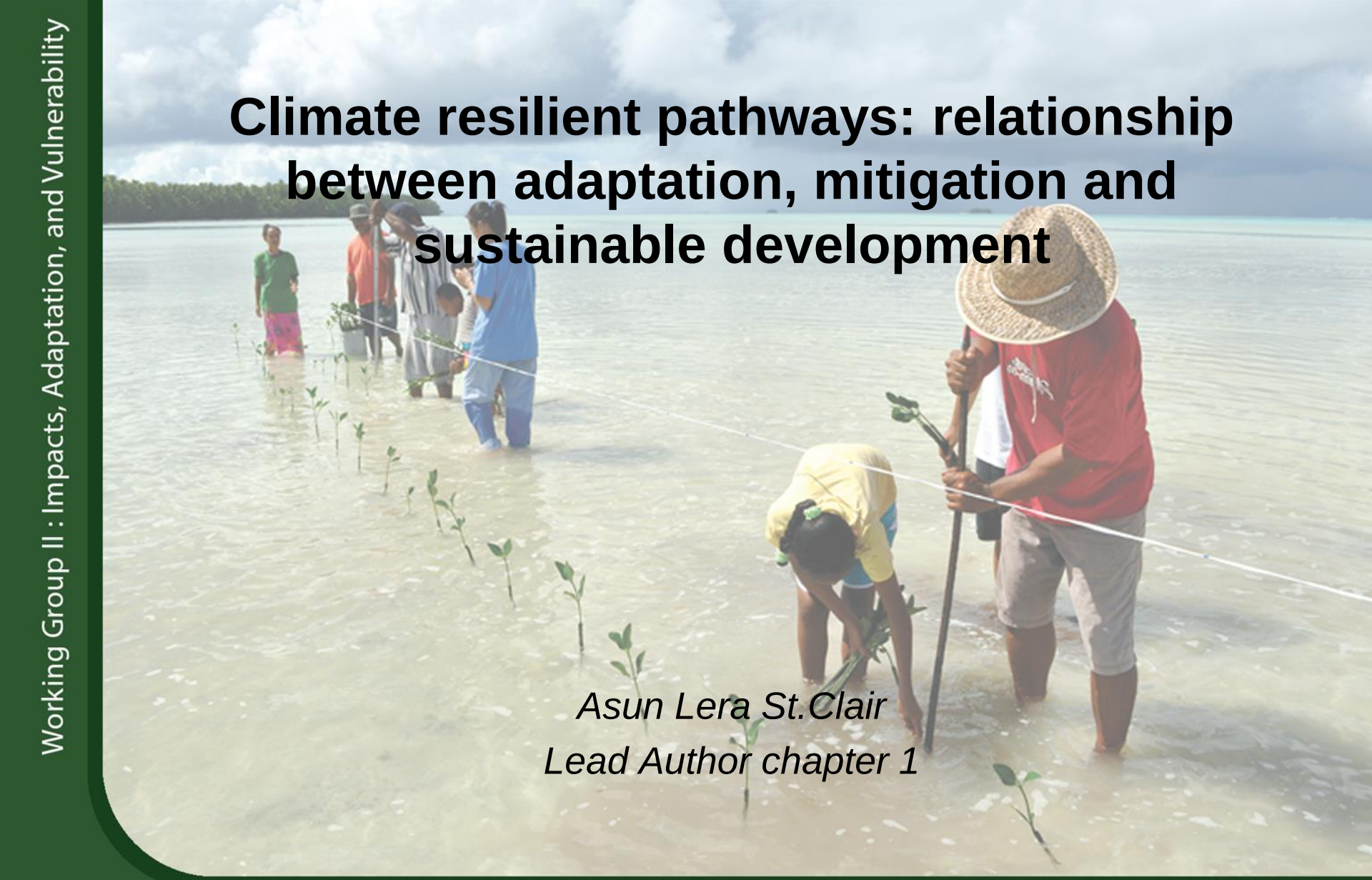

Climate resilient pathways: relationship between adaptation, mitigation and sustainable development

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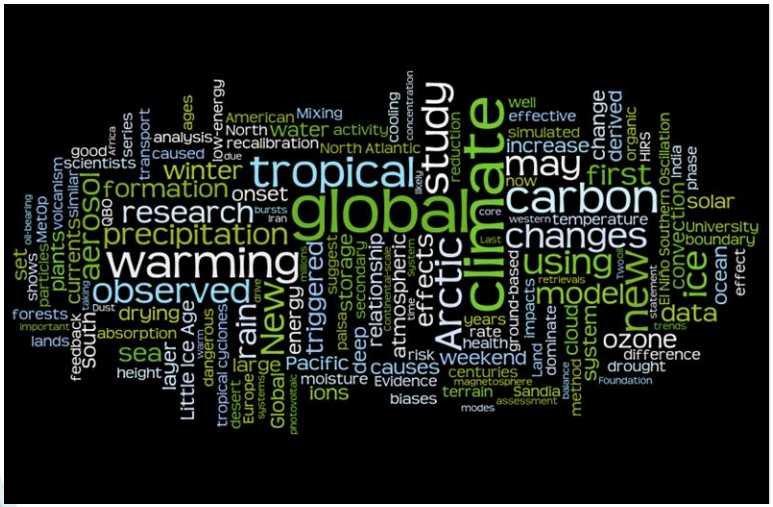
- We have a much sharper view of the risks and the opportunities
- A framing that situates climate as part of multiple, interacting contexts
- A better understanding of the interactions between adaptation, mitigation and sustainable human development



The number of scientific publications available for assessing climate-change impacts, adaptation, and vulnerability more than doubled between 2005 and 2010, with especially rapid increases in publications related to adaptation. Authorship of climate-change publications from developing countries has increased, although it still represents a small fraction of the total.[4]

The WGII AR5 is presented in two parts (Part A: Global and Sectoral Aspects, and Part B: Regional Aspects), reflecting the expanded literature basis and multidisciplinary approach, increased focus on societal impacts and responses, and continued regionally comprehensive coverage.

Informational basis

- This holistic, integrated perspective grounded in a rich, extensive, multidimensional set of research results provides an informational basis for:
  - analyzing risks and options for solutions,
  - seeing better links between adaptation and mitigation, and with sustainable development,
  - provides a knowledge base for making decisions and choices

Compared to AR4, AR5 WGII places attention to the following four issues

- Adaptation needs, options and limits
- Transformation in societal and natural systems
- Synergies between multiple variables and factors that affect sustainable development
- Risk management
- Institutional, social, cultural and value-related issues
- Interactions between the natural climate system, ecosystems, human beings and societies. This is in addition to a long-standing emphasis on biophysical impacts of climate change on sectors and regions
- Risks and opportunities
- **Links and synergies between adaptation and mitigation and with sustainable development**

Adaptation and mitigation

- Adaptation as an isolated set of actions may have limited consequences
- Adaptation and mitigation depend on one another, they can reduce climate risks but they do so at different time scales
- adaptation addresses current and committed climate change
- Mitigation reduces future climate risks
- **Adaptation and mitigation choices in the near-term will affect the risks of climate change throughout the 21st century (high confidence)**

Broad risks & trade offs

- Decisions about adaptation and mitigation options involve a broad range of risks and multiple trade offs.
- Integration of mitigation and adaptation responses can generate mutual benefits and co-benefits with sustainable development, but they may have negative consequences if choices not carefully analyzed (examples; land use for biofuels or food, REDD programs leading to livelihood losses)

Links with sustainable development

- Current climate impacts make difficult to achieve sustainable development in some locations due to interaction among multiple stressors.
- While climate change poses a moderate threat to current sustainable development in general, we have seen cases of residual damage and limits to adaptation, and

Climate change it is a severe threat to future sustainable development

Climate Resilient Pathways

- Climate resilient pathways are development trajectories that combine mitigation and adaptation to realize the goal of sustainable development and help avoid “dangerous interference with the climate system.”
- Climate resilient pathways include strategies, choices and actions that reduce climate change and its impacts.
- They also include actions to assure that effective risks management and adaptation can be implemented and sustained

Gaps

- Effective adaptation strategies that link with development and have mitigation co-benefits can help reduce vulnerability
- But so far the literature is limited regarding implementation
- There is also a gap investigating the links between mitigation and adaptation.
- More research and experience is needed improving understanding of benefits and synergies, trade offs and limitations of major mitigation and adaptation options along with their implications for sustainable and equitable development, to facilitate decision making about climate resilient pathways

The key role of mitigation

- Prospects for climate resilient pathways are related fundamentally to what the world accomplishes with climate change mitigation, but both mitigation and adaptation are essential for climate risk management at all scales.

- As problems become intractable, limits to adaptation and risks of irreversible loses increase, reducing options for climate resilient pathways in the future.

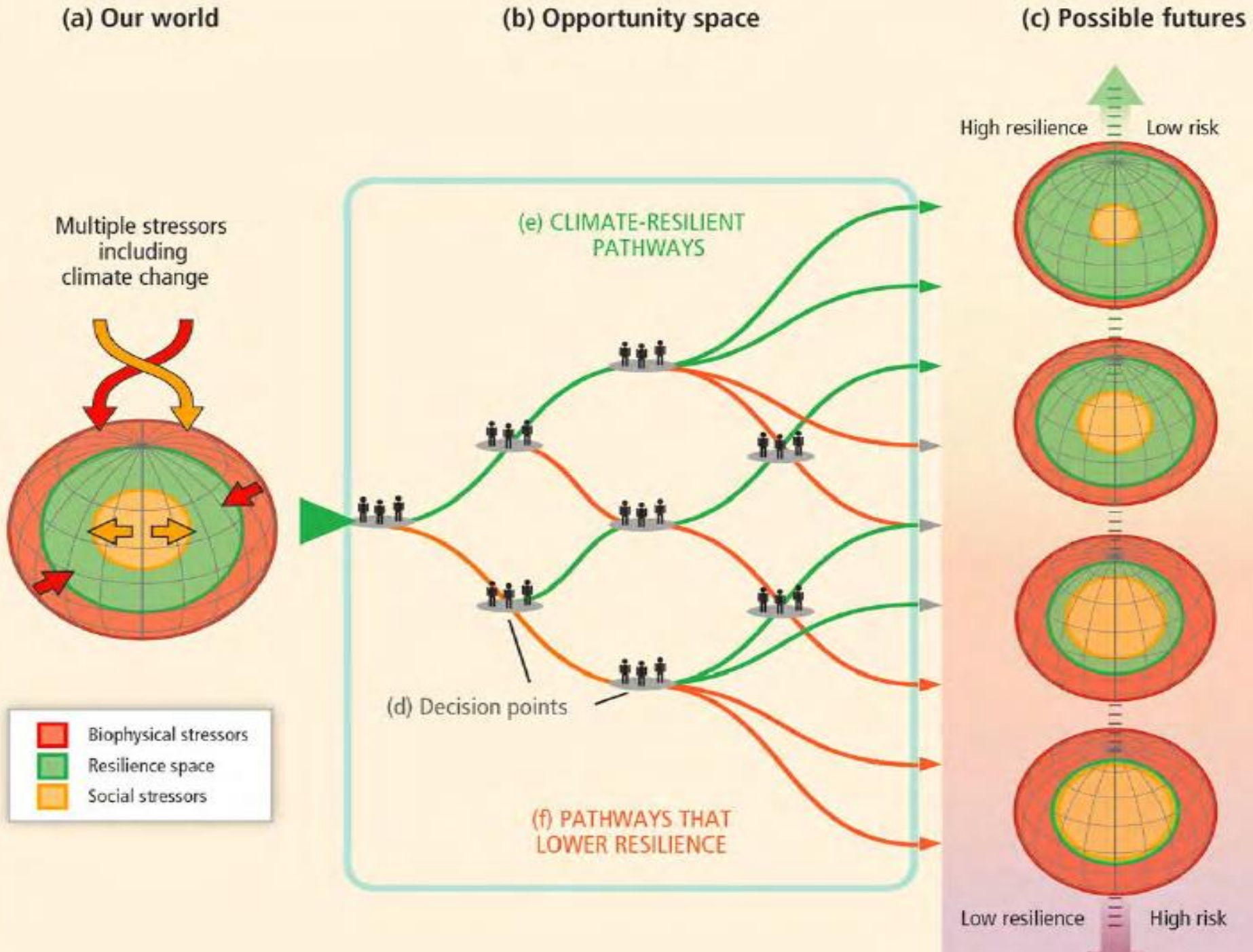
- **Delayed action reduces the options for the future**

Transformation

- To promote sustainable development in all countries within the context of climate change, climate resilient pathways may involve significant transformations.
- Transformations in political, economic, and socio-technical systems can contribute to enhanced climate responses, both for mitigation and adaptation.
- Although transformations maybe reactive, forced or induced by random factors, they may also be deliberatively created through social and political processes.
- There are equity and ethical dimensions of transformation

Climate resilient pathways and opportunity space

- The expanded scientific focus of AR5, combined with increased practice and experience with adaptation, synergies with mitigation and development, creates a new opportunity space for evaluating policy options and their risks in the search for climate resilient development pathways.
- Human and social-ecological systems can build resilience through adaptation, mitigation, and sustainable development.

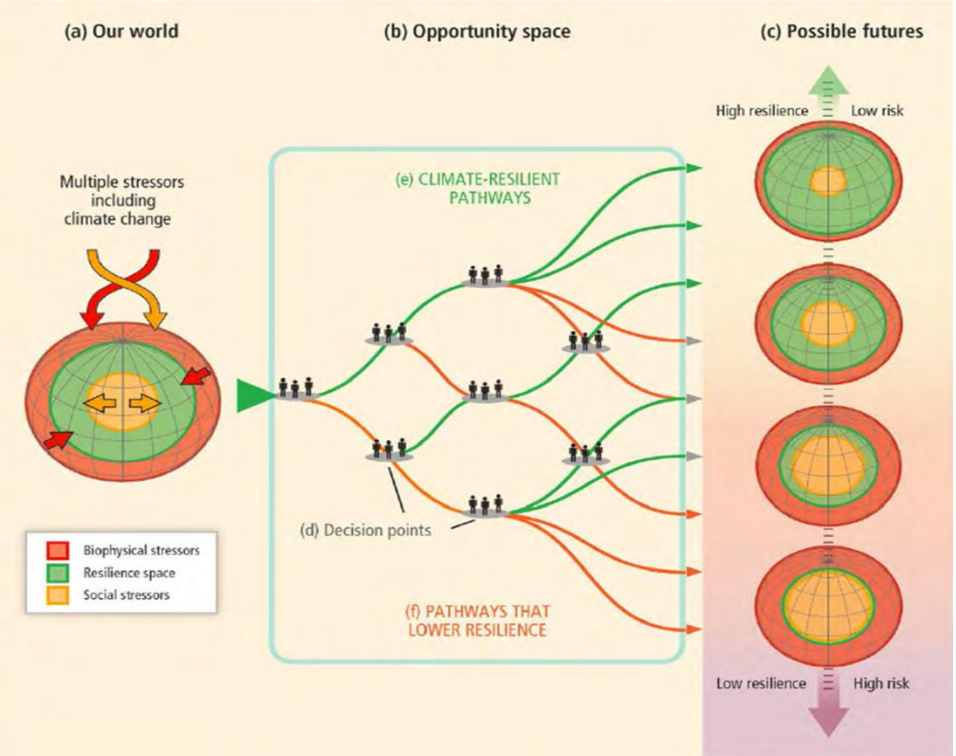

(a) Our world
(b) Opportunity space
(c) Possible futures
Multiple stressors including climate change
Biophysical stressors
Resilience space
Social stressors
(e) CLIMATE-RESILIENT PATHWAYS
(d) Decision points
(f) PATHWAYS THAT LOWER RESILIENCE
High resilience
Low risk
Low resilience
High risk

(a) Our world is threatened by multiple stressors that impinge on resilience from many directions, represented here simply as biophysical and social stressors.

Stressors include climate change, climate variability, land-use change, degradation of ecosystems, poverty and inequality, and cultural factors.

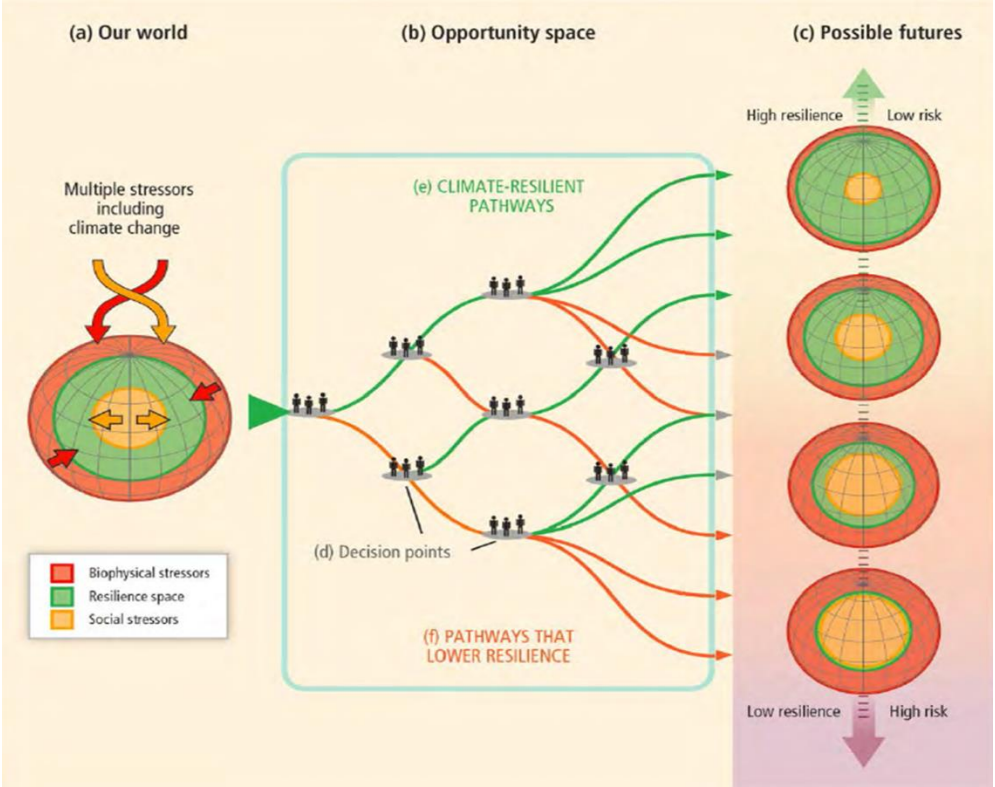
(b) Opportunity space refers to decision points and pathways that lead to a range of

(c) possible futures with differing levels of resilience and risk.



(d) Decision points result in actions or failures-to-act throughout the opportunity space, and together they constitute the process of managing or failing to manage risks related to climate change.

(e) Climate-resilient pathways (in green) within the opportunity space lead to a more resilient world through adaptive learning, increasing scientific knowledge, effective adaptation and mitigation measures, and other choices that reduce risks.



(f) Pathways that lower resilience (in red) can involve insufficient mitigation, maladaptation, failure to learn and use knowledge, and other actions that lower resilience; and they can be irreversible in terms of possible futures.

THANK YOU