

Goals, targets and indicators for climate change adaptation and climate-related disaster risk reduction

A comparison across international agreements



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Strengthening capacity for inclusive negotiations

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2 June 2023 version for external use

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About the data tables

The Paris Agreement (2015) includes a Global Goal on Adaptation (Article 7), which states: “Parties hereby establish the global goal on adaptation of enhancing adaptive capacity, strengthening resilience and reducing vulnerability to climate change, with a view to contributing to sustainable development and ensuring an adequate adaptation response in the context of the temperature goal.”

Parties’ national adaptation targets, and the way they measure and monitor adaptation progress, have garnered increasing attention from state and non-state actors. This year, the Glasgow Sharm El Sheikh work programme on the Global Goal on Adaptation (GlaSS) provides a platform for Parties to discuss this subject, including what it means to understand adaptation progress at a global level.

The *GlaSS discussions over the course of 2023* are intended to lead to the development of a framework that will guide efforts to monitor adaptation progress in the future.

The IPCC’s Sixth Assessment Report (2022), *Impacts, Adaptation and Vulnerability*, provides a schema to guide discussions in the GlaSS workshops.

The IPCC report discusses the need for transformative actions, involving key system transitions, that should guide climate-resilient development pathways and achieve adaptation at scale.

The four areas for systems transitions, described in the IPCC report’s *Summary for Policy Makers* (SPM.4) are:

- Land, oceans and ecosystems transitions
- Urban, rural and infrastructure systems transitions
- Energy systems transitions
- Cross-cutting options.

Each of these systems maps to a subset of what the IPCC calls ‘Representative key risks’ and indicative ‘adaptation options’ associated with them. The systems transitions, representative key risks and adaptation options are summarised in the following table from the IPCC’s *Summary for Policy Makers* (SPM.4).

There is a slightly different and overlapping presentation of these systems transitions in Chapter 18 of the IPCC report, on Climate Resilient Development.

The Chapter 18 presentation on systems transitions includes:

- Land, oceans and ecosystems transitions
- Urban and infrastructure systems transitions
- Energy systems transitions
- Industrial systems (which are not highlighted in the SPM)
- Societal systems (which overlap, in their governance and participation aspects, with the ‘cross-cutting’ options in the Summary for Policy Makers above, but are not as broad in their coverage of disaster risk management issues).

This handout presents the IPCC’s key areas of system transition, representative key risks and adaptation options alongside the existing targets and indicators in international policy agreements that countries are already monitoring, and against which they are already reporting.

The international agreements analysed are:

- The *Paris Agreement* itself, recognising that this is a high level text and the detail lies in the national commitments that are described in Parties’ *Nationally Determined Contributions* and *National Adaptation Plans*.
- The *Sendai Framework for Disaster Risk Reduction*.
- The *Sustainable Development Goals (Agenda 2030)*
- The *New Urban Agenda*.
- The *SIDS Accelerated Modalities of Action (SAMOA) Pathway*.
- The *Kunming-Montreal Post-2020 Biodiversity Framework*, noting that the *list of proposed indicators has only just been published, is not fully operational*, and may have important substantive implications for how Parties handle monitoring and reporting in the coming years.¹

The presentation also includes the *Adaptation Gap Report (AGR)*. The AGR is, of course, not an international instrument that is ratified by governments in the way that the others are. The AGR is an annual publication compiled by UNEP. However, it is included here because it represents an annual compilation of the ‘best state of knowledge’ on adaptation progress globally, using common denominators, and hence the AGR is significant because it (a) provides the global amalgamation of several key adaptation indicators and (b) reduces countries’ reporting burden – being an exercise that is already performed by UNEP.

¹ The proposed Kunming-Montreal post-2020 biodiversity indicators have not been analysed for the purposes of this exercise to map commonalities across climate and sustainable development policies, but may inform further rounds of research. The analysis here is based on the main Kunming–Montreal agreement text.

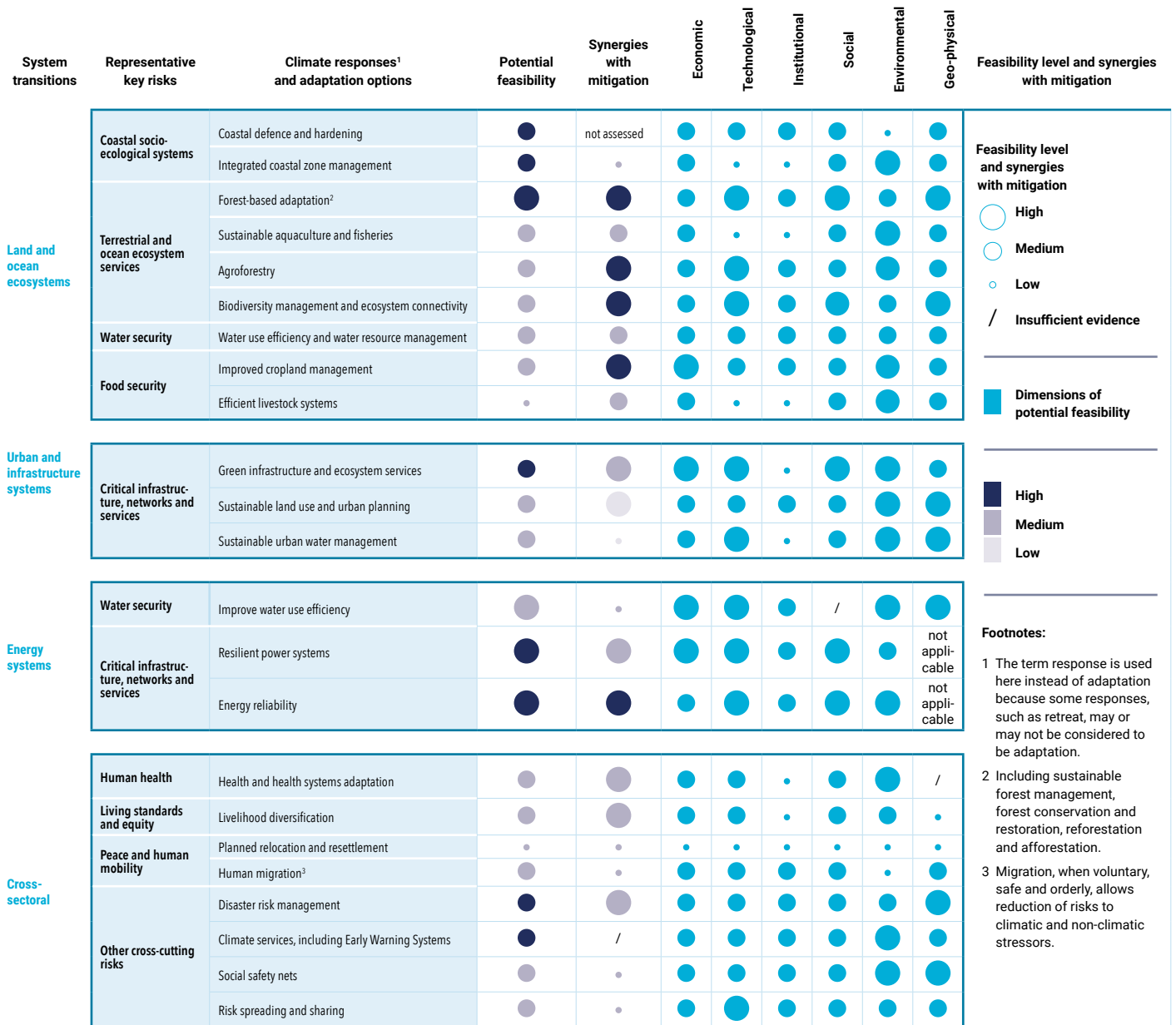


Figure SPM.4 | (a) Climate responses and adaptation options, organized by System Transitions and Representative Key Risks (RKR), are assessed for their multidimensional near term and up to 1.5°C global warming. As literature above 1.5°C is limited, feasibility at higher levels of warming may change, which is currently not possible to assess robustly. Climate responses and adaptation options at global scale are drawn from a set of options assessed in AR6 that have robust evidence across the feasibility dimensions. This figure shows the six feasibility dimensions (economic, technological, institutional, social, environmental and geophysical). Synergies with mitigation are identified as high, medium and low. Insufficient evidence is denoted by a dash.

A guide to the targets and indicator tables

The targets and indicators in these international policy agreements are organised to align with the following IPCC categories:

ST | IPCC AR6 WG2 system transition

Land, oceans and ecosystems transitions; Urban and infrastructure systems transitions; Energy systems transitions; and Cross-cutting options (as described in the IPCC's Summary for Policy Makers); and Industrial systems (as described in Chapter 18). The category of 'Cross-cutting' issues, which addresses many governance, inclusion and public engagement aspects, is combined with the 'Societal transitions' category described in WG2 Chapter 18 (Table 18).

RKR | IPCC AR6 WG2 Representative Key Risks

The risks map to the overall 'systems transitions' and are described in the IPCC's *Summary for Policy Makers* (Figure SPM.4).

AO | IPCC AR6 WG2 'Adaptation option'

The climate responses and adaptation options map to the overall 'systems transitions' and are described in the IPCC's *Summary for Policy Makers* (Figure SPM.4).

The targets and indicators covered are a mix of what may be described as 'processes' and 'outcomes'. 'Process' targets and indicators describe activities that must be undertaken or strengthened to reach more climate-adaptive and resilient societies and ecosystems. Examples of 'process' targets and indicators are having adaptation strategies, costed plans and financing in place. The AGR by UNEP is already compiling process indicators for adaptation planning, financing and implementation, at a global level, and showing country and regional differences.

'Outcome' targets and indicators describe the state of being demonstrably more climate-adapted, climate-adaptive and/or climate-resilient. An example of an 'outcome' targets would be "achieving a 10 per cent reduction in the number of cases of human vector-borne diseases associated with climate change (decadal average) by 2030".² There are also targets that are quantifiable and represent at least intermediate outcomes, such as area or proportion of land/sea under effective ecosystem management or restored ecological function (which may have auxiliary species, habitats and ecosystem services indicators associated with them).

2 UNEP (2022). *Adaptation Gap 2022: Too little, too slow*. Nairobi, United Nations Environment. Citation and link to further examples of outcome indicators used in countries' national climate plans: page 11. <https://www.unep.org/resources/adaptation-gap-report-2022>

UNFCCC Paris Agreement 2015 text	Sendai framework	SDGs	SAMOA Pathway	New Urban Agenda	Kunming-Montreal framework biodiversity enhancement targets	Adaptation Gap Report 2022 global analysis ³
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LAND AND OCEAN ECOSYSTEMS

RKR | Coastal socio ecological systems

AO | Coastal defense and hardening

Not covered in the international agreements analysed here

AO | Integrated coastal zone management

Existence and enforcement of coastal and/or land management planning	●	●	●	●	●	●	●
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RKR | Terrestrial and ocean ecosystem services

AO | Forest based adaptation

Specifically, sustainable management of forests (noting there are other UN instruments on forests not yet analysed here)	●	●	●	●	●	●	●
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AO | Sustainable aquaculture and fisheries

Proportion of marine areas under ecosystem-based management	●	●	●	●	●	●	●
Action to understand and address ocean acidification	●	●	●	●	●	●	●
Enhance regional fisheries management including for migratory fish species	●	●	●	●	●	●	●
Support sustainable development of small scale fisheries	●	●	●	●	●	●	●

AO | Agroforestry

Not covered explicitly in international agreements analysed here

AO | Biodiversity management and ecosystem connectivity

Proportion of terrestrial and freshwater ecosystems under protection, sustainable use and /or restoration status	●	●	●	●	●	●	●
Take action on invasive alien species (NB terrestrial or marine)	●	●	●	●	●	●	●

KEY

● full and explicit alignment across international frameworks	● partial or implicit alignment across international frameworks
● close alignment across international frameworks	● very weak or no alignment across international frameworks

³ Detailed analysis of the sectoral coverage of all countries' NAPs is contained in the Annexes to the UNEP (2022) *Adaptation Gap Report*, see https://wedocs.unep.org/bitstream/handle/20.500.11822/41100/AGR2022_annexes.pdf This is the basis for the rating of global analysis in this column. If UNEP has included a specific sector in its global analysis of NAP content, it is marked as 'fully aligned' (dark purple) in this column. If UNEP has only provided a general discussion of a topic, without quantified analysis, then the rating is given as closely or partially aligned (light purple or medium blue).

	UNFCCC Paris Agreement 2015 text	Sendai framework	SDGs	SAMOA Pathway	New Urban Agenda	Kunming-Montreal framework biodiversity enhancement targets	Adaptation Gap Report 2022 global analysis ³
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RKR | Water security

AO | Water use efficiency and water resource management

Integrated water resources management is planned and implemented (inc. as explicit adaptation strategy; inc. extent of freshwater ecosystems)	●	●	●	●	●	●	●
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RKR | Food security

AO | Improved cropland management

AO | Efficient livestock systems

Following foci of international agreement are across both crop and livestock systems

Food security	●	●	●	●	●	●	●
Agricultural productivity and resilience	●	●	●	●	●	●	●

ST URBAN AND INFRASTRUCTURE SYSTEMS

RKR | Critical infrastructure, networks and services

AO | Green infrastructure and ecosystem services

For ecosystem services as 'green infrastructure', refer back to the Land and Ocean Ecosystems section

AO | Sustainable land use and urban planning

Existence and enforcement of coastal and/or land management planning	●	●	●	●	●	●	●
Number and skill level of government officials responsible for land use and development planning	●	●	●	●	●	●	●
Proportion of urban population living in slums, informal settlements or inadequate housing	●	●	●	●	●	●	●
Vulnerability-reducing adaptation measures to upgrade informal settlements, create affordable housing and protect populations living in disaster prone areas	●	●	●	●	●	●	●
Provide access to safe, affordable, accessible and sustainable transport systems for all	●	●	●	●	●	●	●
Provision for safe non-motorised transport infrastructure	●	●	●	●	●	●	●

	UNFCCC Paris Agreement 2015 text	Sendai framework	SDGs	SAMOA Pathway	New Urban Agenda	Kunming-Montreal framework biodiversity enhancement targets	Adaptation Gap Report 2022 global analysis ³
RKR Critical infrastructure, networks and services							
AO Sustainable urban water management							
Water is used more efficiently: multiple water saving and efficiency measures in place	●	●	●	●	●	●	●
Improved water and sanitation outcomes (specifics below)	●	●	●	●	●	●	●
Proportion of population using managed drinking water services	●	●	●	●	●	●	●
Proportion of population using managed sanitation services	●	●	●	●	●	●	●

ST

ENERGY SYSTEMS

RKR | Water security

AO | Improve water use efficiency

Elements of the international agreements that pertain to water efficiency are already covered above and none are specific to energy use in the water sector

RKR | Critical infrastructure, networks and services

AO | Critical power systems

(Included below in the sense of 'Energy efficiency as an adaptation and resilience measure')

Reduced energy use through energy efficiency measures	●	●	●	●	●	●	●
Renewable energy share in the total final energy consumption	●	●	●	●	●	●	● [energy sector: efficiency and renewables combined]

AO | Energy reliability

The concept of reliability is inherent in the framing of critical power systems, see line above

UNFCCC Paris Agreement 2015 text	Sendai framework	SDGs	SAMOA Pathway	New Urban Agenda	Kunming-Montreal framework biodiversity enhancement targets	Adaptation Gap Report 2022 global analysis ³
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CROSS SECTORAL OPTIONS (IPCC WG2 SPM) TOGETHER WITH SOCIETAL SYSTEMS (IPCC WG2, CH. 18)

The initial categories listed reflect the cross-sectoral options in the IPCC’s Summary for Policy Makers. The subsequent categories in this section are aligned with the description of ‘societal systems’ transitions in IPCC Chapter 18, Table 18, page 2699). These further categories are similar to the ‘cross-cutting’ issues contained in the *Information note on the GlASS work programme by the Chairs of the Subsidiary Bodies* of February 2023, which comprise: ‘Gender-responsiveness; intergenerational and gender equity and social justice; ecosystem- and community-based adaptation; governance at the local, national and regional level; transboundary approaches; private sector engagement; traditional, local and indigenous peoples’ knowledge; and human rights’.

Cross-sectoral options (IPCC WG2 SPM)

RKR | Human health

AO | Health and health systems adaptation

Increased resilience of societies and reduced vulnerability through investments in public health care and access	●	●	●	●	●	●	●
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RKR | Living standards and equity

AO | Livelihood diversification

Eradication of poverty	●	●	●	●	●	●	●
Movement towards more equitable income distribution, as result of climate resilience measures	●	●	●	●	●	NA ⁴	●

RKR | Peace and human mobility

AO | Planned relocation and resettlement

Not explicitly discussed in international agreements analysed here although the Adaptation Gap Report has a case study of planned relocation in Asia and lessons learned

AO | Human migration

Not explicitly linked to targets or commitments in international agreements analysed here, except for the Sendai Framework, which contains commitments to meeting the needs of (involuntarily) displaced persons. Migrants are discussed by the Adaptation Gap Report as a major group whose climate resilience interests are underrepresented in adaptation planning and implementation

⁴ Discussion of equitable benefits sharing pertains to benefits from use of genetic resources, not climate resilience actions per se.

	UNFCCC Paris Agreement 2015 text	Sendai framework	SDGs	SAMOA Pathway	New Urban Agenda	Kunming-Montreal framework biodiversity enhancement targets	Adaptation Gap Report 2022 global analysis ³
RKR: Other cross cutting risks							
AO Disaster risk management							
National capacity for adaptation planning or climate related disaster risk reduction and management	●	●	●	●	●	●	●
Comprehensiveness: existence of adaptation/DRR options that address assessed risks	●	●	●	●	●	●	●
Reduction in number of deaths from (climate-related) disaster	●	●	●	●	●	●	●
Reduction in incidences of illness, injury from (climate-related) disaster	●	●	●	●	●	●	●
Number of countries that adopt and implement national disaster risk reduction strategies in line with the Sendai Framework for Disaster Risk Reduction 2015-30	●	●	●	●	●	●	●
Percentage of local governments that adopt and implement local disaster risk reduction strategies in line with national strategies	●	●	●	●	●	●	●
Accessible, understandable, usable and relevant disaster risk information and assessment available to the people at national and local levels	●	●	●	●	●	●	●
AO Climate services, including Early Warning Systems							
Multi-hazard warning system in place and operational	●	●	●	●	●	●	●
Percentage of the population covered by a multi-hazard warning system	●	●	●	●	●	●	●

	UNFCCC Paris Agreement 2015 text	Sendai framework	SDGs	SAMOA Pathway	New Urban Agenda	Kunming-Montreal framework biodiversity enhancement targets	Adaptation Gap Report 2022 global analysis ³
RKR: Other cross cutting risks							
AO Social safety nets							
<i>Discussed more generally in Agenda 2030</i>							
AO Risk spreading and sharing							
Establish and strengthen risk insurance facilities at the national and regional levels	●	●	●	●	●	●	●
Further issues in scope of the IPCC's 'societal systems' (IPCC WG2, Ch 18)							
Inclusiveness: stakeholder engagement	●	●	●	●	●	●	●
Inclusiveness: dedicated stakeholder engagement process in place	●	●	●	●	●	●	●
Prohibition of discrimination and upholding/enforcement of human rights for all	●	●	●	●	●	●	●
Inclusiveness: gender dimensions (cross-cutting)	●	●	●	●	●	●	●
Empowerment of women (in context of climate resilience activities)	●	●	●	●	●	●	●
Empowerment of indigenous people (in context of climate resilience activities)	●	●	●	●	●	●	●
Protection/utilisation of indigenous knowledge	●	●	●	●	●	●	●
Empowerment of young people (in context of climate resilience activities)	●	●	●	●	●	●	●
Empowerment of people living with disabilities (in context of climate resilience activities)	●	●	●	●	●	●	●
Empowerment of elderly people in context of many facets of climate resilient society	●	●	●	●	●	●	●
Integrate biodiversity values into planning	●	●	●	●	●	●	●
Implementability: central administration in charge	●	●	●	●	●	●	●
Implementability: regulations in place	●	●	●	●	●	●	●
Implementability: incentives	●	●	●	●	●	●	●
Integration: horizontal coordination mechanisms in place	●	●	●	●	●	●	●
Integration: sectoral plans exist	●	●	●	●	●	●	●
Integration: vertical coordination mechanisms in place	●	●	●	●	●	●	●
Integration: sub national plans in place	●	●	●	●	●	●	●

	UNFCCC Paris Agreement 2015 text	Sendai framework	SDGs	SAMOA Pathway	New Urban Agenda	Kunming-Montreal framework biodiversity enhancement targets	Adaptation Gap Report 2022 global analysis ³
M&E: M&E system in place	●	●	●	●	●	●	●
M&E: progress/monitoring report published	●	●	●	●	●	●	●
Access to climate finance	●	●	●	●	●	●	●
Implementability: direct investment/funding	●	●	●	●	●	●	●
Partnerships for the SDGs	●	●	●	●	●	●	●
Public awareness raising and education on climate/ DRR	●	●	●	●	●	●	●
Availability of downscaled climate hazard and impact projections	●	●	●	●	●	●	●
Protection of cultural heritage	●	●	●	●	●	●	●
Preservation spending per capita on natural and cultural heritage	●	●	●	●	●	●	●
Promotion of sustainable, resilient tourism	●	●	●	●	●	●	●
INDUSTRIAL SYSTEMS (IPCC WG2 Ch. 18)							
Measure of materials use in production	●	●	●	●	●	●	●
Measure of materials use in consumption	●	●	●	●	●	●	●
Recycling rate, recycling capability	●	●	●	●	●	●	●
Proportion of solid waste managed in controlled facilities	●	●	●	●	●	●	●
Reduction in deaths from ambient air pollution	●	●	●	●	●	●	●
Reduce fine particulate matter, e.g. PM2.5, PM10	●	●	●	●	●	●	●