

Climate Adaptation Masterclass: **“From theory to implementation”**



Lake Chilwa, Malawi (Courtesy of Sosten, Chiota, LEAD NGO)

**Adaptation in Developing
Countries**

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Adaptation: the process of adjustment to experienced or anticipated negative climate related impacts e.g. to reduce vulnerability to climate extremes

- A wide range of adaptation types/activities exist e.g.:
- Planned direct adaptation e.g. building dikes/dams to prevent flooding &/ provide water
- Indirect adaptation e.g. capacity building, institutional transformation, and research.

Adaptive Capacity: ability of a system to respond successfully to climate variability & change: including adjustments in both behavior, resources & technology.

- Adaptive capacity is necessary to design & implement effective adaptation strategies to reduce the likelihood & the magnitude of harmful outcomes resulting from climate change
 - Also enables sectors & institutions to take advantage of opportunities of climate change where they arise
- Poor adaptation capacity has been observed in developed countries too

The critical factor in adaptation is:

- How as a society we develop & organize ourselves i.e. whether we do so in ways that render us vulnerable or resilient to current & future climate change risks & their interaction with e.g. socio-economic & political factors [*Lahsen et. al. (2010)*]
- What are the pathways towards effective strategies for enhancing societal resilience and adaptation to environmental stresses and climate change in particular?

Challenges of resilience building e.g. Botswana

- A middle income, multi-party democracy country— with a population of roughly 1.7m

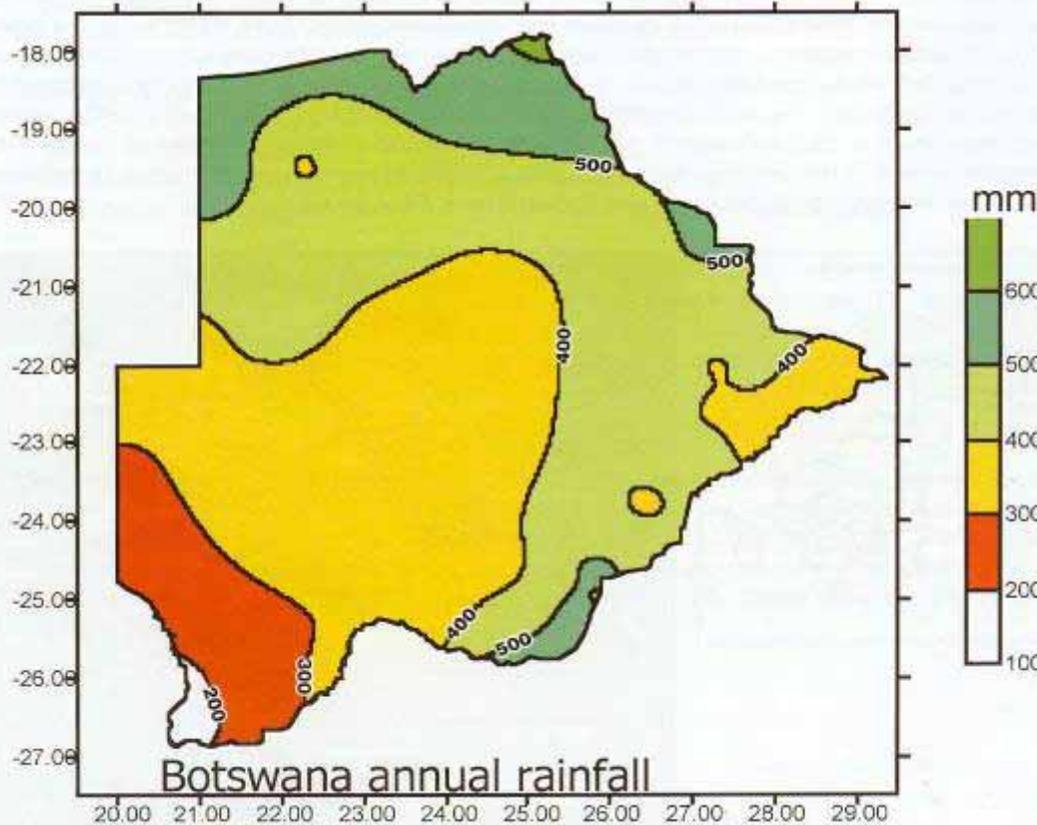


Figure 1.2. Average annual rainfall for Botswana (Map provided by Department of Meteorological Services).

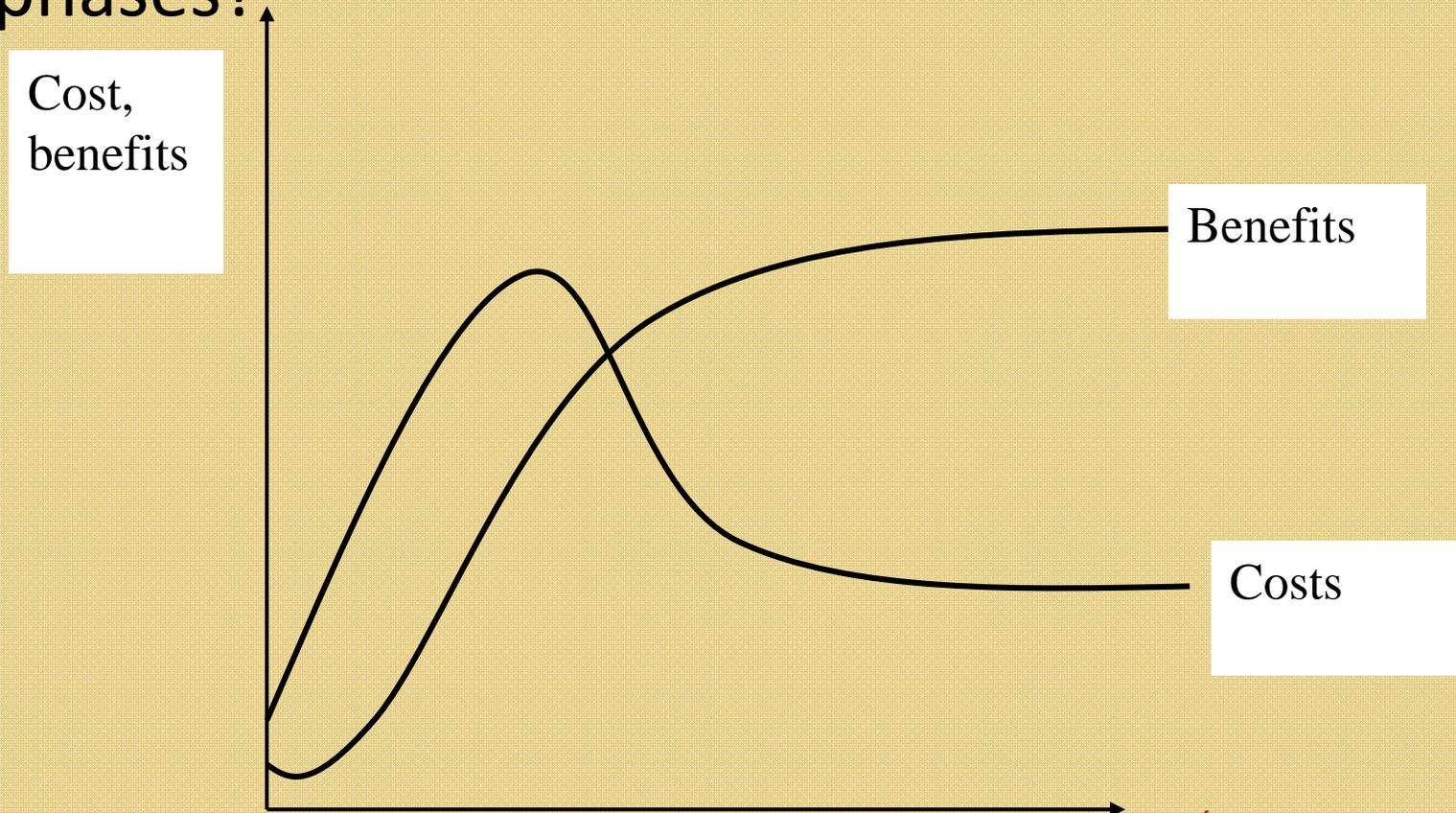
- A semi-arid climate & landlocked
- Highly dependent on mining
- Limited human resource capacity
- Adversely effected by the HIV/AIDs epidemic

Aggressive resilience building measures were adopted to reduce vulnerability to multiple stresses:

- Huge investment in infrastructural development; Education;
- Aggressive agriculture production - both small & large scale to meet food security & reduce unemployment
- Poverty eradication policy as opposed poverty alleviation
- Youth empowerment e.g. Training, business ventures, sports & recreation
- Greater attention on efficient delivery of service; participating in community service;
- A focus on behavioral change e.g. Fight against corruption; alcohol abuse, smoking etc

The cost of resilience building e.g. a foundation for adaptation high at the initial stages
long term benefits following up a little later

- But can we can we stay through the challenge phases?



(Courtesy of: S. Masike)

E.g. of challenges of getting through initial stages of adaptation

- E.g. Botswana Government currently faces high pressure:
- Behavioral changes are negatively viewed as infringement on personal choices/human rights e.g. controlling trading hrs of bars & high alcohol levy
- White collar workers resent being denied salary increment in favor of agriculture & poverty eradication etc
- With global economic recession pressure mounts; opposition parties cash on this - the stability of the government gets threatened e.g. strikes by civil servants that paralyses the country follow through

The question is:

- Are the current governing systems - equipped to build-in the midst of multiple stresses across scales- the required resilience against future climate change risks and other global challenges?
- **These are social/political science questions- yet engagement of social science in climate change and Global Environmental Change issues in general remain peripheral**



(Community adaptation workshop - Limpopo Climate change AIACC project Botswana, 2006)



Planned adaptation to reduced effects of long term climate change risks therefore face stiff resource competition with the need to meet needs of “yesterday”



Photo by M.B.M. Sekhwela, Botswana

- More so in developing countries where resources are limited & there is widespread poverty and lack of basic development infrastructure

- Lahsen et. al. (2010) argue that a focus on adaptation – especially re-active adaptation - tends to lead to greater attention to post-impact activities than on efforts to avoid impacts in the first place.
- In addition to the physical basis of climate change we also need to Understand the socially constructed vulnerabilities i.e.



(Okavango Delta, 2010, Courtesy: M. Pego)

Focusing on a broader range of underlying causes of vulnerabilities than only on climate change will not only support successful adaptation plans but also help reconcile adaptation with aspirations for development.

- In simple terms: Vulnerability - risk of a negative outcome
- *Adaptation*: adjustments to reduce vulnerability

Vulnerability to climate change in developing countries results from multiple factors on a range of scale:

- Continuing inequities in power & resource distributions
- Economic globalization has a role in environmental degradation, marked income disparities & weakened state capacity to respond to climate stresses
- Climate change itself is a result of the witnessed global economic growth – a market economy driven by competition, high insecurity resulting in perpetual drive for material accumulation

Impacts, vulnerability and adaptation are interdependent with development

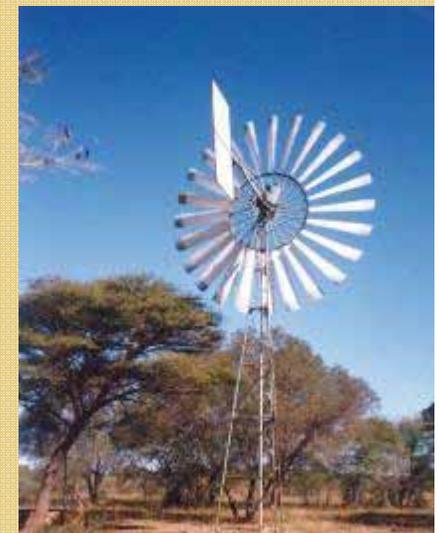
- Poverty enhances environmental degradation thus constraining adaptive capacity
 - Climate change, market liberalization & consumption patterns for agricultural commodities are changing the context for agricultural production - resulting in complex enhanced impacts of climate change, vulnerabilities & influencing adaptation – e.g. [the Amazon in Brazil](#) [Nepstad et al. ,2008]

Caution: Climate change and development

- Mainstreaming adaptation efforts into development agendas is not always the solution though:
- NOTE: Current development efforts are responsible for increased inequality & vulnerability to environmental stress .
- *But also there is a danger that funds for adaptation measures might be drawn from existent development funds without a net increase in the latter hence hesitance to the needed mainstreaming* (Brazil IAV workshop for developing countries, 2009)

A strong emphasis on adaptation over mitigation in developing countries

- has a risk of leaving these countries out of the race to a new low carbon 21st century society thus perpetuating their vulnerability
- **a focus on the causes of human vulnerability to climate change may reveal opportunities for both a low-carbon development pathway , adaptation & poverty alleviation.** [Lahsen et. al. (2010)]
- Many of the alternative low carbon energy sources are strongly represented in developing countries e.g.
 - Biomass/bio-energy, solar energy etc
- It is an opportunity for energy system Leapfrogging (Brazil IAV workshop for developing countries, 2009)



Energy efficiency and intensification are just as important as new Low carbon energy source technologies.

- E.g. land use planning schemes that require higher integrative planning approaches with the purpose of reducing emissions e.g. forest restorations vs use of biomass energy
- If massive expansions in energy, transport, urban systems, & agricultural production, construction & etc in developing countries
- are met using traditional technologies *e.g. as in China, India etc* - more greenhouse gases will be emitted resulting in unsustainable development pathway (Brazil IAV workshop for developing countries, 2009)

Perceptions—influence development pathways & adaptation

- E.g.: “Out with the old” & welcome to “modern technology & advanced approaches”
- Exactly what does this mean?
- **Decoupling indigenous knowledge systems & associated institutions from development**
- **Introducing systems that are not sustainable to the environment and socio-economic conditions**

(Dube & Scholes, 2008)



Botswana: LARGE SCALE IRRIGATION VS SMALL SCALE SYSTEMS

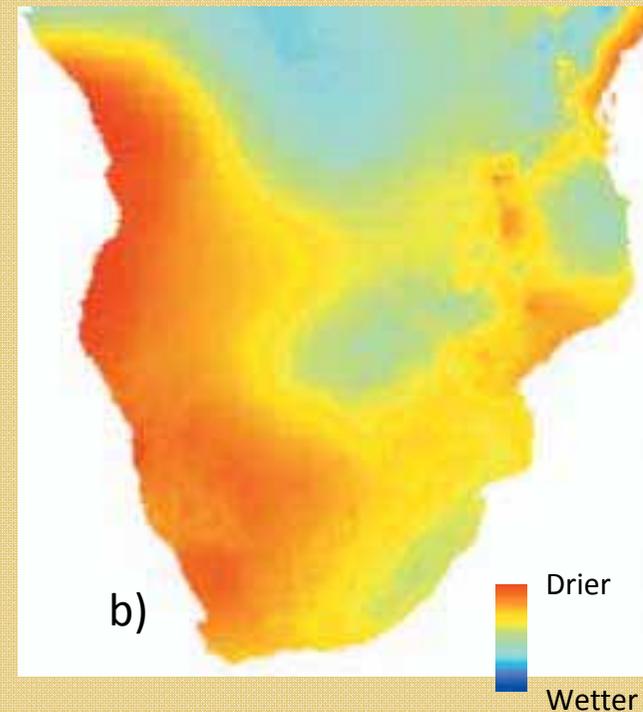
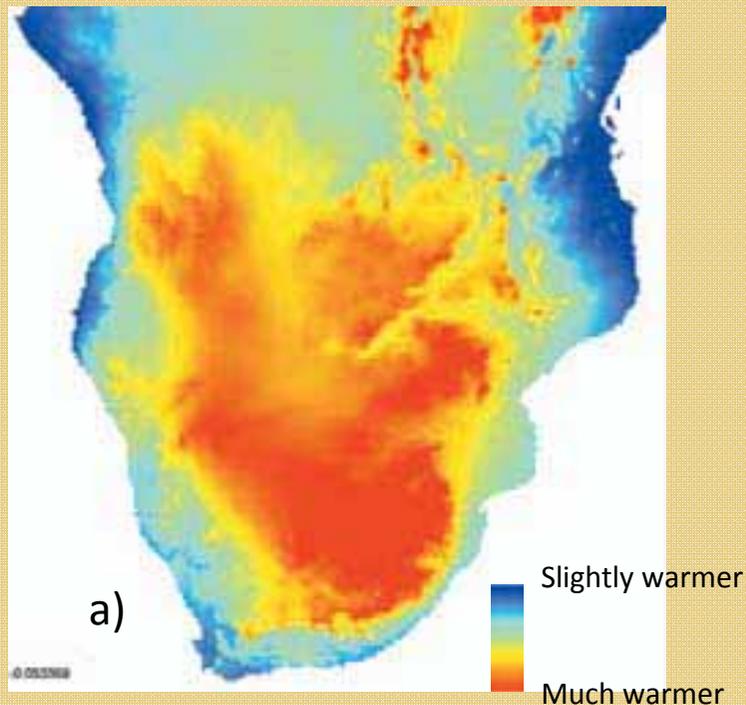


J. Khathola sugar cane irrigation production, Bobonong Farm, Botswana : Courtesy: M.B.M. Sekhwela



- Large water transfer schemes: From the Zambezi river basins Lesotho high lands
- Multi-million projects for water adaptation currently being planned for large scale irrigation.
- But how climate change proof are they?

Projected climate change in southern Africa



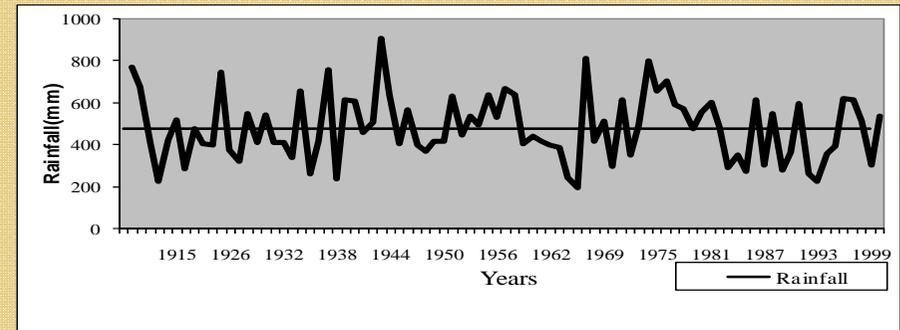
HADCM3 climate model projections of changes in a) temperature and b) precipitation for 2050 relative to mean conditions over the 1961 to 1990 period, under the IPCC SRES A2 (high emissions) scenario.

MEA SAfMA Report, 2004

Small scale systems



Backyard garden, Bobonong, Botswana: Courtesy: M.B.M. Sekhwela



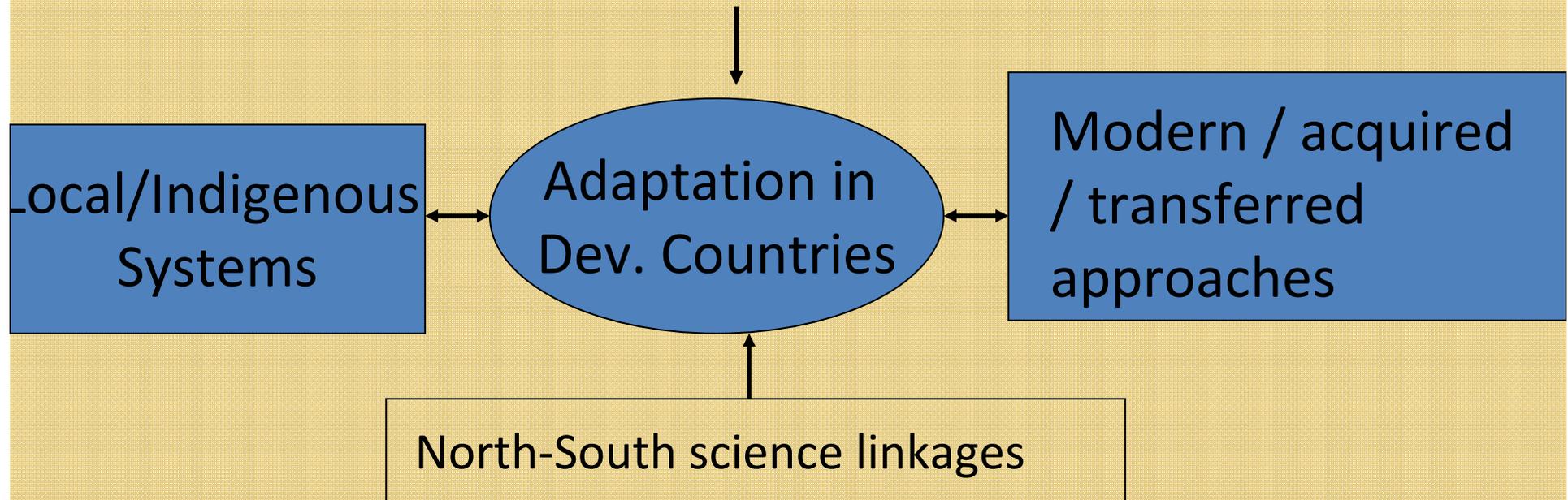
Francistown, Botswana e.g. of rainfall variability

- Nutrition needs – health, children learning capability
- Generates income- reduces urban migration especially for women

But there is strong negative perceptions on these small scale system in favour of large scale systems

Is relying on food imports the answer – some developed regions e.g. Europe recognizes this as a source of vulnerability e.g. in case of a disaster

*What we should be doing is building on local/
Indigenous systems*



- We need to identify, reframe and strengthen mechanisms of establishing and maintaining these linkages to support adaptation in developing countries

Thank you

