

Climate adaptation actions for resilient livelihoods: Reflections from Nepal

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AR5 Summary (2 November 2014).

Atmosphere and oceans have warmed, the amount of snow and ice has diminished, sea level has risen and the concentration of carbon dioxide has increased to a level unprecedented.

People who are socially, economically, culturally, politically, institutionally, or otherwise *marginalized* are especially vulnerable to climate change

Adaptation can play a key role in *decreasing* risks, and is so important because it can be integrated with the *pursuit of development*, and can help prepare for the risks to which we are already committed by past emissions and existing infrastructure

Three choices

Country	31,780*10 ⁶ Tones	Response Role (%)		
	Share global carbon (%)	Mitigate	Adapt	Cope
China	23			
United States	19			
India	6			
Nepal	0.01	0.01	10 (?)	90 (?)

Climate change double slap for a country like Nepal:

- Additional stress in the development path
- Severely stretches governance deficit

Temperature trends

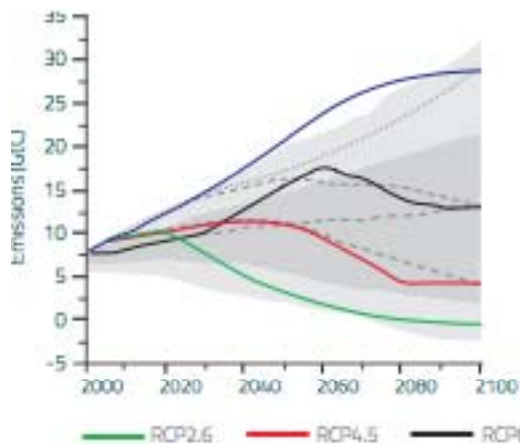
Temperature rise in hills of central Nepal is about 0.06°C per annum.

Model analyses suggest mean temperature in 2090 CE could be as high as 4.7°C

Precipitation trends

Models show that mean rainfall will vary from - 53% to +135 percent in 2090 CE.

Three challenges

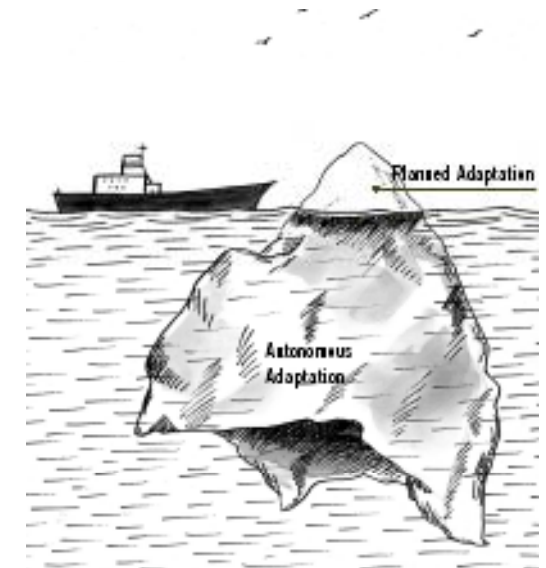


Uncertainty and risks

The role of assessing the climate change scenarios for PMEP is embedded within the continuum of climate risk management and development presented below as two pyramids: upright and inverted. Linking PMEP to global change processes seems very tedious which makes attribution of local changes to climate change difficult.



Understand development-adaptation continuum



Linking autonomous and planned adaptation

Adaptation inherently local

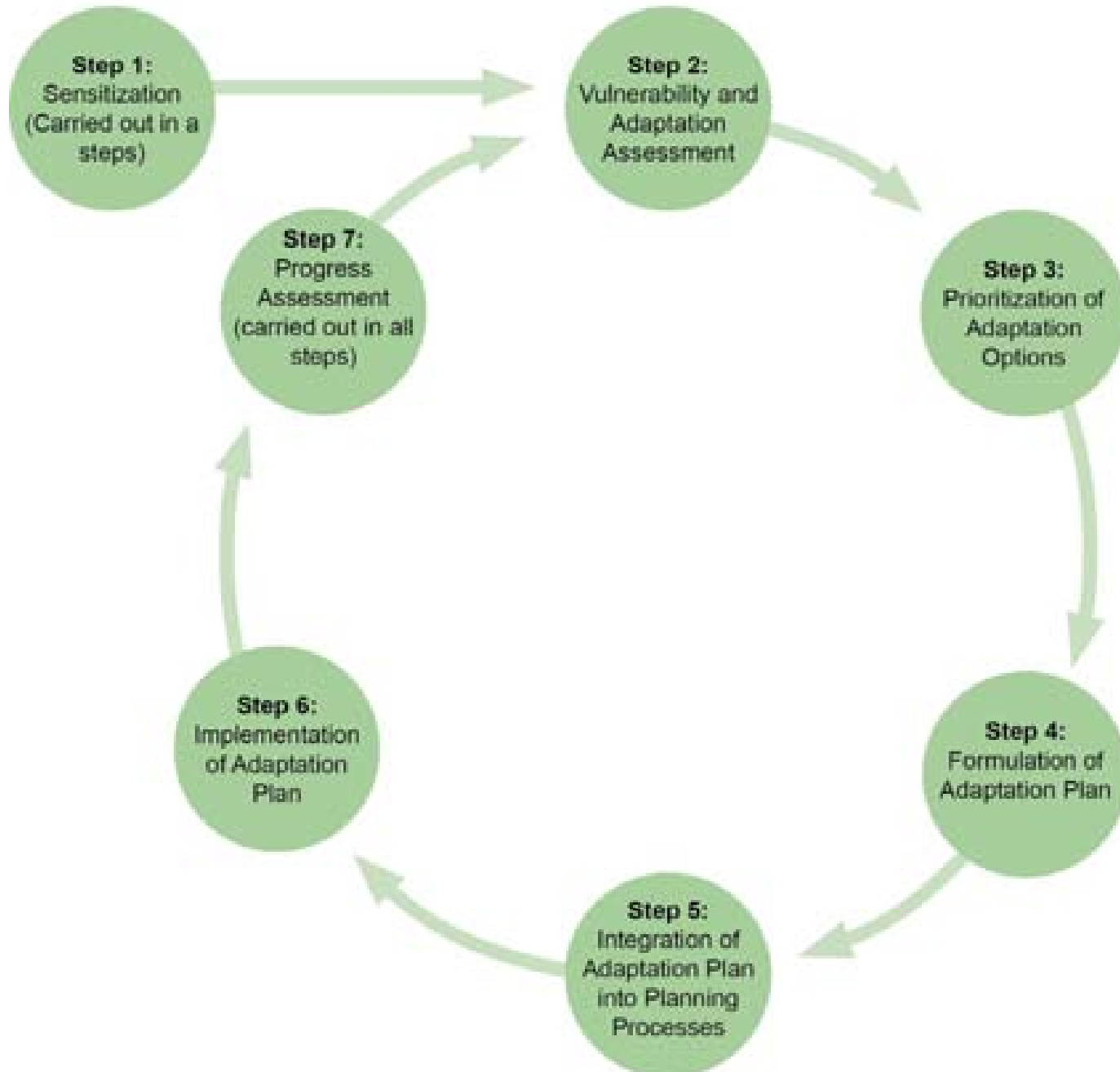
- Character of climate system: (*precipitation temperature, winds, mist, flow and sediment?*)
- Ecosystems they helped evolve
- Current sources of vulnerabilities
- Current practices (e.g. agriculture, food, livelihoods, employment, skill sets etc., *local practices and wisdom*)
- How will climate change alter regional and local climate variability?
- New sources of vulnerabilities
- What needs to be done to enable the communities successfully improve provision of basic needs while dealing with surprises due to climate change?

Nepal's on going adaptation action terrains

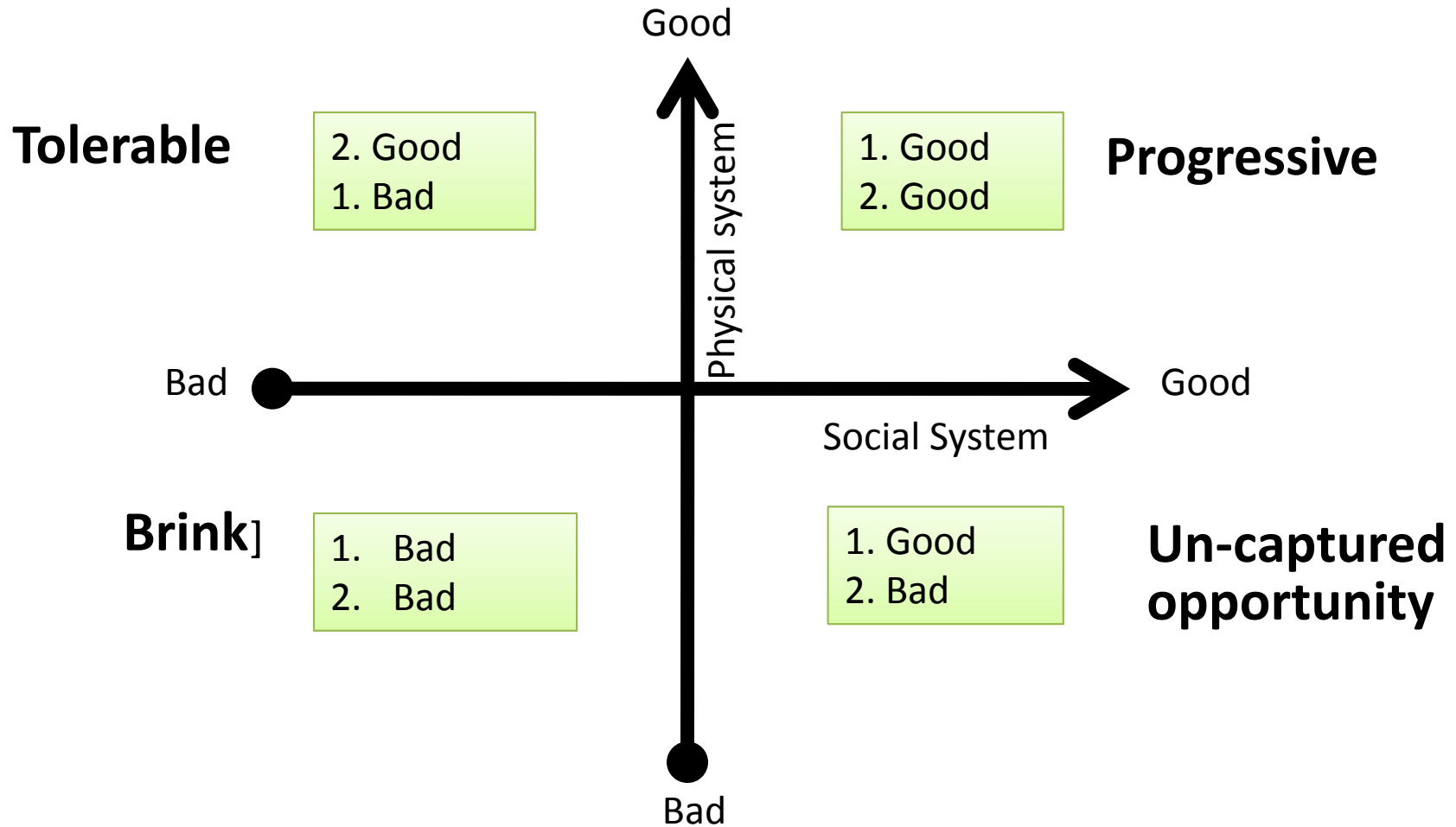
- Nepal Climate change Support Programme (NCCSP)
- Ecosystem based Adaptation (EbA)
- *Hariyo ban*
- Pilot Project on Climate Change PPCR

The NCCSP, for example, aims to operationalize Local Adaptation Plan of Action (LAPA)

LAPA Steps



Possible futures



14 districts Mid and Far West regions of Nepal
70 LAPAs

5,059 actions identified

3,036 related to

Agriculture,

Livestock & food security,

Forest management & biodiversity,

Water resource & energy,

Climatic hazards & local infrastructure,

Human resources & livelihood, health.

Initial stage of implementation

Preliminary lessons

- Fragile systems and poor services will exacerbate vulnerability and to climate change;
- Immediate needs requires immediate response (health and girl child education, for example) necessary for long term resilience building
- Integrated actions at local level can better bridge policy and implementation divide, but requires engagement for shared learning. (users also as knowledge producers not just receivers).
- Synthesized knowledge to users (farmers, householders etc. in language that they understand) to help them take action to deal with shocks
- Working with local institutions allows unpacking of barriers.

Shared knowledge supports adaptation by

- Helping better understand levels of certainty, tipping points and stress indicators
- Communicate notion of uncertainty
- Identify characteristics of resilient systems that enable individuals, households, community and others to shift strategies as conditions change -- linked with development
- Take advantage of existing policies to link systemic (planned) and autonomous adaptations

In mid to late 1980s series of policy measures recognized community at center stage. Key principles

- Users involvement fundamental for equity and increased opportunities for the poor and vulnerable
- User-based management fosters local institutional innovations
- Help reforming local institutions and link them with national
 - Irrigation
 - Drinking water and sanitation
 - Community based forestry
 - Community electricity distribution

Community Rural Electrification Bylaws (2003)

- Allowed any organised community group to buy electricity from the grid in bulk and retail it among themselves. Multiple function.
- In 2014, 252 local community groups distribute electricity to 338,00 families.
 - Higher revenue collection
 - Reduced Non technical losses.
 - Consume 69 Gwh
 - Productive use of electricity
 - Livelihood diversification

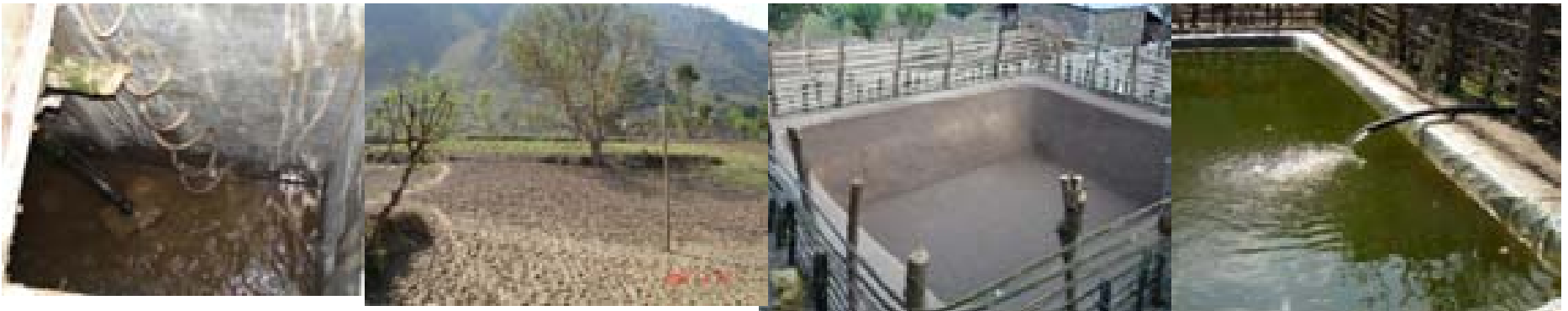
Supply is a major constraint

A planned effort on building systems and achieve adaptation goals (autonomous)

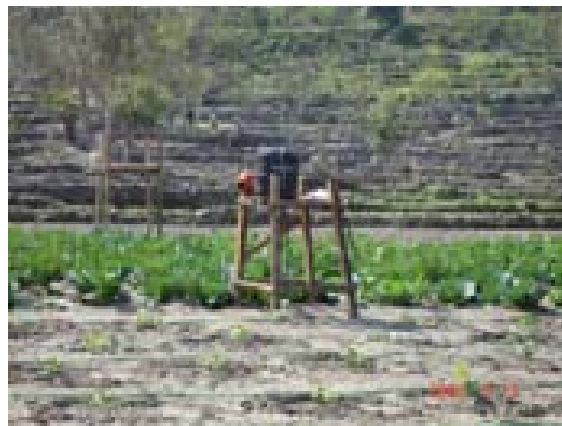
Functions as meso level institution

With improved access and responsiveness
Helped in ***switching strategy***.

Community led lift irrigation system with clay pond made impervious with plastic sheets and water distributed via a drip system



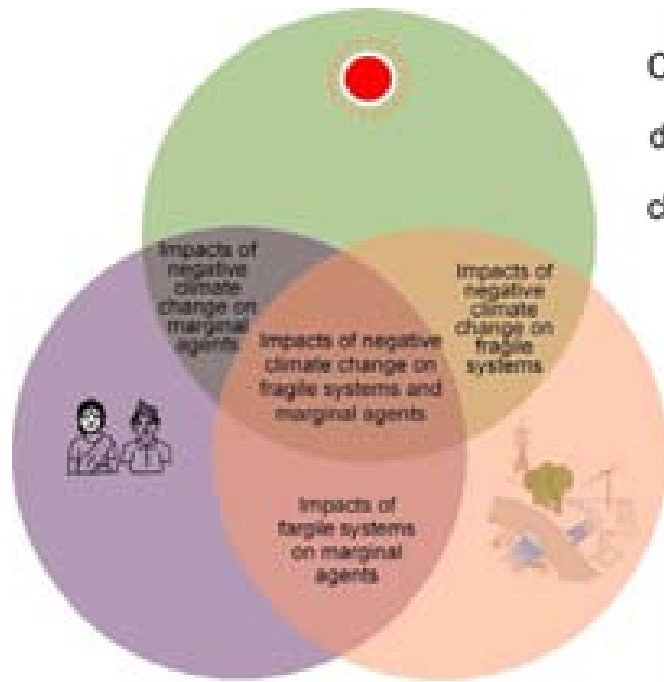
Shifted from rain-fed maize crop to high value, vegetable production.



One scenario

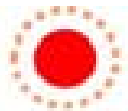
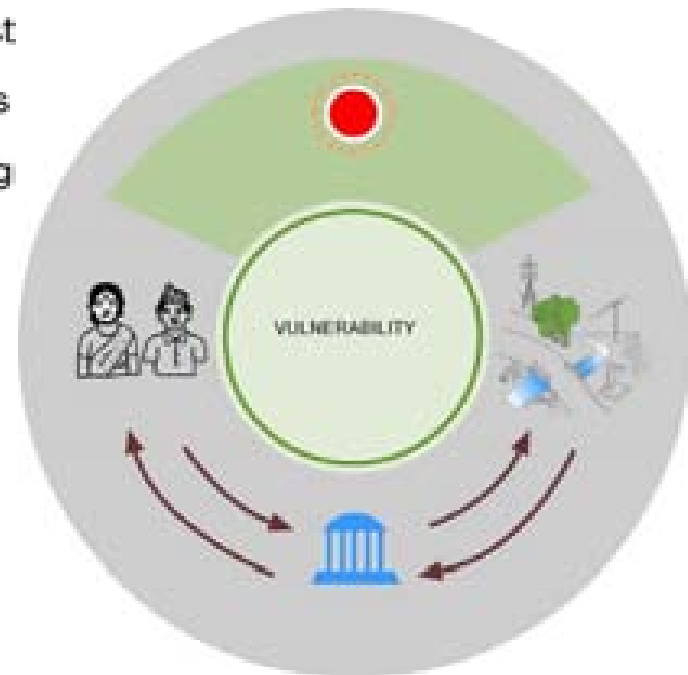
Horizon	Benefits	Risks		
		Water	Temperature	Others
Current	<ul style="list-style-type: none"> • Energy access • Higher income 	Drip system improves efficiency and reliability	<ul style="list-style-type: none"> • Pests, fungus disease vectors 	Pesticides, power cuts, price rise
Future	<ul style="list-style-type: none"> • Micro enterprises • Livelihood diversification 	Depleted water sources, higher uncertainty	<ul style="list-style-type: none"> • Pests, fungus, disease vectors • Increased energy for cooling 	Price rise, ecological degradation

Climate Resilience Framework (CRF)



marginalised Agents high capacity
 negative Climate exposure positive
 fragile Systems resilient

Climate vulnerability is highest when marginalised agent are exposed to climatic change. The process of building resilience (or reducing vulnerability) mediated by institutions.



EXPOSURE

Exposure to climate change encompasses the direct and indirect impacts that affects systems and agents.



SYSTEMS

Systems including ecosystem are the foundations that enable people to adjust as exposure changes. The type of systems are shown in next diagram



AGENTS

The capacities of agents (individuals, households, communities, business, government organisations, NGOs, etc.) that help them adjust as exposure changes.



INSTITUTIONS

The rules and social conventions that guide interactions of agents with each other and access to systems

	Systems	Agents	Institutions
Characteristics	Flexibility and diversity	Resourceful	Recognition of access rights and entitlements
	Redundancy and modularity	Responsive	Decision making processes follow principles of good governance
	Fail safe	Ability to learn	Transparent information flows
			Able to apply new knowledge

Adaptation is much more than “coping”. If systems are resilient people, environment and other features “do well” by **switching strategy in response to stress including those due to climate Change.**

Adaptation actions should lead to continued **development and improvement in the quality of life** and not mal-adaptation.

Broad lessons:

- Climate change is one of the many drivers that affect the livelihoods of populations. Not always the most urgent.
- People understand that the challenges they are facing are not unique to them.
- Need more nuances to unpack link among development, planned and autonomous adaptations
- CRF offers opportunities to examine contours of this process

Some thoughts for way forward

- Monitor ongoing implementation actions
- With the learning engage at national, regional and global level knowledge platforms for
 - Innovative practices;
 - Adaptive policies; and
 - Knowledge.

Thank You