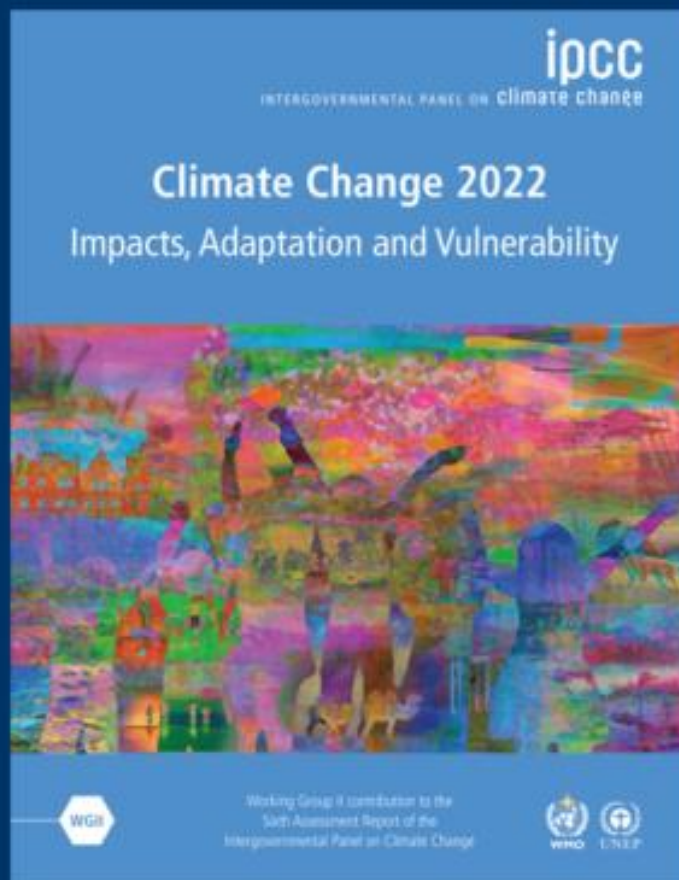




# “Climate Resilient Development”

A just and inclusive approach to wellbeing and sustainability

Prof Bronwyn Hayward NZAIA 30 Nov  
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The scientific evidence is unequivocal: climate change is a threat to human well-being and the health of the planet.

Any further delay in concerted global action will miss the brief, rapidly closing window to secure a liveable future.

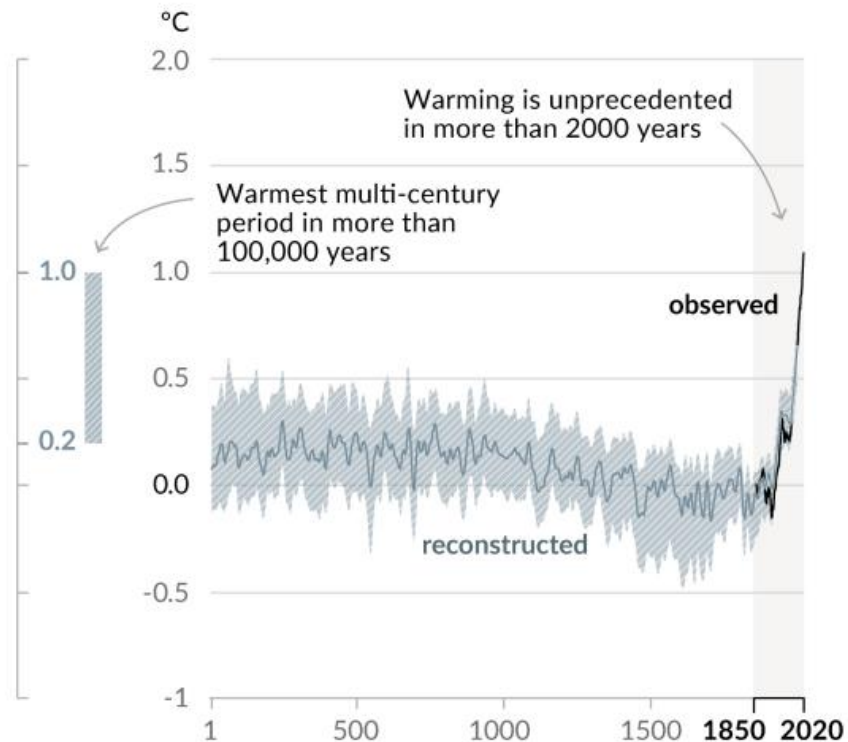
This report offers solutions to the world.



# Human influence has warmed the climate at a rate that is unprecedented in at least the last 2000 years

Figure SPM.1

a) Change in global surface temperature (decadal average)  
as **reconstructed** (1-2000) and **observed** (1850-2020)



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Global warming  
has caused dangerous and  
widespread disruption in nature...



Cascading and compounding risks are impacting people and planet-

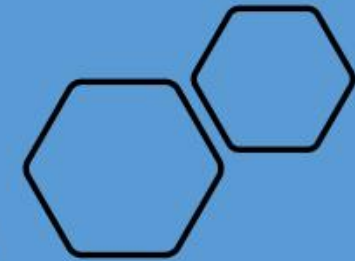
3.3 – 3.6 billion people live in hotspots of high vulnerability to climate change.





Impacts are magnified in cities where more than half the world's population lives.

Cascading and compounding risks observed in all inhabited regions, and risks are expected to increase with further warming (*very high confidence*)”



## Urbanisation

By 2050, 66 percent of the world's population will live in cities

including 7 out of 10 of all youth.





## Chapter 7 Health & Wellbeing

“Climate-related illnesses, premature deaths, malnutrition in all its forms, and threats to mental health and wellbeing are increasing (*very high confidence*)... interconnected, unevenly distributed ...(*very high confidence*).





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Action on adaptation has increased but progress is uneven and we are not adapting fast enough.





“

There are increasing gaps between adaptation action taken and what's needed.

These gaps are largest among lower income populations.

They are expected to grow.

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There are options we can take  
to reduce the risks to people and nature.





“AR6 highlights adaptation solutions which are effective, feasible and conform to principles of justice...  
Procedural...  
Distributive...  
and recognition...”

“Inclusive, integrative, equitable”  
decision making & planning



## AR6 Adaptation Vulnerability & Impacts

“

“This report recognises the value of diverse forms of knowledge such as scientific, Indigenous knowledge and local knowledge in understanding and evaluating climate adaptation processes and actions to reduce risks from human induced climate change”



Prof Te Maire Tau speaking at the opening of the IPCC Land report

# Climate Resilient Development.

- Reduce climate risks – adaptation
- Reduce greenhouse gas emissions – mitigation
- Enhance biodiversity
- Support Sustainable Development for all





# Transforming cities

Effective options:

## Physical /Green infrastructure

- Nature-based + engineering approaches
- Establishing green and blue spaces
- Urban agriculture

## Social Infrastructure

- Social-safety nets: income replacement,
- health and education investment
- Social cohesion, trust, whanaungatanga

Wider benefits:

Public health improvements

Ecosystem conservation







**“Ecosystem Based Adaptation “** building resilience of biodiversity and supporting ecosystem integrity can maintain benefits for people: livelihoods, health and well-being and the provision of food, fibre and water, as well as contributing to disaster risk reduction... adaptation and mitigation.”

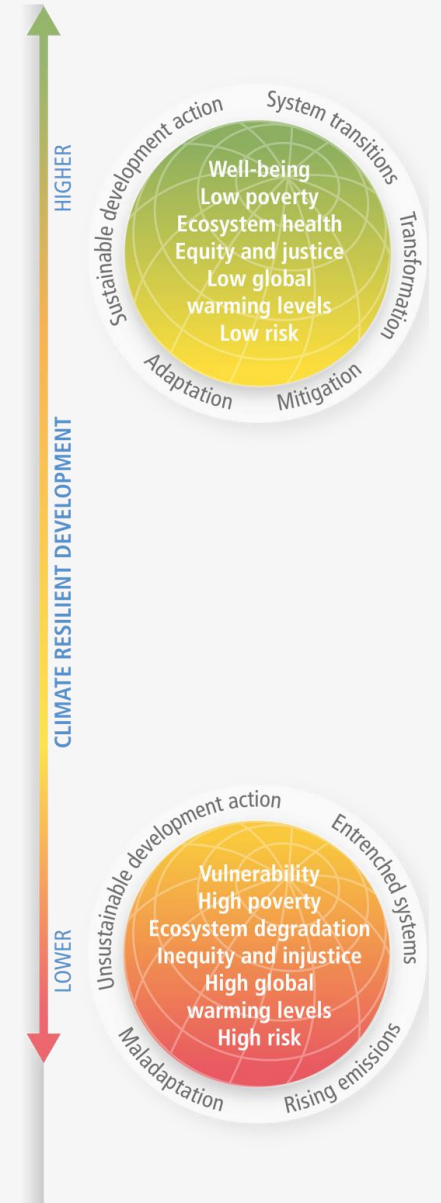
- **Protecting and restoring ecosystems** is essential for maintaining and enhancing the resilience of the biosphere (very high confidence).
- **Risks** from land-based mitigation measures poorly implemented
- **Biodiversity and ecosystem services have limited capacity to adapt to increasing global warming levels**, which will make climate resilient development progressively harder to achieve beyond 1.5°C warming (very high confidence).



# Climate Resilient Development

## solutions framework:

- Is considered across government and all of civil society
- Involves everyone –participation, forming partnerships including marginalized groups
- Draws on wide-ranging knowledge (scientific, Indigenous, local, practical)
- Prioritizes equity and justice- **addresses those who are most at risk**
- **Deepens systems transitions : energy, industry, land-ocean-ecosystems, urban, society**





[Axel Fassio/CIFOR CC BY-NC-ND 2.0]



# Accelerating adaptation (and climate resilient development)

**Political commitment** and follow-through, well aligned across all levels of government

**Institutional framework:** clear goals, priorities that define responsibilities

**Enhancing knowledge** of impacts and risks improves responses

**Monitoring and evaluation** of adaptation measures are essential to track progress

**Inclusive governance** that prioritises equity and justice – direct participation. Planning to identify ‘**low regrets**’ options that enable mitigation and adaptation in the face of change, complexity, deep uncertainty and divergent views



## There is a rapidly narrowing window of opportunity to enable climate resilient development

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

Dimensions that enable actions towards higher climate resilient development

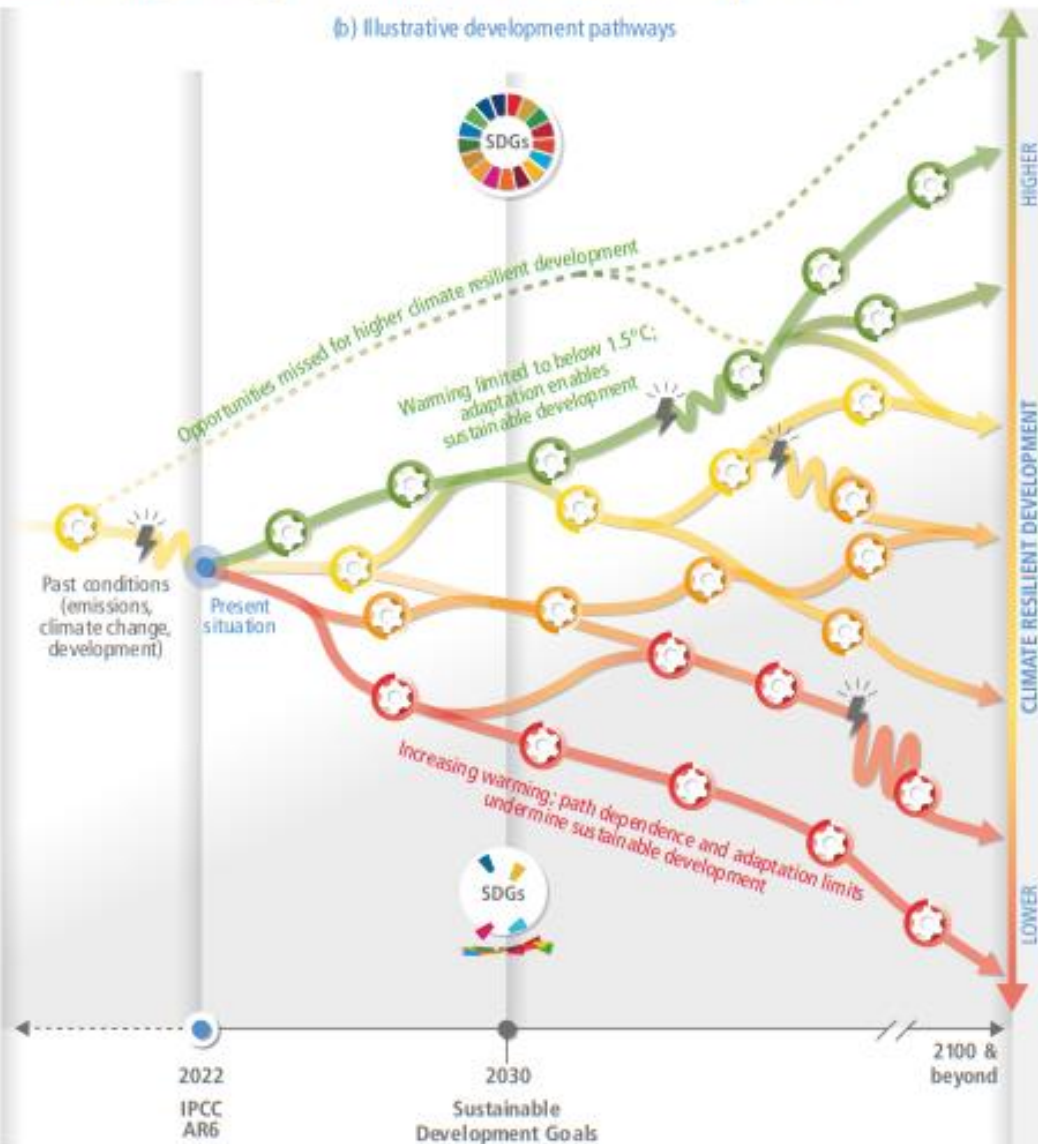


Arenas of engagement:  
Community  
Socio-cultural  
Political  
Ecological  
Knowledge + technology  
Economic + financial



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



Climate resilient development pathways are the result of cumulative choices & actions in multiple arenas

Past choices and action/inaction have already eliminated some pathways

Opportunities for Climate resilient development are not equitably distributed around the world

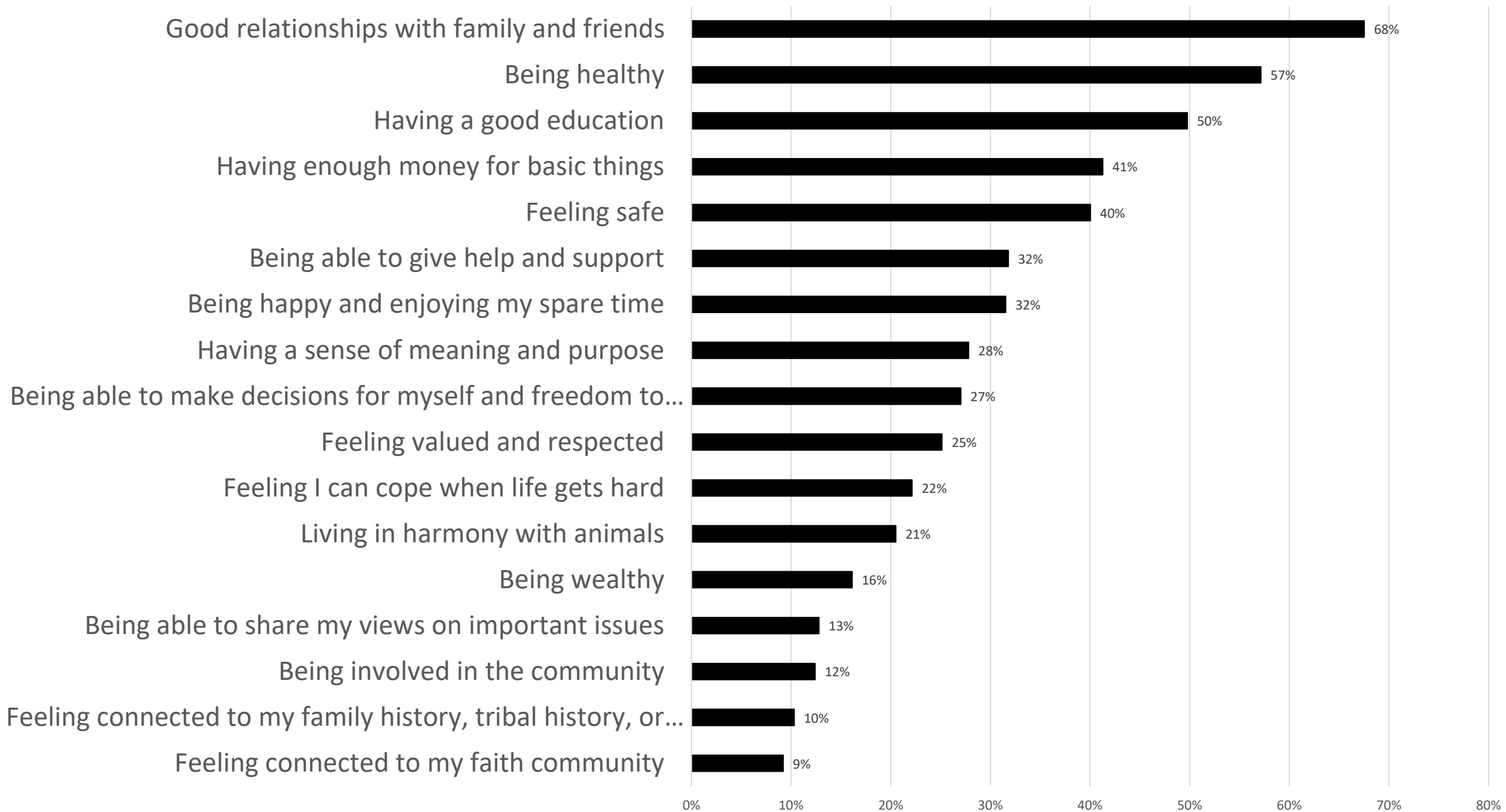
Climate resilient development is progressively harder to achieve with global warming levels beyond 1.5 deg C



# CYCLES Children and Youth in Cities, Lifestyles Evaluation and Sustainability

## 7 CYCLES Cities







# Mana Rangatahi: critical hope and climate change decision making in uncertain futures

National  
**SCIENCE**  
Challenges

THE DEEP  
SOUTH

Te Kōmata o  
Te Tonga



Steve Ratuva

Sacha McMeeking

Bronwyn Hayward

Yvonne Crichton-Hill

Kate Prendergast

Mahmah Timoteo Sam Dean

Eruera  
Tarena  
Prendergast



Josiah  
Tuamali'i







“Climate resilient development is already challenging at current global warming levels. The prospects will become further limited if warming exceeds 1.5°C and may not be possible if warming exceeds 2°C.



Mō tātou, ā, mō kā uri ā muri ake nei: For us and our children after us