



# Climate Resilient Pathways, Adaptation, Mitigation and Sustainable Development

Fatima Denton

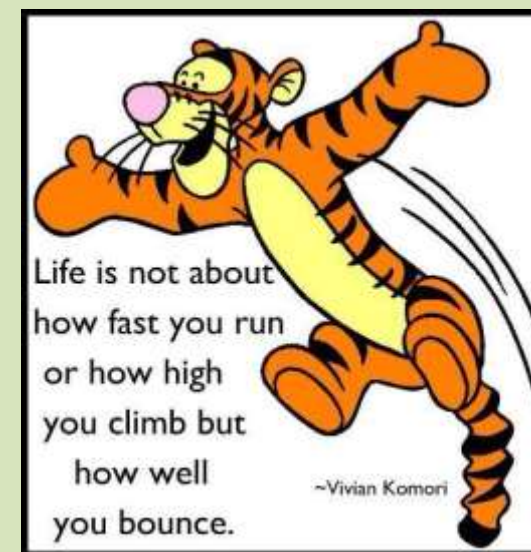
Coordinating Lead Author AR5



# What is Resilience?

- Resilience - the ability of a social, ecological, or socio-ecological system and its components to anticipate, reduce, accommodate, or recover from the effects of a hazardous event or trend in a timely and efficient manner
- Anticipation
- Adaptation
- Accommodation
- Recovery (self –organization)

The gravitas of a mattress –  
capacity to bounce back





# What is Climate Resilient Pathway?

- Climate-resilient pathways are development trajectories that combine adaptation and mitigation to realize the goal of sustainable development.
- They can be seen as iterative, continually evolving processes for managing change within complex systems.
- CRP - outcomes of evolutionary processes of managing change in order to reduce disruptions and enhance opportunities.





# How can adaptation and mitigation help?

- Mitigation has the potential to keep these threats at a moderate rather than extreme level
- Adaptation will enhance the ability of different systems to cope with the remaining impacts, therefore modulating negative effects on sustainable development





# How is climate change related to sustainable development, adaptation and mitigation?

- First, the impacts of climate change, and ill-designed responses to these impacts, may derail current sustainable development policy and potentially offset already achieved gains.
- Second, mitigation has the potential to keep these threats at a moderate rather than extreme level, and adaptation will enhance the ability of different systems to cope with the remaining impacts, therefore modulating negative effects on sustainable development





# How is climate change related to sustainable development, adaptation and mitigation?

- Third, many of the conditions that define vulnerability to climate impacts and the ability to mitigate and adapt to them are firmly rooted in development processes . Climate change is a threat multiplier.
- Finally, climate mitigation and adaptation, if planned and integrated well, have the potential to create opportunities to foster sustainable development





# What are the top lines?

## Climate change as a threat to sustainable development

- Climate change = new approaches to sustainable development
- therefore a need to consider complex interactions between climate and social and ecological systems





# What are the top lines?

**Links between climate change and sustainable development are complex and interactive.**

- The challenges of achieving sustainable development will increase as the magnitude of climate change increases







# What are the top lines?

**Climate-related stresses will intensify vis a vis other stresses**

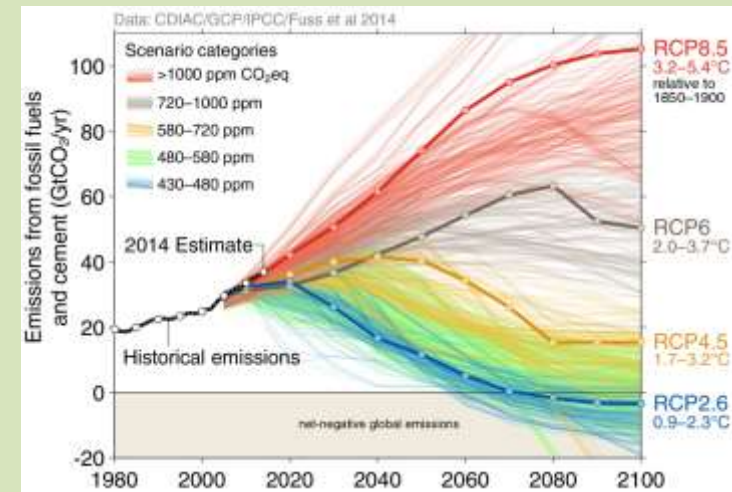
- 1) Developing systems and populations are already stressed by non climate stressors,
- 2) Added stress from climate change is on the increase.



# What are the top lines?

**High level of climate resilience is correlated to the ambitious targets for mitigation**

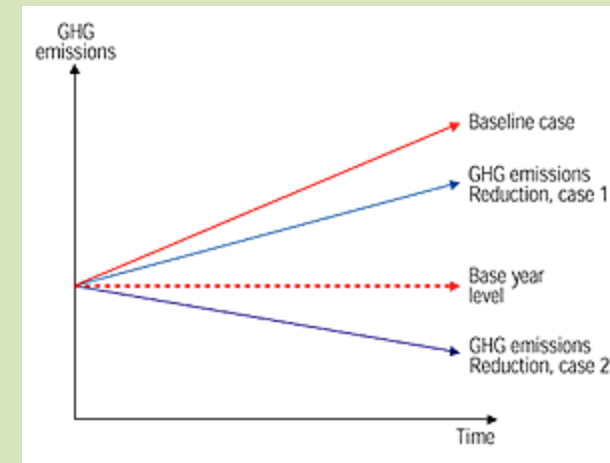
- Climate resilient pathways cannot be achieved in the absence of ambitious mitigations goals.





# What are the top lines?

1. There is a level of climate change that is low enough that climate resilience for most systems could be achieved without enormous efforts and widespread transformational adaptation;
2. There is a level of climate change that is high enough that climate resilience cannot be expected to cope with severe impacts on most systems (e.g., Rockstrom et al., 2009);
3. Between those two levels the challenges to climate resilience grow as the level of climate change rises.





# Thinking in terms of trade offs and co-benefits

- Adaptation may increase greenhouse gas emissions (e.g., increased fossil-based air conditioning in response to higher temperatures)
- Mitigation may impede adaptation (e.g., reduced energy availability in countries with growing populations).
- Strategies for climate change responses and strategies for sustainable development are highly interactive.





# Thinking in terms of tradeoff and co-benefits

- Co-benefits

mechanisms such as REDD+ have the potential to achieve both carbon emissions reduction and to benefit livelihoods of those living in forested areas, as well as supporting benefits to social equity.





# How do you pursue CRP?

- Identifying vulnerabilities to climate change impacts;
- Assessing opportunities for reducing risks; and taking actions that are consistent with the goals of sustainable development.
- These actions may involve a combination of incremental and transformative responses that take into account
  1. current and anticipated changes in both climate averages and extremes;
  2. the dynamic development context that influences social vulnerability, risk perception, conflict resolution, and resilience; and
  3. Recognition of human agency and capacity to influence the future.
- Humans have the capacity to manage risk and to decrease vulnerability through both mitigation and adaptation



# What are the elements of CRP?

## Resources

- Access to scientific and technological expertise and options for problem solving, including effective mechanisms for providing climate information, services, and standards
- Access to financing for appropriate climate change response strategies and actions
- Information linkages in order to learn from experiences of others with mitigation and adaptation

## Practices

- Continuing development and evaluation of institutionalized vulnerability assessments and risk management strategy development, and refinement based on emerging information and experience
- Monitoring of emerging climate change impacts and contingency planning for responding to them, including possible needs for transformational responses
- Policy, regulatory, and legal frameworks that encourage and support distributed voluntary actions for climate change risk management
- Effective programs to assist the most vulnerable populations and systems in coping with impacts of climate change



# What are the elements of CRP?

## Awareness and capacity

- A high level of social awareness of climate change risks
- A demonstrated commitment to contribute appropriately to reducing net greenhouse gas emissions, integrated with national development strategies
- Institutional change for more effective resource management through collective action
- Human capital development to improve risk management and adaptive capacities
- Leadership for sustainability that effectively responds to complex challenges







# What are the elements of climate resilient pathway?

- Innovation – to respond to needs and surprises
- Eg. In a particular region, CRP might mean coping with greater water scarcity, innovations might consider the following
  - changes in water rights practices
  - improving the understanding of groundwater dynamics and recharge
  - improving technologies and policies for water use efficiency improvements
  - coastal areas the development of more affordable technologies for desalination





# What are the Challenges to CRP?

- A business-as-usual future society where unsustainable development paths are the norm,
- An absence of technology transfer between countries
- Population growth increases rapidly, GHG emission go unabated,
- Institutions and governance structures are ineffective at creating effective climate change policies = result in losses so widespread that no development pathway would be resilient



# What factors to consider in CRP?

- Institutional Context - Transformative action within a framework of climate resilient pathways is therefore rooted in strong and viable institutions
- Adaptively manages the allocation of resources and processes of change.
- Innovations and Technology must be appropriately deployed from providers to users.
- Handle flows of funds and other resources that are associated with managing and improving the delivery systems that allow people and organizations to take advantage of opportunities



# What factors to consider in CRP?

- Window of opportunity exists now to increase climate resilience , and improve human livelihoods and social and economic well-being.
- Iterative process of monitoring, evaluation, learning, innovation, and contingency planning =
- Reduce climate change disaster risks, promote adaptive management, and contribute to climate-resilient pathways





Thank you  
Merci