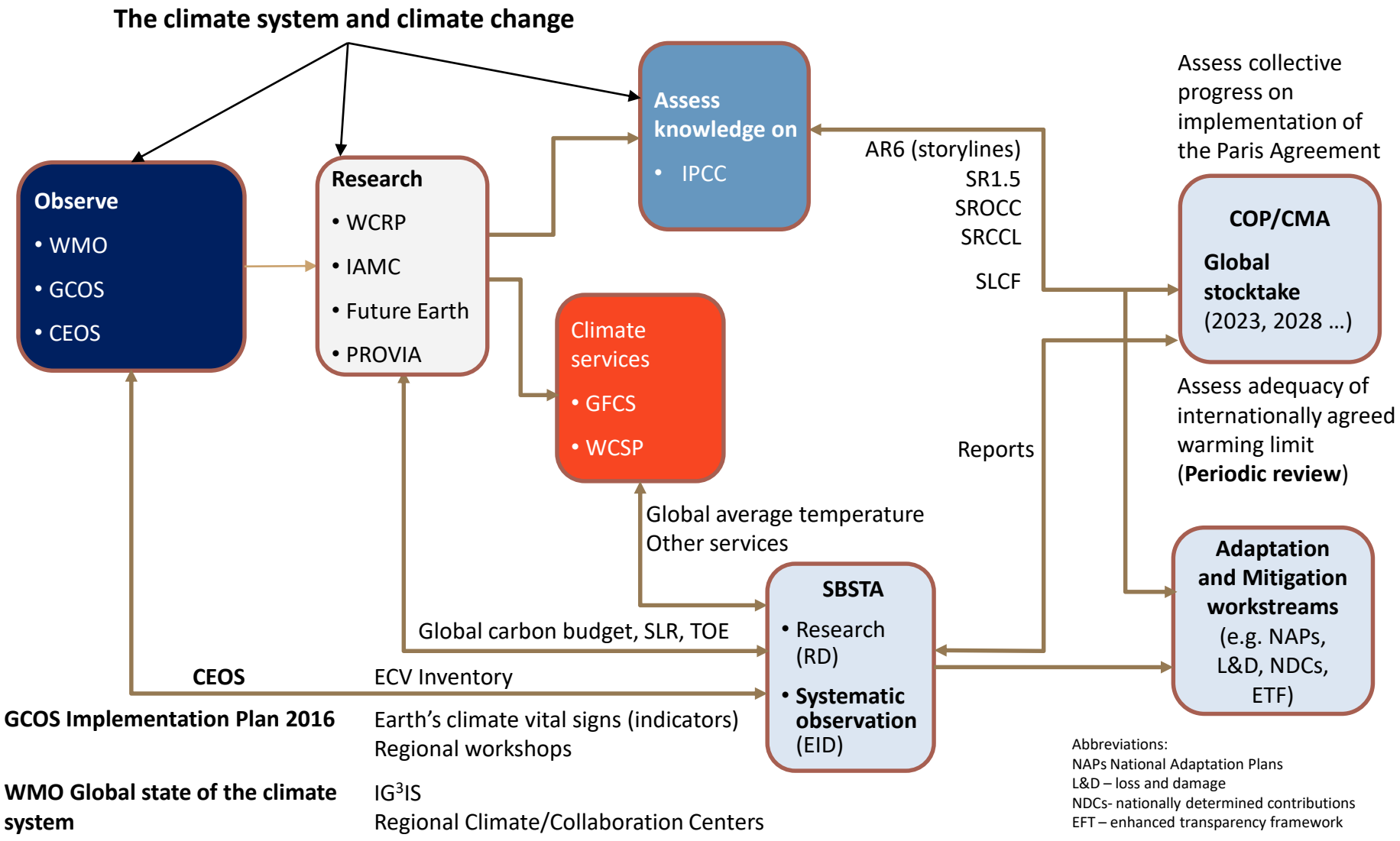
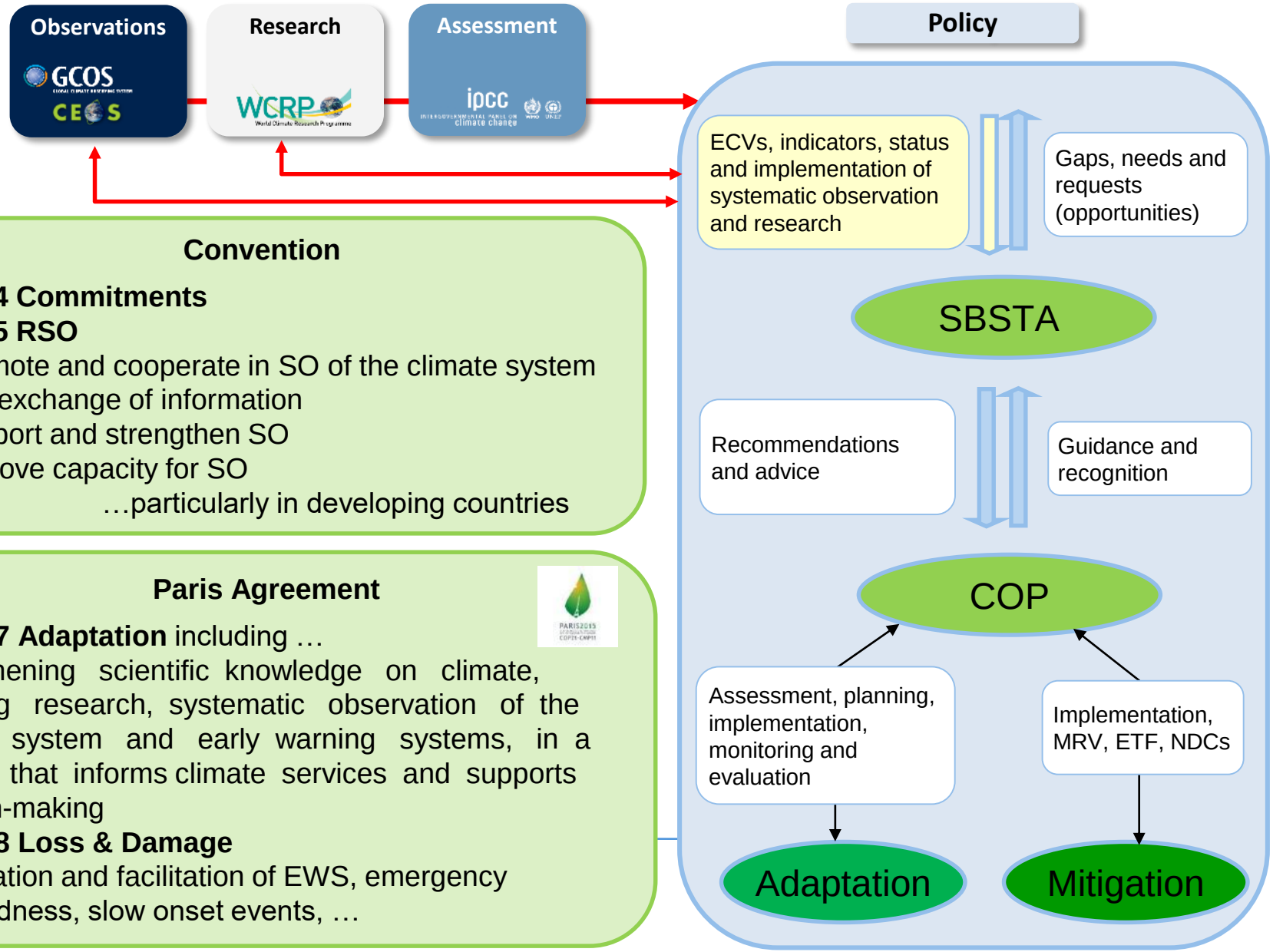
Role of space technology application for climate change – where are we going?

International cooperation towards low-emissions and resilient societies (UNISPACE+50 thematic priority 6)

Dr. Florin Vladu
Manager, UNFCCC Secretariat
Bonn, 21 November 2017



Abbreviations:
NAPs National Adaptation Plans
L&D – loss and damage
NDCs- nationally determined contributions
EFT – enhanced transparency framework



Convention

Article 4 Commitments
Article 5 RSO

- Promote and cooperate in SO of the climate system and exchange of information
- Support and strengthen SO
- Improve capacity for SO

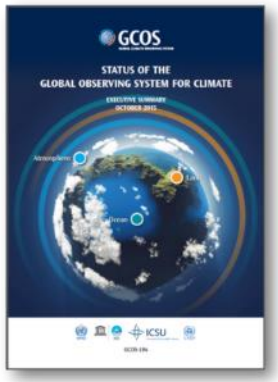
…particularly in developing countries

Paris Agreement

Article 7 Adaptation including …
Strengthening scientific knowledge on climate, including research, systematic observation of the climate system and early warning systems, in a manner that informs climate services and supports decision-making

Article 8 Loss & Damage
Cooperation and facilitation of EWS, emergency preparedness, slow onset events, …

United nations conference on climate change
COP21/CMP11



2015

COP 22, Marrakech,
Decision 19/CP.22
SBSTA Conclusions

2016

COP23, Bonn,
SBSTA Conclusions

- **Support Adaptation & Mitigation**
- **Water, Energy and Carbon cycles**
- **Additional Essential Climate Variables**
- **More help for networks in developing countries**
- **Climate Indicators**

2017

- First Regional workshop held in Fiji for Pacific Island States
- Working group in Lightning starts work
- Working group on GCOS Reference Surface Network meets for first time
- ECVs for monitoring conditions of the biosphere
- WMO workshop on categorizing extreme events

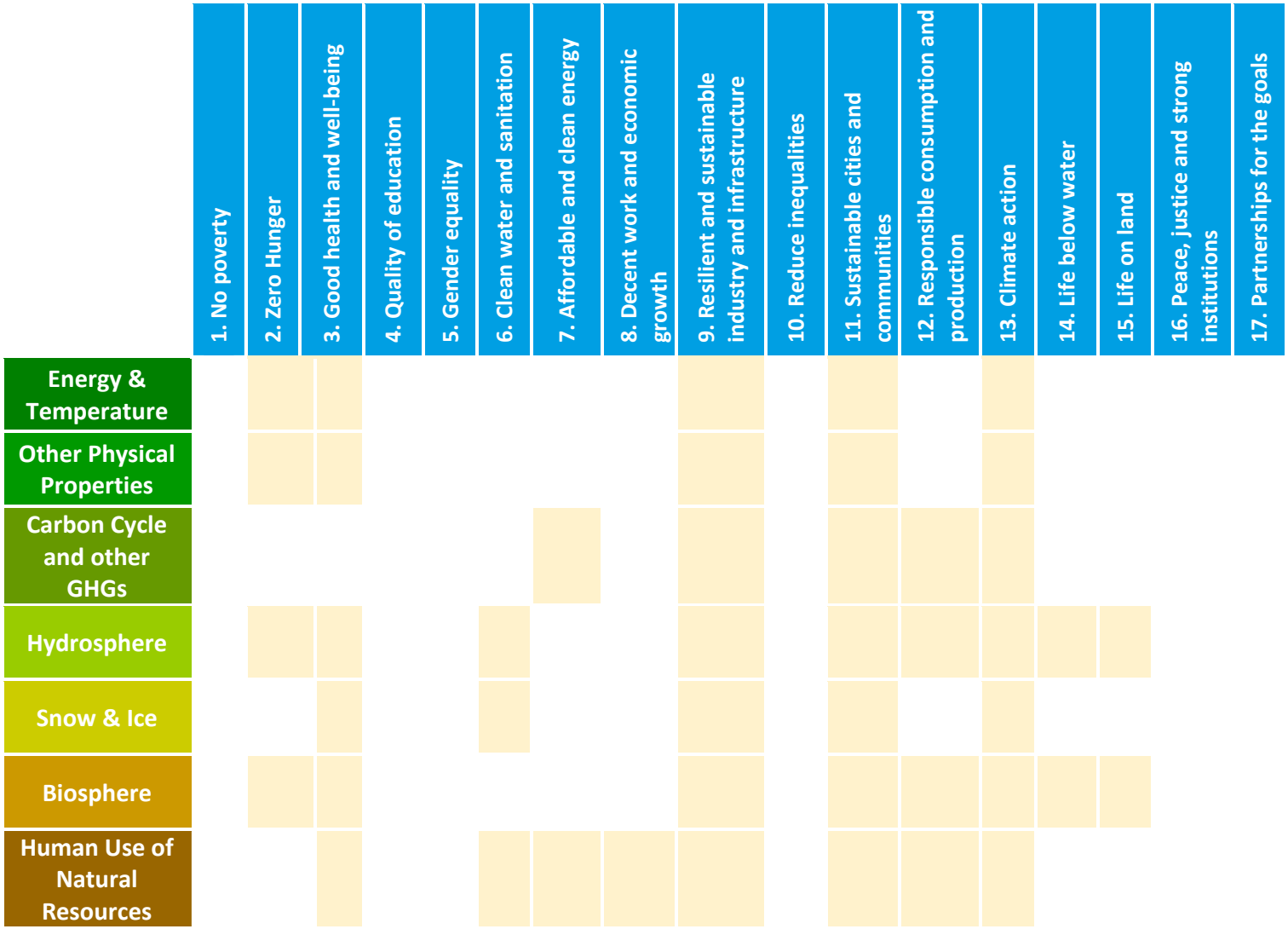
GCOS Essential Climate Variables (ECVs)

	Atmosphere	Terrestrial	Ocean
Energy & Temperature	Surface Radiation Budget, Earth Radiation Budget, Surface Temperature, Upper Air Temperature, Surface and Upper Air Wind Speed	Albedo, *Latent and Sensible Heat* fluxes, Land Surface Temperature	Ocean Surface Heat Flux, Sea Surface Temperature, Subsurface Temperature
Other Physical Properties	Surface Wind, Upper Air Wind, Pressure, Lightning, Aerosol Properties		Surface Currents, Subsurface Currents, Ocean Surface Stress, Sea State, Transient Traces
Carbon Cycle and other GHGs	Carbon Dioxide, Methane, Other long-lived GHG, Ozone, Precursors for Aerosol and Ozone	Soil Carbon, Above-ground Biomass	Inorganic Carbon, Nitrous Oxide
Hydrosphere	Precipitation, Cloud Properties, Water Vapour (Surface), Water Vapour (Upper Air), Surface Temperature,	Soil Moisture, River Discharge, Lakes, Groundwater,	Sea Surface Salinity, Subsurface Salinity, Sea Level, Sea Surface Temperature
Snow & Ice		Glaciers, Ice Sheets and ice shelves, Permafrost, Snow	Sea Ice
Biosphere		Land Cover, Leaf Area Index (LAI), Fraction of Absorbed Photosynthetically Active Radiation (FAPAR), Fire	Plankton, Oxygen, Nutrients, Ocean Colour, Marine Habitat Properties
Human Use of Natural Resources		Water Use, Greenhouse Gases (GHG) Fluxes	Marine Habitat Properties

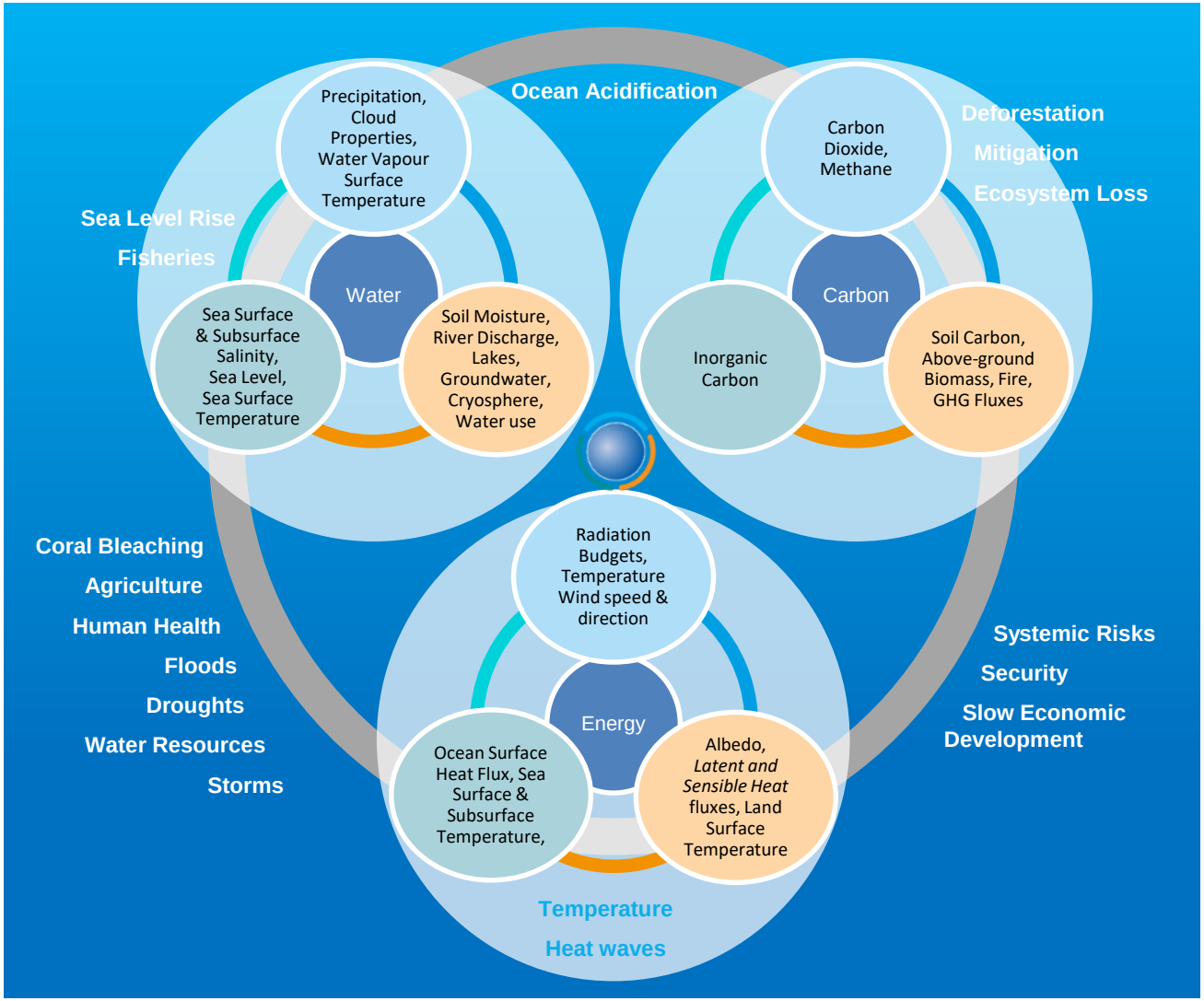
Grouped by measurement domain and area covered

The groups show how observations across all the measurement domains are needed to capture specific phenomena or issues

Climate observations and sustainable development goals

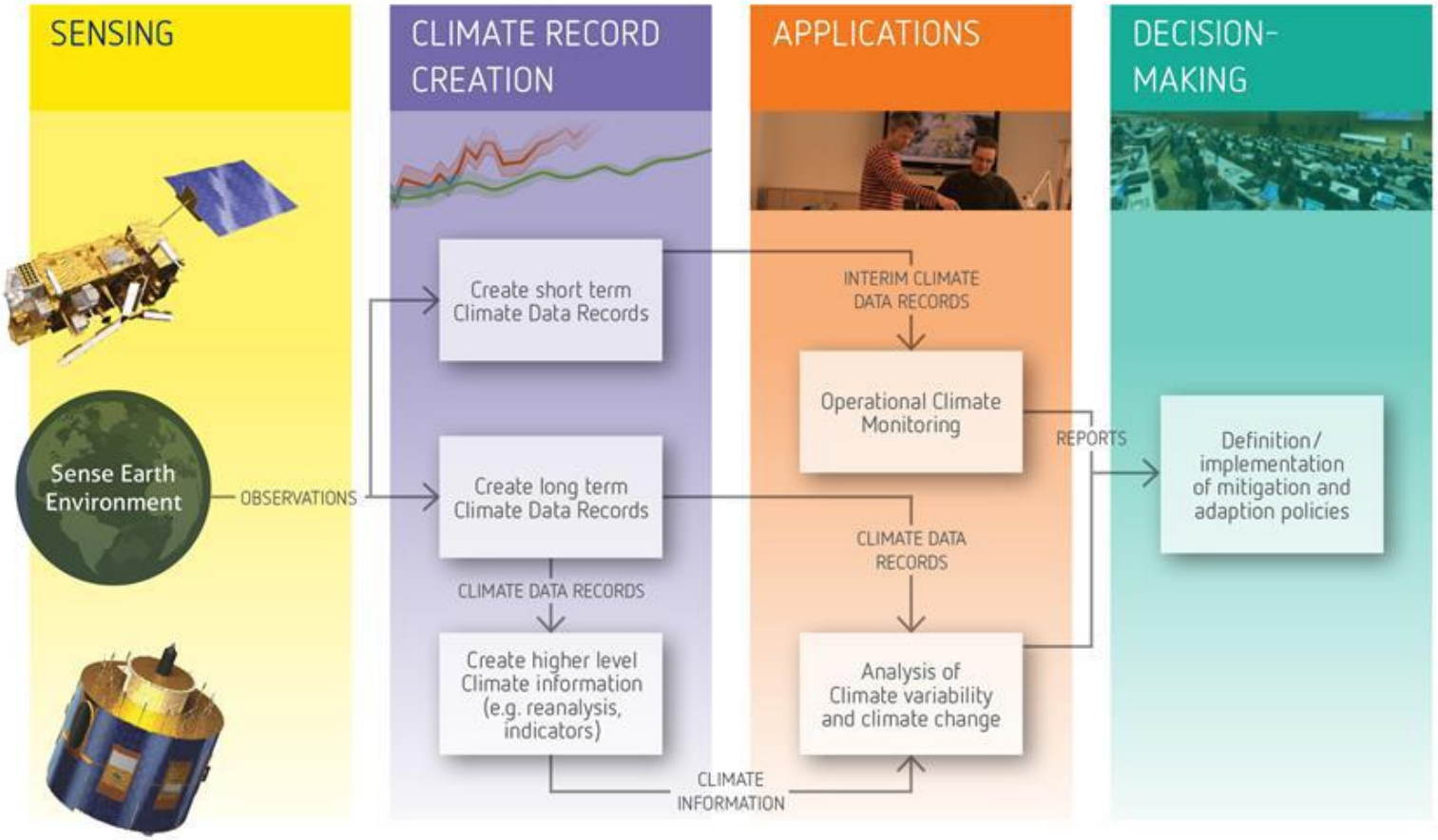


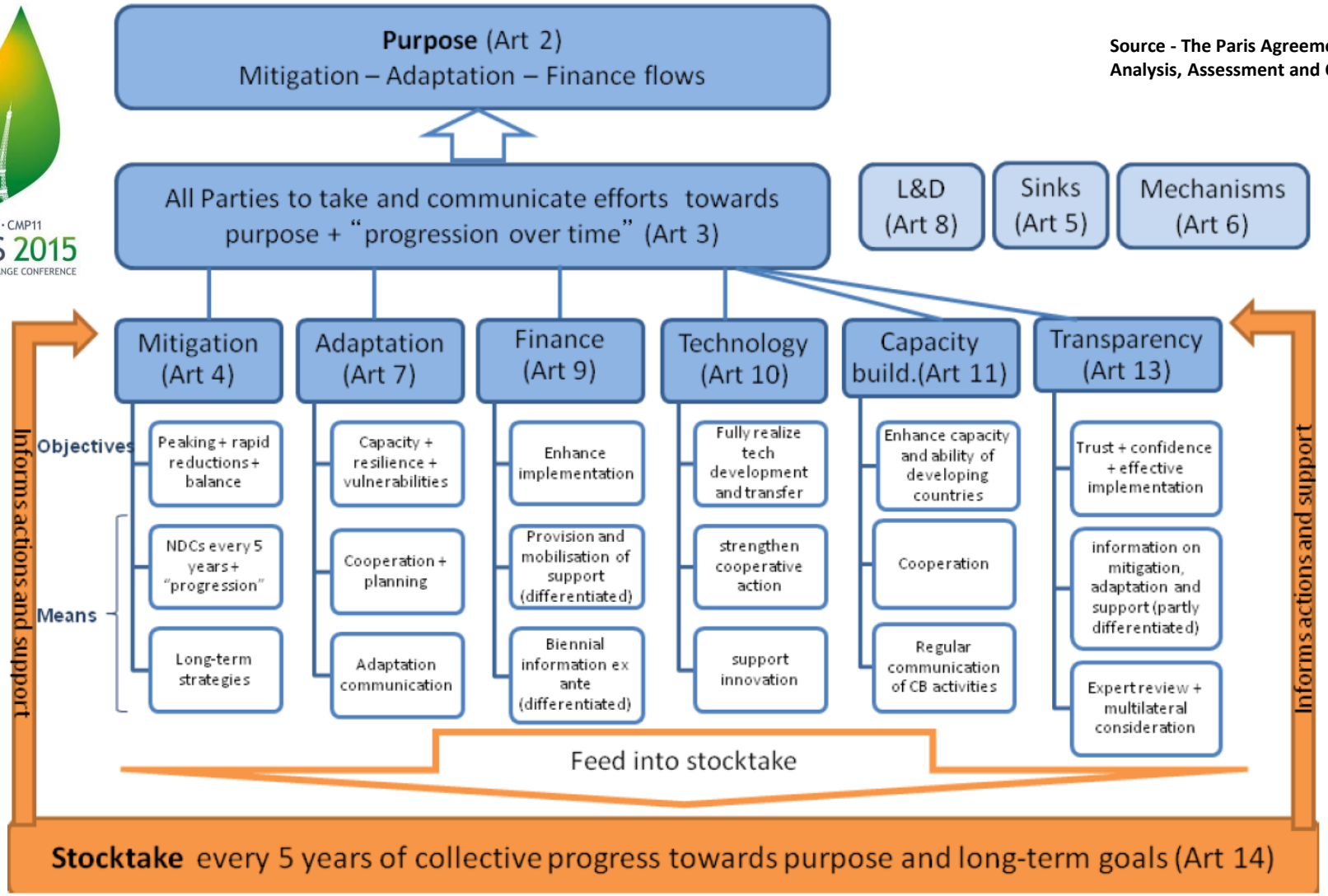
Global Climate Cycles



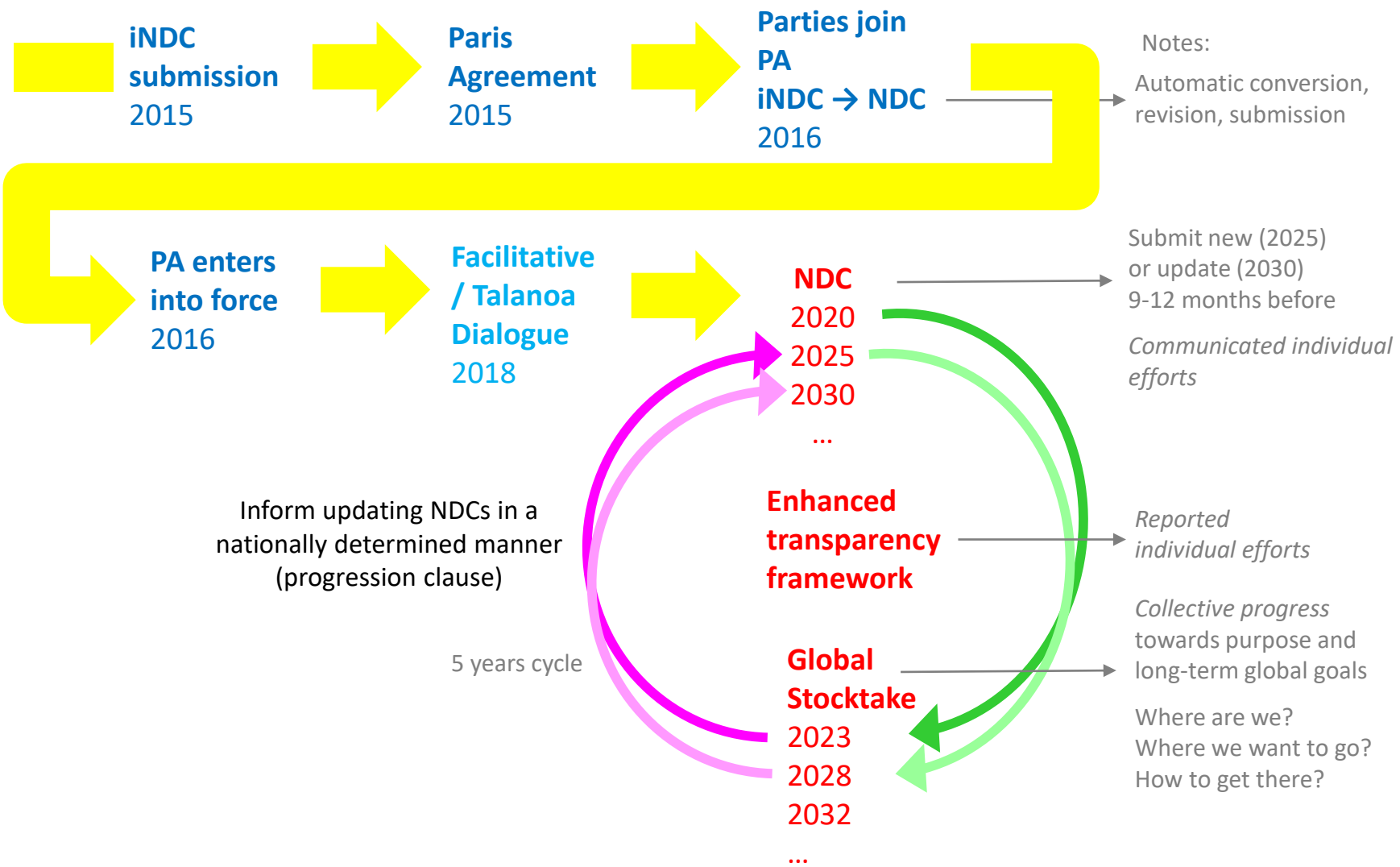
WGClimate | CEOS | CGMS

- A gap analysis was done – could UNOOSA contribute to filling in this gap?



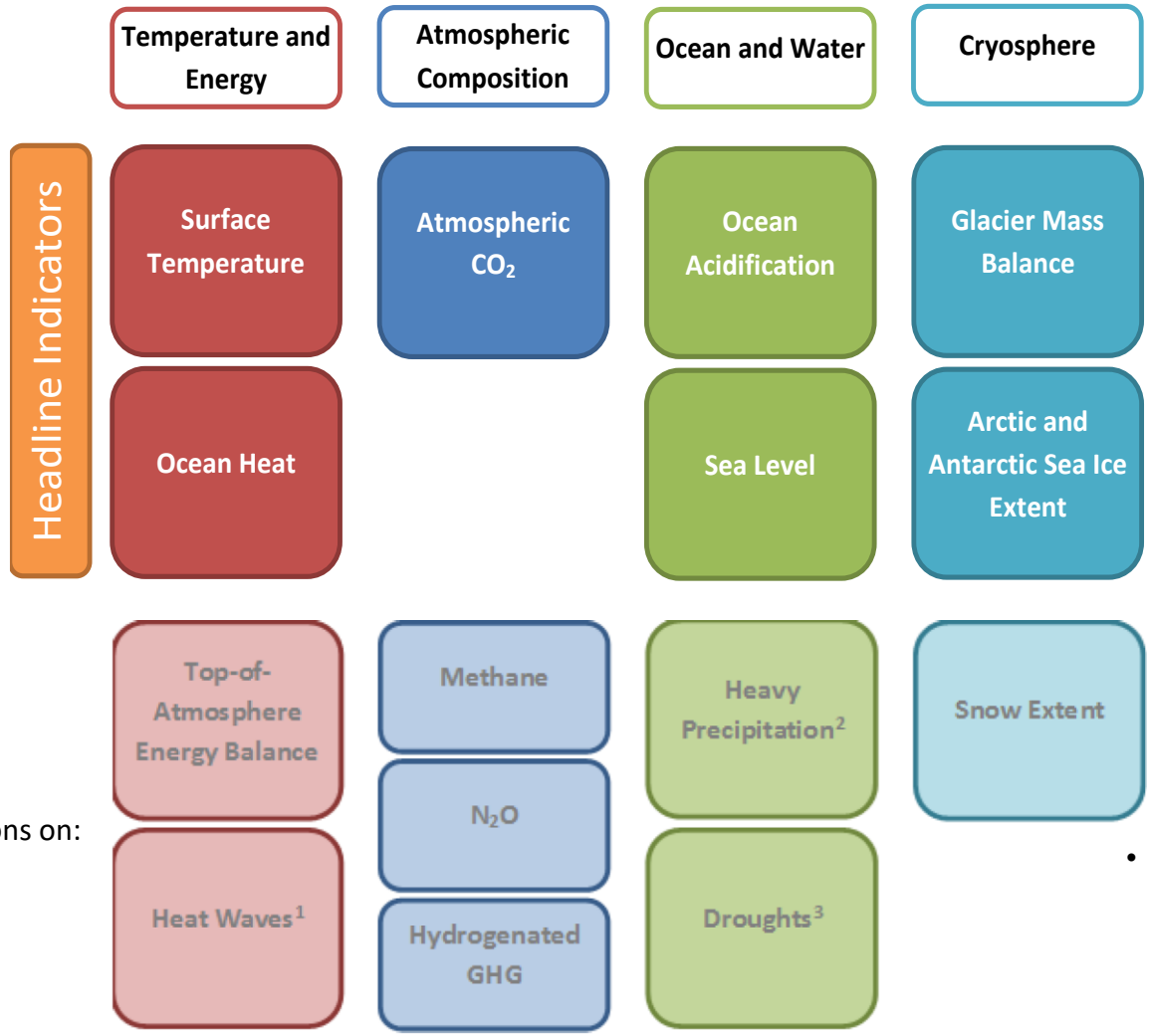


Source - The Paris Agreement: Analysis, Assessment and Outlook


iNDC submission 2015
Paris Agreement 2015
Parties join PA iNDC → NDC 2016
Notes:
Automatic conversion, revision, submission
PA enters into force 2016
Facilitative / Talanoa Dialogue 2018
NDC
2020
2025
2030
...
Submit new (2025) or update (2030) 9-12 months before
Communicated individual efforts
Inform updating NDCs in a nationally determined manner (progression clause)
Enhanced transparency framework
Reported individual efforts
5 years cycle
Global Stocktake
2023
2028
2032
...
Collective progress towards purpose and long-term global goals
Where are we?
Where we want to go?
How to get there?

Potential use of satellite technologies, in combination with in-situ data in the implementation of the Paris Agreement

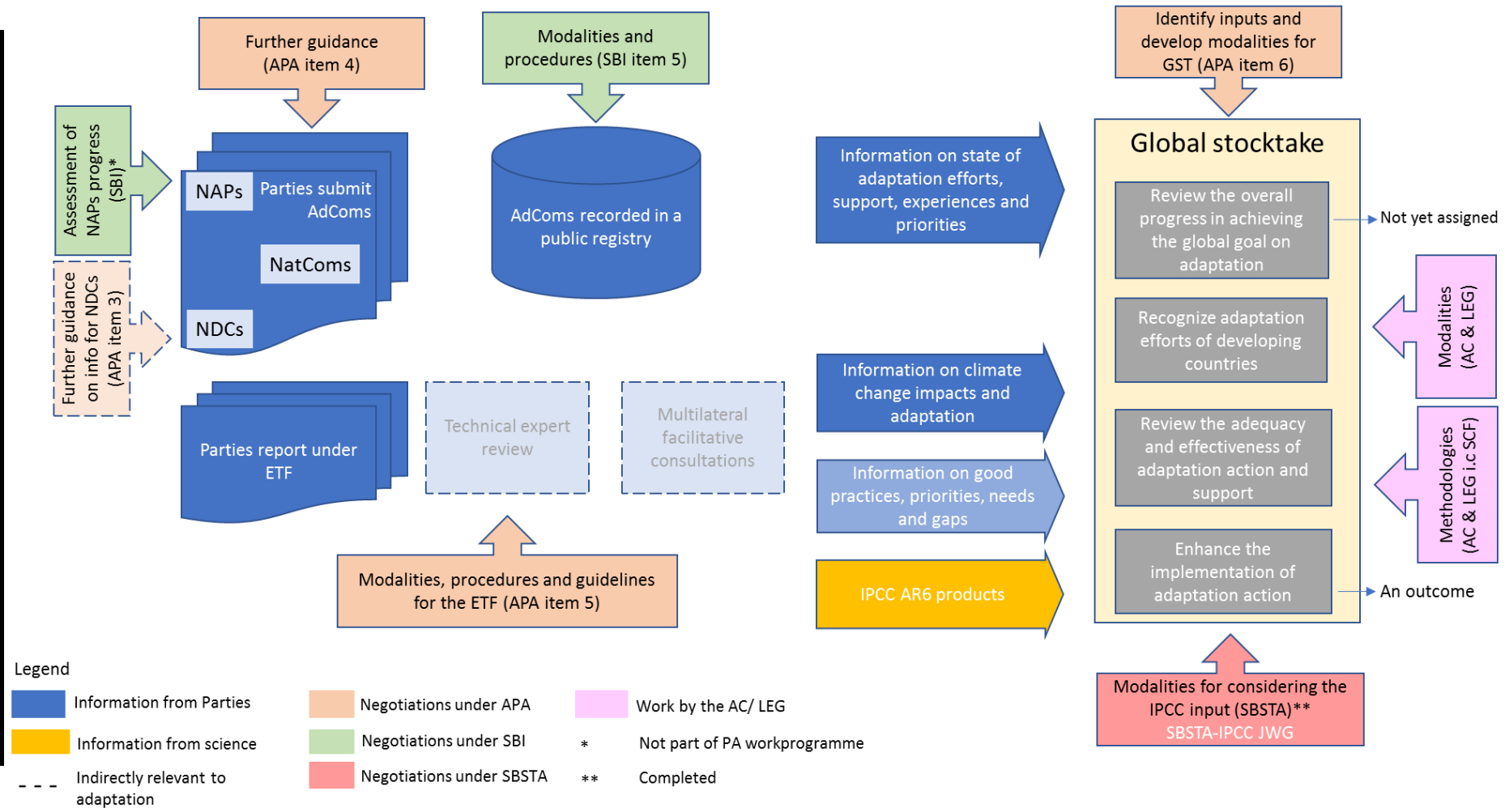
	Paris Agreement	Selected activities
Implementation	In on-going efforts targeting systematic observations of climate and its manifestations In mitigation, adaptation and loss and damage	• GCOS Implementation Plan 2016, CEOS response to IP2016 • Continue to identify needs, gaps and support sustained observations (regional workshops, ECV inventory) and support access to data • Scale-up regional and national activities (WMO/UNFCCC regional centers, climate services for NAPs, downscaling, reanalysis)
Monitoring of implementation	Contribute to define NDCs to be submitted to CMA As part of the Global Stocktake	• Monitor the implementation of adaptational action (communicated information as part the Adaptation Communication, adequacy and effectiveness, the global goal on adaption) • Reducing uncertainties of national inventories of GHGs that are reported as part of the enhanced transparency framework (e.g., WMO IG3IS, land use) • State of the climate reporting (WMO) and climate indicators (GCOS)



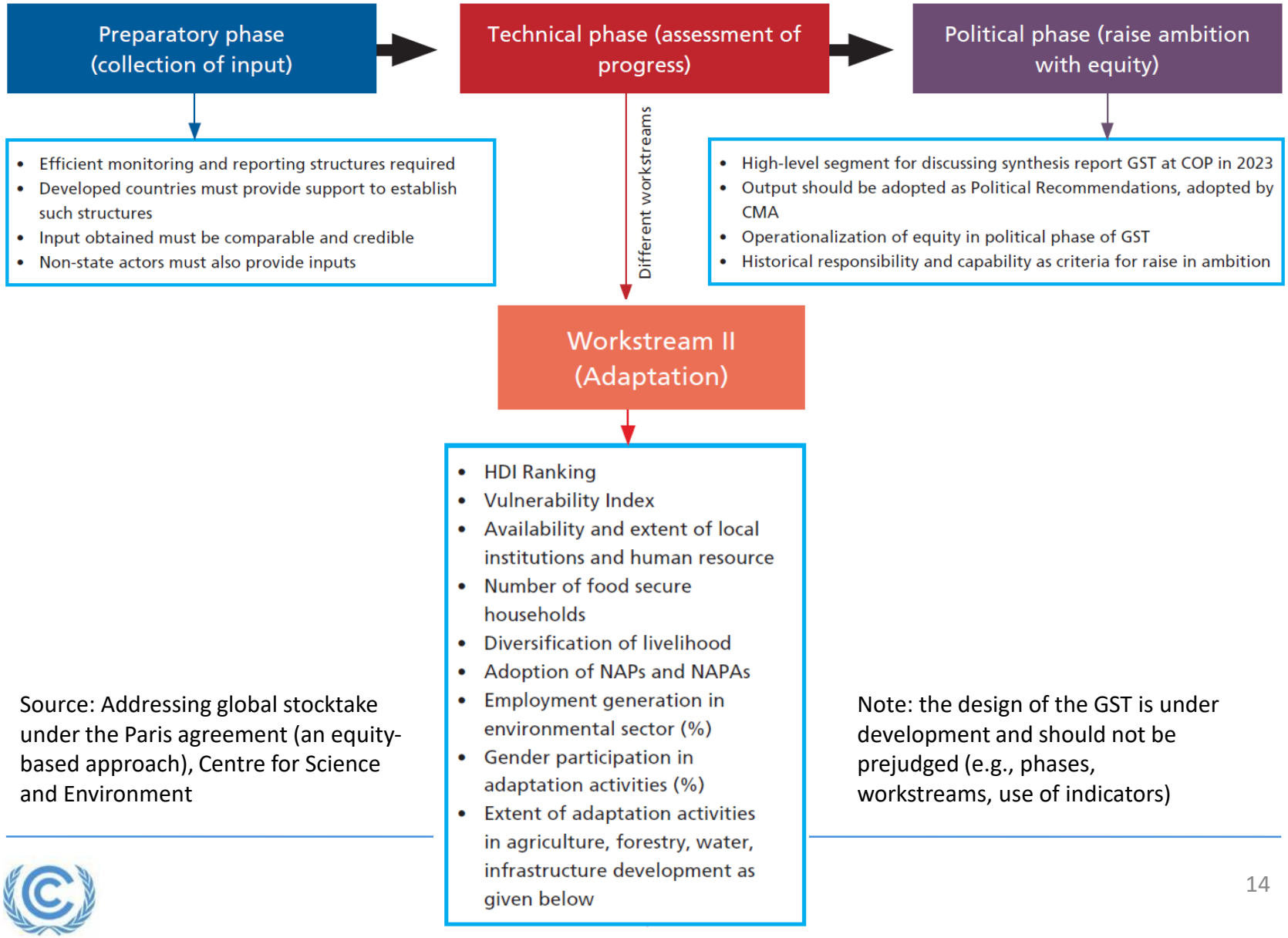
- Further discussions on:

- Work started on a second set of indicators – to inform of societal impacts and guide mitigation and adaptation action and policy

Where are we in terms of adaptation to climate change?| Assessing progress on adaptation



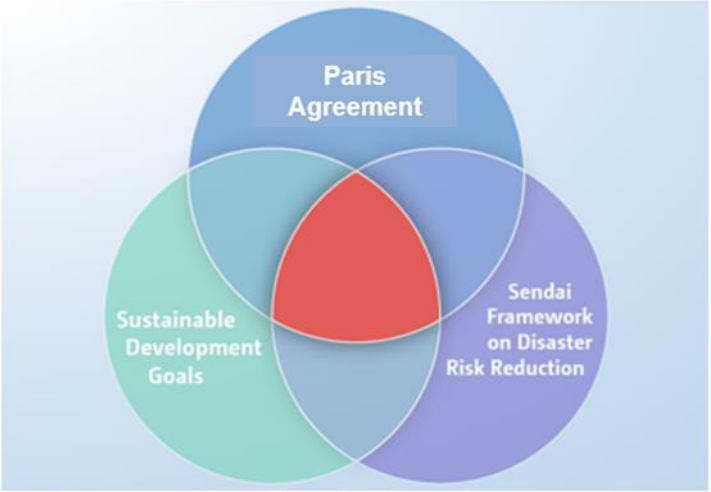
Global stocktake | possible design and indicators for assessing progress on adaptation



Source: Addressing global stocktake under the Paris agreement (an equity-based approach), Centre for Science and Environment

Note: the design of the GST is under development and should not be prejudged (e.g., phases, workstreams, use of indicators)

- At the **global level**, negotiations on the modalities and guideless for implementing the Paris Agreement will be completed in 2018 and will allow for the refinement of SDG indicators under Goal 13 in 2020, as planned by the IAEG-SDGs, and serve as a basis to assess progress on climate change and sustainable development



- At the **regional level**, regional initiatives are expected to play a role in promoting coherence across the three policy frameworks (e.g., Samoa Pathway)

- At the **national level**, some countries are already taking integrated approaches to implement all three agendas, including through utilizing the process to formulate and implement national adaptation plans (NAPs.) In some cases, mechanisms that facilitate joint problem solving and planning for disaster risk reduction, climate change and sustainable development have been put in place; in other cases, separate platforms or commissions mechanisms have been established

Thank you!