

Concepts, approaches and examples of Transformational adaptation

Based on the Key Findings of the AR6 Report on Impacts, Adaptation and Vulnerability

Presenting on behalf of the IPCC Working Group II Author Team

Johanna Nalau, Siri Eriksen, Elisabeth Gilmore, Debbie Ley, Lisa Schipper, Robbert Biesbroek, William Solecki, Mike Morecroft

(a) Societal choices about adaptation, mitigation and sustainable development made in arenas of engagement

Dimensions that enable actions towards higher climate resilient development

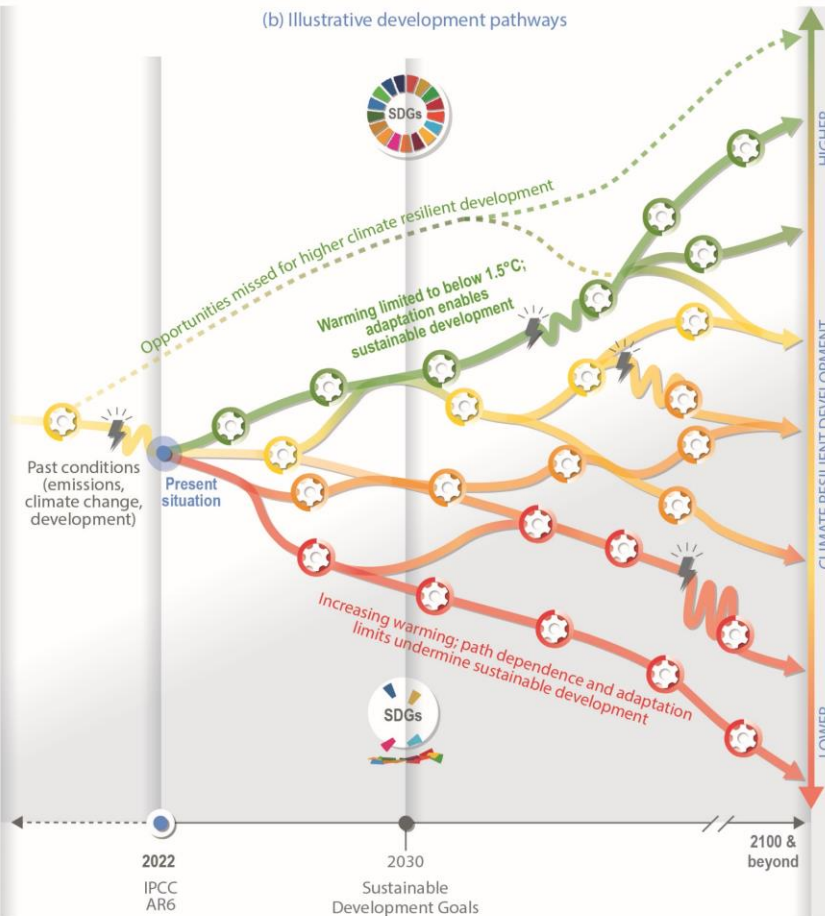


- Arenas of engagement:
- Community
 - Socio-cultural
 - Political
 - Ecological
 - Knowledge + technology
 - Economic + financial



Dimensions that result in actions towards lower climate resilient development

(b) Illustrative development pathways



(c) Actions and outcomes characterizing development pathways



Illustrative climatic or non-climatic shock, e.g. COVID-19, drought or floods, that disrupts the development pathway

Narrowing window of opportunity for higher CRD

Transformational Adaptation as:

”actions aiming at adapting to climate change resulting in significant changes in structure or function that go beyond adjusting existing practices”

can be adopted at a large scale, can lead to new strategies in a region or resource system, transform places and potentially shift locations

deep and long-term societal changes that influence sustainable development (include values, worldviews)

Key concepts

Incremental Adaptation

Adaptation that maintains the essence and integrity of a system or process at a given scale.

In some cases, incremental adaptation can accrue to result in transformational adaptation



Transitions

The process of changing from one state or condition to another in a given period of time.

Transition can occur in individuals, firms, cities, regions and nations, and can be based on incremental or transformative change.

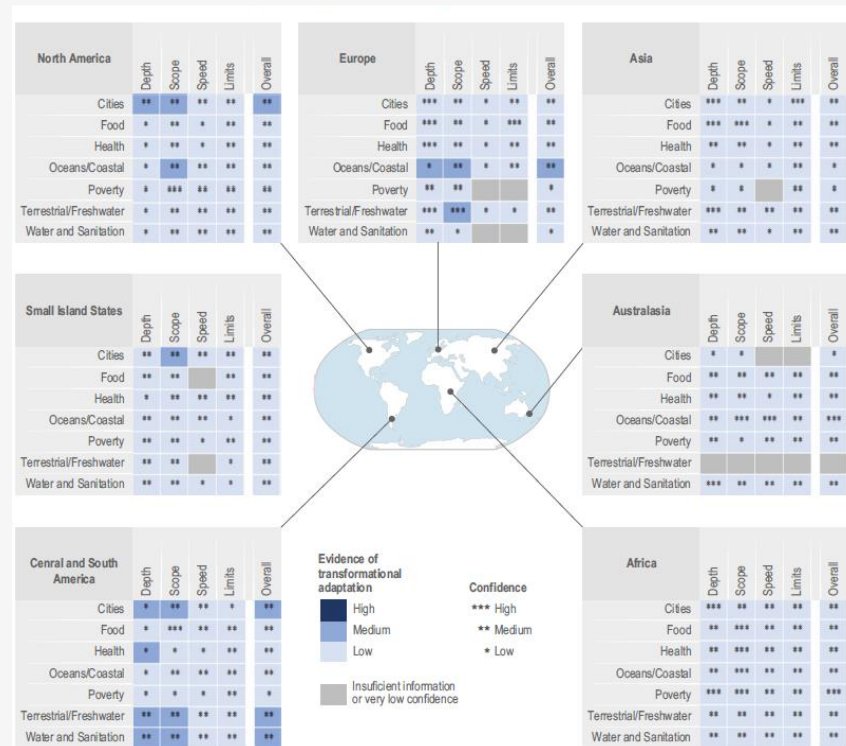
Dimensions of transformative potential of adaptation

Dimensions	Transformative potential of adaptation		
	low	medium	high
Depth	Adaptations are largely expansions of existing practices, with minimal change in underlying values, assumptions or norms.	Adaptations reflect a shift away from existing practices, norms or structures to some extent.	Adaptations reflect entirely new practices involving deep structural reform, e.g., complete change in mindset and changing institutional or behavioural norms.
Scope	Adaptations are largely localised and fragmented, with limited evidence of coordination or mainstreaming across sectors, jurisdictions or levels of governance.	Adaptations affect wider geographic areas, multiple areas and sectors, or are mainstreamed and coordinated across multiple dimensions.	Adaptations are widespread and substantial, including most possible sectors, levels of governance, and actors.
Speed	Adaptations are implemented slowly.	Adaptations are implemented moderately quickly.	Change is considered rapid for a given context.
Limits	Adaptations may approach but do not exceed or substantively challenge soft limits.	Adaptations may overcome some soft limits but do not challenge or approach hard limits.	Adaptations exceed many soft limits and approach or challenge hard limits.

Reported evidence shows limited transformational adaptation across sectors and regions

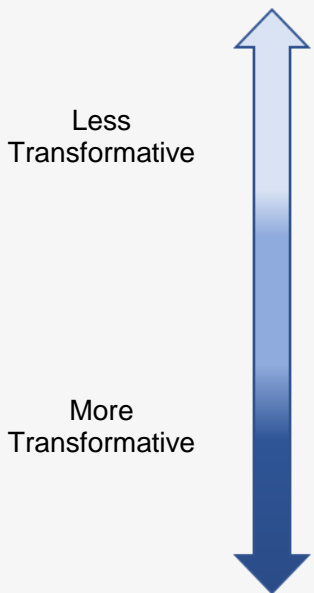
Few documented responses are simultaneously widespread, rapid and deep (*high confidence*)

Achieving high transformation in all four categories (depth, scope, speed and limits) may be particularly challenging or even involve trade-offs



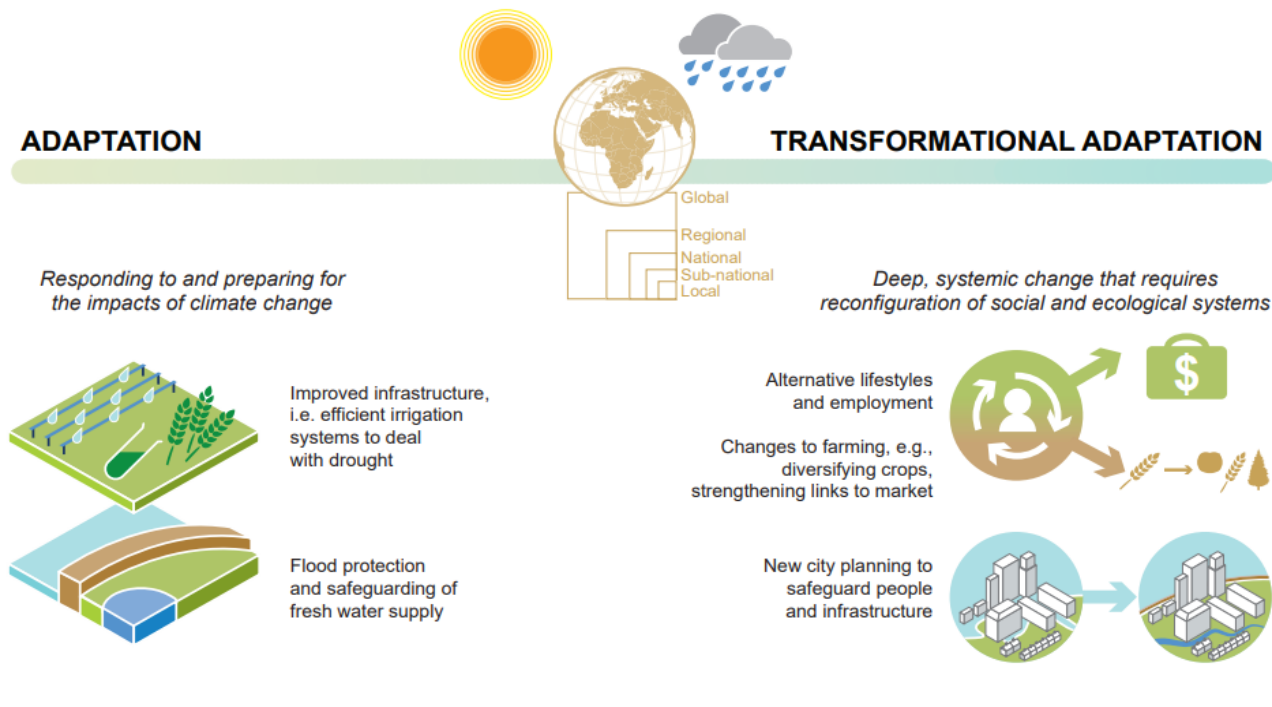
Transformative adaptation

Adaptation	Benefits to marginalized groups	Dis-benefits or exclusion of marginalised groups
Early-warning systems (<i>high confidence</i>)	Help with planning and pre-emptive identification of vulnerable groups	People of higher socio-economic status tend to receive warnings, while marginalized groups may be excluded
Infrastructure for health (high confidence)	Improvements to water infrastructure reduce displacement and improve mental health outcomes	Development of sanitary water infrastructure in Germany offered less benefit in areas with higher income inequality
Climate-resilient health care systems (<i>medium confidence</i>)	Universal health coverage can be highly beneficial, especially to lower income people when needed for climate-related health outcomes	Facilities in poor communities are often poorly sited and can lack capacity to support people during climate-related extreme events



FAQ4.3: Adaptation in a warming world

Adapting to further warming requires action at national & sub-national levels and can mean different things to different people in different contexts



FAQ 4.3, Figure 1 | Why is adaptation important in a world with global warming of 1.5°C? Examples of adaptation and transformational adaptation. Adapting to further warming requires action at national and sub-national levels and can mean different things to different people in different contexts. While transformational adaptation would not be needed everywhere in a world limited to 1.5°C warming, the scale of change needed would be challenging to implement.

Transformative adaptation examples

- Indigenous knowledge as a way of enabling profound change e.g. livelihood change and/or diversification, agricultural strategies, water conservation
- Relocation of communities
- Reshaping of cities for increased disaster resilience
- Significant changes in policy that reduce vulnerability and decrease inequality → shift in power structures
- Shift in how we think of climate adaptation e.g. agricultural strategies vs. regenerative ways of living

Alternative Pathways to Transformation

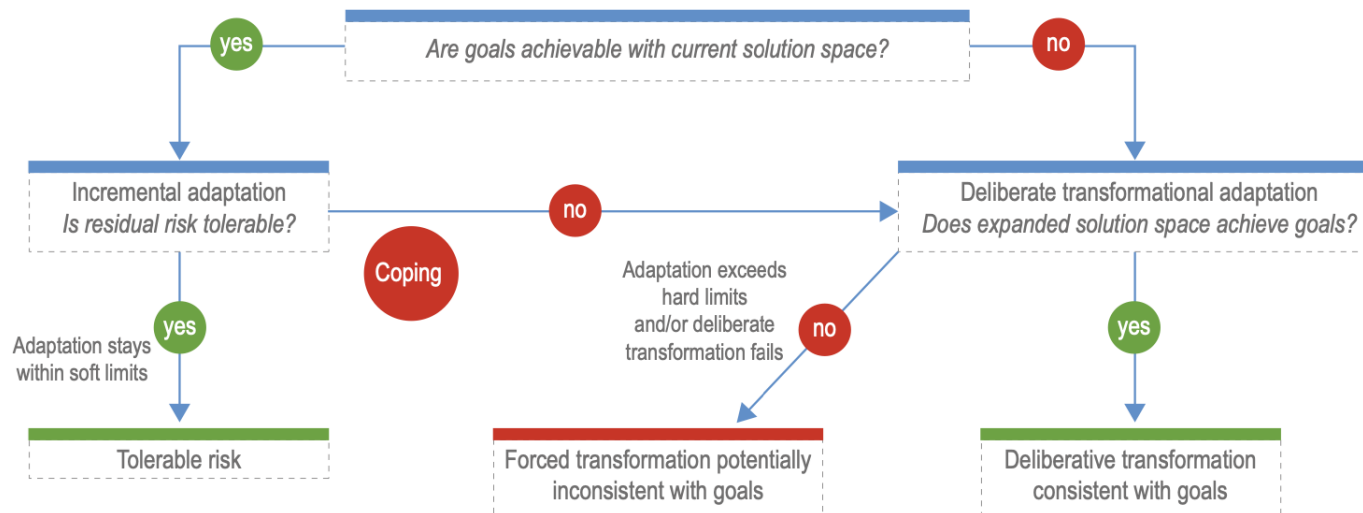
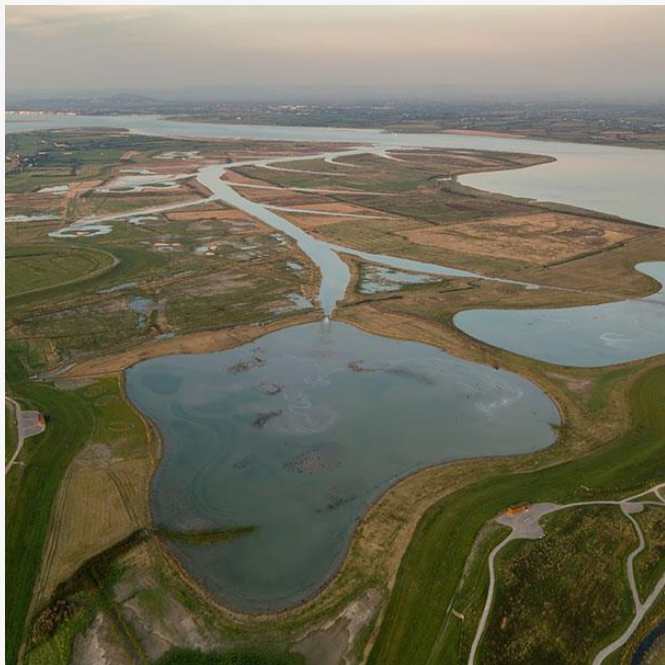


Figure 1.9 | Alternative pathways to transformation. Adaptation goals may be accessible by actions within or beyond the existing solution space. In the former case, incremental adaptation may stay within soft limits and hold risks to tolerable levels. In the latter case, deliberate transformational adaptation becomes necessary to achieve goals. If a successful deliberate transformation does not occur, the system may nonetheless undergo a forced transformation. Multiple actors are involved at each stage so that some people may nonetheless find themselves coping with what they regard as intolerable risks.



..... maintaining the resilience of biodiversity and ecosystem services at a global scale depends on effective and equitable conservation of approximately 30% to 50% of Earth's land, freshwater and ocean areas, including currently near-natural ecosystems (*high confidence*).

Saltmarsh creation at Steart, UK



- Rising sea levels threatened old sea defences
- 300 ha saltmarsh re-created on agricultural land
- Provides coastal flood protection - buffering new embankments against high tides and storm surges
- Habitat for many species especially birds
- Grazing cattle for food production
- Visitors come to enjoy the new nature reserve
- Partnership between government and NGOs
- Several years' engagement with local community at the design stage



Are we making progress in becoming more resilient to extreme events?

- Hard to answer definitively; a lot of money is being invested (~10 billion USD) but we lack a robust monitoring and evaluation mechanisms of these efforts.
- Vastly differential adaptation response – protecting Lower Manhattan
- Maladaptation concerns and inequity considerations hampering progress
- Hurricane Ida, Sept 2021



Demolishing a home flooded by Sandy

Hurricane Ida as a game changer

Transformations in energy system transitions: energy access as an adaptation option



- The most vulnerable populations also suffer from systemic vulnerabilities, besides the impacts of climate change.
- Provision of basic services and infrastructure are recognized as adaptation responses.
- Integration of Indigenous Knowledge in the planning, development and training of energy projects.
- End goal is not grid connection anymore
- Considerations of energy poverty, productive uses, energy servicing companies (ESCOs) run by woman and indigenous peoples.
- Incorporation of watershed management, water use, payment for environmental services.

Photo: Ollly Watts

Coordinated action guided by “System Transitions” thinking



**Land, ocean,
coastal and
freshwater
ecosystems**



**Urban, rural
and
infrastructure**



Energy



Industry



Society

- Makes possible the integration and coordination amongst and between sectors, identifying synergies and trade-offs
- Helps build economic and social resilience; ecosystem health and planetary health
- Are important for achieving the low global warming levels that avoids many limits to adaptation

SIXTH ASSESSMENT REPORT

Working Group II – Impacts, Adaptation and Vulnerability

Land and ocean ecosystems

Urban and infrastructure systems

Examples of climate responses and adaptation options	Forest-based adaptation*	Sustainable aquaculture and fisheries	Agroforestry	Biodiversity management and ecosystem connectivity	Green infrastructure and ecosystem services	Sustainable land use and urban planning	Sustainable urban water management
Potential feasibility:	high	medium	medium	medium	medium	medium	medium
Synergies with mitigation:	high	medium	high	high	high	high	low

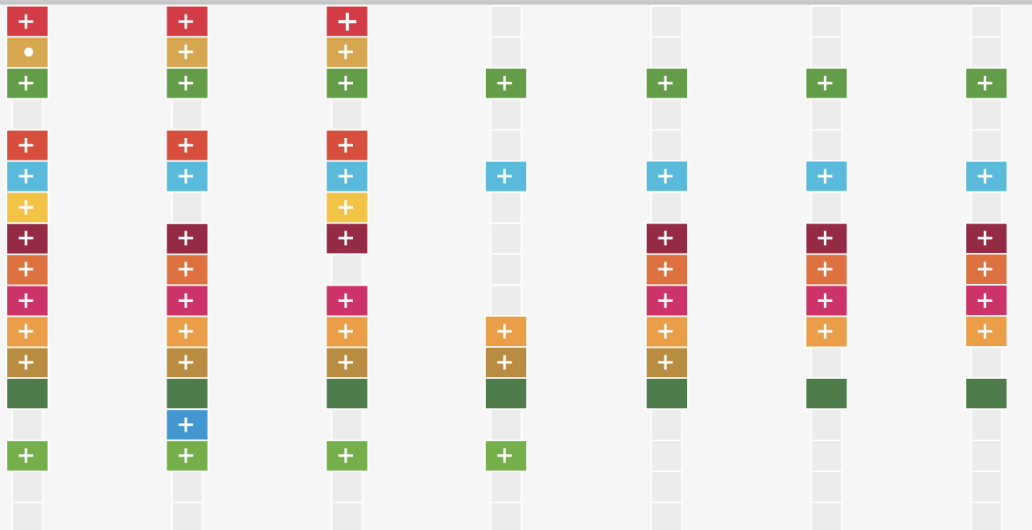
* Including sustainable forest management, forest conservation and restoration, reforestation and afforestation

● *High confidence*
 ● *Medium confidence*
 ● *Low confidence*

Relation with Sustainable Development Goals



SDGs are integrated and indivisible, and efforts to achieve any goal in isolation may trigger synergies or trade-offs with other SDGs



- 1: No Poverty
- 2: Zero Hunger
- 3: Good Health and Well-being
- 4: Quality Education
- 5: Gender Equality
- 6: Clean Water and Sanitation
- 7: Affordable and Clean Energy
- 8: Decent Work and Economic Growth
- 9: Industry, Innovation and Infrastructure
- 10: Reducing Inequality
- 11: Sustainable Cities and Communities
- 12: Sustainable Consumption and Production
- 13: Climate Action
- 14: Life Below Water
- 15: Life On Land
- 16: Peace, Justice, and Strong Institutions
- 17: Partnerships for the Goals

Societal choices are the result of multiple decisions made by multiple actors in diverse arenas of engagement



- Multiple government, private sector and civil society actors interact in different arenas of engagement, including economic + financial, knowledge + technology, ecological, political, socio-cultural and **community** arenas.

Arenas of engagement:
Community
Socio-cultural
Political
Ecological
Knowledge + technology
Economic + financial



Photo: wonderlate/unsplash.com



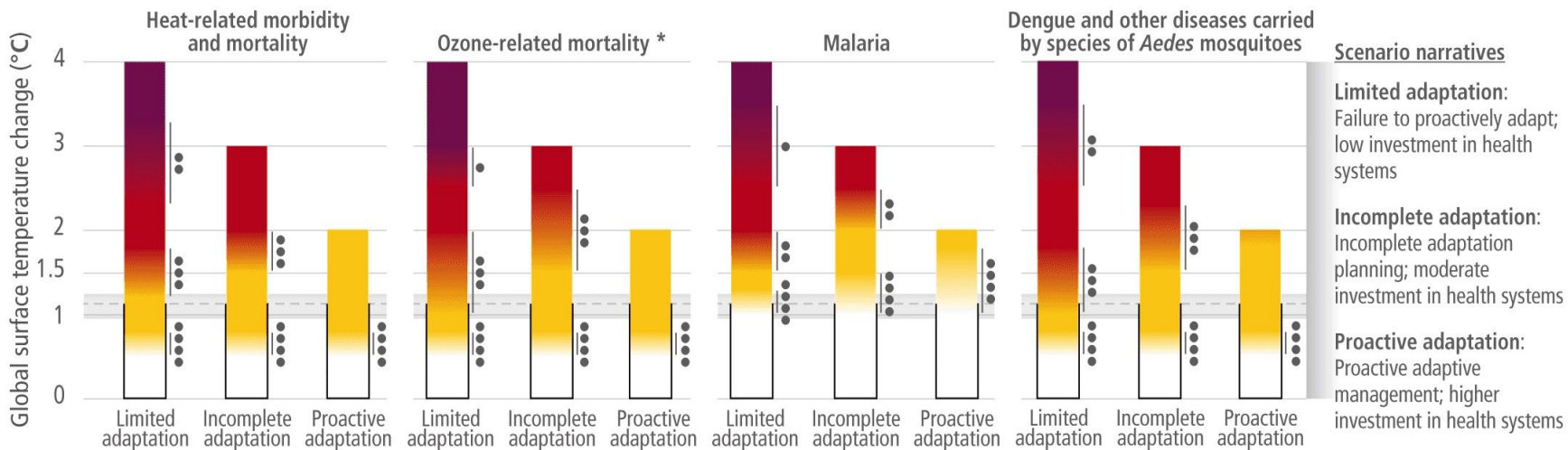
Photo: Joris Visser/unsplash.com



Photo. Asia Culturecenter/unsplash.com

Setting a global goal for adaptation

(e) Climate sensitive health outcomes under three adaptation scenarios



* Mortality projections include demographic trends but do not include future efforts to improve air quality that reduce ozone concentrations.

SPM Figure 3 (panel e): Global and regional risks for increasing levels of global warming

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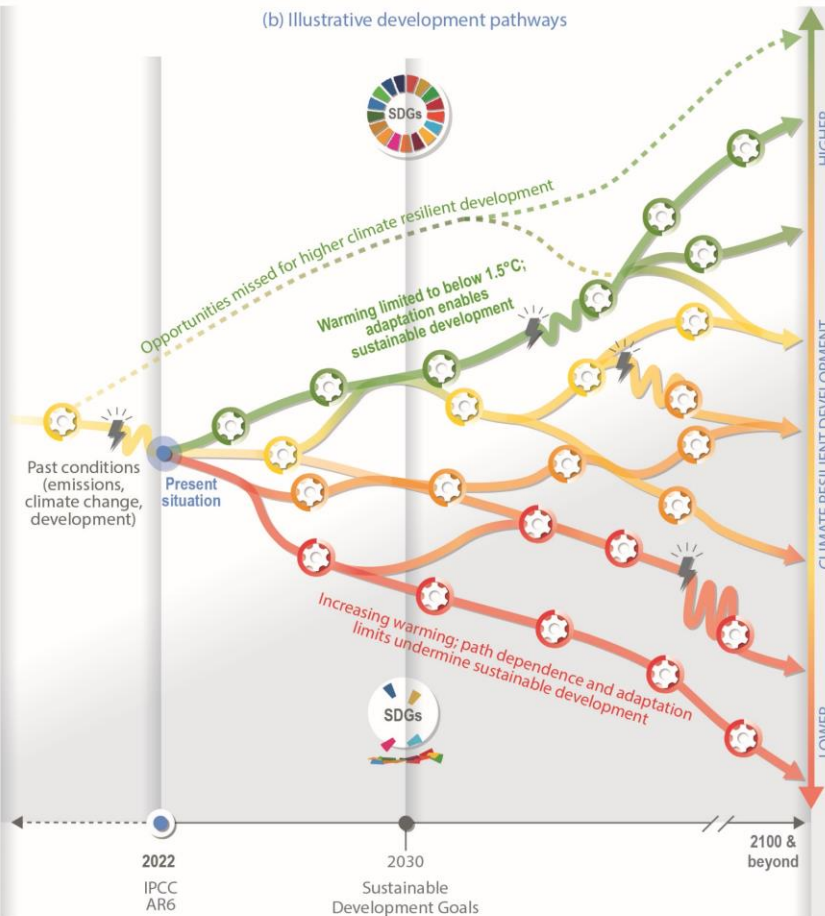


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Thank you!

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