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Limiting Overshoot

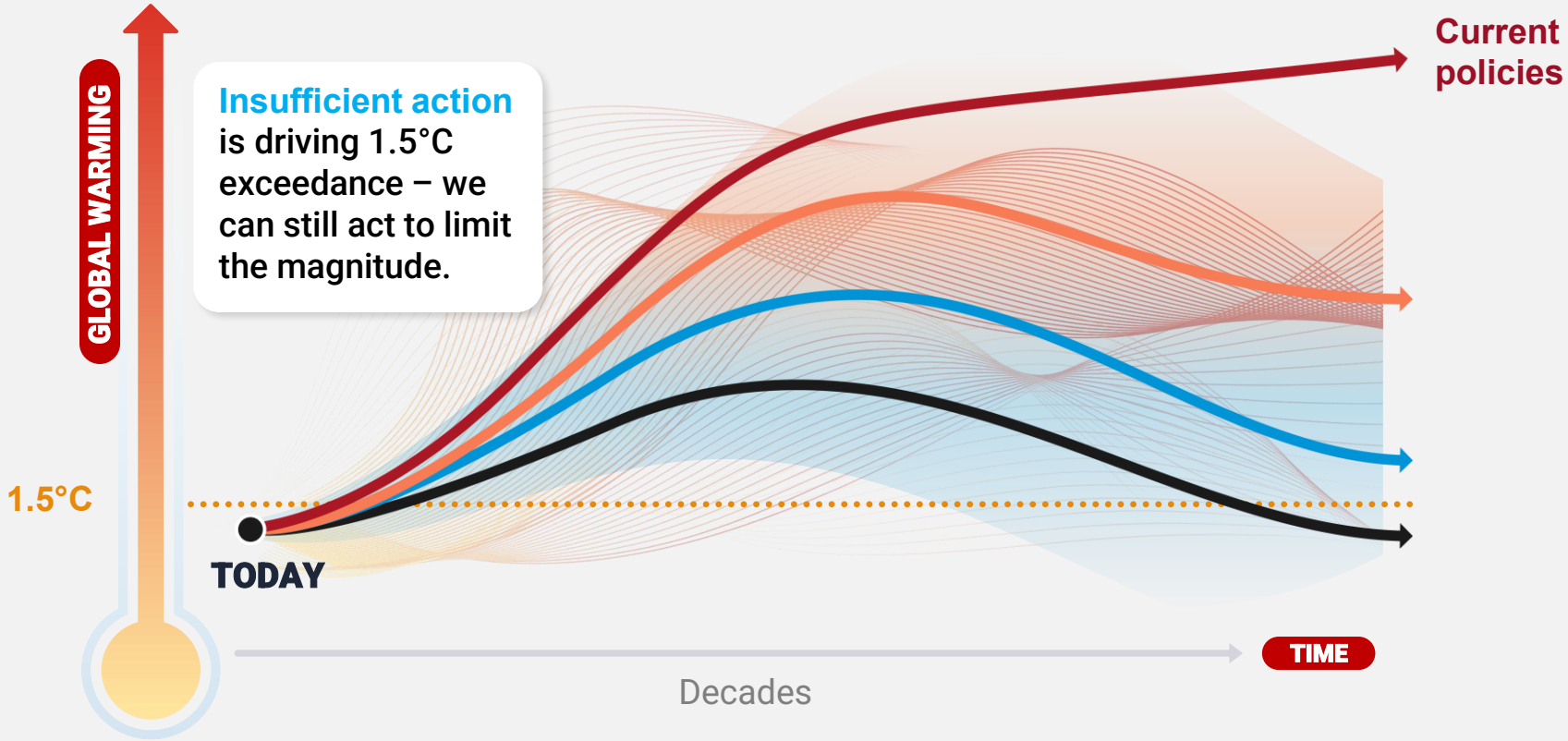
Navigating exceedance of 1.5ºC and pathways towards return

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Arnaud Bouissou - MEDDE / SG COP21

Insufficient action has made exceeding 1.5°C unavoidable

- Decades of scientific warning and climate commitments have not produced sufficiently rapid emissions reductions.
- As a result, global warming is now approaching and moving beyond 1.5°C.

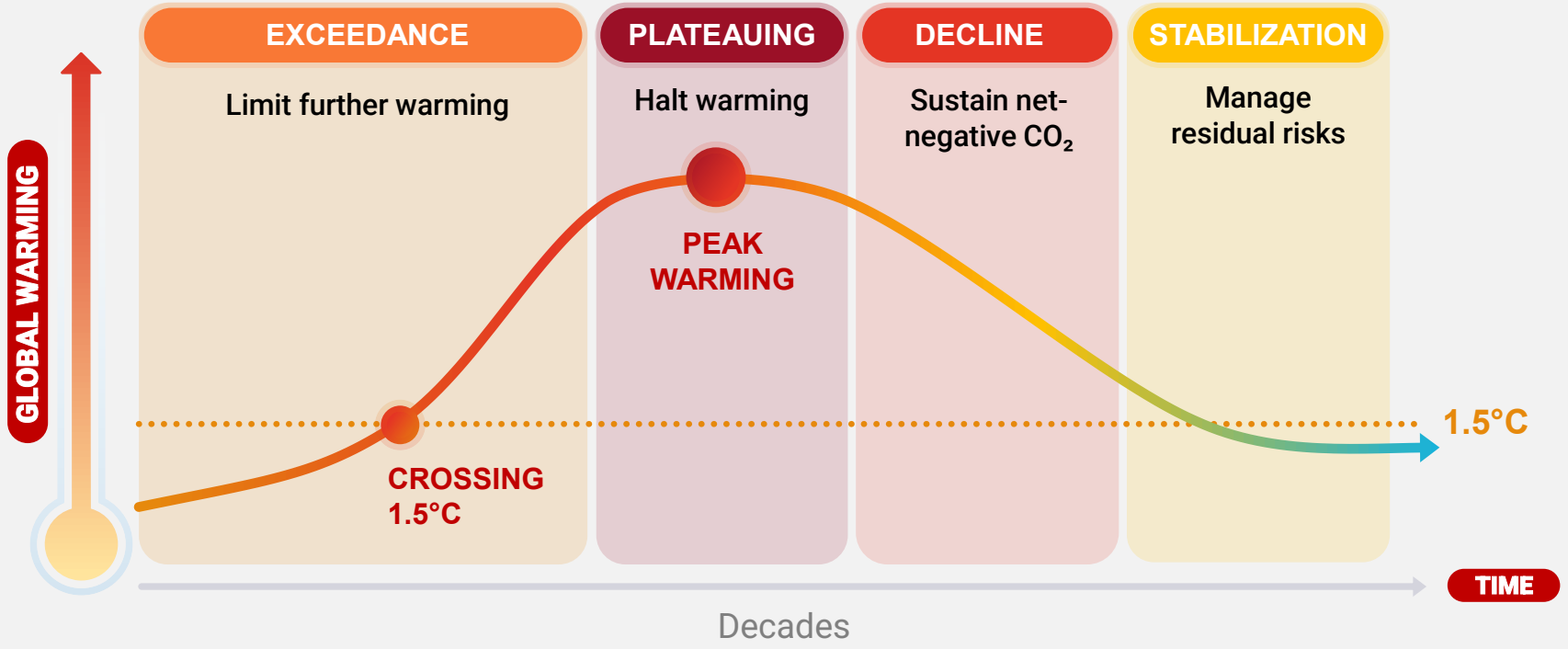


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Not only about exceedance - an overshoot pathway unfolds through four stages

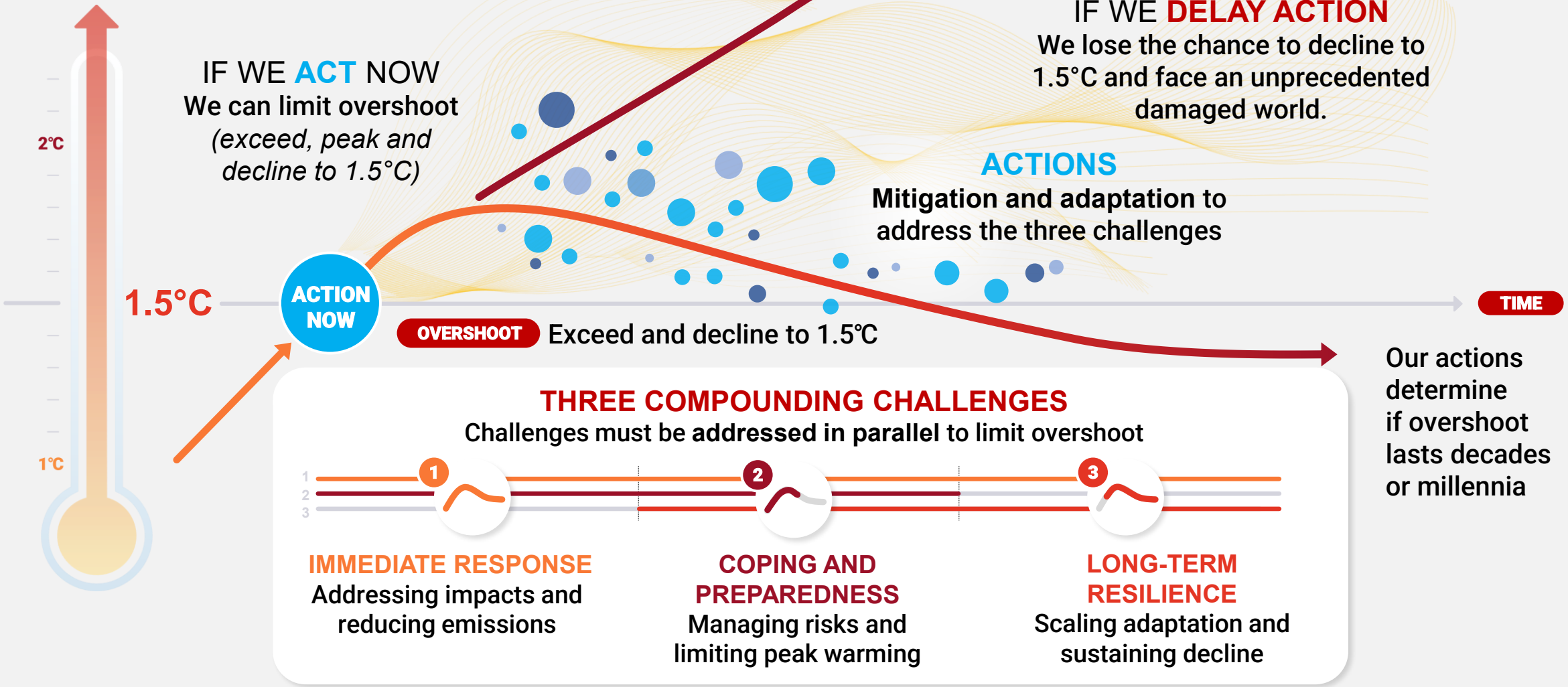
- **EXCEEDANCE:** Warming is above 1.5°C and still rising toward its peak.
- **PLATEAUING:** Warming reaches its maximum level above 1.5°C and remains near that level.
- **DECLINE:** Warming falls from its peak.
- **STABILIZATION:** Warming reaches and stabilizes at or below 1.5°C.

Overshoot is a pathway, not a threshold. Each stage brings different and cumulative implications for mitigation, adaptation and resilience.



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Decades of insufficient action result in three challenges that require urgent action



Three challenges compound the problem

MITIGATION

ADAPTATION

IMMEDIATE RESPONSE
Addressing impacts and reducing emissions

Immediate policies and measures to reduce and avoid greenhouse gas emissions and slow the rate of warming



1 Urgent adaptation measures to protect people and ecosystems from the impacts of a 1.5°C world and beyond

COPING AND PREPAREDNESS
Managing risks and limiting peak warming

Advance sustained and deep decarbonization towards net zero emissions to limit peak warming and avoid an even more dangerous world



2 Advance adaptation and development strategies under higher levels of warming while managing severe and increasing risks and impacts

LONG-TERM RESILIENCE
Scaling adaptation and sustaining decline

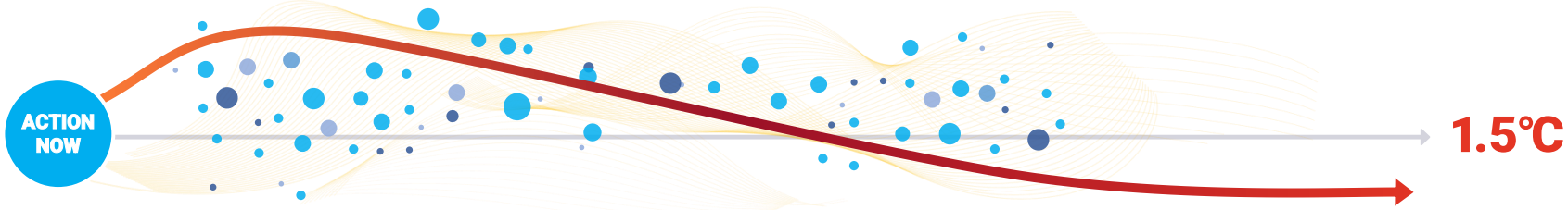
Achievement of sustained net negative CO_2 emissions to reverse global warming. Reductions of short-lived greenhouse gases e.g. CH_4



3 Continue efforts to enhance sustainability and support recovery, and manage persistent climate risks and impacts

ACTIONS

Both adaptation and mitigation are urgent, mutually reinforcing, interdependent and necessary to limit overshoot.



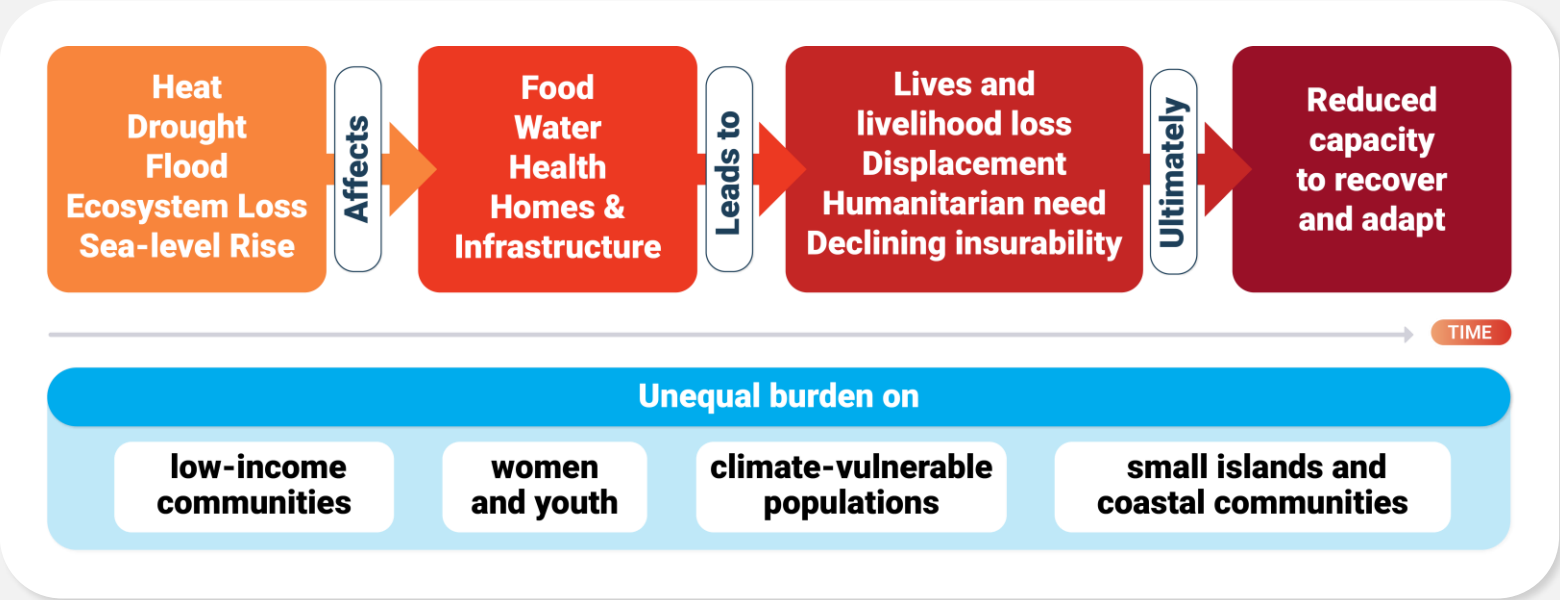
“While exceeding 1.5°C is unavoidable. How high we go and for how long it lasts is still in our hands.”

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Lived experience
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Climate impacts accumulate through impacts on livelihoods, health, displacement and lost security

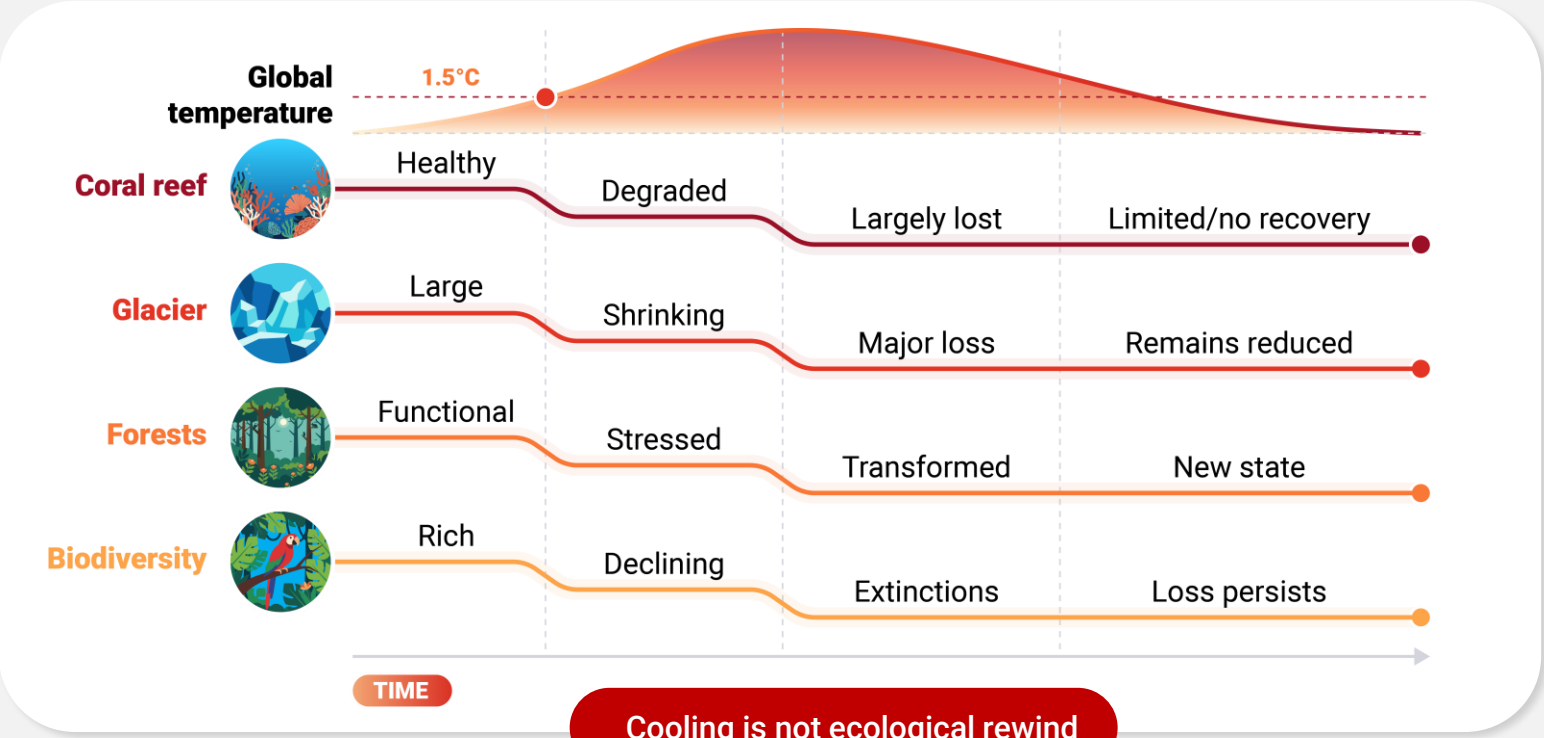
- Food, water and health security become increasingly fragile as warming peaks.
- Coastal cities and small islands face particularly persistent risks from sea-level rise and extremes.
- Displacement, livelihood loss, declining insurability and growing adaptation limits can persist long after temperatures begin to fall.
- The heaviest burdens fall disproportionately on vulnerable populations.



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Some losses incurred across overshoot pathways may not be reversed

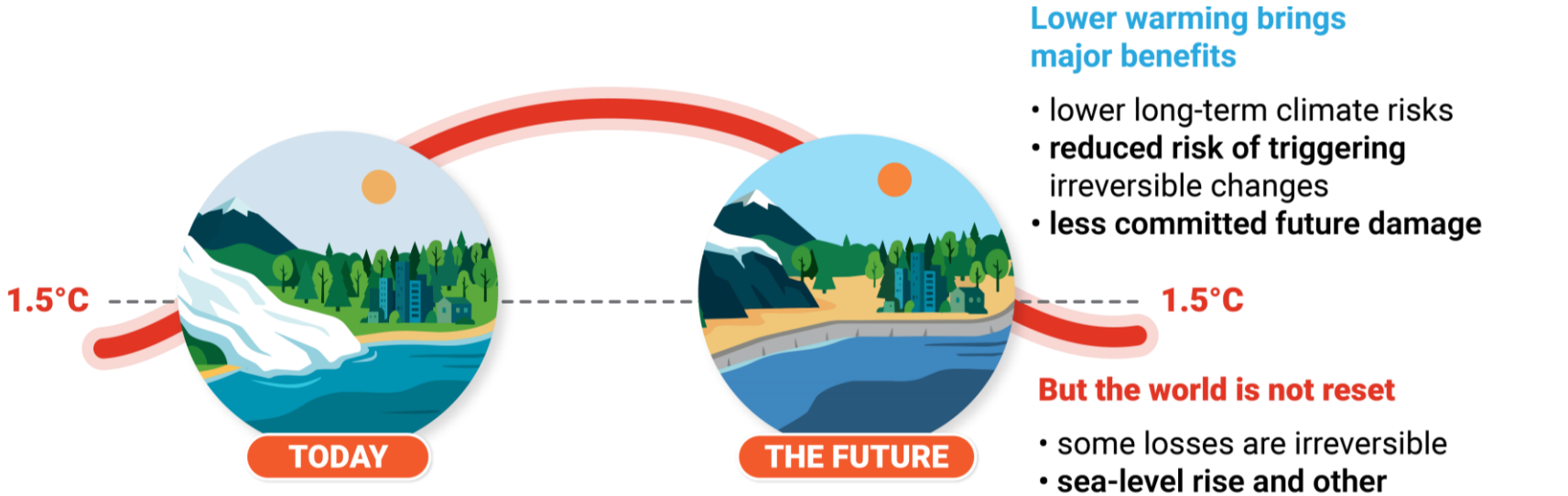
- Coral reefs, forests, glaciers, ice sheets, and other vulnerable natural systems can cross critical thresholds during overshoot pathways.
- Loss of biodiversity can weaken the natural systems on which people depend.
- Lower and shorter exceedance reduces the chance of crossing these thresholds.



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Returning to 1.5°C matters, but it does not turn back the clock

- Falling global temperature does not reverse all climate impacts.
- Some losses and changes are irreversible; societies and ecosystems inherit altered conditions.
- The task is therefore to limit exceedance (magnitude and duration) and pursue deep decarbonization while building adaptive capacity and resilience to unavoidable change.



Lower warming brings major benefits

- lower long-term climate risks
- **reduced risk of triggering** irreversible changes
- **less committed future damage**

But the world is not reset

- some losses are irreversible
- **sea-level rise and other** consequences persist
- **ecosystems, societies and** infrastructure have experienced loss

Same global temperature does NOT mean the same world

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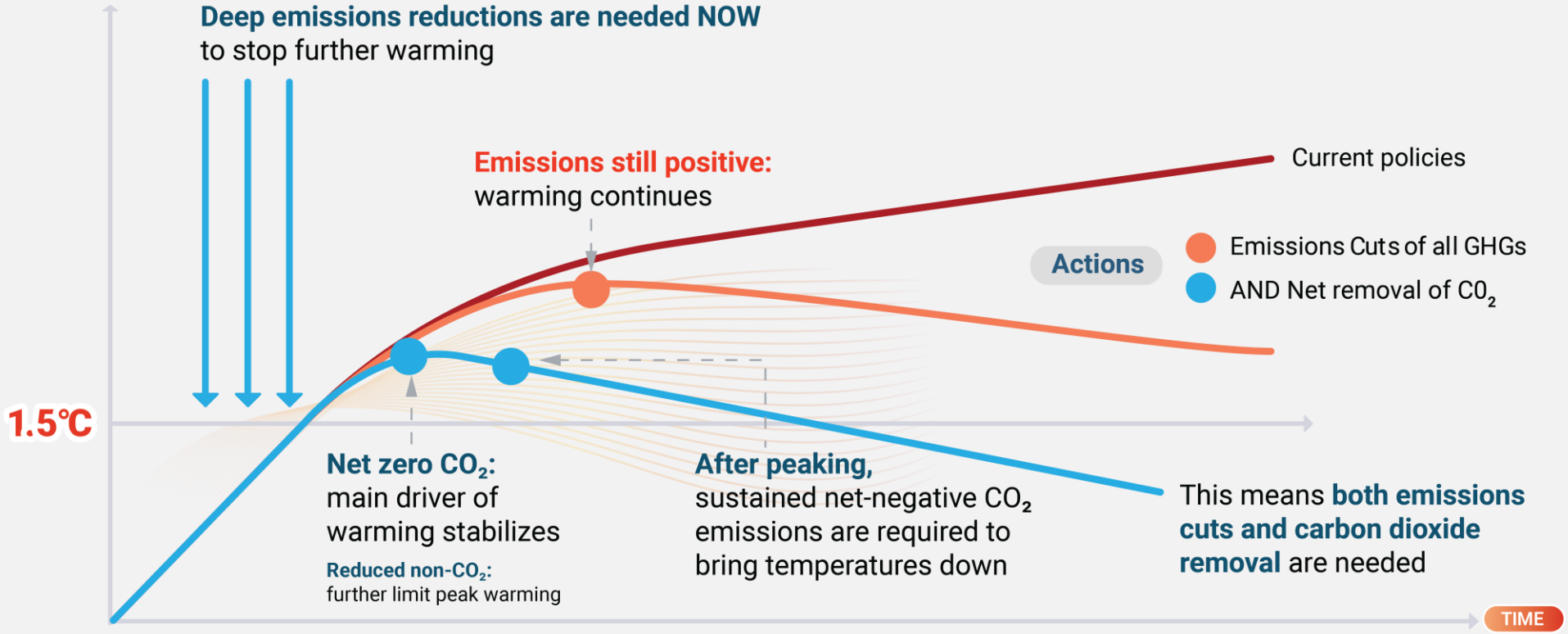
Navigating the return to a safer future

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“Do not build the overshoot response around an assumption that we can engineer our way out of the consequences.”

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Emission cuts and avoidance can halt warming; bringing the temperature back to around 1.5°C requires net removal of CO_2 (CDR)

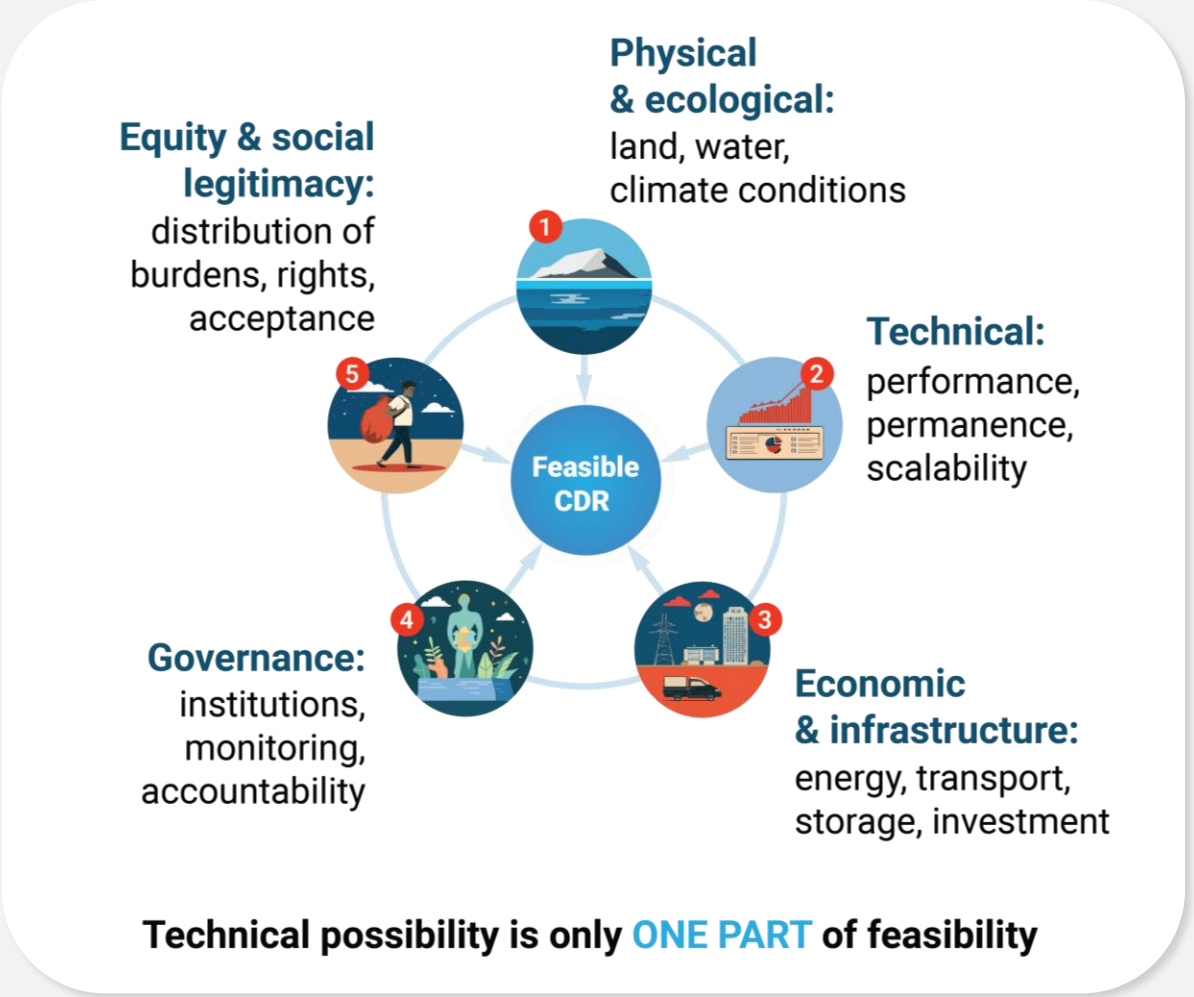


CDR = removing CO_2 from the atmosphere and durably storing it. It does not include solar radiation modification.

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CDR is necessary if we are to return to 1.5°C — but its feasibility cannot be guaranteed

- CDR faces uncertainties in scale, technology and physical feasibility.
- Deployment also depends on institutions, governance, equity and public acceptance.
- Reliance on future CDR must therefore be limited by cutting emissions as far as possible now.

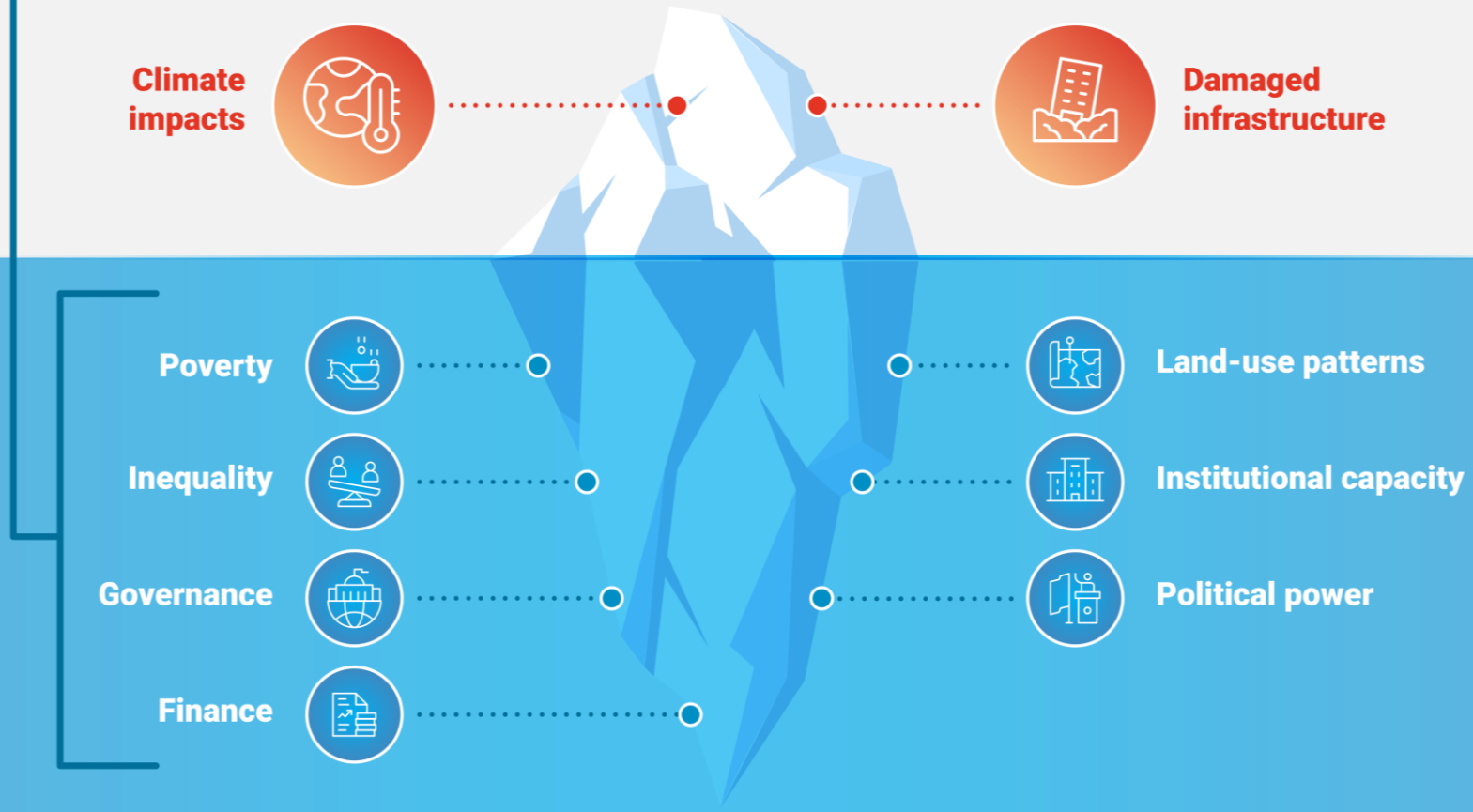


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The need for flexibility and agility
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Overshoot requires transformational adaptation

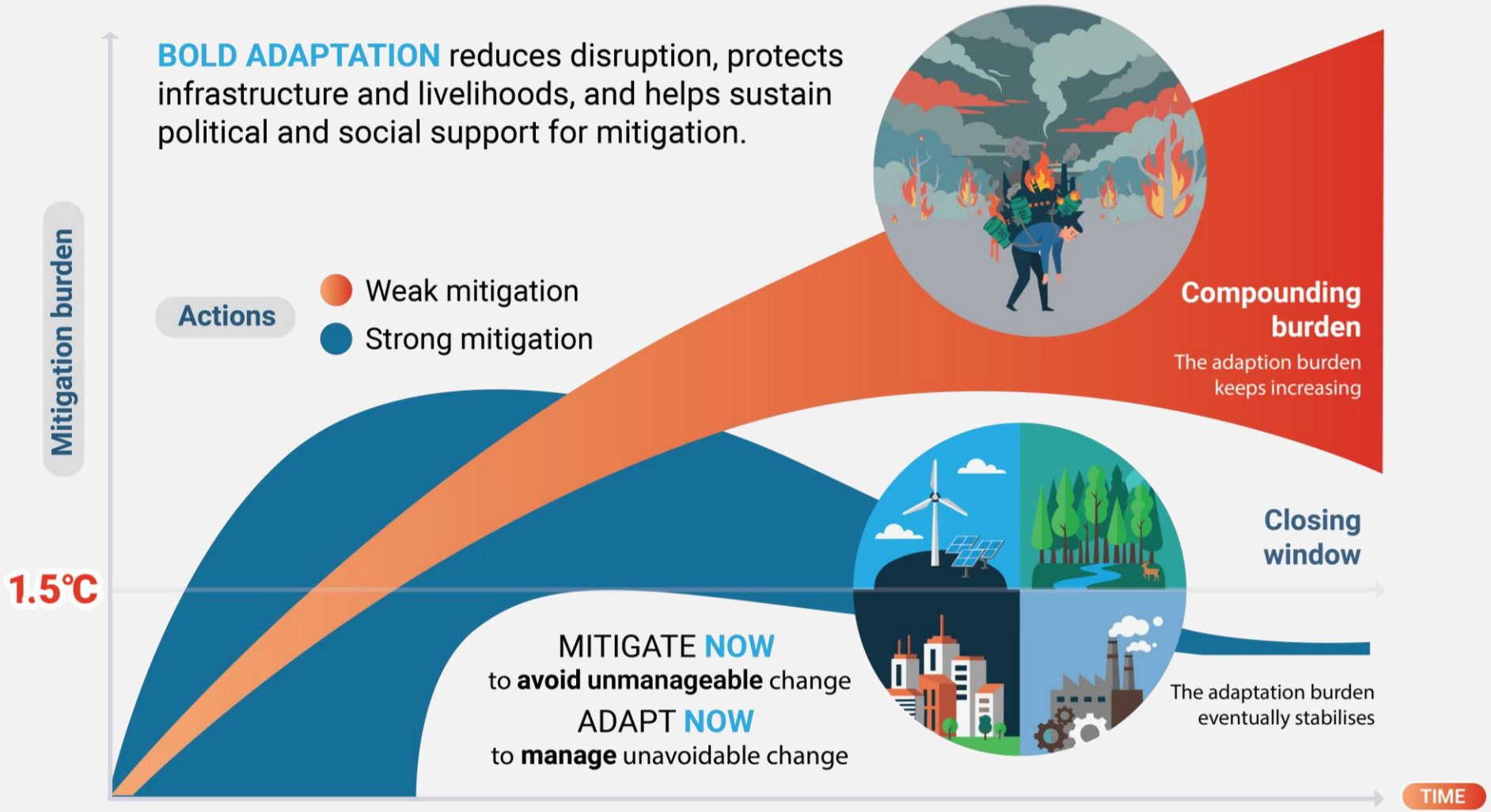
Practical responses are necessary but not sufficient.
Adaptation must address vulnerability drivers, reshape institutions, finance, and governance, and account for limits, equity, and justice.



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Bold adaptation supports climate ambition

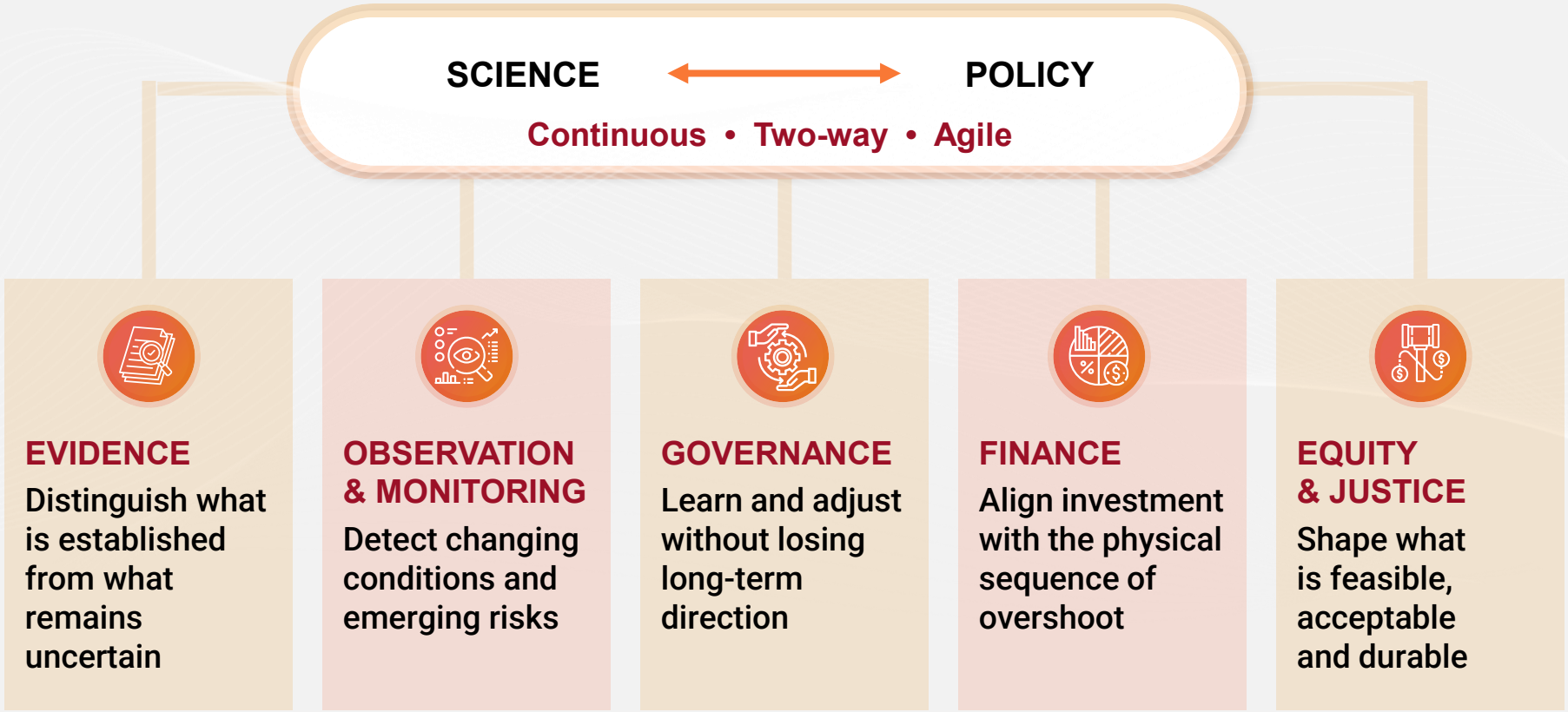
Weak adaptation diverts resources to reactive crisis response



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Entering unchartered territories
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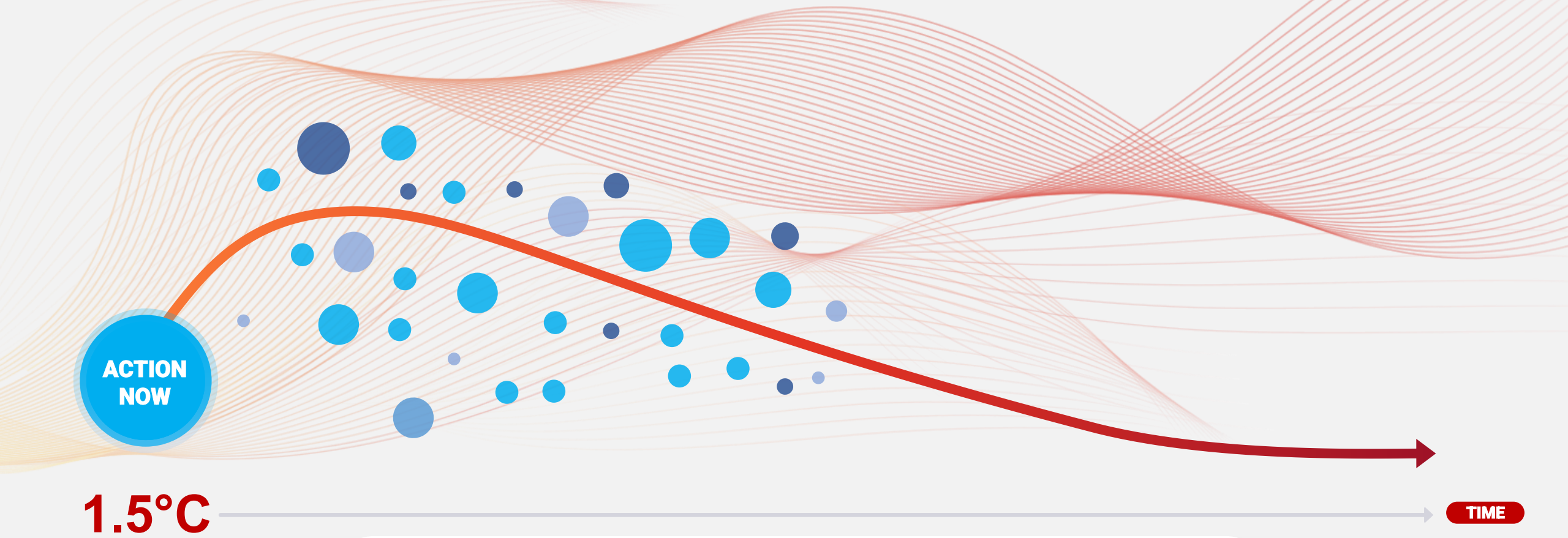
Hold long-term direction, keep learning



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The intended destination still remains a safer climate

The journey is still being shaped



Limit the peak • Shorten the exceedance • Navigate the decline

A collective scientific effort

The United Nations Environment Programme (UNEP) would like to recognize the strategic direction and coordination provided by the core team in the development of this report:

Mirey Atallah (UNEP), Richard A. Betts (University of Exeter and Met Office), David Dodman (Institute for Housing and Urban Development Studies [IHS], Erasmus University Rotterdam), Sharon Gil (UNEP), Bruce Hewitson (University of Cape Town [UCT]), Lena Kopetzky (UNEP), Nicolien de Lange (UNEP), Debra C. Roberts (University KwaZulu-Natal/ University of Twente), Lucas Nessim Snaije (IHS, Erasmus University Rotterdam)

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Thank you

Mirey Atallah
Chief of the Adaptation and Resilience Branch,
Climate Change Division, UNEP
mirey.atallah@un.org

United Nations Avenue, Gigiri
PO Box 30552 – 00100 GPO Nairobi, Kenya