knowledge base for policy advice to manage and cope with challenges to water resources to increase the resilience of natural and human systems with an emphasis on vulnerable communities. IHP is an international scientific cooperative programme addressing adaptation to climate change, including assessing the effects of climate change on surface water, on extremes, both floods and droughts, groundwater, glaciers, water and life support systems, aquatic ecosystems and biodiversity, in specific regions such as arid lands, urban and rural settings and societies most vulnerable to sharp changes in water availability or quality.
- c) Increasing resilience and improving climate change adaptation through encouraging Member States to move from a crisis management approach (impact assessment, response, recovery and reconstruction) to a risk management approach (mitigation, preparedness, prediction and early warning) can lead to increased coping capacity and building resilience. This change will require evidence based decision making using a sound understanding of the hazard, the vulnerability and the coping capacity of the population.

18. Through its various initiatives IHP has been promoting scientific cooperation for improving knowledge on hazards and vulnerability with the development of early warning and monitoring tools, methodologies and capacity.

19. The International Drought Initiative (IDI) provides policy and management guidance through sharing scientific information, best practices and knowledge for drought risk management by focusing on drought prone regions and switching from reactive to proactive measures in drought management through mitigation, vulnerability reduction and preparedness.

20. The international Flood Initiative (IFI) promotes an integrative approach to flood management in a changing world which takes advantage of the benefits of floods and the use of floodplains, while reducing social, environmental and economic risks.

21. The Water and Development Information for Arid Lands - a Global Network (G-WADI) network aims at strengthening the global capacity to manage the water resources of arid and semi-arid areas. G-WADI promotes international and regional cooperation in these areas and the building of an effective global community through integration of selected existing material from networks, centres, organizations and individuals.

22. Groundwater Resources Assessment under the Pressures of Humanity and Climate Change (GRAPHIC) is a UNESCO-led project seeking to improve our understanding of how groundwater interacts within the global water cycle, how it supports human activity and ecosystems, and how it responds to the complex dual pressures of human activity and climate change.

23. IHP in close cooperation with UNESCO Water family (Centres, Chairs and national committees) provide platform for the establishment of a Global Knowledge Forum on water security, which will bring together the available knowledge and best practices on water security. This will enhance cooperation at regional, national and international level and will highlight the knowledge gaps that need to be addressed.

24. In the face of increasing climatic instability, there is an urgent need to reverse the degradation of water resources and it is for this purpose that the Ecohydrology Programme operates. IHP promotes research in ecohydrology, which investigates upon the underlying water-biota interactions in water-related ecosystems and to use natural existing processes as management tools at different scales. The IHP will continue developing in a worldwide network of demonstration sites for ecohydrology, involving collaboration between different local stakeholders. The sharing of knowledge and best-practices is enhanced through the dedicated web platform for ecohydrology, showing the evolution of the demonstration sites.

25. Water is considered the primary driver of biodiversity and bioproductivity for river basins, thus the quality of water is crucial for humans and ecosystems in general. The crucial linkages between water quality and climate change is a new water quality challenge of growing concern, which is not often researched nor studied. IHP's International Initiative on Water Quality (IIWQ) facilitates scientific and policy discussions to improve understanding on the issue and develop adaptation policy responses to deal with climate change effects on the quality of world's water resources.

26. Use of space-based remote sensing technologies is a key in the monitoring of water resources temporal and spatial distribution. UNESCO will continue cooperate with space agencies, research centres and relevant institutions to raise awareness on climate change through dissemination material using satellite images and data, and to enhance international cooperation in water cycle monitoring and modelling.

27. By 2030, over a billion people will live in approximately 100 very large cities and 60 % of the world's population will live in urban areas. It is projected that population growth in the coming decades will be higher in urban centres, and especially in Africa. The high economic and social values of large cities and the extreme risks to which they are exposed in terms of the negative impacts of climate change on water and sanitation infrastructure and services, led to the affirmation that "climate change is water change; water is a key resource for the sustainable development of megacities and a key factor of their resilience". In this context and following the Declaration made during the Paris international conference on "Water, Megacities and Global Change" in December 2015, UNESCO will support the creation of a Megacities' Alliance for Water and Climate Change for 2018.

28. The activities are also implemented at the regional level by the UNESCO regional bureaus which work with regional organizations to establish partnerships at regional level. IHP also draws on contributions from relevant Category II Institutes and Centres and water-related UNESCO Chairs. The existing networks,

available knowledge worldwide and best practices in addressing climate change impacts on water resources are brought together and coordinated, in order to integrate climate action and to maximize synergies.

29. Through its activities of enhancing science policy interface, promoting international cooperation to mobilize research and promoting human and technical capacity building, UNESCO contributes to deal with the complex, rapid environmental and demographical changes, comprehensive, multidisciplinary and environmentally sound approaches to water resources management and protection policy in line with the UN goals and commitments, such as the Paris Climate Change agreement, the 2030 Agenda on Sustainable Development and its Goals.

#### II.II.II. Climate Change and Conservation and Sustainable Use of Biodiversity

30. In the area of biodiversity and climate change, the UNESCO Man and the Biosphere (MAB) Programme is spearheading interdisciplinary work on ecosystem services, and the conservation and sustainable use of biodiversity, such as forests, of great importance for the global climate. MAB combines the natural and social sciences, economics and education with a view to improving human livelihoods and safeguarding natural and managed ecosystems.

31. MAB contributes to the fight against climate change and its negative impacts by promoting integrated, multidisciplinary, participatory approaches and networking within and among biosphere reserves on climate change mitigation and adaptation. Through its World Network of Biosphere Reserves (669 sites in 120 countries) that covers a broad spectrum of ecosystems, ranging from remote mountains, to tropical forests, deserts, to farmland and urban areas, MAB provides a uniquely rich network of sites as observatories and platforms for promoting synergies among biodiversity, climate change and sustainable development agendas.

32. The MAB Strategy (2015-2025) and the Lima Action Plan for the UNESCO MAB Programme and its World Network of Biosphere Reserves - WNBR (2016-2025) includes direct references to climate change. The MAB Strategy mission statement commits the Programme to *“help Member States and stakeholders to urgently meet the Sustainable Development Goals through experiences from the WNBR, in particularly through exploring and testing policies, technologies and innovations for the sustainable management of biodiversity and natural resources and mitigation and adaptation to climate change”*. MAB’s Strategic Objectives for 2015-2025 subsequently includes objective: 4. *Support Mitigation and Adaptation to Climate Change and other aspects of Global Environmental Change*. This objective is reflected in the Lima Action Plan through Action: A1.4. *Use BRs as priority sites/observatories for climate change research, monitoring, mitigation and adaptation, including in support of the UNFCCC COP21 Paris Agreement*.

33. This implies that the WNBR shall be mobilized in the implementation of the overall UNESCO Strategy for Action on Climate Change, including on education and public awareness, renewable energy, afforestation, reforestation, avoided deforestation, infrastructure development and urban planning and promoted as a suitable platform for United Nations cooperation in pursuit of SDG 13 and Paris Agreement implementation.

34. Priority may be given in this context to actions in sites that are designated both as World Heritage sites, biosphere reserves and/or UNESCO Global Geoparks as part of an overarching climate change observatory of UNESCO Sites (see section below under Implementation modalities on UNESCO Sites).

35. UNESCO, through the oceanographic commission-IOC, MAB and other programmes, notably LINKS, will also promote actions in the interphase between climate change and ecosystem services in the context of the Intergovernmental science-policy Platform on Biodiversity and Ecosystem Services (IPBES), as well as actions under the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of

Benefits Arising from their Utilization to the Convention on Biological Diversity (CBD) of relevance in a number of climate change discussions, such as in relation to efforts to reduce emissions from deforestation and forest degradation in developing countries (REDD+). This will be done in partnership with the CBD Secretariat, the ABS Capacity Development Initiative and the Union for Ethical BioTrade (UEBT) and through the International Blue Carbon Initiative (IOC in partnership with IUCN, CI).

36. UNESCO through WHC, in cooperation with MAB, will actively promote integrated climate change and biodiversity cooperation and synergies in the context of the Liaison Group of Biodiversity-related Conventions.<sup>1</sup>

### II.II.III. Climate Change and the Ocean

37. The ocean is key to regulate climate and mitigate of climate change. The Intergovernmental Oceanographic Commission of UNESCO (IOC-UNESCO) is the recognized United Nations focal point and mechanism for global cooperation in the study and observations of the ocean. Through its leadership in coordination and management of the Global Ocean Observing System (GOOS), activities of the Joint WMO-IOC Technical Commission for Oceanography and Marine Meteorology (JCOMM), and co-sponsorship of the Global Climate Observing System (GCOS), which supports and reports to the UNFCCC on the state of observations for climate, IOC provides essential information on the state of the ocean as a part of the climate system. In addition, IOC coordinates different programmes investigating the impacts of climate change and ocean acidification, e.g. via the Blue Carbon Initiative, Global Ocean Acidification Observing Network (GOA-ON), Global Ocean Oxygen Network (GO2NE), IOC Harmful Algal Blooms, etc. IOC's activities associated with marine technology transfer and capacity development, as well as with education and training, such as Ocean Teacher Global Academy, help Member States to fulfil their commitments to UNFCCC and the Paris Agreement.

38. IOC possesses recognized expertise and strong coordination role for monitoring and assessing the progress in implementing relevant SDG targets. As such, the Commission has been identified as “custodian agency” for a number of SDG 14 targets focused on marine pollution, ocean acidification and marine science capacity.

39. The IOC's International Oceanographic Data and Information Exchange programme (IODE) aims at facilitating the international exchange of ocean data and information through a global network of oceanographic data centres. The data available through these long-term archives have proved crucial in the studies on climate change. The Ocean Biogeographic Information System (OBIS) of IODE provides the world's largest global online open-access database (integration of >1,900 databases) and has become a reference point for tracking the impact of climate change on marine biodiversity.

40. A wide range of other related scientific research activities is ongoing and developing in particular the World Climate Research Programme (WCRP) jointly sponsored by World Meteorological Organization (WMO), IOC and the International Council for Science (ICSU), generating the new science that enables rigorous and unbiased reviews of the state of knowledge on climate processes and impacts. Through joint activities of WCRP and IOC, new assessments of global and regional sea-level rise and its implications for coastal zone management will be made. The WCRP Coupled Model Intercomparison Project (CMIP) will produce new predictions and projections of climate change that will enable a range of adaptation options and facilitate analysis of mitigation scenarios. Via the previously mentioned activities IOC, as well as WMO,

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<sup>1</sup> Comprised of: the Convention on Biological Diversity, the Convention on Conservation of Migratory Species, the Convention on International Trade in Endangered Species of Wild Fauna and Flora, the International Treaty on Plant Genetic Resources for Food and Agriculture, the Ramsar Convention on Wetlands, the World Heritage Convention and the International Plant Protection Convention.

have played and will continue to play a central role in providing authoritative scientific and technical information to support evidence-based policy and decision-making, enable climate services and to inform the work of the IPCC and, in particular, the future IPCC Special Report on climate change, oceans and cryosphere.

41. IOC has been and will continue to be instrumental in highlighting the role of the ocean in climate at previous climate summits and, especially, at the Paris COP21. It will keep working with Member States, UN agencies, NGOs, such as the Global Ocean Forum, the Ocean and Climate Platform, and IUCN, to mobilize the civil society, scientists and governments in order to ensure the visibility of the ocean in the UNFCCC agenda. The IOC social media presence will help to ensure the necessary level of outreach.

42. IOC further informs the Member States on the possibilities to enhance the adaptive capacities towards climate and ocean change. Entry points for IOC are the Integrated Coastal Area Management, via Coastal Adaptation handbooks, ocean governance (LME) and marine assessments such as the Transboundary Water Assessment Programme (TWAP).

#### II.II.IV. Climate Change Mitigation and Renewable Energy

43. Energy issues are relevant to the climate change discussions. A main outcome to reduce emissions and meet the SDG targets will call for new approaches related to the energy production and consumption, which calls for building a knowledge base and involves the definition of new energy strategies, as well as the increased use of sustainable and renewable energy sources. Addressing mitigation and adaptation to climate change requires sustainable and environmentally sound energy supplies. This involves enhanced national capacities to harness the locally available renewable energies and the identification of relevant energy choices and technologies.

44. Responding to the 2030 Agenda and the related climate action requires the promotion of comprehensive approaches to energy, climate change, and sustainable development. UNESCO plays a catalytic role in that process. Addressing the mitigation and adaptation to climate change requires sustainable and environmentally sound energy supplies. This involves enhanced national capacities to harness the locally available renewable energies and the identification of relevant energy choices and technologies.

45. In this context, UNESCO will mainstream energy related issues towards promoting environmentally sound renewable energy technologies, energy efficiency and sharing of best practices into its science policy work, the intergovernmental programmes (MAB, IHP, IGCP and MOST), and IOC. Notably UNESCO Sites can serve as models with a multiplier effect for energy efficient approaches.

#### II.II.V. Climate Change, Geology and Geological Resources

46. The UNESCO Global Geoparks, many of which contain the geological record of past periods of climate change have as one of their main objectives the need to educate and inform their local communities about present day climate change the challenges it will pose. Many promote the use of new, renewable technologies and through the Global Geoparks Network will continue to exchange new ideas and experience.

47. UNESCO's International Geoscience Programme (IGCP) through its theme "Global Change and the Evolution of Life" is helping to fund several studies into past periods of global climate change and how the environment responded at the time. This in order to better understand how sea level changes might happen and how ecosystems might respond today.



#### II.II.VI. Climate Change and Disaster Risk Reduction

48. Early warning and assessments, which identify emerging challenges, enable countries to pre-empt, respond and adapt to the potential impacts of climate change. Improvements in the availability and sharing of such information would greatly assist countries in developing long-term adaptation strategies and integrating these into national development and poverty reduction plans and strategies as well as United Nations system common programming exercises. The link between disaster risk reduction and climate change points to the need to increase the resilience of communities to extreme weather phenomena through systematic planning and capacity development, including through gender responsive components.

49. Climate change will significantly increase flash flood, landslide and mudflow hazards in mountainous regions both due to heavier rainfalls and because of glacier lake outbursts. A most pronounced effect of global warming in mountainous regions is the melting of glaciers and associated formation of glacial lakes, which confound and exacerbate the water-related threat to mountain communities, their settlements, livelihood, and infrastructure located on river floodplain areas. Due to the climate change this threat is expected to further increase as new lakes continue to develop and surrounding steep slope destabilize in response to warming. UNESCO will assist Member States in strengthening the monitoring and response capacities of countries through the establishment of early warning systems, supported with the necessary state-of-the-art monitoring strategies.

50. UNESCO assists Member States to provide a platform for enhancing cooperation in knowledge-sharing, policy advice and education for disaster preparedness and mitigation and supporting the further development of risk reduction networks including tsunami and other hazard warning systems (such as storm-surges, storms, floods, landslides and droughts). It also enhances education and public awareness on these topics and focus on promoting regional hazard monitoring and warning systems including tsunami warning systems and regional flood alert systems. UNESCO is and will contribute to the United Nations Platform on Space-based Information for Disaster Management and Emergency Response, which provides access to and develops the capacity of all countries to use space-based information to support disaster management.

51. The capacity of countries to monitor climate trends and utilize climate predictions is crucial in assessing the impacts of mitigation activities and effective strategies for adaptation to climate change, as well as in developing early warning systems on extreme climate events and hazards such as floods and droughts. Increased investment in scientific research to improve climate prediction, reduce uncertainties, and generate more precise and quantitative information on the impact of climate change at regional and local levels is required. The SAMOA pathway also highlights the need for downscaling of climate model projects to enable better projections of future impacts on SIDS.

#### II.II.VII. Climate Change and Indigenous Knowledge

52. The importance of indigenous knowledge in climate change action, particularly adaptation is embedded in the Paris Agreement (Article 7, Para 5). As the key UN actor in this domain, UNESCO will continue long-standing cooperation with indigenous peoples and relevant bodies, including UNFCCC, IPCC and WMO on good practices and methodologies bringing indigenous knowledge into assessment and policy.

53. UNESCO's Local and Indigenous Knowledge Systems (LINKS) programme promotes transdisciplinary research and assessments, based on indigenous knowledge, relevant for SIDS and communities worldwide experiencing early impacts of climate change. Multiple actions integrating indigenous knowledge and perspectives at all scales, including the community level, will be implemented to promote its inclusion in climate change policy and decision-making (see also section below on Priority SIDS).

54. The actions focus on understanding local climate observing systems, community strategies to cope with changing environments, and identifying adaptation priorities of vulnerable populations in small islands, high altitudes, sub-Saharan Africa's semi-arid zones, tropical rainforests and the circumpolar North. UNESCO is working with pastoralist women and men in African Least Developed Countries to bring their knowledge into the UNFCCC-led National Adaptation Plan (NAP) process. UNESCO is also collaborating with indigenous reindeer herders and scientists to elaborate transdisciplinary methods for adaptation in the Arctic.

### **III. Mobilizing creativity, diversity of cultural expression and cultural heritage preservation for climate change mitigation and adaptation**

55. Recognizing that the impacts of climate change are affecting many World Heritage natural and cultural sites and are likely to affect many more in the future, the Intergovernmental World Heritage Committee asked UNESCO's World Heritage Centre (WHC) and its Advisory bodies to investigate the impacts of climate change on World Heritage and strategies to address them. This led to the adoption, in October 2007, by the General Assembly of States Parties to the World Heritage Convention, of a policy document on the Impacts of Climate Change on World Heritage Properties. The document (<http://whc.unesco.org/en/CC-policy-document/>) identifies key research priorities for World Heritage sites, using them as laboratories for long-term climate change impact monitoring and testing of innovative adaptation solutions, emphasizes the importance of building synergies with other international conventions and organizations, and discusses the legal aspects of responding to the challenges.

56. Consequently, concern for climate change has been mainstreamed into the various operational mechanisms and processes of the Convention. In May 2014, the WHC also published a practical guide to Climate Change Adaptation for Natural World Heritage sites; and in October 2015, a special edition of the World Heritage Review (n°77) dedicated to Climate Change offering remarkable insights into specific aspects of climate challenges to World Heritage sites in different parts of the world.

57. Furthermore, in November 2015, the General Assembly of States Parties to the World Heritage Convention adopted a policy document on Sustainable Development, into which strengthening resilience to natural hazards and Climate Change has been integrated (<http://whc.unesco.org/en/sessions/20GA>). The policy states that in the face of increasing disaster risks and the impact of climate change, States Parties to the World Heritage Convention should recognize that natural and cultural World Heritage sites represent both an asset to be protected and a resource to strengthen the ability of communities and their properties to resist, absorb, and recover from the effects of a hazard.

58. Local communities living in vulnerable surroundings are among the first to suffer from climate change and natural hazards. As part of their intangible cultural heritage, their knowledge and practices concerning nature, including their ecological understanding, environmental conservation skills and rules, natural resource management systems, weather forecasting and management of biodiversity, constitute a rich repository of strategies to cope with natural disasters. Elaborated and adapted constantly to changing circumstances, they are time-tested tools that actively help local communities to adapt to climate change.

59. In order to clarify the interlinkages between the safeguarding of intangible cultural heritage and sustainable development in general, that includes Climate Change issues, the Intergovernmental Committee for the Safeguarding of the Intangible Cultural Heritage adopted, at its 10th session in December 2015, a new chapter of the Operational Directives for the Implementation of the 2003 Convention for the Safeguarding of the Intangible Cultural Heritage. This new chapter reflects recent developments in intergovernmental negotiations for the 2030 Sustainable Development agenda and includes several provisions dealing directly with the community-based resilience to natural disasters and Climate Change that is specific to intangible cultural heritage. It also emphasizes the role that living heritage

could play in mitigating Climate Change for instance through the recognition of communities and groups as the bearers of traditional knowledge about geoscience, particularly the climate.

60. States Parties are encouraged to acknowledge the contribution of the safeguarding of intangible cultural heritage to environmental sustainability and recognize that the latter requires ensuring a stable climate and sustainably managed natural resources, which in turn depend on improved scientific understanding and knowledge-sharing about climate change, natural hazards, the environmental and natural resource limits and that strengthening resilience among vulnerable populations in the face of Climate Change and natural disasters is essential.

61. States Parties to the 2003 Convention are also encouraged to foster scientific studies and research methodologies aimed at understanding and demonstrating the effectiveness of knowledge of disaster risk reduction, disaster recovery, climate adaptation and Climate Change mitigation that are recognized by communities as part of their intangible cultural heritage. Furthermore, States are solicited to adopt appropriate legal, technical, administrative and financial measures to promote access to and transmission of knowledge concerning the earth and the climate that is recognized by communities and groups as part of their intangible cultural heritage.

62. The UNESCO 2001 Convention on the Protection of the Underwater Cultural Heritage can provide vital evidence about how human populations have adapted to, or been affected by, Climate Change in the past. A substantial amount of prehistoric and historic evidence of the life of our ancestors is now submerged. These remains are now underwater heritage, and provide an extremely important source of information about the first human civilizations, human origins, and also about Climate Change and its impacts. As we face sea level changes, this heritage can help put the current challenges into a wider context. Many examples of the effects of Climate Change can be found in prehistoric submerged landscapes, sunken cities, harbour and port structures, and there is much still to be learned from the study and protection of Underwater Cultural Heritage.

63. In a general manner, the role of all the UNESCO's conventions in the field of culture in achieving the Paris Agreement through the protection of heritage and creativity is clear in several articles. Particularly relevant is the recognition of their importance in ensuring that *“adaptation action should follow a country-driven, gender-responsive, participatory and fully transparent approach, taking into consideration vulnerable groups, communities and ecosystems, and should be based on and guided by the best available science and, as appropriate, traditional knowledge, knowledge of indigenous peoples and local knowledge systems, with a view to integrating adaptation into relevant socioeconomic and environmental policies and actions, where appropriate”* (Article 7.5 of the Paris Agreement).

64. In short, UNESCO provides support to States Parties to its Conventions in the field of culture, especially those that are particularly vulnerable to the adverse effects of Climate Change, in strengthening their capacities to safeguard their heritage, both natural and cultural (tangible and intangible), and in implementing preventive and corrective measures to combat Climate Change impacts on their heritage, including through raising awareness, sharing of information, good practices, experiences and lessons learned, and developing pilot projects towards Climate Change mitigation, adaptation and resilience building.

#### **IV. Supporting inclusive social development, fostering intercultural dialogue and promoting ethical principles in relation to climate change mitigation and adaptation. [SDG 13 and 16]**

65. “Despite of the growing scientific consensus on the existence of climate change and the progress towards addressing the problem, there are still major challenges to the political and societal implementation of the solutions.” (COMEST, 2015).

66. “It is not always clear how to conceptualize many of the ethical questions raised by the various effect of global climate change, and on what basis choose between different conceptualizations. It is also not always clear how to interpret the common and differentiated responsibilities that international organizations, states, governments, non-governmental organizations, business or individuals may have in responding to climate change” (COMEST, 2010) This means that the clarification of the ethical principles remains as an important contribution to the international debate.

67. UNESCO is the only organization of the UN system with a specific mandate on ethics, and a unique track record in producing normative instruments, implementing them, through specific capacity building activities, educational material for diverse target populations (researchers, lawyers journalists, etc) and reports addressing policy makers in the field of bioethics and ethics of science and technology.

68. UNESCO’s environmental ethics programme, will work to improve education and awareness on the ethical dimensions of climate change, addressing questions crucial for decision-making such as how to assess the needs and rights of future generations, and how to determine what is worth protecting and at what cost or consequence, fairness in the distribution of burdens and benefits, equitable, the moral solidarity of human kind, respect of indigenous knowledge, among others.

69. Achieving this will require new ways of understanding and connecting with one another, tackling challenges at their root and enhancing a broader understanding of climate change, based on the principles of inclusiveness and using intercultural dialogue a key vehicle and tool. The vast scope of issues and questions related to climate change will require the empowerment of present and future generations to better equip them with the necessary knowledge, competences, skills and tools to exchange, communicate and cooperate across cultural, religious and national boundaries as responsible global citizens. The International Decade for the Rapprochement of Cultures (2013-2022) led by UNESCO, envisages an environment of stronger institutions, structures and mechanisms to promote peace, thus enabling human potential to flourish, and individuals driven by shared human values in living and working together as custodians of the same planet.

70. Moreover, this is the first time that the ethical dimension of climate change will be systematically incorporated in the work of the intersectoral UNESCO Task Force on Climate Change. After a long process of negotiations. It is also foreseen that in 2017, UNESCO’s General Conference will for the first time consider for adoption a new international normative instrument in the nature of a declaration of ethical principles in relation to climate change. By clearly announcing certain internationally-agreed principles for mitigation and adaptation, this document could inform efforts by and within states to further elaborate their commitments under negotiated treaties such as the Paris Agreement, and support the many various efforts to educate and communicate about the common moral obligations of humankind to fight climate change.

## **V. CLIMATE CHANGE AND UNESCO PRIORITIES**

### **V.I. Priority gender equality [SDG 13 and 5]**

71. As stated already in 2001 by the Intergovernmental Panel on Climate Change (IPCC), “climate change impacts will be differently distributed among different regions, generations, age, classes, income groups, occupations and genders” (IPCC, 2001). Gender-specific issues at stake include: (i) women are affected differently and more severely by climate change and its impact on agriculture, natural disasters, climate-change induced migrations because of social roles, discrimination and poverty; (ii) women are largely under-represented in decision-making processes regarding climate change, greenhouse gas emissions and

adaptation/mitigation; and (iii) there are significant gender biases in carbon emissions and hence carbon footprints due to women's and men's economic production and consumption patterns.

72. As women suffer disproportionately from poverty, they will also suffer most when erratic weather brings droughts or floods to marginal lands or crowded urban areas where poverty is most felt. While existing evidence underscores the vulnerability of women to climate change, there is also a wealth of evidence which underlines that women play an important role in supporting households and communities to mitigate the effects and adapt to climate change. Women are most of the world's farmers, household resource managers and caregivers; and women have led – and continue to lead – many of the most innovative responses to environmental challenges. At the local level, women provide particular kinds of social capital for mitigation, adaptation and coping with environmental change, actively organizing themselves during and after disasters to help their household and community.

73. Women are also in the best position to influence changes in behaviour for better disaster risk management as well as participate in and manage post-disaster efforts. Women are also able to map risks and vulnerabilities from their own standpoint and to play an important role in early warning. Women's knowledge in adaptation (traditional and community specific) is an important resource in education for sustainable development. As effective agents of change in relation to mitigation, adaptation and education for sustainable development, enhancing women's capacities to address climate change is a critical area of action. Women's access to resources as well as their involvement in decisions and the development of policies related to climate change is of utmost importance both to identify their specific needs and priorities but also to make full use of their knowledge and expertise, including traditional practices.

74. Men and women have different access to public awareness information, including early warning systems. These societal and cultural issues must be an integral part of providing truly universal access to information, especially with a view to enhancing gender equality in this vital area.

75. UNESCO will therefore work to raise awareness of gender specificities in adaptation and mitigation to climate change, including through the collection and use of sex-disaggregated data, mapping of gender-specific emissions profiles, and differences in mitigation and adaptive capacities and strategies.

76. Based on the information to be delivered by the Global Ocean Science Report, which will be published in 2017, a disaggregated overview of gender distribution of researchers in different fields of ocean science will be provided by IOC, including marine science with the focus of climate change. These data will serve as a baseline for biennial performance indicators and targets for the next quadrennial period.

## **V.II. Climate Change and Priority Africa**

77. Recognizing that climate change could endanger future well-being of the population, ecosystems and socio-economic progress of Africa and cognizant of the vulnerability of African economic and production systems to climate change and climate variability and the continent's low mitigation and response capacities, UNESCO aims to improve education, outreach and the policy dimension of addressing climate change in African countries, in addition to its direct contribution to the regional knowledge base. Particular attention shall be paid to the development of science and technology and related policies, as stated in the UNESCO contribution to the African Union Science and Technology Consolidated Plan of Action.

78. To assist with adaptation strategies along the coast of West Africa the continuing IOC Integrated Coastal Area Management Project incorporates a human dimensions component. This is an example of what shall become common practice: incorporating social and policy aspects into all ongoing climate-related science projects in the region.

79. In the area of water UNESCO's International Hydrological Programme (IHP) is implementing projects related to knowledge generation and capacity-building for water management under climate stress in all regions of Africa. IHP is also studying the impacts of global changes on river basins and groundwater resources with a focus on transboundary aquifers and SIDS groundwater systems, enhancing resilience to climate disasters (flood and drought) and urban water needs. This includes the first ever multi-disciplinary assessment of groundwater resources in 199 transboundary aquifers and 42 small islands, and the development and implementation of an experimental drought monitor project for Africa that provides near real-time monitoring of land surface hydrological conditions, based on modelling supported by remote sensing to improve capacity-building and adaptation to climate change.

80. The IOC is committed to assist and develop the capacities of its Member States in Africa by brokering innovation and learning, facilitating the transfer of marine technology and providing science-informed policy advice for the implementation of integrated ocean governance and management.

81. African biosphere reserves, particularly in Central Africa and the Congo Basin, will be promoted as sites for pilot projects for reduced emissions from deforestation and degradation (REDD), thus addressing climate change mitigation.

82. UNESCO and the African Union Commission have embarked on an innovative initiative called UNESCO Green Academies, which are places to establish physical infrastructure and provide training for climate resilience, environmental education, and peace development. They can be kindergartens, schools, colleges, and universities. African UNESCO sites, i.e. Biosphere Reserves, Global Geoparks, World Heritage Sites, as well as major cities, will be promoted to function as platforms and places for UNESCO Green Academies. 'Guidelines for UNESCO Green Academies in Africa – globally applicable' are currently being developed, and the first ever UNESCO Green Academy has already been inaugurated inside the Lake Tana Biosphere Reserve in Ethiopia.

### **V.III. Priority SIDS: Climate Change in the UNESCO SIDS Action Plan**

83. With an increasingly changing global environment, due in particular to climate change, impacts are showing to be particularly devastating for SIDS, due to their continuing reliance upon natural resources for food security, health, shelter and livelihoods. This was the case in 2015 in Vanuatu after the Cyclone Pam, or more recently after the Cyclone Winston, which hit Fiji in February 2016. The consequences of this global environmental change (coastal inundations from sea level rise, droughts, extreme climatic events, expanding urban or industrial development, establishment of protected areas), exacerbate competition for already scarce resources, such as food, water and accessible land, leading to conflicting contexts at a local level. The complexity of the challenges faced by SIDS is very specific and requires an intersectoral and interdisciplinary approach.

84. The specific concerns of the SIDS were reiterated by the international community at the Third International Conference on SIDS (Apia, Samoa, September 2014), in the 2030 Agenda for Sustainable Development, as well as at the UNFCCC COP21 (Paris, France, December 2015). The outcomes of these events shaped the development of the UNESCO long-term SIDS Action Plan approved by the UNESCO Executive Board in spring 2016.

85. The dedicated UNESCO SIDS Action Plan proposes a set of objectives and follow-up actions to address the unique vulnerabilities and challenges faced by SIDS. It represents UNESCO's engagement in the implementation of the SIDS Accelerated Modalities of Action [S.A.M.O.A.] Pathway. The Action Plan echoes many articles of the SAMOA Pathway, including *Climate Change* (paragraphs 31-46), and reflects the 2030 Agenda for Sustainable Development, including the corresponding SDGs and some of their specific targets

such as SDG 13 on Climate Action. It also implements certain articles of the Paris Agreement, in particular articles 4, 6, 7.5, 10, 11, 12 and 14.

86. The focus of the Action Plan consists in five priority areas and aims at reinforcing SIDS human and institutional capacities via education and capacity-building; strengthening SIDS preparedness and response to natural disaster events and population related consequences; enhancing the resilience and sustainability of SIDS ecosystems; promoting social transformation, inclusion and justice; preserving tangible/intangible cultural and natural heritage; as well as increasing connectivity, information management and knowledge sharing in SIDS. The Action Plan mobilizes UNESCO's multidisciplinary expertise from all its programme sectors, in close collaboration with SIDS local partners and communities, to address their unique vulnerabilities and multifaceted challenges exacerbated by climate change.

87. One of the actions proposed to reduce island vulnerability and enhance resilience in the face of global environmental change is the Sandwatch project. Through its broad-based participatory and integrated citizen-science MAST (Measure/Monitor, Analyze, Share, Take Action) approach, Sandwatch helps, communities and policy-makers anticipate threats and co-design potential adaptive solutions and policies to reinforce their resilience and contribute to global assessment process.

88. IOC's engagement in support of SIDS is guided by the IOC SIDS Action Plan and Strategy adopted by IOC Member States in June 2016 in response to the SAMOA pathway, with particular emphasis on the building of SIDS actions related to tsunami early warning systems, the development of marine scientific and technological capacity of SIDS, and enhanced cooperation to assess ocean acidification impacts.

89. The Sendai Framework for Disaster Risk Reduction 2015-2030 highlights international, regional, sub-regional and transboundary cooperation and calls for a broad and more people-centred preventive approach to disaster risk. It specifies seven global targets, among which is the need to substantially increase assistance to developing countries to complement their national action and ensure access to multi-hazard warning systems and disaster risk information and assessment by 2030. At present, the IOC coordinates a global tsunami warning system supported by four regional tsunami warning systems in all tsunami-prone areas of the ocean. The IOC's hazard warning system develops in complete accordance with the Sendai Framework and is highly relevant in the context of SIDS and low-lying coastal countries.

90. In the domain of freshwater, due to the unique characteristics of SIDS, the length of surface water circulation is relatively short and this limits the methods available to use surface water resources. This consequently increases their dependence on groundwater resources for drinking water, water supply and agriculture. A recent UNESCO-IHP global multi-disciplinary assessment of groundwater resources in 42 small islands (Caribbean, Africa and Asia-Pacific) revealed that 70% of islands are at risk of water scarcity (with a peak of 91% for low-lying islands), and that sound groundwater resources management is hampered by the lack of data, and poor legal and institutional frameworks. The results also point out the importance of groundwater resources in climate change mitigation and adaptation strategies for SIDS as it is more resilient to the effects of climate change than surface water. In this context, UNESCO is committed to provide Member States with tools to promote sound management of groundwater resources in SIDS.

#### **V.IV. Priority youth - actors in understanding and addressing climate change**

91. Climate change impacts a wide range of sectors that affect the lives of all populations, particularly those of young women and men. The environmental, social and economic consequences of climate change impact youth access to safe and adequate water and food, as well as to education, good health, housing, work and an overall standard of living. Climate change also exacerbates poverty and enhances migration, leading to challenges related to the social inclusion of young migrants.

92. Youth embody the present and the future of the planet. There are currently 1.8 billion young people between the ages of 10 and 24 in the world. This is the largest youth population ever, and in many countries young women and men constitute the majority of the population. These young people, however, are also the most educated, with strong social and environmental awareness and the power to transform societies towards a climate resilient future. As such, youth should play a major role in both understanding and addressing climate change.

93. In line with the UNESCO Operational Strategy on Youth (2014-2021), the role of youth in leading change, by mobilizing their energy and ideas to address climate change, will be particularly emphasized. UNESCO will mobilize its youth networks, including young scientists, to promote mitigation and adaptation to climate change by encouraging their involvement as knowledge holders, innovators and leaders in policy processes, as well as in education and public awareness campaigns. Building capacities of youth to become today's and tomorrow's drivers of green economies, green growth and sustainable development will be a particular priority. This will not only tackle climate change in the long term, but will also respond to major concerns regarding youth employability and livelihoods, and will enhance their recognition and inclusion as key actors in the development of our societies.

94. The inter-sectoral innovative initiative called 'UNESCO Green Academies' has the youth at its heart. The young students will learn about climatic patterns and zones, dry and wet seasons, precipitation and evaporation, water harvest and storage, waste-water-recycling and waste-management, sanitation and hygiene, production of food-crops, availabilities and application of clean energies, as well as root-causes of migration, conflict-management, and peace-development, in an economically realistic and achievable context. This innovative programme initiative is currently being developed and it will be tested in a number of selected pilot projects. The test will be conducted after some time, and it will include data collection on behavioral change of the involved people (youth and adults), enhanced knowledge on climate resilience and science-based urban ecosystem management, as well as peace development. The test will also include data on practical climate resilience of the concerned properties, including water-security, food-security, and renewable energy. The first UNESCO Green Academy was inaugurated in April 2016 in Ethiopia.

## **VI. COLLABORATION, PARTNERSHIPS AND OUTREACH**

95. Drawing on its rich and diverse expertise, UNESCO seeks to ensure effective cooperation related to climate change across its good many programmes, networks and constituencies, including UNESCO Chairs, and Centres, UNESCO National Commission, National Committees and the NGO Liaison Committee,

96. UNESCO is collaborating in synergy with UN partner Organizations in order to avoid overlaps, consistent with established common core principles for a UN System-wide approach for climate action.<sup>2</sup> Through the 'UNESCO for COP' Partnership Initiative (U4C), UNESCO seeks to cooperate with COP host countries for the mobilization and engagement of the scientific, educational, media, and private sector communities, as well as the public at large, for enhanced climate change awareness and action in the lead-up to, during and in the follow-up to UNFCCC COPs.

97. UNESCO is also seeking to increase its partnerships with relevant private sector partners and branch organizations esteemed for their climate change and sustainable development credentials in industry, business and finance.

98. Established in 2015 by the Director-General, the UNESCO Task Force on Climate Change is a platform for information sharing, action project design, policy development, fundraising and interagency

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<sup>2</sup> Common Core Principles for a UN System-wide Approach to Climate Action is contained in the Report of the High-Level Committee on Programmes (HLCP) of the United Nations System Chief Executives Board for Coordination (CEB) at its Thirty-First session (document CEB/2016/4)/



cooperation with representation of all sectors and central services and dedicated focal points in Field Offices. The Natural Sciences and the Social and Human Sciences Sectors are co-chairing the Task Force' Executive Office under the leadership of the Assistant Director-General of Natural Sciences.

99. UNESCO's work on climate change is communicated through the Organization's general communication channels, such as through publications, information on the web and through social media.<sup>3</sup>

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<sup>3</sup> <http://en.unesco.org/themes/addressing-climate-change>  
<https://www.facebook.com/ClimateUNESCO/>