



**Climate
information for
adaptation
(ClimAdapt)
Workshop**

As part of a training
package developed in
partnership between
WMO and KMA

**15 November, 2021
08:00 – 09:30 UTC**

Session 5



DAPSCIM - LCA / UV



Session 5

“The role of National Meteo-Hydrological Services in adaptation planning”

Jorge Luis Vazquez-Aguirre

Member of the WMO Expert Team on Climate Information for Decision Making (ET-CID)



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Outline

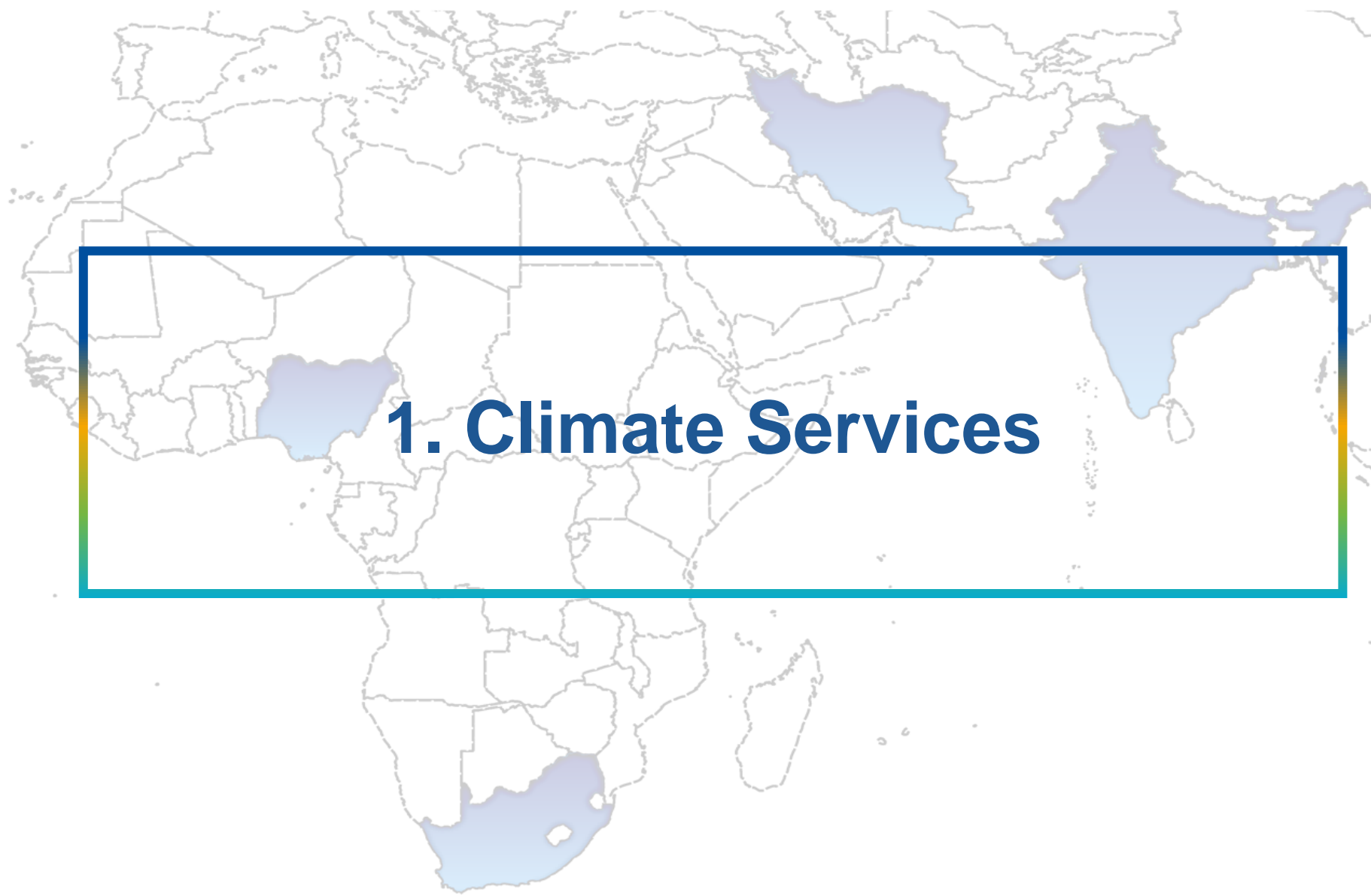
1. Climate Services
2. Climate-related Risks
3. Seamless approach for adaptation
4. National Meteorological and Hydrological Services (NMHS)

Suggested readings: WMO No. 1170, available at:

https://library.wmo.int/doc_num.php?explnum_id=7936

<https://community.wmo.int/resolution-40>

https://library.wmo.int/doc_num.php?explnum_id=4192



1. Climate Services



Principles for Climate Services implementation

1. Priority to the most
vulnerable

2. Increased availability,
access and use of climate
services.

3. Domains: global, regional
and national.

4. Operational

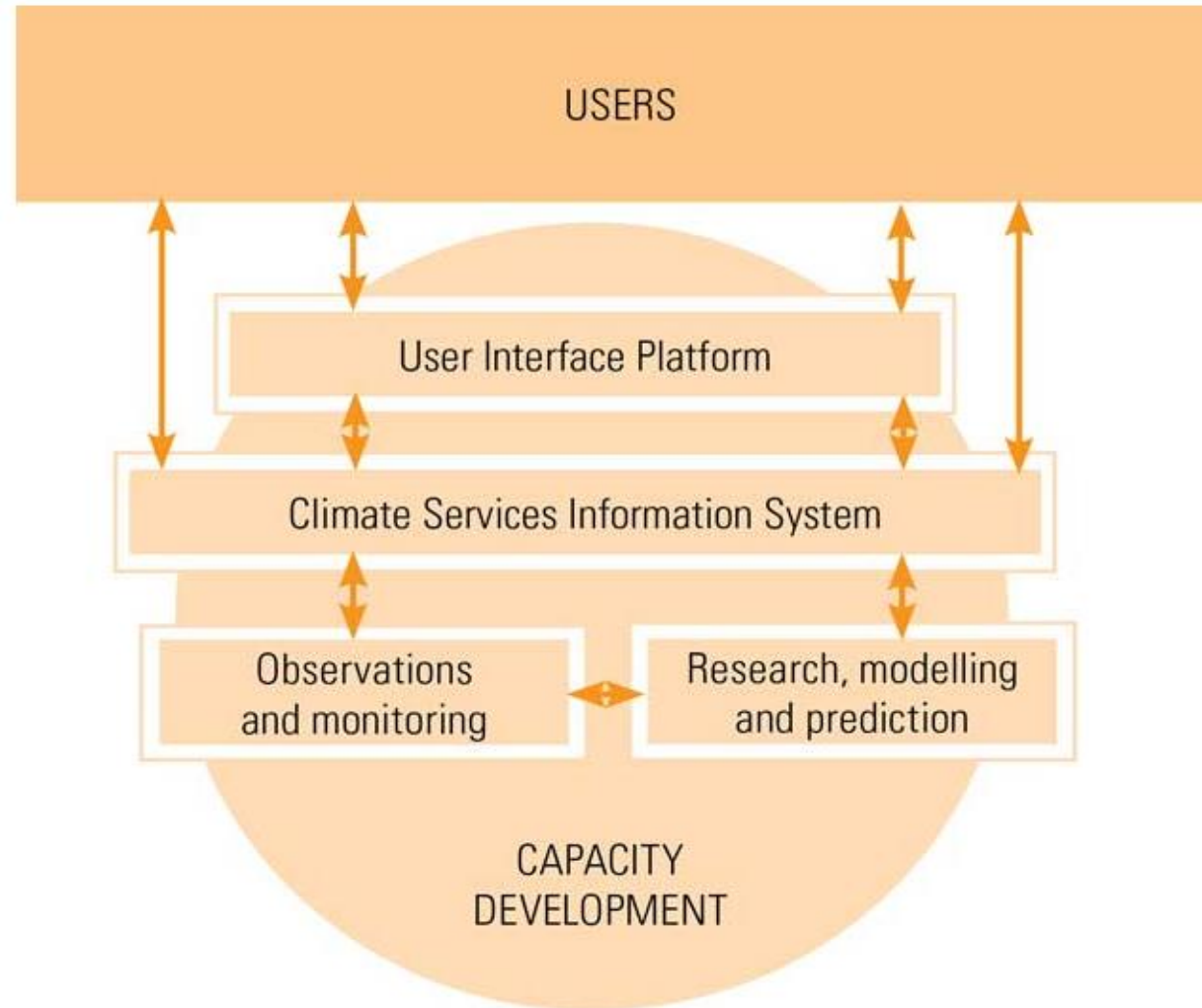
5. Free and open exchange of
climate-relevant information

6. No duplicity

7. User–provider
partnerships



Global Framework for Climate Services Pillars





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Climate Services - Priority Areas



Agriculture and
food security



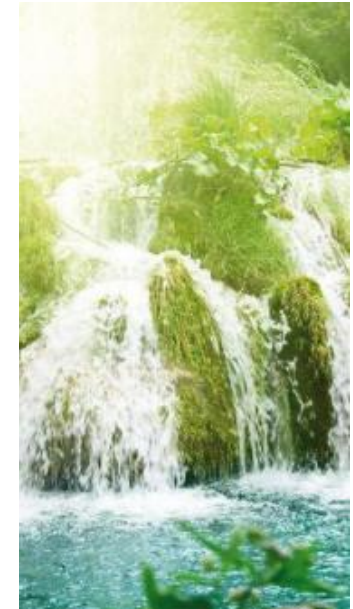
Disaster risk
reduction



Energy



Health



Water





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Pre-requisites

A climatic product (i.e. an S2S prediction) that is transformed in a climate service, should fulfill the following pre-requisites, as it is established in GFCS:

- a) Availability:** timely as requested by user sector, often delivered at variable dates in the case of outreach meetings and at fixed periodical dates in webpages or printed media.
- b) Reliable delivery:** depends at some extent on strict demand from user sectors, but depends strongly on institutions that produce predictions, it ensures that information is readily available whenever needed.
- c) Credibility:** medium-high at present (according to enquiries with users), should be based on verification metrics and skill assessment.
- d) Sustainability:** to ensure it will continue in the future and it feasible to be produced operationally.



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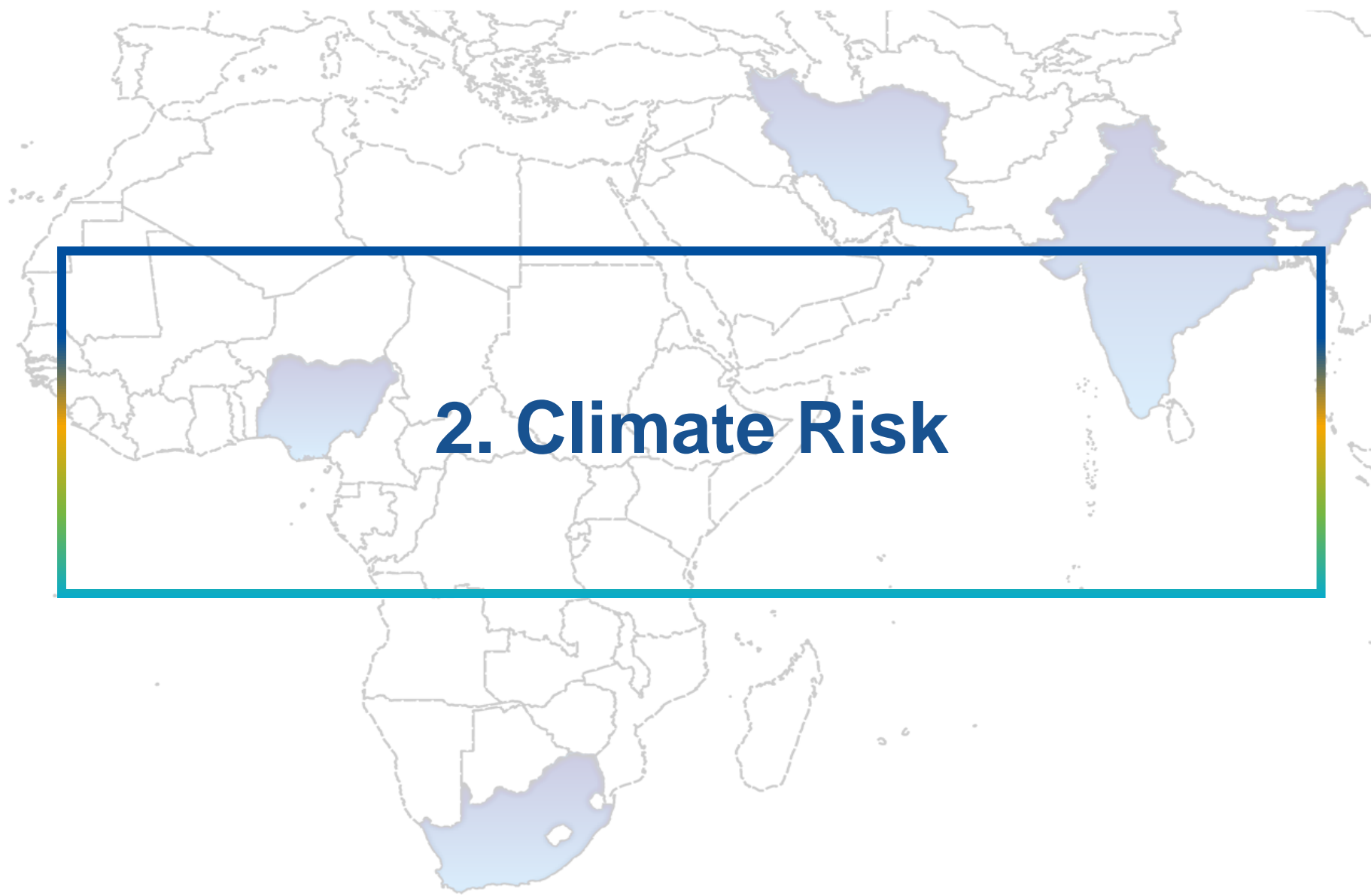
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Pre-requisites

- e) **Flexibly adaptable:** available predictions should contain the ability to provide information for user-specified formats.
- f) **Usability:** seasonal predictions are used by a wide range of users and sectors in the Mesoamerican region, mostly agriculture and food security, water management, health and farm and livestock risk management. In Mexico predictions are used mainly by water managers but barely by other sectors; therefore usability relies on constantly updated forecasts and strategies for increased awareness/engagement.
- g) **Authenticity:** current predictions based on analogues are authentic and newly predictions derived from models need to apply verification to be considered realistic.



2. Climate Risk



Climate-related Risk (according to the IPCC)

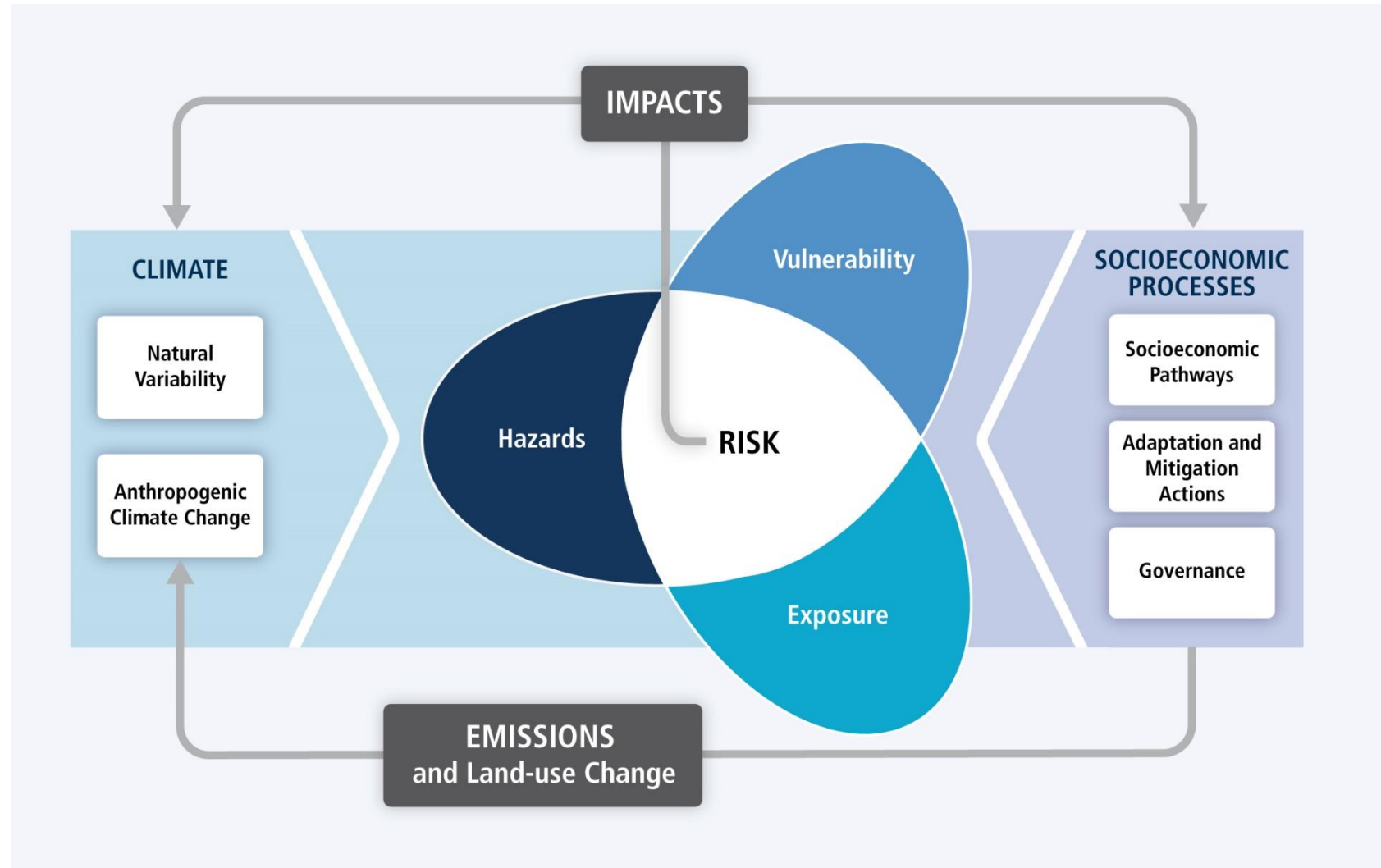


Figure SPM.1 at <https://www.ipcc.ch/report/ar5/wg2/summary-for-policymakers/>



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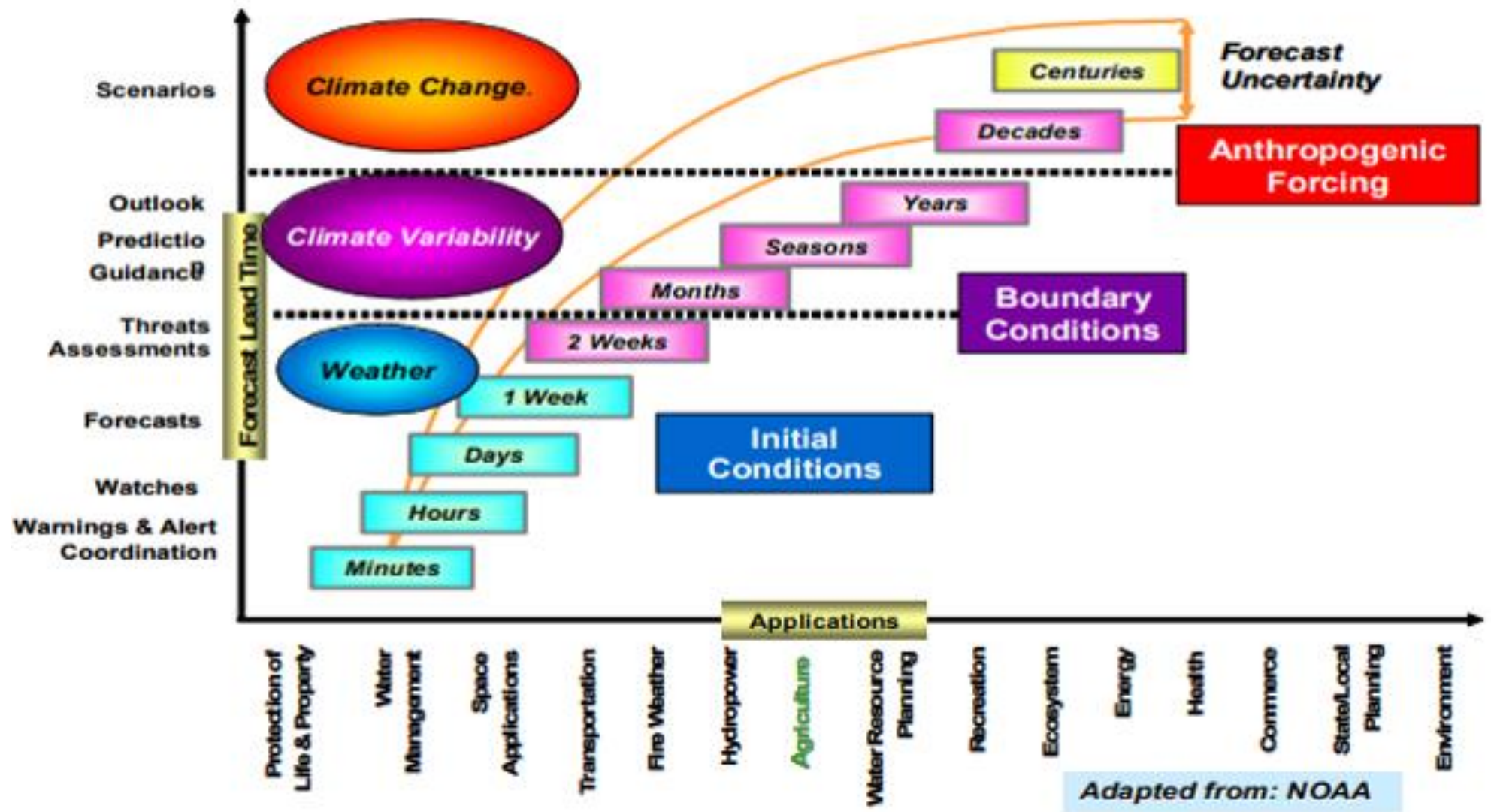
Resources for Climate Risk Management

- Climate services frameworks (global, regional, national)
- Early warning systems (multi-Hazard)
- Insurance and reinsurance schemes, weather derivatives
- Local or community driven response mechanisms
- Building or increasing resistance/resilience to risks
- Immediate response (present)
- Lessons learnt for adaptation (for the future)
- Climate-related funding (disaster risk reduction, adaptation, mitigation, international development, banks, others)

3. Seamless approach for climate adaptation



Multi-scale, multi-hazard vs products & services





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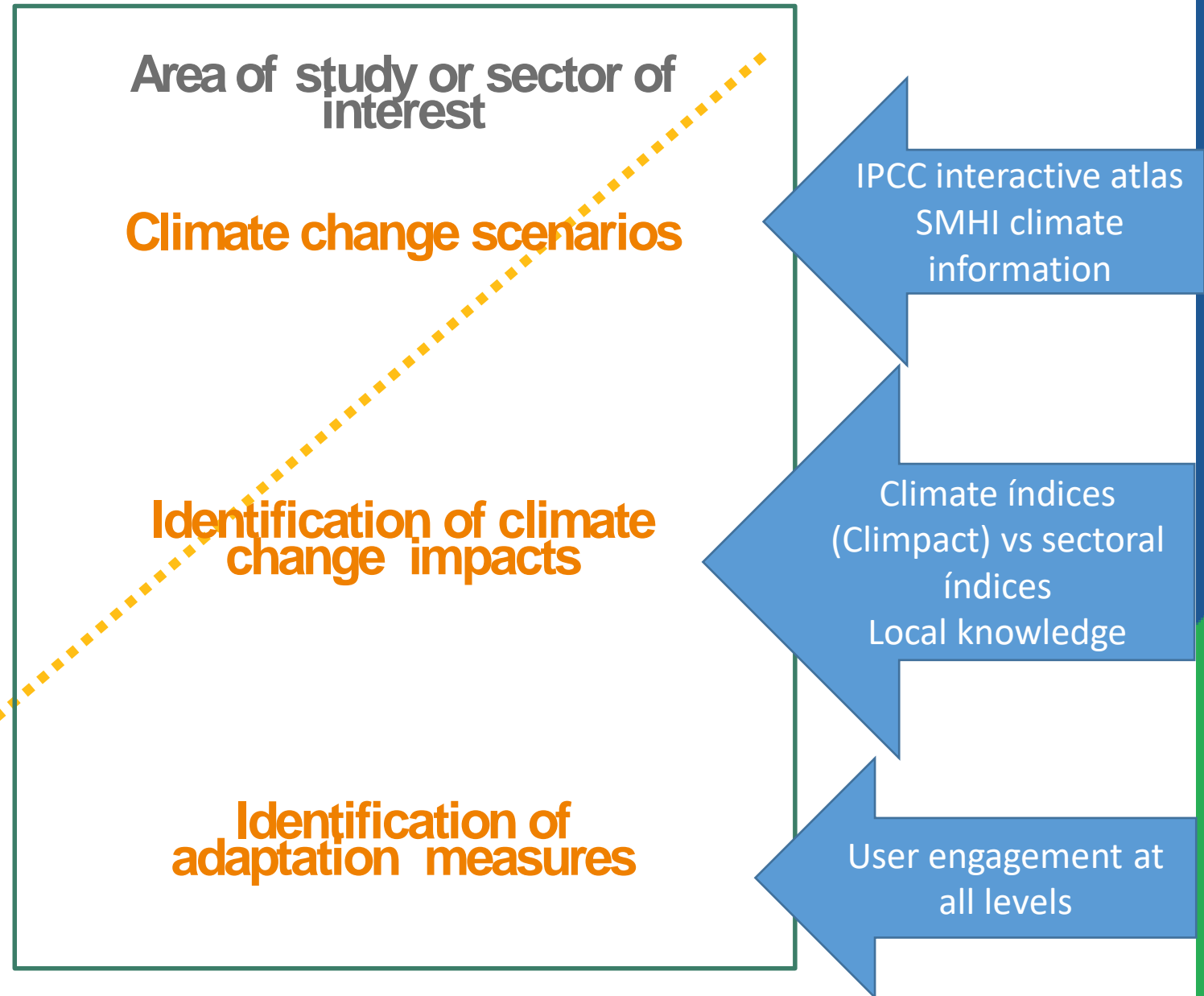
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Adaptation



A map of the African continent with several countries highlighted in a light blue color. These countries include Tunisia, Algeria, Libya, Egypt, Sudan, Ethiopia, Somalia, Kenya, Tanzania, Mozambique, Zimbabwe, Botswana, Namibia, South Africa, and Swaziland. A dark blue rectangular box is superimposed over the center of the map, containing the text.

4. National Meteorological and Hydrological Services (NMHS)



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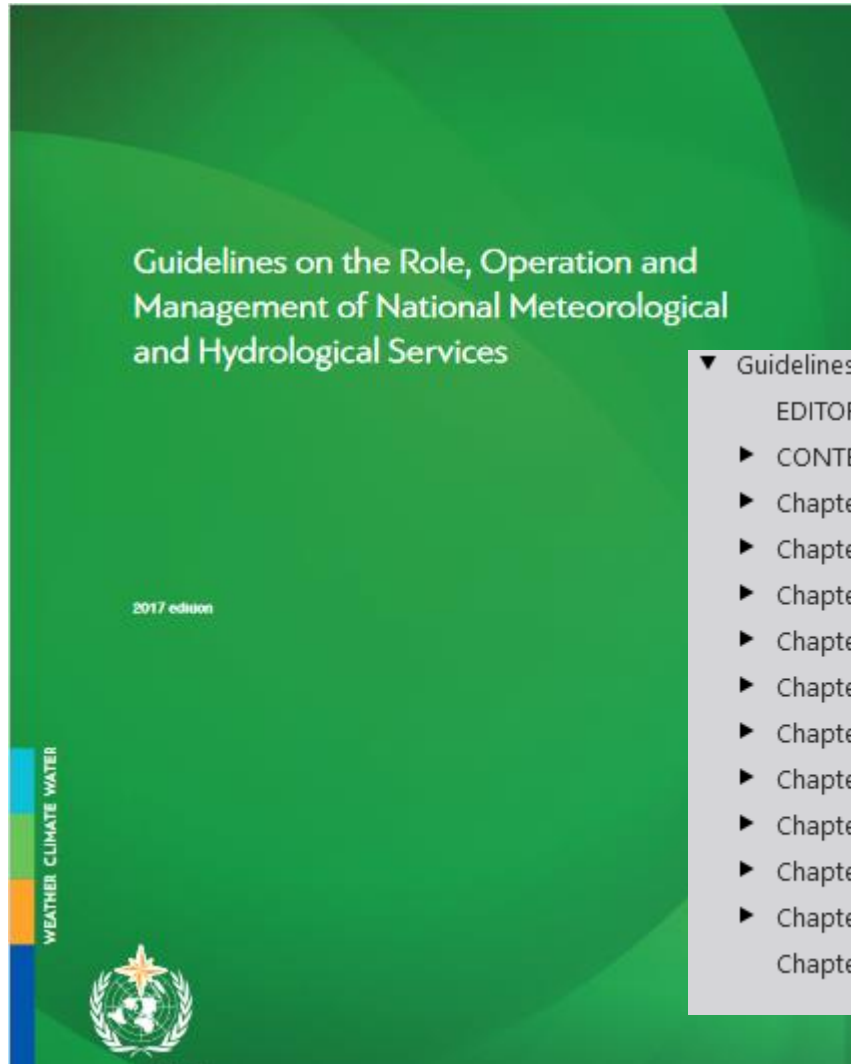
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Guidelines on the Role, Operation and Management of National Meteorological and Hydrological Services



- ▼ Guidelines on the Role, Operation and Management of National Meteorological and Hydrological Services
 - EDITORIAL NOTE
 - ▶ CONTENTS
 - ▶ Chapter 1. Introduction
 - ▶ Chapter 2. Legal and institutional form of a National Meteorological and Hydrological Service
 - ▶ Chapter 3. National relationships
 - ▶ Chapter 4. International relationships, including with the World Meteorological Organization
 - ▶ Chapter 5. Functions
 - ▶ Chapter 6. Leadership and management in a National Meteorological and Hydrological Service
 - ▶ Chapter 7. Capacity development
 - ▶ Chapter 8. Planning
 - ▶ Chapter 9. People management
 - ▶ Chapter 10. Financial management
 - Chapter 11. Examples of National Meteorological and Hydrological Services with commercial structures

https://library.wmo.int/doc_num.php?explnum_id=4221

WMO 1195



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Mission of NMHSs

- (a) Protection of life and property;
- (b) Safeguarding the environment;
- (c) Contributing to sustainable development;
- (d) Promoting long-term observation and collection of meteorological, hydrological and climatological data, including related environmental data;
- (e) Promotion of endogenous capacity-building;
- (f) Meeting international commitments; and
- (g) Contributing to international cooperation.



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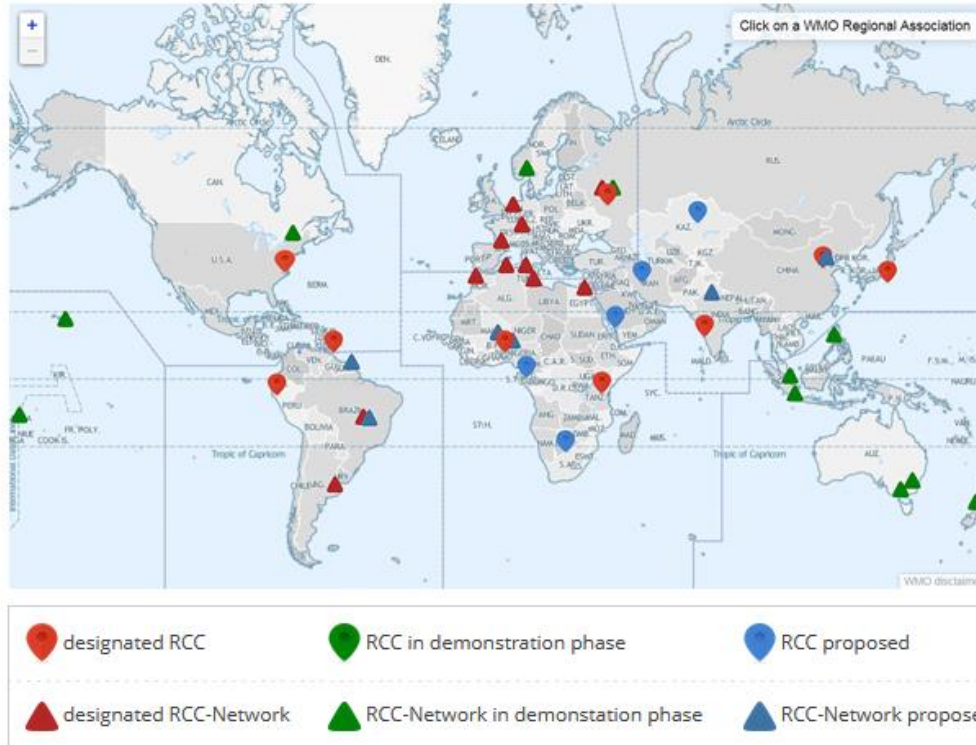
<https://public.wmo.int/en/programmes/global-data-processing-and-forecasting-system/global-producing-centres-of-long-range-forecasts>



WMO Regional Climate Centers

Mandatory functions of RCCs:

- Operational Activities for LRF2
- Operational Activities for Climate Monitoring
- Operational Data Services, to support operational LRF and climate monitoring
- Training in the use of operational RCC products and services



<https://public.wmo.int/en/our-mandate/climate/regional-climate-centres>





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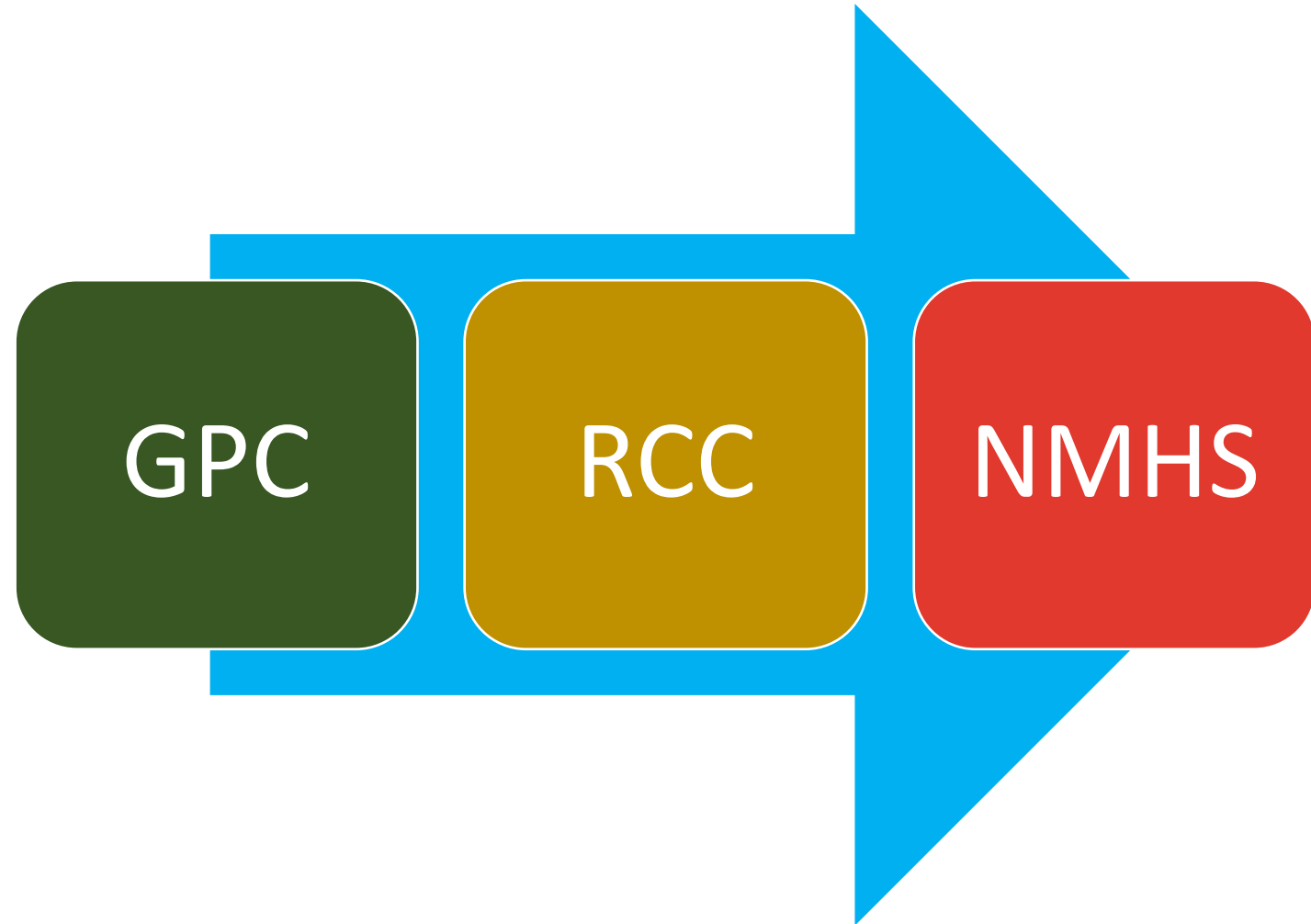
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Expected information flow between the various centers





Assessing strengths and weaknesses in an NMHS

For each one of the topics covered in WMO 1195, for example:

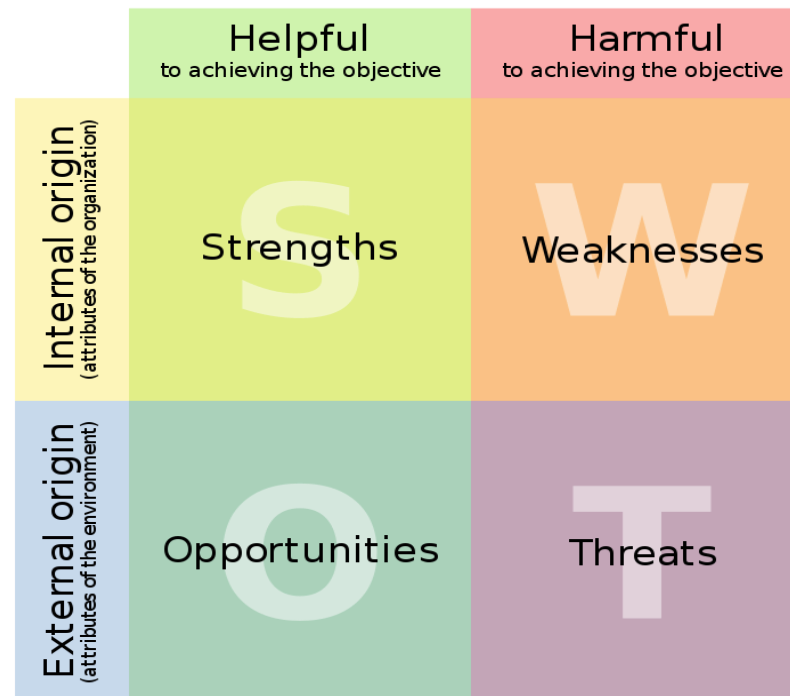
Institutional capacity and telecommunications

Observational infrastructure and data management

Prediction capabilities and provision of climate services

Subnational impact and outreach

SWOT ANALYSIS





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**Climate variability and change
(past, present, future)**

Weather

Climate

Water

Adaptation
(including climate services)



4. Suggested readings



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WMO Resolution 40

“As a fundamental principle of the World Meteorological Organization (WMO), and in consonance with the expanding requirements for its scientific and technical expertise, WMO commits itself to broadening and enhancing the free and unrestricted international exchange of meteorological and related data and products”

Source: <https://community.wmo.int/resolution-40>



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WMO Resolution 60

Affirming the commitment of WMO Members to the free and unrestricted exchange of meteorological, hydrological, climatological and related environmental data and products, which have been developed or acquired under the auspices of WMO and which are required to support the implementation of GFCS.

WMO defines free and unrestricted as the non-discriminatory distribution of data at no more than the cost of reproduction and delivery, and without charge for the data and products themselves.

Source: https://library.wmo.int/doc_num.php?explnum_id=4192



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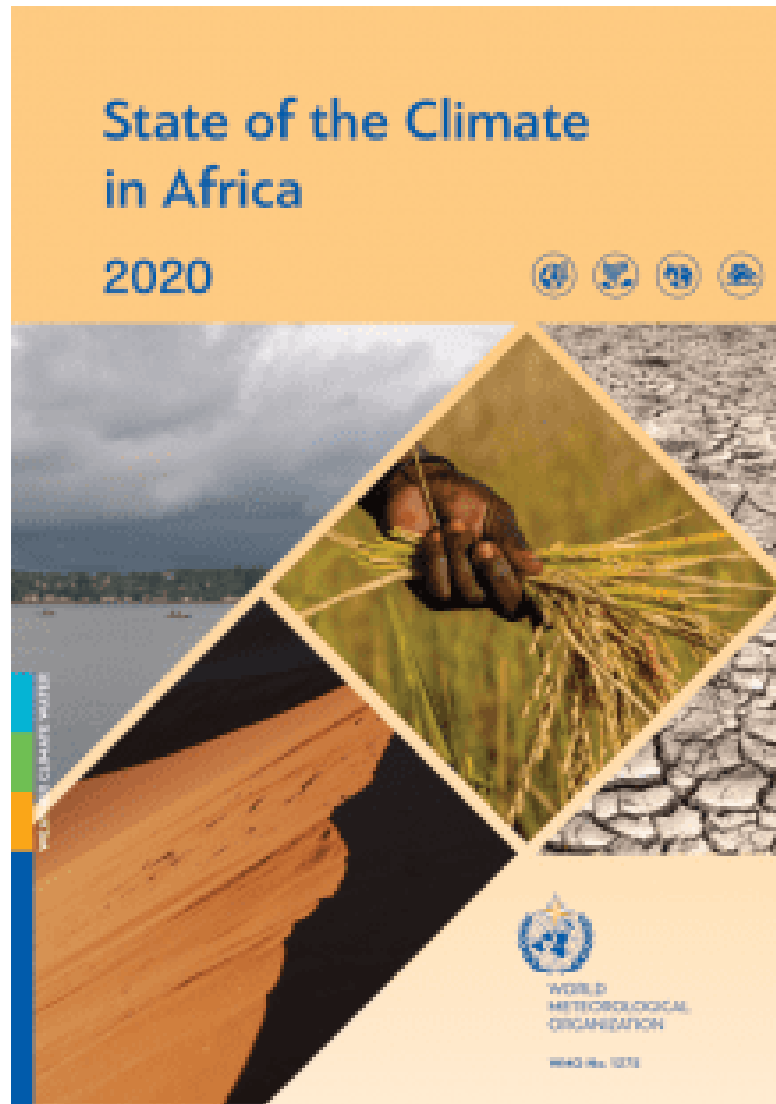
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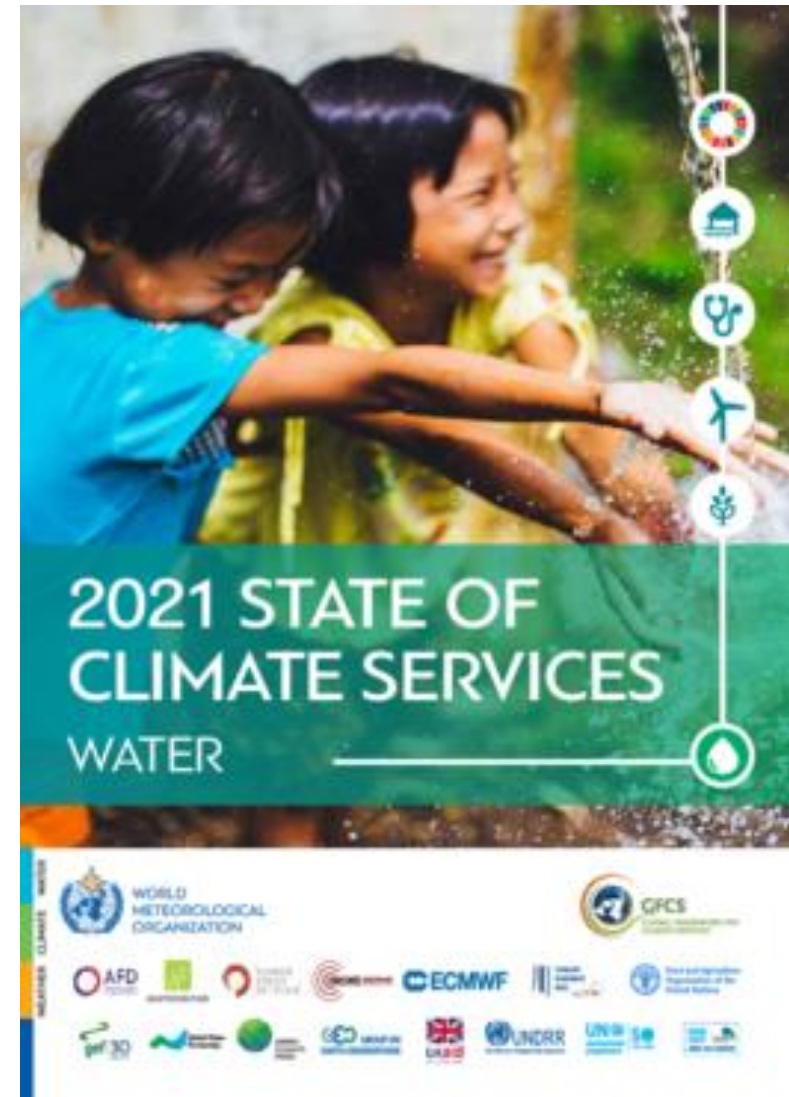


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State of the Climate



Link: https://library.wmo.int/doc_num.php?explnum_id=10854



Link: https://library.wmo.int/doc_num.php?explnum_id=10826



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State of the Global Climate



Link:

https://library.wmo.int/doc_num.php?explnum_id=10618



Link: <https://public.wmo.int/en/media/press-release/state-of-climate-2021-extreme-events-and-major-impacts>



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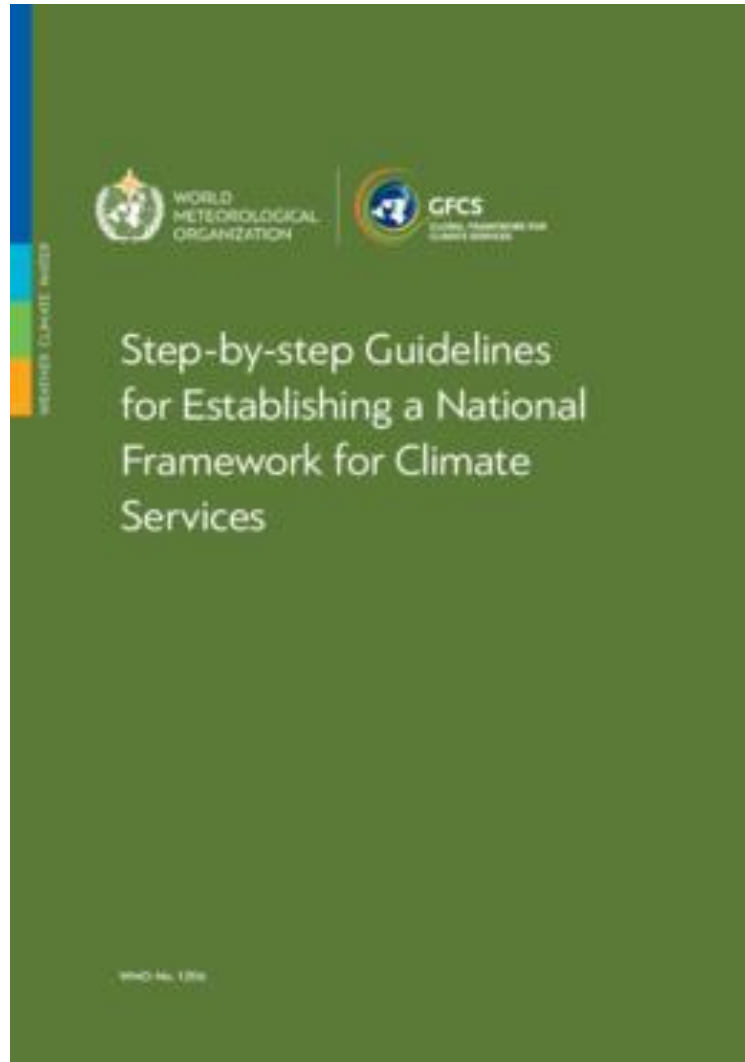
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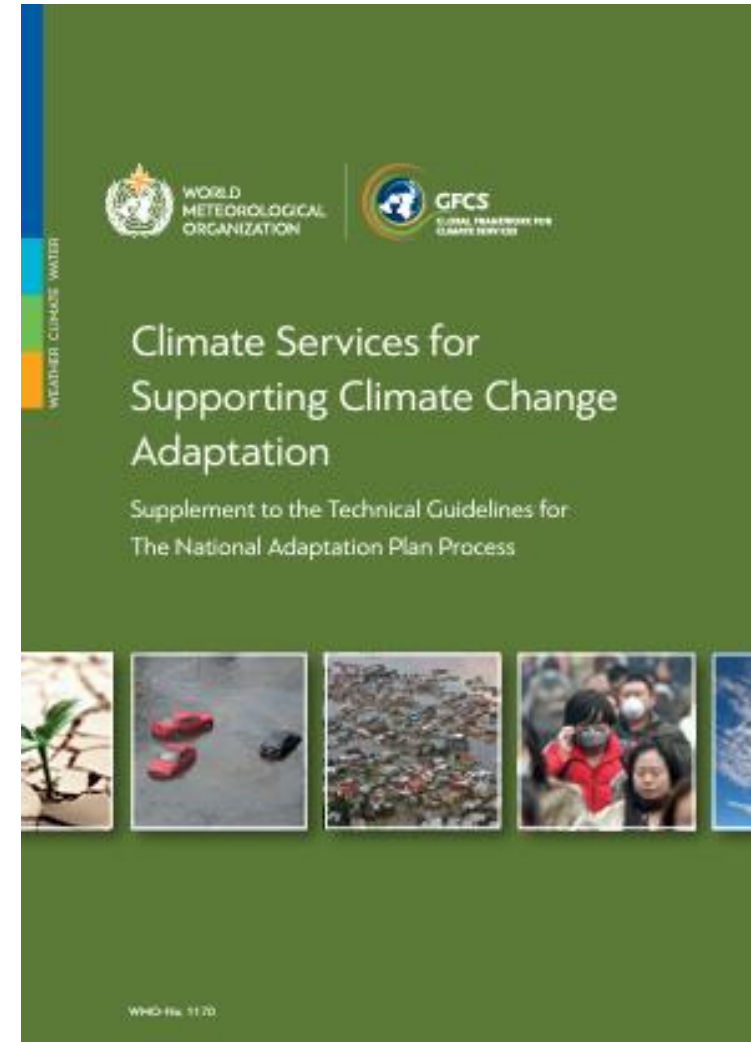


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WMO Guides



Link: https://library.wmo.int/doc_num.php?explnum_id=4335



Link: https://library.wmo.int/doc_num.php?explnum_id=7936



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Thank you for your attention!
Your comments or questions are welcome!

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