Opportunities for climate resilient development across highlands, drylands and islands

Dr Nicola Favretto
nicola.favretto@york.ac.uk

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Introduction

- **Climate change** and **socio-economic development** are deeply intertwined
- **Many concepts** address the climate/development interlinkages

Climate compatible development
Triple wins
Low carbon resilient development

Climate Resilient Development (CRD)

Emerged in the 2000s, moved forward by the *Intergovernmental Panel on Climate Change (IPCC) 5th assessment report and* in *IPCC WG2 6th report 2022*

Adopting **mitigation** and **adaptation** measures to secure a safe climate, meet human needs and enable **sustainable development**

Research gaps

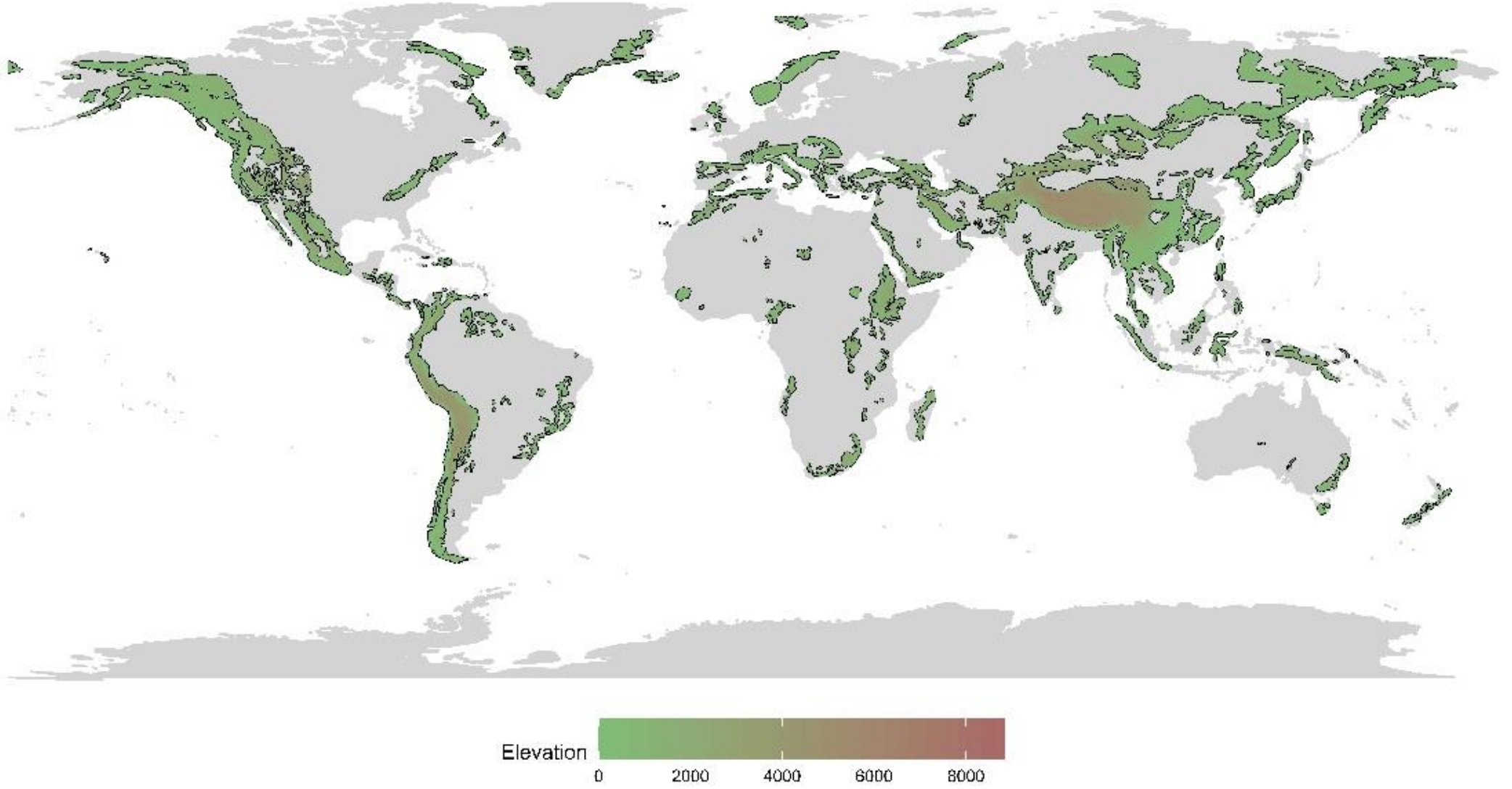
Operationalisation of CRD remains limited

- Little evidence about concept development
- Ambiguous conceptual characterisation
- Separated climate-development action across policy, practice & science
- Need to operationalise **CRD "pathways"** that promote **multiple system transitions** (fostering socio-economic, technological, institutional, governance development dimensions)

Few analyses look across different vulnerable regions and livelihood systems

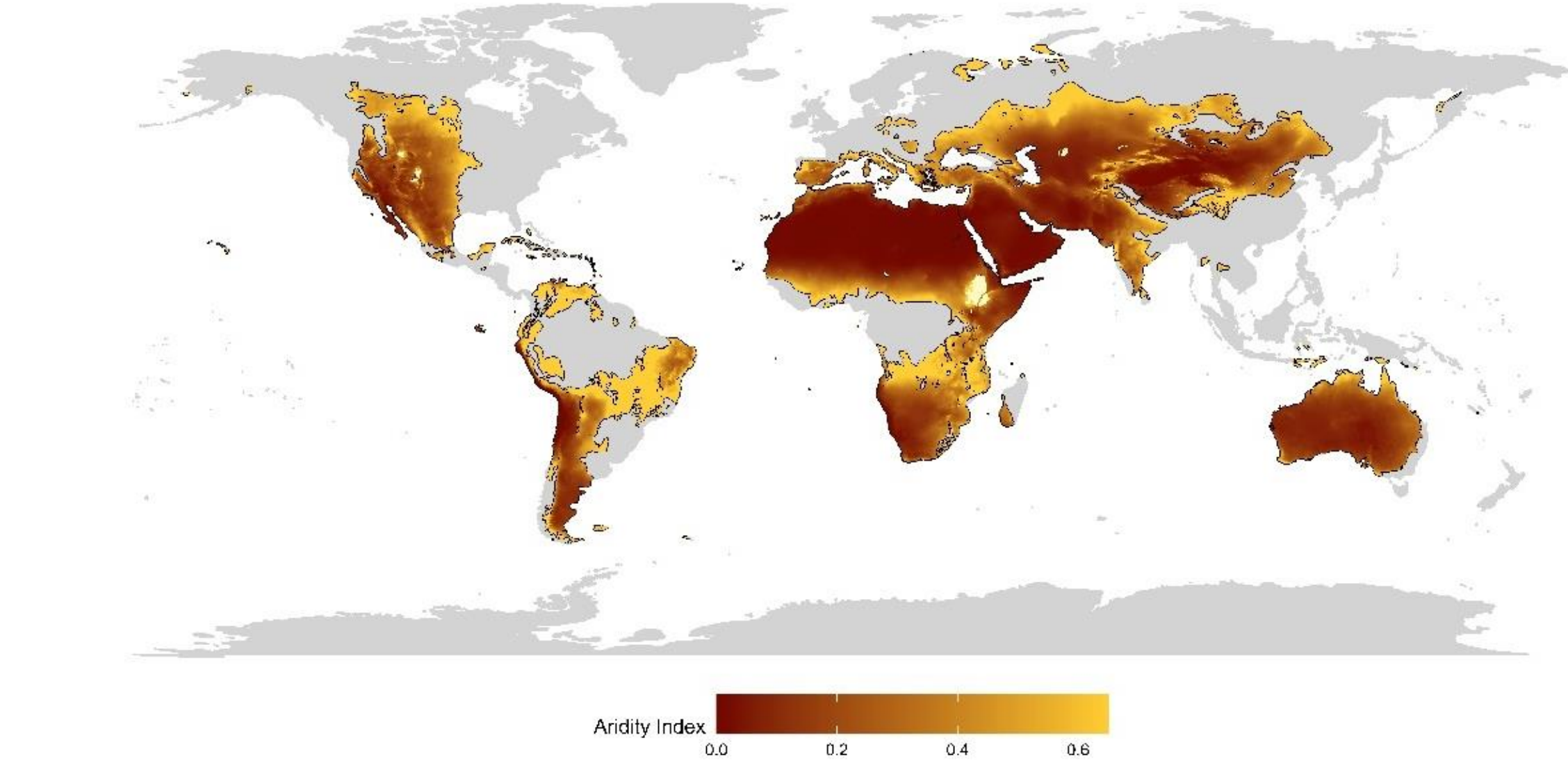
Highlands

Upland areas characterised by higher elevation compared with their surrounding landscape, with rugged terrain and featuring glaciers, snow cover or permafrost.



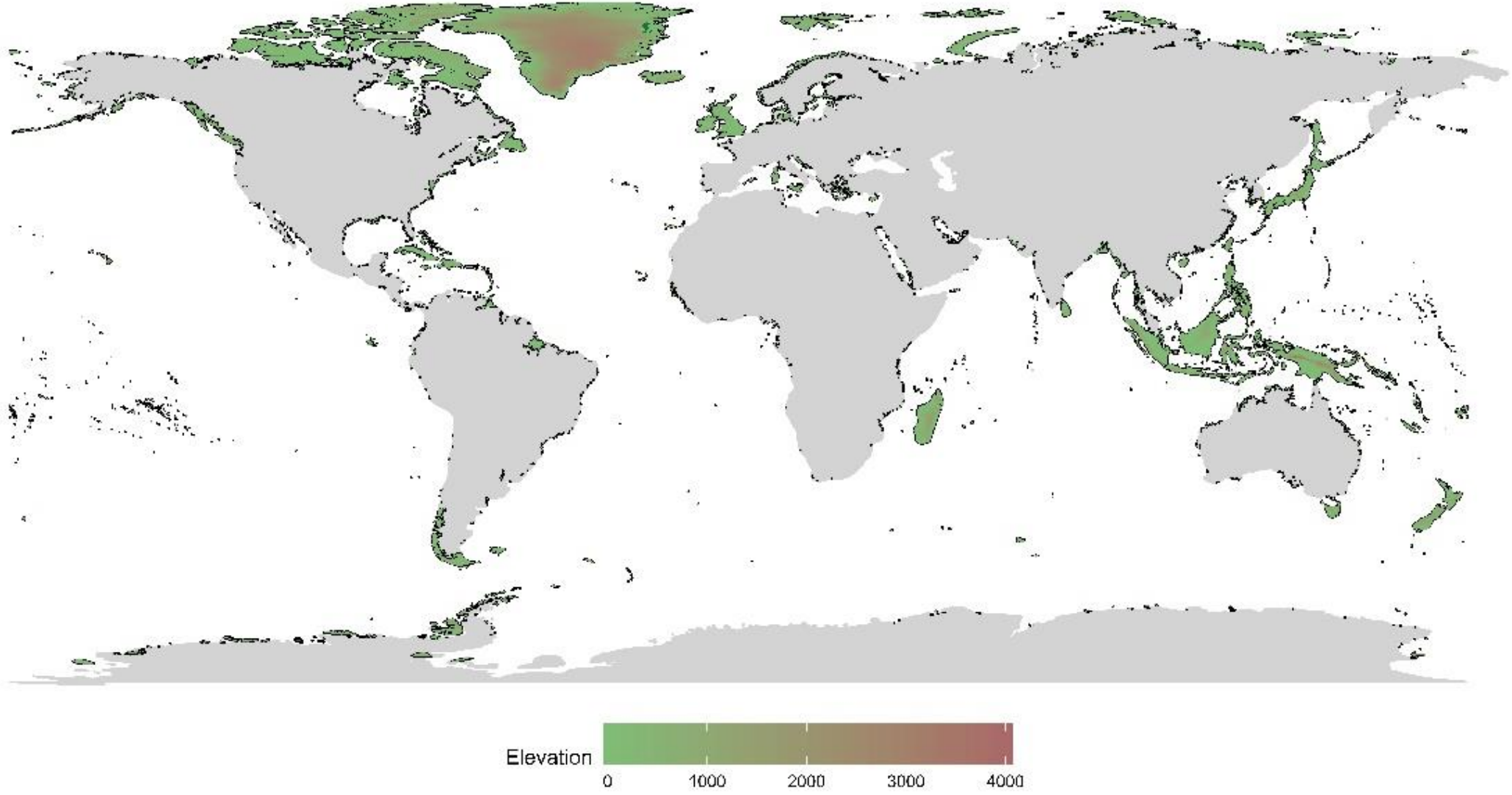
Drylands

Hyper-arid, arid, semiarid and dry sub-humid areas covering approximately 45–47% of the land worldwide.

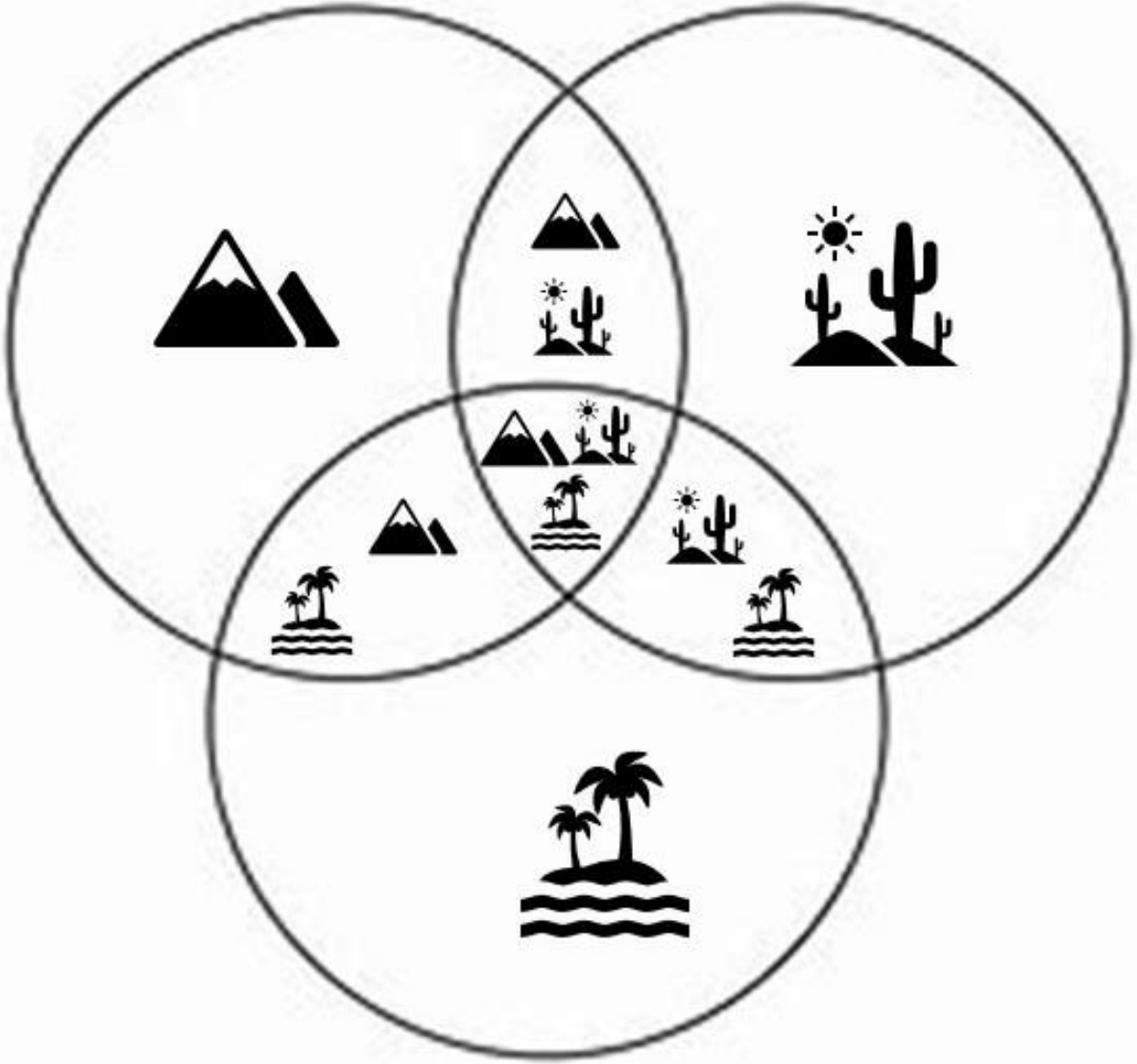


Islands

Independent states, archipelagic states, and non-sovereign states and territories dependent on continental states, surrounded by water and smaller than Greenland



Overlapping between highlands / drylands / Islands



Why it's important to look across different regions and livelihood systems?

Vulnerable regions: **Highlands – Drylands – Islands**

Regions (livelihood systems) vulnerable to climate change with shared features:

- Being remote
- Few markets
- Lacking in investments and infrastructure
- Economies heavily reliant on particular sectors
- Often unstable governance
- High numbers of poor

Unclear ‘how’ their climate risks can be tackled in practice to transition towards CRD pathways

Aim and research questions

Aim

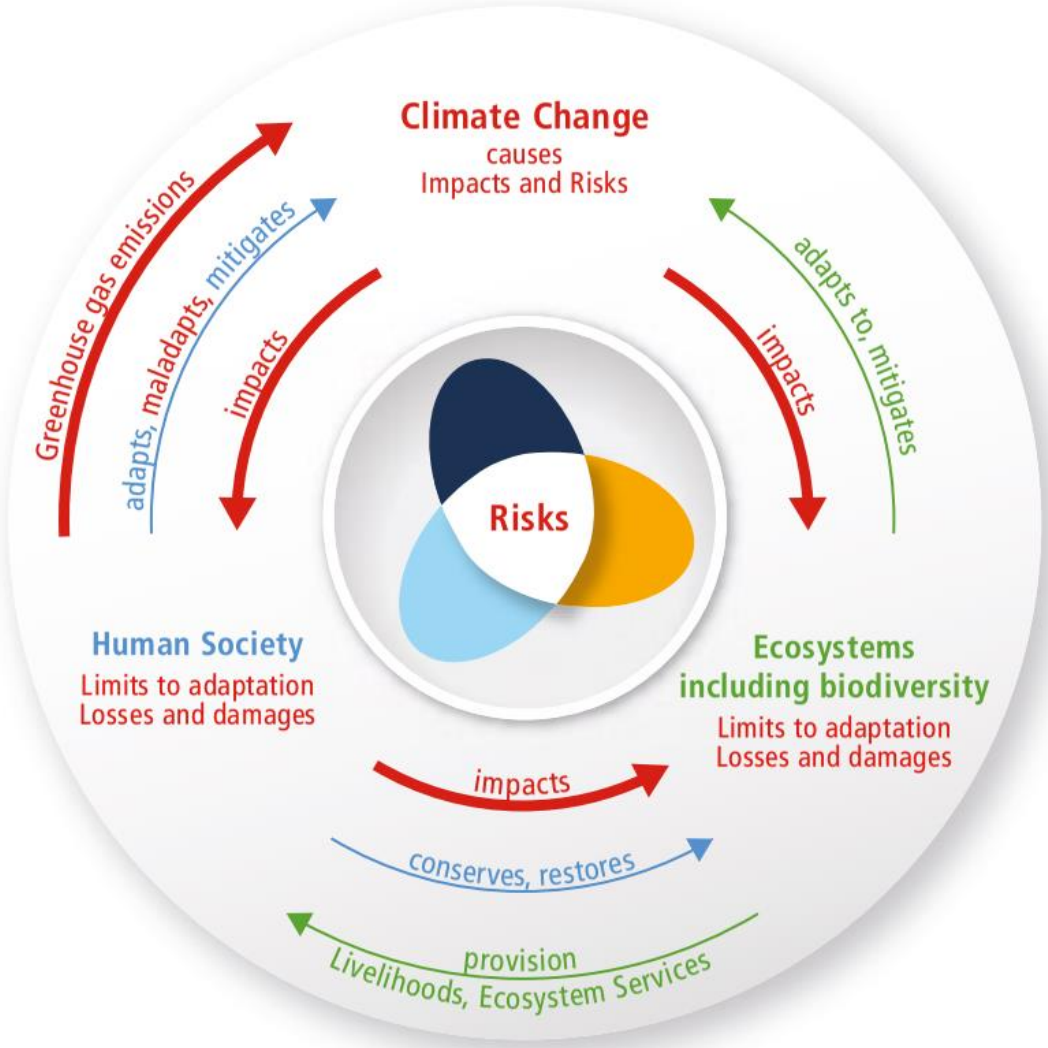
To assess adaptation and mitigation across highlands, drylands and islands, identifying similarities and differences, and assessing key steps in moving towards CRD pathways.

Research questions

1) How are climate impacts and risks experienced across highlands, drylands and islands?
2) What types of adaptation and mitigation are being employed across these systems?

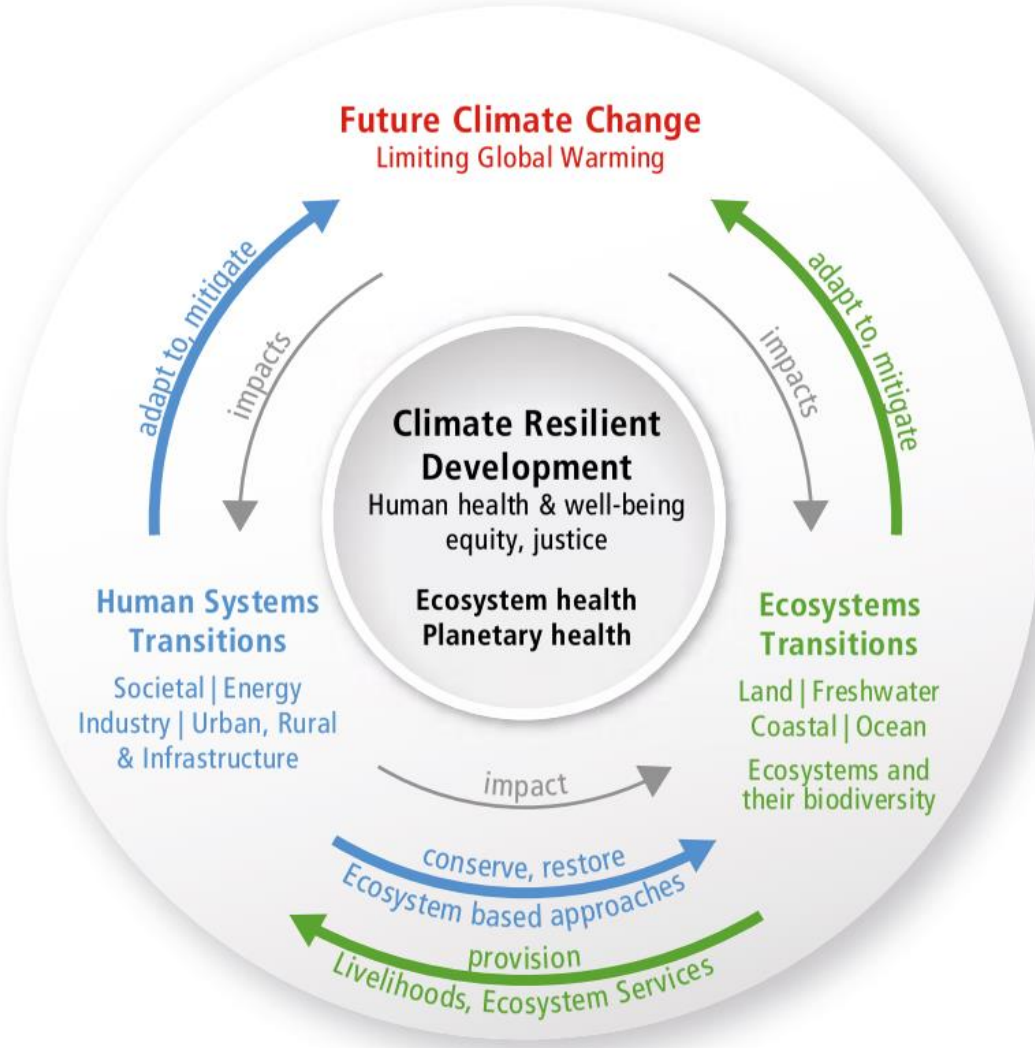
What **enablers** allow us to move **towards CRD pathways?**

Conceptual framework



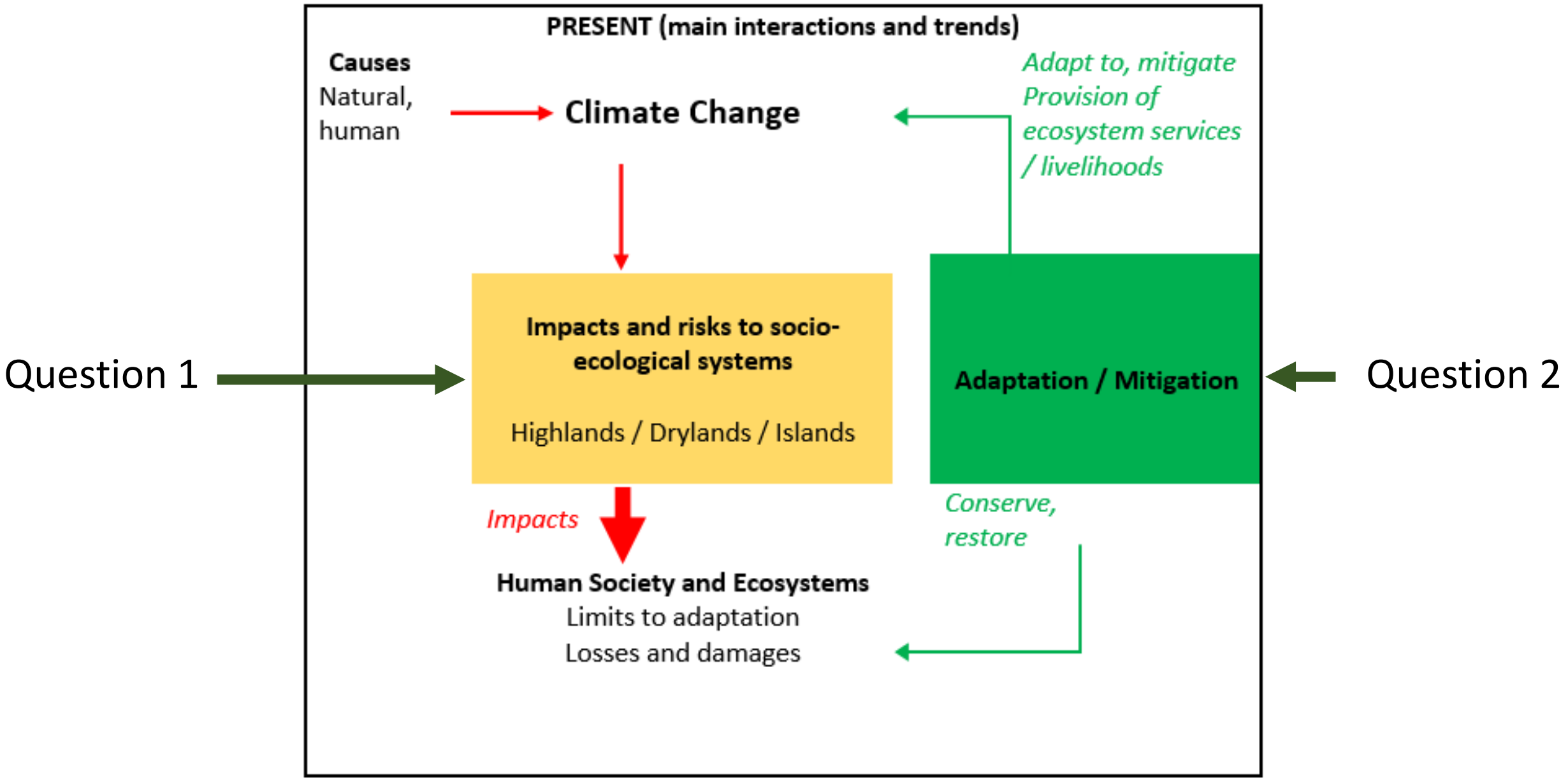
From urgent to timely action

Governance
Finance
Knowledge and capacity
Catalysing conditions
Technologies

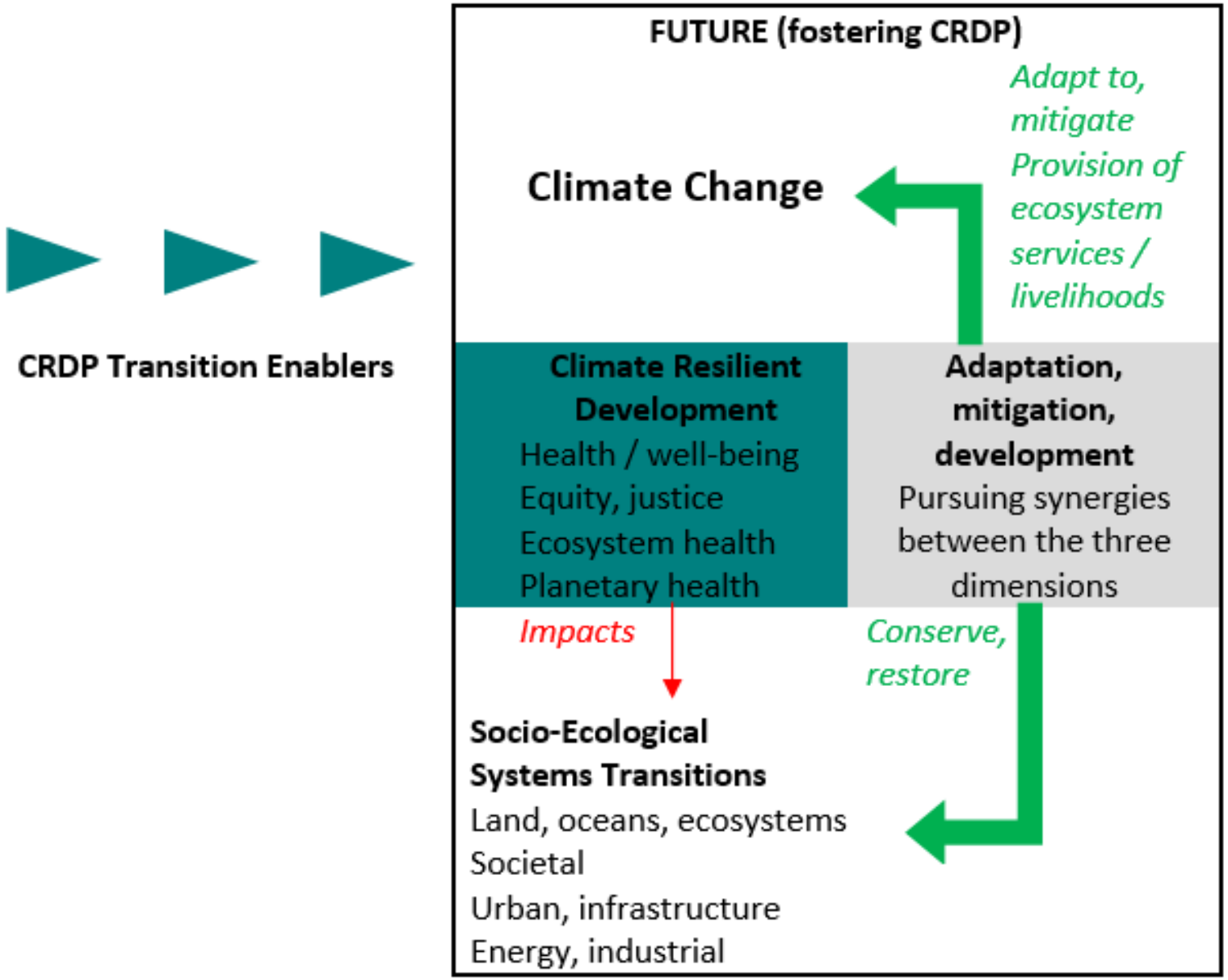


Grounded in the IPCC 6th report

Adapted framework (PRESENT)



Adapted framework (FUTURE)

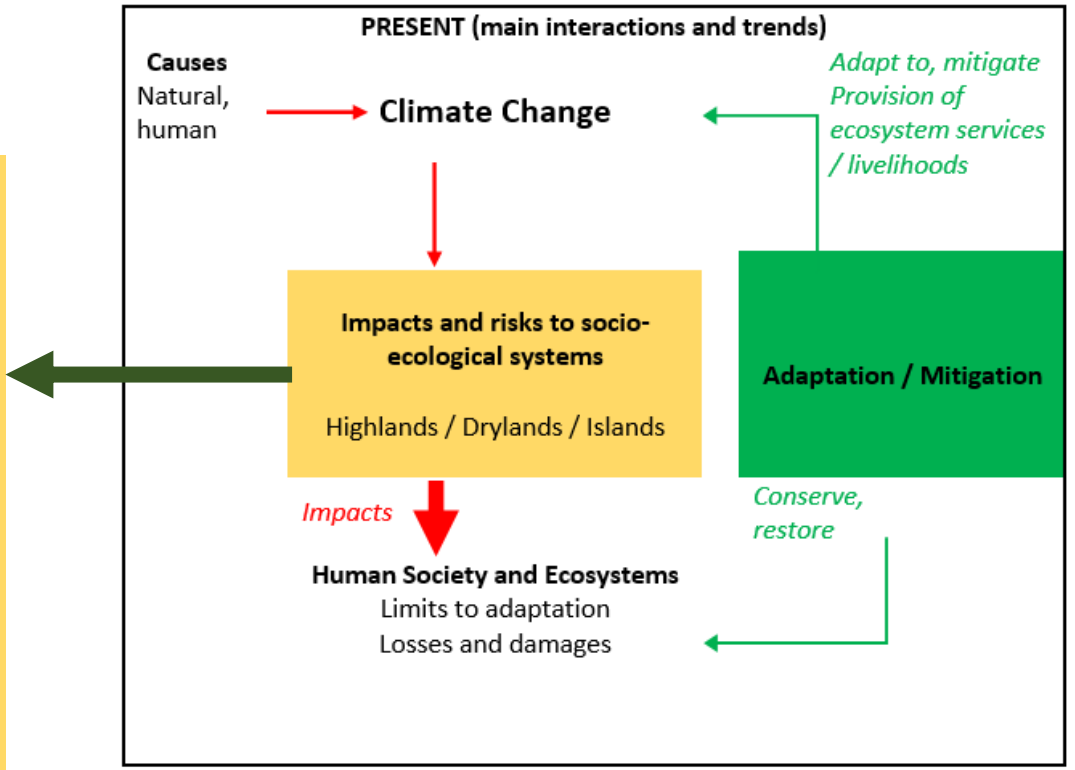


Findings: impacts & risks

How are climate impacts and risks experienced across highlands, drylands and islands?

Impacts & risks to socio-ecological systems

- Ecosystems/biodiversity
- Fisheries/agriculture
- Water systems
- Livelihoods/food/health
- Economic sectors
- Migration/displacement
- Cascading/transboundary

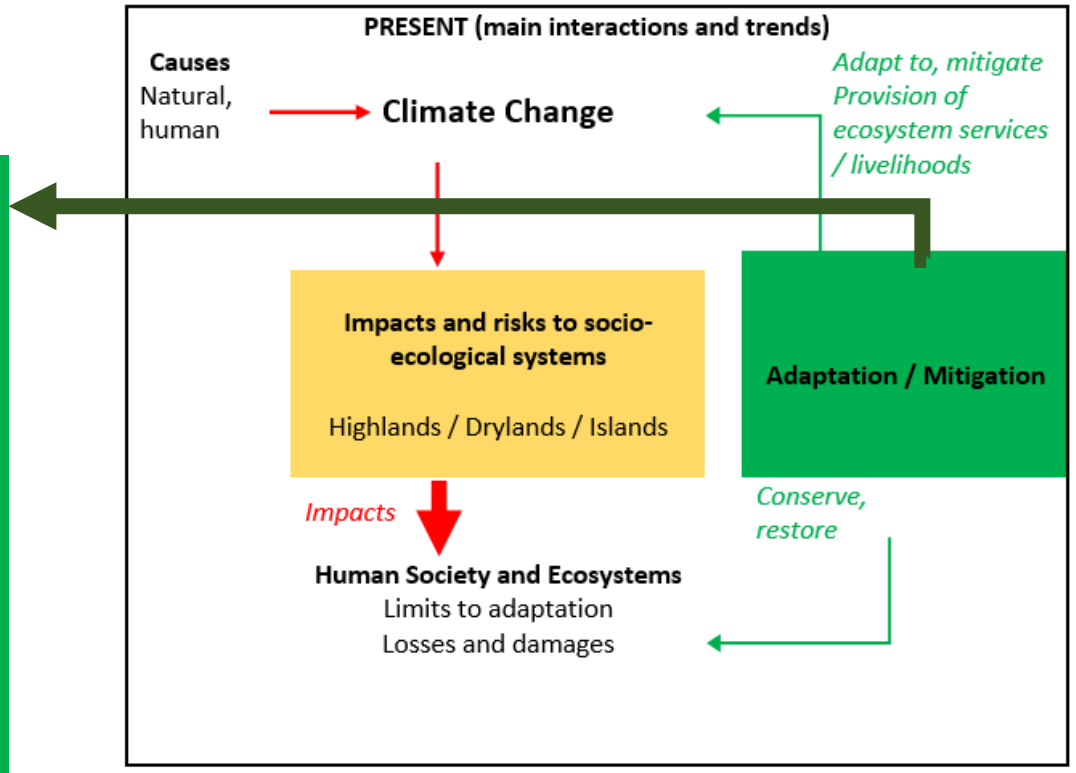


Findings: adaptation / mitigation responses

What types of adaptation and mitigation are being employed across these systems?

Adaptation & mitigation

- Ecosystem- and nature-based
- Hard protection
- Diversify livelihoods / migration
- Mixed knowledge
- Risk management & early warning
- Policy & institutional



Observation

- Highlands, drylands and islands face similar climate impacts & risks

- **Different solutions** are appropriate in different places, but **most adaptation & mitigation responses** address common risks across highlands, drylands, islands

CRD pathways transition enablers

CRD pathways enabled by **shared arenas of engagement** across highlands, drylands and islands

Arenas of engagement
Socio-cultural context
Political & institutional
Economic & financial
Knowledge availability
Technological capabilities

- Multi-stakeholder engagement
- Capacity building
- Justice & equity
- Better governance & policy
- Economic mechanisms
- Capacity building & education
- Strengthening M&E and risk management
- Embedding indigenous & local knowledge
- Improving infrastructure

ENABLERS

Case study: Arenas of engagement and CRD pathways

Country	Italy	Nigeria	Papua New Guinea
System category	Highland / dryland / island	Dryland	Island / highland
HDI 2021	Very high	Low	Medium
Adaptation & mitigation responses	No-tillage, fertiliser/water reduction, artificial snowmaking, LDN	Conservation agriculture, reduced tillage, crop rotation	Forest conservation, crop diversification, policy and economic measures
Socio-cultural context	Social pressure on innovation drives peer farmers towards adoption.	Statistically significant factors influencing adoption: age, gender, education.	Diversification not driven by climate concerns but social status. Power structures divert climate responses to cash crops.

Case study: Arenas of engagement and CRD pathways

Country	Italy	Nigeria	Papua New Guinea
Political and institutional context	Implementation hindered by lack of administrative capacity.	Implementation hampered by conflict across ethnic / religious groups.	High political and institutional focus on climate planning and implementation, M&E.
Economic and financial context	Considerable investments enabled adoption of artificial snowmaking. Lack of mobilisation on LDN.	Limited financial capacities to invest in large-scale mitigation or international climate finance.	Effective capacity-building: best suited small island to advocate for international climate financing - strong potential to drive CRD.
Knowledge availability and technological capabilities	Structured access to knowledge translates into higher adoption.	Adaptation and mitigation higher across members of farmers associations.	Power structures hamper knowledge sharing and adoption of new approaches/technologies.

Conclusions

- Highlands, drylands and islands face similar climate impacts & risks
- **Different solutions** are appropriate in different places, but **most adaptation & mitigation responses** address common risks across highlands, drylands, islands
- Shift from individual responses towards pursuit of **array of measures** that tackle common risks through the enablers
- Potential to foster **CRD pathways depends on system-specific circumstances** (arenas of engagement), rather than being site-specific
    - Socio-cultural, political, institutional, economic and financial, knowledge availability and technological capabilities