The Indigenous Peoples Biocultural Climate Change Assessment

Building Evidence to Support the Development of Participatory and Sustainable Policies

Alejandro Argumedo
Asociacion ANDES

Policy Dialogue on the Role of Traditional Management Systems in Achieving National and International Policy Goals and Targets

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World Parks Congress, Sydney

The challenge of CC

Photo courtesy of FPCI

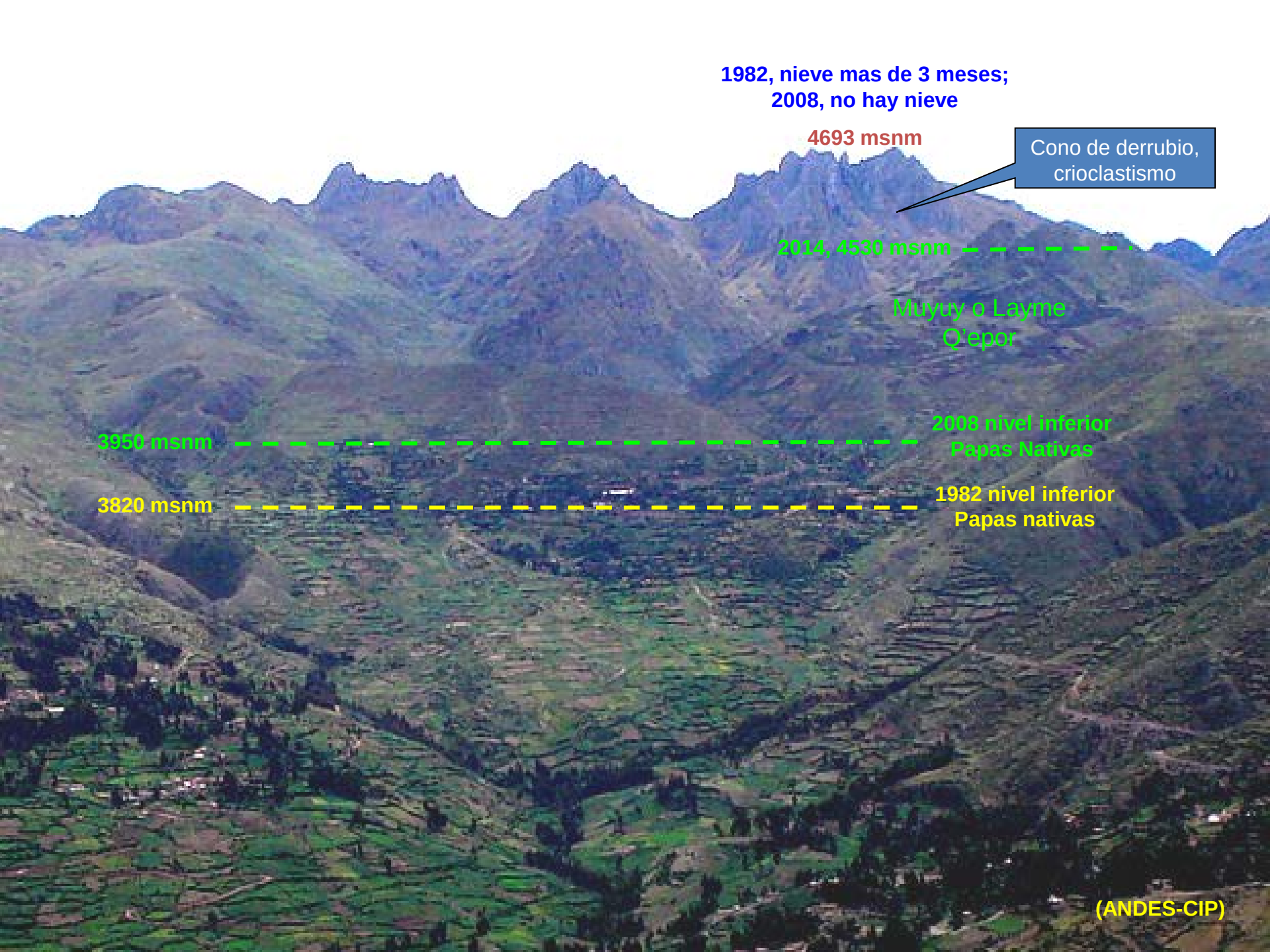
Climate change is an global phenomena with local impacts on ecosystems and people

Indigenous peoples:

- Only four per cent of the worlds population (around 400 million people)
- Utilize 22 %of the world's land surface from small islands, tropical forests, high-altitude zones, coasts, desert margins and the circumpolar Arctic
- Maintain 80 per cent of the planet's biodiversity in, or adjacent to, 85 %of the world's protected areas.
- Indigenous lands also contain significant carbon stocks critical to mitigate climate change.

Photo courtesy of Snowchange

Living in fragile ecosystems, indigenous peoples are at the frontlines of climate change


1982, nieve mas de 3 meses;
2008, no hay nieve
4693 msnm
Cono de derrubio, crioclastismo
2014, 4530 msnm
Muyuy o Layme Q'epor
2008 nivel inferior Papas Nativas
3950 msnm
1982 nivel inferior Papas nativas
3820 msnm
(ANDES-CIP)

But…Indigenous Knowledge Also Holds the Key to Climate Change

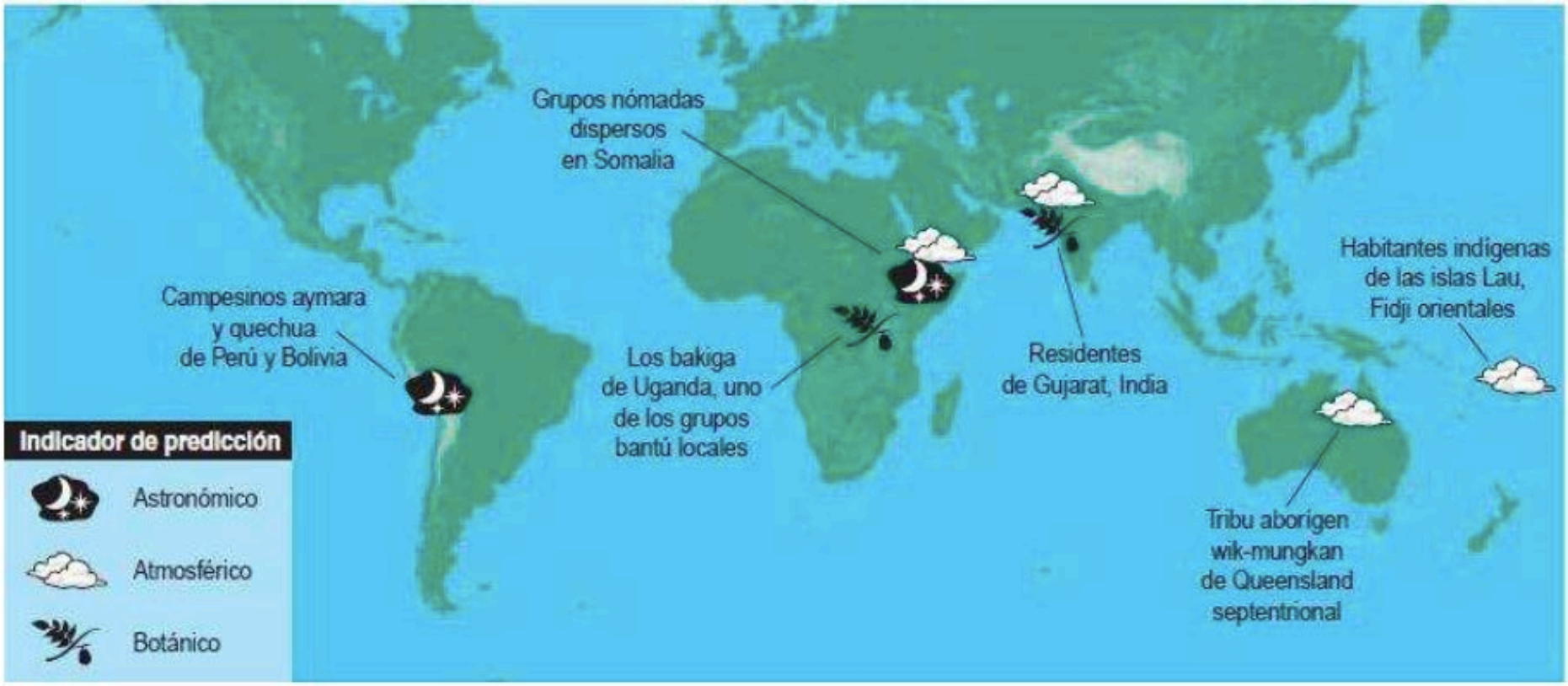
- Indigenous peoples are inextricably linked with their lands and possess a unique collective knowledge of the land, sky and sea.
- Climate change is first noticeable though biophysical changes in the local agroecosystem, water availability, wildlife, and weather.
- These observed changes are responded with adjustments in behavior in the local biocultural system, which reduces the vulnerability of communities to changes in the climate system.
- Indigenous people used biodiversity as a buffer against variation, change and catastrophe. However, whether communities can adapt, and for how long, depends on maintaining diversity and resources available.

Areas Where the Use of TK Contributes to the Understanding of Climate Change

Area	Local scale expertise
Climate history	TK provides invaluable insight into past climate variability, providing an essential baseline against which to compare change. Climate change is embedded in indigenous farmers' history of lost crops, seeds exchanges/trials, travels, extreme vents, and harvesting records
Research hypothesis	TK contributes to the process of formulating scientific hypothesis as another way of knowing and understanding the environment. Collaboration at the initial stage of research expands the scope of inquiry and ensures a leadership role for communities in research planning
Community-based Adaptation	Traditional knowledge lends more than insight into adaptation to changes, explaining them in the context of farming practices, food availability, livelihoods and community life. How are communities responding to change? What are the social, economic and cultural limits to adaptation?
Community-based monitoring (scenarios)	TK reflects a cumulative system of agroecosystems and environmental monitoring and observation. Monitoring of projects have to include local indicators and bridge the gap between science and traditional knowledge by providing a collaborative process

Adapted from Berkes

Indigenous Knowledge and Ethno-climatological Knowledge



Fuente: Orlove, B., Chiang, J. and Cane, M. (2002). «Ethnoclimatology in the Andes. A cross-disciplinary study uncovers a scientific basis for the scheme Andean». American Scientist, Vol. 90,

However, mainstream climate change science and policy continues to drive development of adaptation and mitigation responses and have not included indigenous knowledge fully

The IPCCA initiative

The IPCCA is an indigenous biocultural response to the narrow mainstream approach to CC with thus far little inclusion of local processes – both for understanding how they link to global processes in climate change and to build appropriate mitigation and adaptation strategies

Mission and goals

- The IPCCA aims to contribute through:
  - Providing a deeper understanding of local processes and how they relate to climate change
  - Developing locally sound mitigation and adaptation responses, feeding into effective policies across scales
- It is entirely indigenous led and managed by a Steering Committee of indigenous leaders
- First local biocultural climate change evaluations began in 2009 – today there are 10 underway in a diversity of biocultural systems

Local Assessments

Currently there are nine IPCCA local assessments under implementation in a variety of biocultural systems worldwide. Local partners are facilitating assessments of climatic conditions and trends within local biocultural systems and their impacts on livelihoods and well-being, and are systematically documenting the role of indigenous knowledge and practices for building evidence-based community adaptation plans.

'Pacific North Western Tribes' Pacific North America

Assessing the environmental, cultural and socio-economic impacts of climate change and community adaptations employing traditional knowledge (TK).

'Zapara Territory' Amazonia, Ecuador

Aim is to evaluate environmental impacts of climate change on indigenous subsistence. Especially on agriculture, hunting and gathe rings well as the impact of oil extraction activities and its contribution to local and global climate

'Parque de la Papa', Cusco, Peru

In the Potato Park, climate change is affecting agrobiodiversity, especially native potatoes and wild varieties, and thus food sovereignty. Therefore the delicate system with the Pacha Mama (Mother Earth) and "Buen Vivir" is endangered.

Kuna Yala, Panama

In Kuna Yala, sea level rises are threatening the food sovereignty, health and survival of the Kuna People.

Maasai, Kenya

Longer cold seasons, frequent droughts and the loss of indigenous knowledge has meant a need to create coping mechanisms among the pastoralist Maasai people in Kenya.

'Skolt Sami Nation' Lapland, Finland

Providing adaptation and survival mechanisms for the Sami community who is endangered by melting permafrost by documenting alternative traditions reindeer herding solutions and inovative solar methods.

'Adivasi' Andhra Pradesh, India

In Andhra Pradesh, India, Adivasi communities aim to assess the impact of climate change and strengthen resilience by securing rights to natural resources.

'Huay Manao', Thailand

In Huay Manao, Thailand, a warmer climate, decreased rainfall and reduced water levels (due to government policies) have resulted in a need to develop indigenous adaptation strategies.

'Ifugao' Cordillera, Philippines

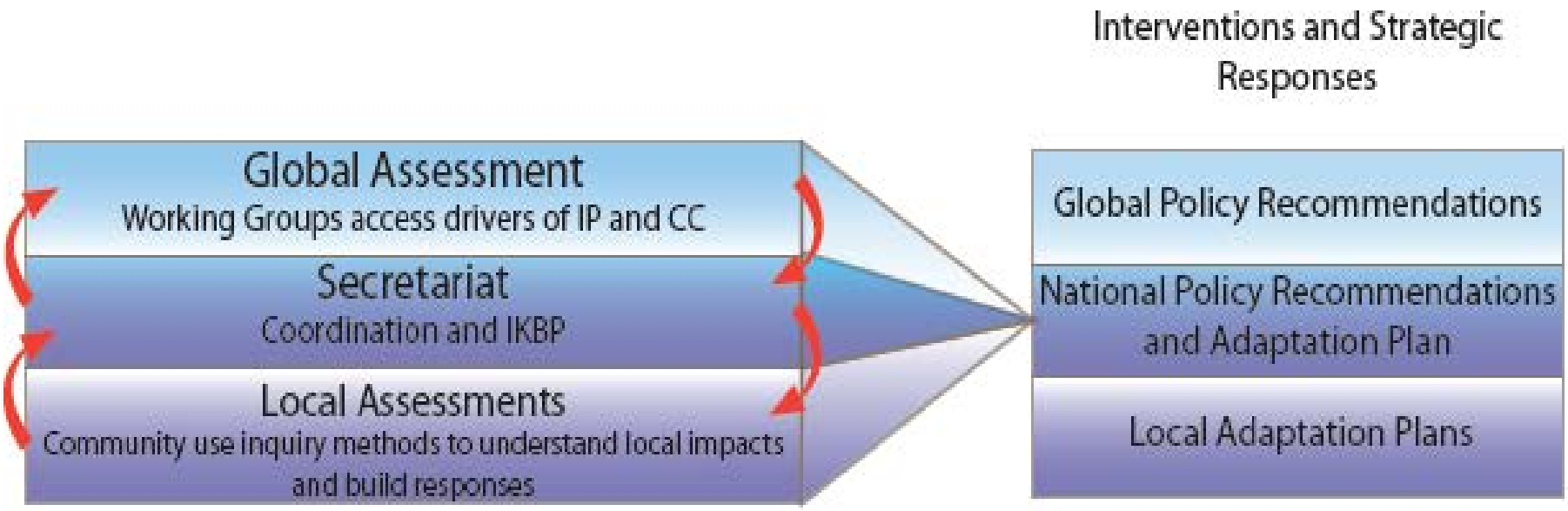
Collecting traditional climate change adaptation mechanism and identifying the observed Climate Changes and the impact in recent years on community ecosystems, livelihoods and culture.

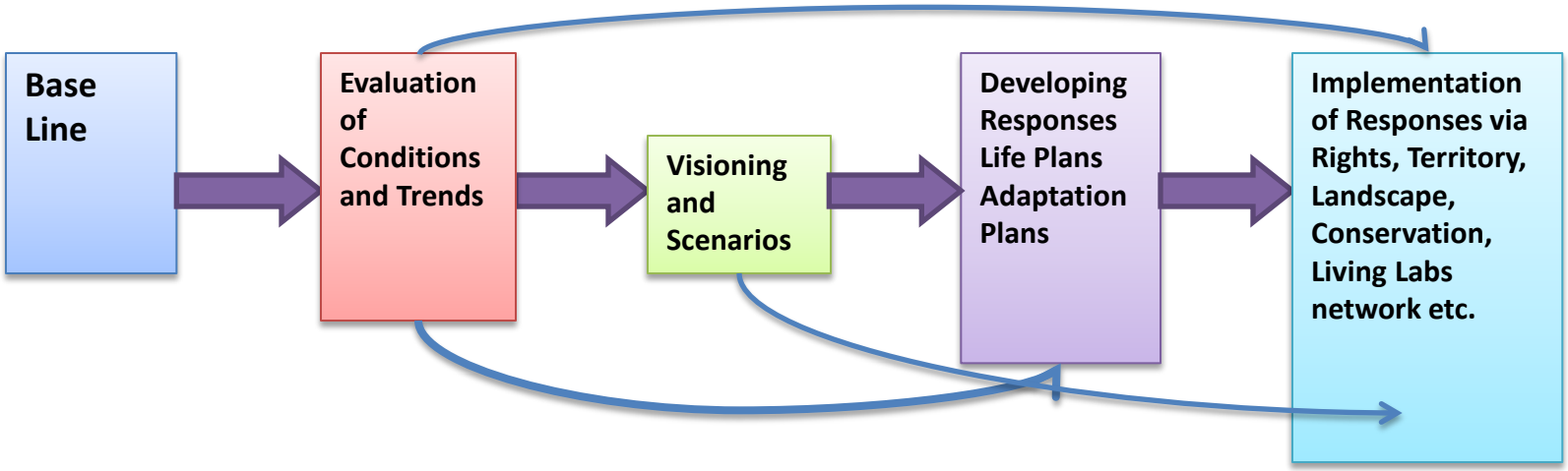
IPCCA objectives

Contributing through:

- Empowering communities to respond to climate change by assessing impacts on biocultural systems
- Reframe the CC debate through bridging local biocultural realities and global models together
- Develop evidence-based adaptation and mitigation responses using TK and science
- Synthesis reporting to feed into policy development

IPCCA Strategy





1. Developing a Base Line
2. Evaluating Conditions and Trends
3. Engaging in Visioning and Scenarios
4. Developing Life Plans or Adaptation Plans
5. Implementing Responses
6. Establishing a Network Community Living Labs for Climate Change Resilience

LAs: Using a Biocultural approach

The IPCCA conceptual framework which guides local biocultural assessments is based around four pillars:

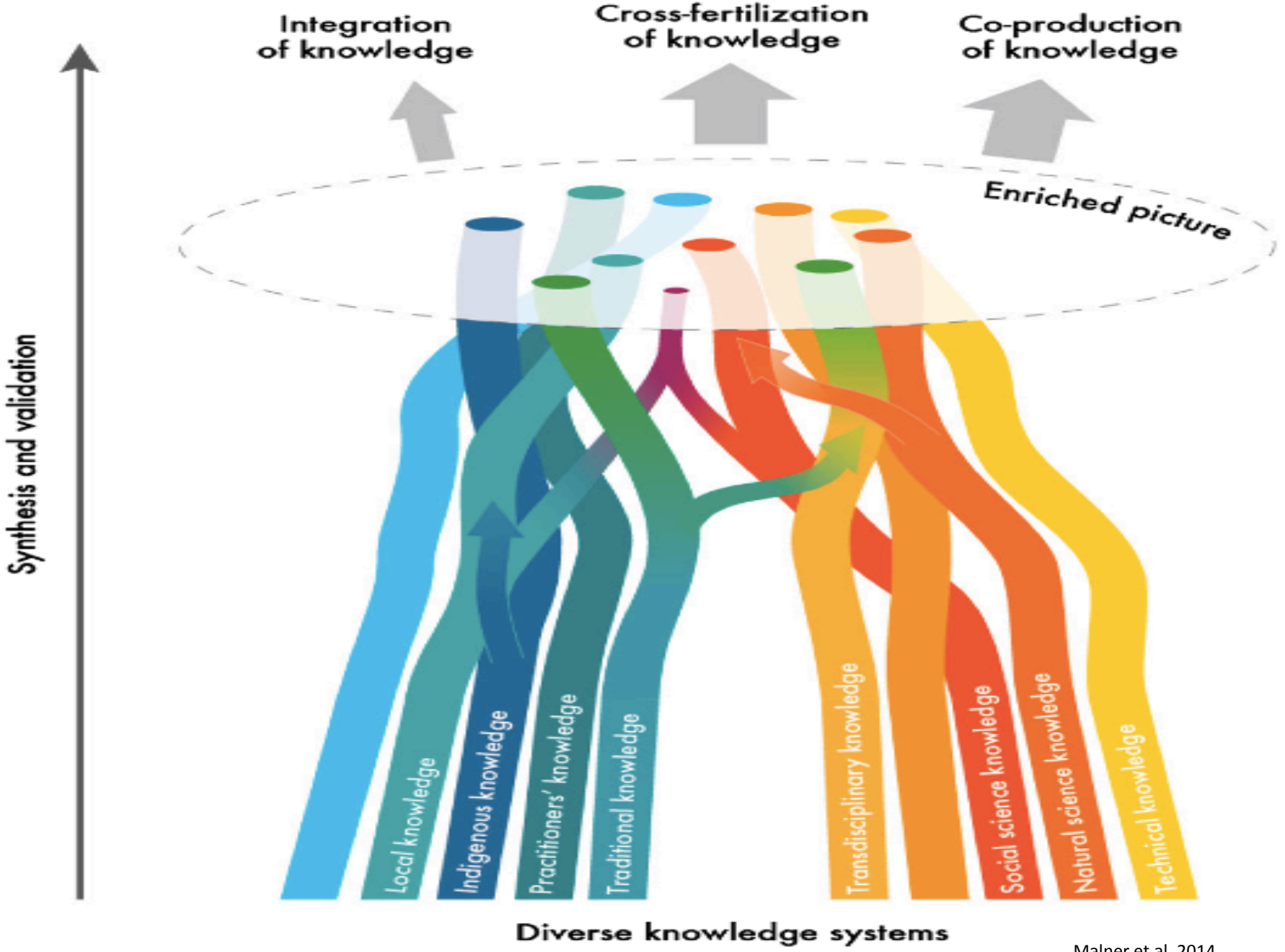
1. An indigenous understanding of well-being as a practical philosophy of life to nurture balanced relationships of all elements within a holistic world – this is called Buen Vivir
2. Maintaining and nurturing a balanced relationship requires system resilience, which is achieved through processes that enable interactions between social, cultural, physical and spiritual aspects of life
3. Drivers of change that impact upon the biocultural system are ethical/moral, anthropogenic or physical
4. A local process for understanding change and impacts must use local methods and frameworks – leading to empowerment and supporting decolonisation

Three-tiered approach

1. Life plans for strengthening indigenous territorialities and building resilience
2. Contributing into national & international biodiversity and climate change processes
3. Synthesis reporting to showcase the scope of indigenous knowledge to be included in key processes

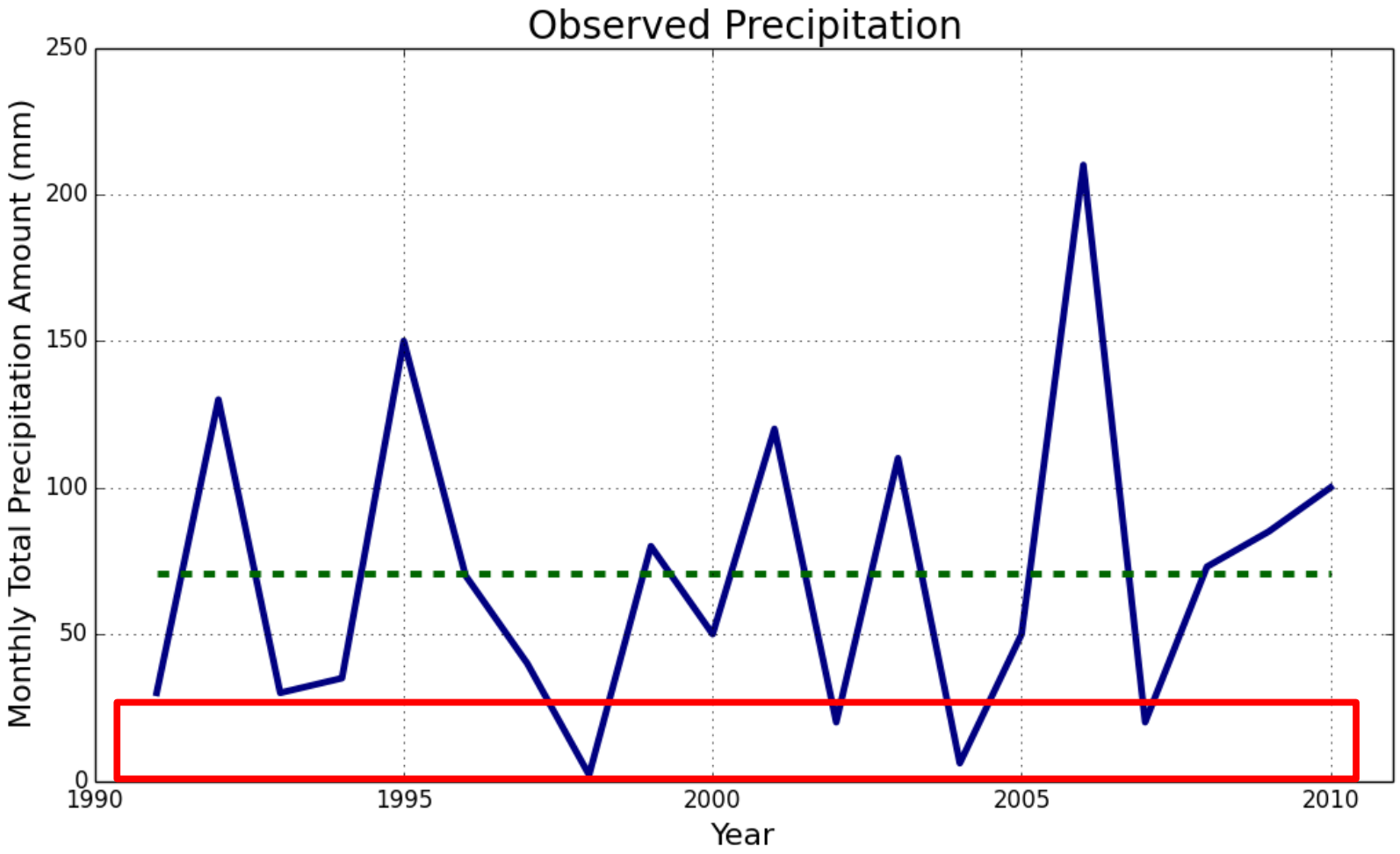
LA Synthesis Report: 2015

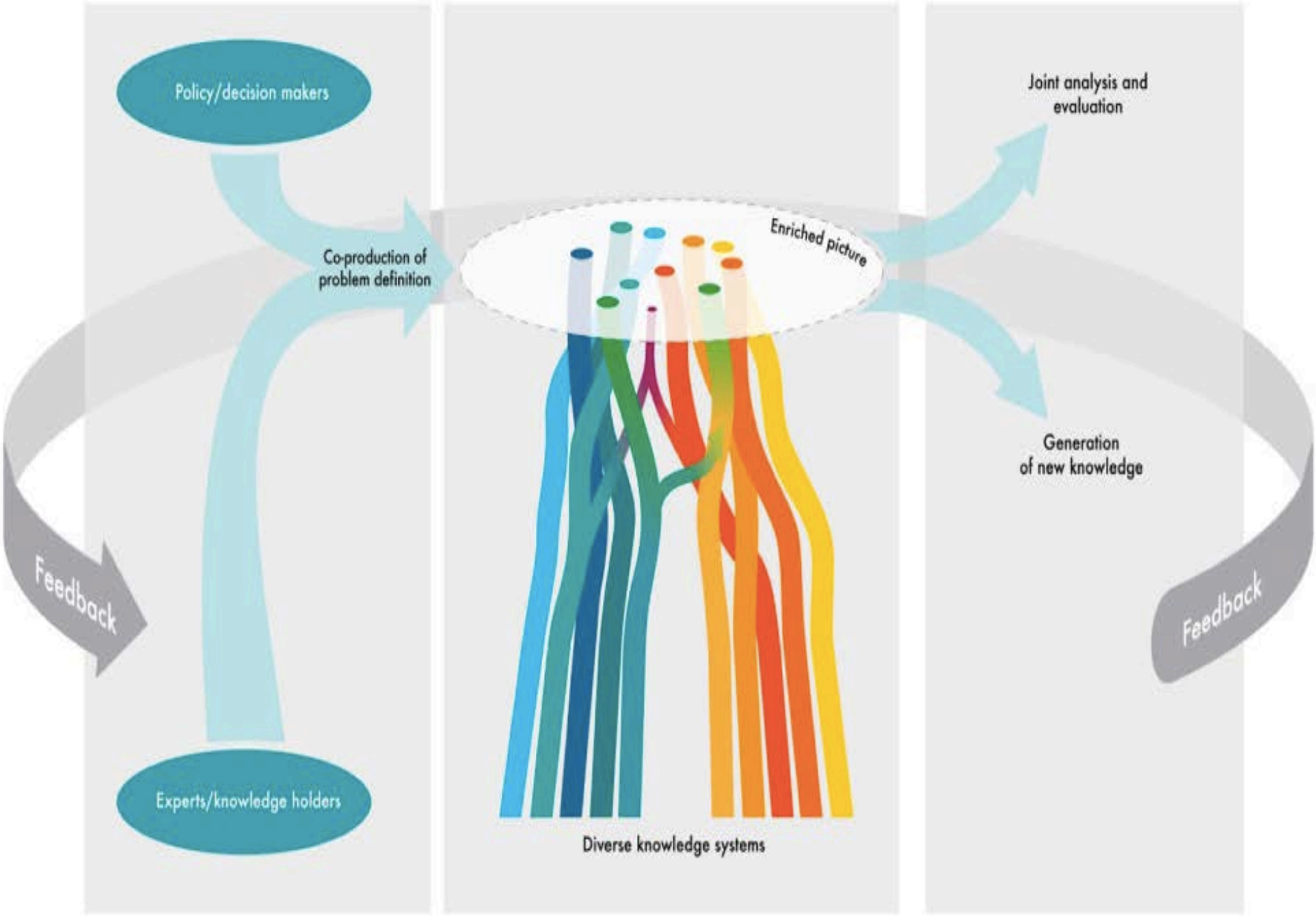
1. Multiple Evidence Base approach as **methodology** to identify main themes and most innovative and policy- relevant findings from LAs and relevant scientific literature.
2. Synthesis report will be published in March 2015, illustrating:
   - Understanding local climatic phenomena and trends in 5 locations
   - Linkages of climate to livelihoods and well-being
   - Biocultural Responses
   - Contributions of Indigenous Managements Systems to national and global climate targets and goals
   - Key messages for policy makers to protect Biocultural Systems



Malner et al, 2014

Important to Form a Baseline of Past Climate Before Making Forecasts of Future Climate (lLinking TK with Science)





Malner et al, 2014

Emerging Results

- **Local Institutions and decision making in the face of uncertainty:** New institutions and decision-making processes are being developed to respond to uncertainty around climate impacts, including uncertainty around extreme weather events
- **Traditional resource management in a changing climate:** Indigenous people are using more (bio)diversity as a buffer against variation, change and catastrophe: **e.g.** in the face of new diseases, if one crop fails, others will survive. Excessive or low rainfall, drought and crop failure are being responded by growing many different crops and varieties with different susceptibility to drought and floods, and supplement these by hunting, fishing and gathering wild food plants. Use of diversity of locations of fields, as a safety measure to ensure that in the face of extreme weather some fields will survive to produce harvestable crops.
- **Local Economies for climate action: e.g.** Barter markets are reviving which enhances multifunctionality of agroecosystems, builds resilience and generates solidarity economies
- **Biocultural innovations and solidarity:** new integrated use of IK-based technologies, market instruments and local customary laws and institutions are supporting local climate adaptation and mitigation and are examples of how we can transition to a low carbon economy

Traditional resource management in a changing climate:

- Zero-tilling practices: indigenous farmers in several are conserving carbon stocks in soils through the use of mulching, and other soil-management techniques.
- Natural mulches, moderate soil temperatures do suppress diseases and harmful pests and conserve soil moisture.
- Natural pesticides by use of indigenous plant materials to combat pests that attack food crops,
- Indigenous practices of pest management to alter the ecology of disease vectors
- Controlled bush clearing; using tall grasses for fixing soil surface nutrients which have been washed away by runoff
- Erosion-control to reduce the effects of runoff;
- Restoring fertility by using green manure;
- Water harvesting by constructing stone dykes;
- Managing low-lying lands and protecting river banks.
- The use of emergency fodder, culling of weak livestock for food, and multi-species composition of herds to survive climate extremes.
- Change from cattle to sheep and goat husbandry during drought periods - feed requirements are lower;
- Nomadic mobility reduces the pressure on low-capacity grazing areas through their cyclic movements from the dry areas to the wetter areas
- Reliance on indigenous plants that are more tolerant to droughts and pests, providing a reserve for extended periods of economic hardships
- Preservation of seed diversity that will ensure resistance to the range of conditions that may arise in any given growing season.

Traditional resource management in a changing climate:

- Creating floating vegetable gardens to protect their livelihoods from flooding
- Increased use of clean, renewable energy, such as solar, micro wind turbines,
- Traditional technique of drying foods
- Indigenous lands could provide a tremendous wind resource and its development could help to reduce greenhouse gas emissions
- REDD and carbon sequestration.
- Use of new materials, and new ways of doing things
- Indigenous philosophies which connects people with the land through ancestors and guardian spirits, serves as a guiding principle for the management and sustainable use of the rainforest, mangrove forest, coral reefs, field crops, gardens.
- Traditional knowledge is the management framework for developing the skills for adaptive capacity

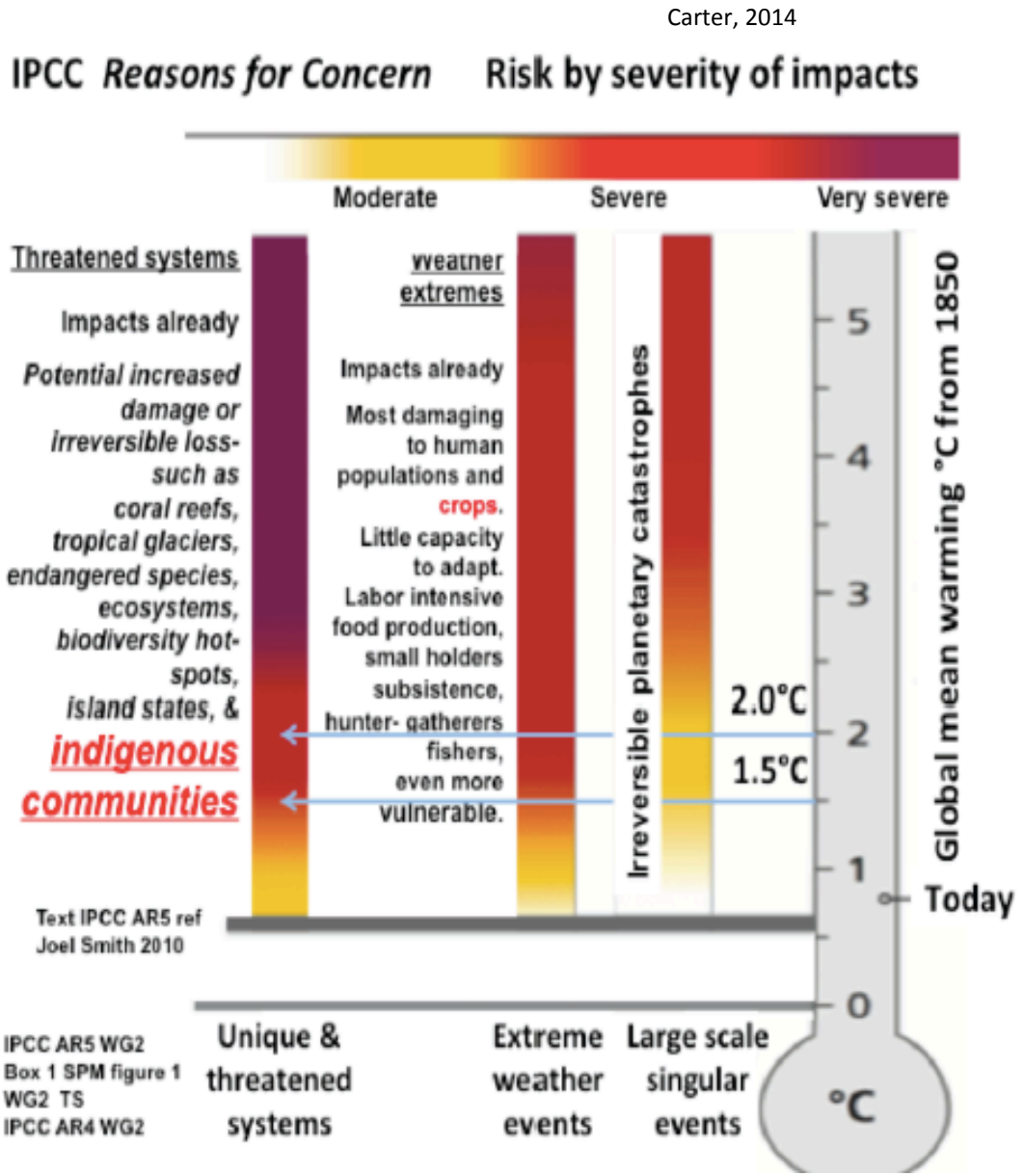
Contributions of TRMS to Biodiversity and Climate Goals and Targets

1. Socio-economic benefits for community adaptation based on sustainable development
2. Adoption and scaling up of traditional Biocultural resource management can address both mitigation and adaptation by:
   - Protecting existing stocks of soil carbon in croplands, peatlands, and wetlands
   - Replenishing soil and biomass carbon and improving productivity in degraded lands,
   - Reducing greenhouse gas (GHG) emissions from crop and grazing land,
   - Reducing forest-based carbon emissions through decreasing deforestation and forest degradation,
   - Conserving and enhancing forest-carbon stocks by promoting sustainable forest management.
3. Increased environmental benefits
4. Improved governance benefits
5. Create nexus between climate goals and targets and MDG, Aichi Targets, etc

Emerging Key Messages

1. Direct representation in the UN climate convention
2. Desk for IK at the IPCC
3. Global warming survival limit of 1.5°C. Evidence is clear that indigenous peoples and their biocultural systems are unique and increase above 1.5°C will threaten their survival
4. Recommend that emissions must decline by 2020 at the latest for indigenous peoples survival. Call for the elimination of all fossil fuel subsidies in short order ($1.9Trillion/year IMF 2013)
5. Survival of BCS requires that by 2050 all fossil fuel energy has been phased out and replaced by clean zero carbon energy
6. Support IPCC AR5 best case scenario RCO2.6 (emissions slow and decline rapidly from 2020)
7. Support the 350ppm atmospheric CO2 limit.

Carter, 2014



Living Labs of Climate Change

Thank You!

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