



WORLD
METEOROLOGICAL
ORGANIZATION

POLICY BRIEF

The Role of National Meteorological and Hydrological Services (NMHSs) in Implementation of Intended Nationally Determined Contributions (INDCs)

Executive Summary

Intended Nationally Determined Contributions (INDCs) are key instruments for enabling climate action under the United Nations Convention on Climate Change (UNFCCC). As such, it is essential that they benefit from scientific information on climate variability, trends and extremes and contain provisions that promote the climate services needed to support INDC implementation.

As of 4 April 2016, 161 INDCs have been submitted to the UNFCCC Secretariat, covering 189 (96%) of the Parties to the Convention. The Parties that have communicated INDCs account for approximately 99 per cent of the emissions of all Parties to the Convention. All Parties included information on their mitigation contributions. A total of 137 Parties, accounting for 83 per cent of the INDCs, also included an adaptation component.

All INDC adaptation components include information on key impacts and vulnerabilities. Parties reported on observed climate changes or projections of future changes, the most vulnerable sectors or geographical zones, high-risk impacts and incurred costs associated with extreme events. In terms of climate hazards, the main sources of concern identified by most Parties are flooding, sea level rise and drought or desertification.

In total, 66 Parties out of 189 (35%) have used climate services terminology in their INDCs. Sub-Saharan Africa invoked climate services the most, followed by Latin America and the Caribbean. This indicates the degree to which developing countries are concerned with the use of climate services.

Priority areas and sectors identified in the adaptation component of the communicated INDCs include water, agriculture, health, ecosystems, infrastructure, forestry, energy, disaster risk reduction, food security, coastal protection, and fisheries. These areas include all Global Framework for Climate Services (GFCS) priority areas and align with the implementation plan.

The INDCs show the increasing interest of Parties in enhanced cooperation to achieve climate change goals collectively through a multilateral response, and to raise ambition in the future. In particular, Parties stressed the need for strengthening finance, technology transfer and capacity-building support for climate action as a means of creating an enabling environment and scaling up action. This Policy Brief is intended to facilitate understanding concerning the role of NMHSs in implementation of INDCs at national level. NMHSs are encouraged to access the INDCs submitted by their governments and explore the sectors and areas of competency to which they can actively contribute during implementation.

1. Introduction

The INDCs were requested under the Ad Hoc Working Group on the Durban Platform for Enhanced Action during COP19. They served as a basis for the negotiations that led to the Paris Agreement¹.

Under the Paris Agreement, at COP 21, INDCs were replaced by Nationally Determined Contributions (NDCs). Under Article 4 (para. 2), the Paris Agreement states: "Each Party shall prepare, communicate and maintain successive nationally determined contributions that it intends to achieve. Parties shall pursue domestic mitigation measures, with the aim of achieving the objectives of such contributions." As of 4 April 2016, 161 INDCs have been submitted, covering 189 Parties to the Convention, representing 96 per cent of Parties to the Convention.

This Policy Brief identifies potential roles of National Meteorological and Hydrological Services (NMHSs) in contributing and implementing INDCs along with other governmental sectors at national level. A full version analysis of INDCs in this regard is available on the WMO webpage:

<http://public.wmo.int/en/our-mandate/climate/wmo-unfccc-cop>

Article 2 of Paris Agreement describes the need to holding the increase in the global average temperature to well below 2 degrees above pre-industrial levels and pursue efforts to limit the temperature increase to 1.5 degrees above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change. With the submission of NDCs from 2016 to 2020, countries are required to provide national plans consistent with this objective. Furthermore, the Paris Agreement also establishes the need to adapt to climate change.

In addition, article 6 (para. 8) of Paris Agreement states that NDC implementation shall enhance public and private sector participation and shall enable opportunities for coordination across instruments and relevant institutional arrangements. Moreover, the Paris Agreement stresses the relevance of cooperation in reaching its goals, and that developed country Parties should support developing country Parties financially with respect to both mitigation and adaptation. Parties shall also promote technology development and transfer in order to improve resilience to climate change and to reduce greenhouse gas (GHG) emissions. Finally, capacity-building is highlighted as very important for developing and least developed countries, in order to help them take effective climate change action.

2. Mitigation

Mitigation includes reducing GHG emissions and enhancing sinks and reservoirs. The Convention requires the Parties to formulate and implement programmes to mitigate climate change, to develop and update national inventories of GHG emissions and removals, to promote and cooperate in the development, application and diffusion of climate friendly technologies, and to adopt national policies and measures to limit GHG emissions and protect and enhance sinks and reservoirs.²

Mitigation commitments may be in the form of "actions", policies and projects. They can also be presented in form of outcomes-- reduction of GHG emissions to a specific level (GHG outcome) or an increase in renewable energy to a specific level (a non-GHG outcome) (WRI, 2015)

WMO is leading and advocating for reliable, long-term, high-quality observations of atmospheric composition changes through the WMO Global Atmosphere Watch (GAW). GAW is currently developing ambitious plans for tracking GHG fluxes through the

¹ Paris Agreement. FCCC/CP/L.9/Rev.1.UNFCCC Secretariat. 2015. Available at: http://unfccc.int/meetings/paris_nov_2015/items/9445.php

² UNFCCC website. Accessed on the 04/07/16 <http://unfccc.int/focus/mitigation/items/7169.php>

Integrated Global Greenhouse Gas Information System (IG3IS). IG3IS will support post-COP21 actions by nations, sub-national governments, including cities, and the private sector by providing data that can be used for planning purposes and for possible improvements of national GHG emissions inventory reporting. IG3IS complements national emission inventory reporting, and adds value as a scientific observations-based tool in support of policy, improvement of future climate scenarios, and in fostering carbon cycle science.

3. Energy

Renewable energy was highlighted in several INDCs. Related actions are aimed at increasing the share of, and improving, access to clean energy, such as feed-in tariffs, investment programmes for renewable energy generation and the improvement of the grid infrastructure to make it fit for renewable energy sources. Several Parties communicated quantified renewable energy targets, with some aiming to achieve 100% renewable energy supply.

Actions to achieve energy efficiency, highlighted in several INDCs, include: energy efficiency standards; the modernization of energy generation and transmission infrastructure; the promotion of smart grids; efficiency improvements in industrial processes and the building sector; and energy conservation standards.

Climate-related information relevant to mapping of renewable resources (wind and solar), energy operations, demand estimation (heating and cooling), and design standards can contribute substantially towards achieving these objectives.

4. Adaptation

Adaptation is a process of adjustment to actual or expected climate and its effects. In human systems, adaptation seeks to moderate or avoid harm or exploit beneficial opportunities. In some natural systems, human intervention may facilitate adjustment to expected climate and its effects. Climate Services are key in those areas (IPCC, 2014, p. 5).

Countries need to adapt to climate change and, even though they are not obliged to include adaptation within their INDCs, they are invited to do so. By 2 April 2016, 137 Parties, including 46 LDC Parties, had included an adaptation component in their INDCs. The UNFCCC secretariat received INDCs including adaptation components from 54 African States, 42 Asia-Pacific States, 30 Latin American and Caribbean States, seven Eastern European States and two Western European and other States. Some of them indicated that adaptation is their main priority in addressing climate change. The main adaptation planning mechanism mentioned within INDCs is the National Adaptation Plan (NAP) (WRI, 2015). NAPs were established by the UNFCCC to facilitate adaptation planning in Least Developed Countries (LDCs) and developing countries. NAPs are expected to guide the allocation of significant climate finance in the future.

In the context of climate change adaptation, NMHSs are critical actors in national development planning within almost all sectors, as they serve as major custodians and providers of data and competencies required to support climate change research and climate services which underpin adaptation at national level. Key services include provision of information, scientific advice and predictions on climate variability, trends and change (including at the policy level). NMHSs are encouraged to continue their active role in the UNFCCC Least Developed Expert Group (LEG) process and to provide technical advice to LDCs for preparing and implementing NAPs and other contributions to the LDC work programme.

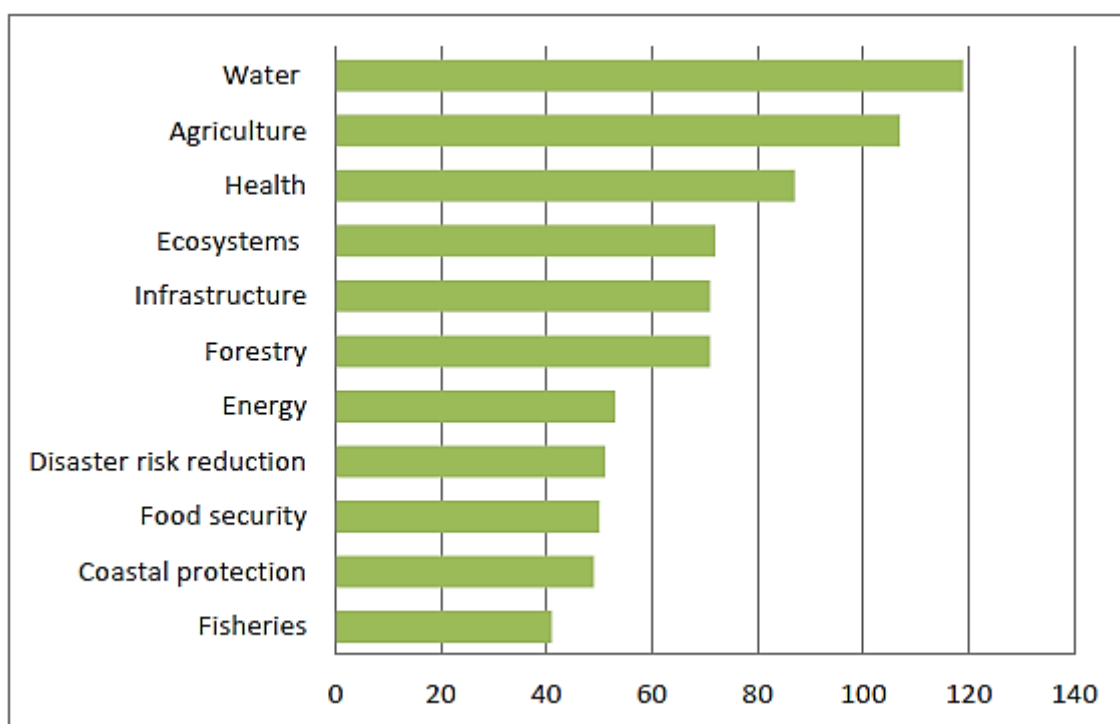
WMO has become the first United Nations agency to formalize its relationship with the Green Climate Fund (GCF), having signed its Accreditation Master Agreement with GCF. WMO has started to prepare and submit proposals on weather and climate services in

line with GCF investment priorities to be considered for funding by the GCF Board. This development represents an important milestone for both GCF and the United Nations system, signaling the role of the Fund in supporting international organizations to advance low-emission, climate-resilient development and adaptation.

5. The role of NMHSs

Nowadays, 191 NMHSs, to various degrees, are involved in provision of climate services thanks to many years of research, investment, coordination, collaboration and effort. Paris Agreement has the potential to significantly influence demands on NMHSs for user-oriented weather, hydrological, climate and related environmental services to meet the evolving needs of governments, partners and other decision-makers to achieve sustainable development. The mandates and efforts of NMHSs contribute to enhancing the safety and well-being of society, ending poverty, sustaining development and economic growth, improving access to clean drinking water, enhancing food production, achieving good health outcomes, mitigating and adapting to climate change, exploiting renewable energy sources and increasing the prosperity of their populations. (WMO No.1170, 2016). In addition to their relevance for UNFCCC and the Paris Agreement, these mandates and efforts also support achievement of climate-sensitive Sustainable Development Goals (SDGs).

WMO and NMHSs make essential contributions to both adaptation and mitigation through implementation of Global Framework for Climate Services (GFCS) in climate-sensitive sectors, such as agriculture and food security, water resource management, health, energy, and disaster risk reduction. Climate services are also essential for mitigation, through agriculture, forestry and land use, the promotion of climate-sensitive renewable energy sources and energy efficiency.



Priority areas and sectors for adaptation actions identified in the adaptation component of the communicated INDCs (UNFCCC, 2016)

6. Conclusions

Within the Paris Agreement, INDCs (NDCs in the near future) are key instruments to pursue the Convention's objective and to address climate change. Within NDCs³, adaptation and mitigation are the main tools to achieve the Paris Agreement's goal. NMHSs have important contributions to make in the formulation and implementation of adaptation and mitigation plans. Capacity development for climate services can help, to strengthen the response particularly of developing and least developed countries to climate change.

WMO is already working with its Members to prepare GCF submissions along these lines. NMHSs are encouraged to explore ways for participation in implementation of INDCs submitted by their respective countries and contact the GCF Nationally Designated Authorities to explore the use of the GCF for promoting climate services. Closer cooperation among governmental and non-governmental stakeholders at national level related to preparation of the NDCs will provide stronger grounds for increasingly effective action in the future.

7. References

- IPCC (Intergovernmental Panel on Climate Change), 2014. *Climate Change 2014: Impacts, Adaptation and Vulnerability, Summary for Policymakers* (Working Group II contribution to the fifth assessment report of the intergovernmental panel on climate change). Cambridge: Cambridge University Press.
- UNFCCC (United Nations Framework Convention on Climate Change), 2016. *Aggregate effect of the intended nationally determined contributions: an update*. FCCC/CP/2016/2
- WMO No. 1170, GFCS, 2016. *Climate Services for Supporting Climate Change Adaptation: Supplement to the Technical Guidelines for the National Adaptation Plan Process*. Geneva, Switzerland.
- WRI (World Resources Institute), 2015. *Decoding Intended Nationally Determined Contributions (INDCs): A Guide for Understanding Country Commitments*. Washington DC, USA

³ By its decision 17CP.21, paragraph 22, the Conference of the Parties (COP) invited Parties to communicate their first NDC no later than when the Party submits its respective instrument of ratification, acceptance, approval or accession of the Paris Agreement. In the same paragraph, the COP further stated that if a Party has communicated an INDC prior to joining the Agreement, that Party shall be considered to have satisfied the provision of decision 1/CP.21, paragraph 22, unless that Party decides otherwise.