

# OUTREACH EVENT ON THE ROLE AND ACTIVITIES OF THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE (IPCC)

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## *Adaptation options, needs, opportunities and associated costs: An African Context*



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# AR5 Definition of adaptation

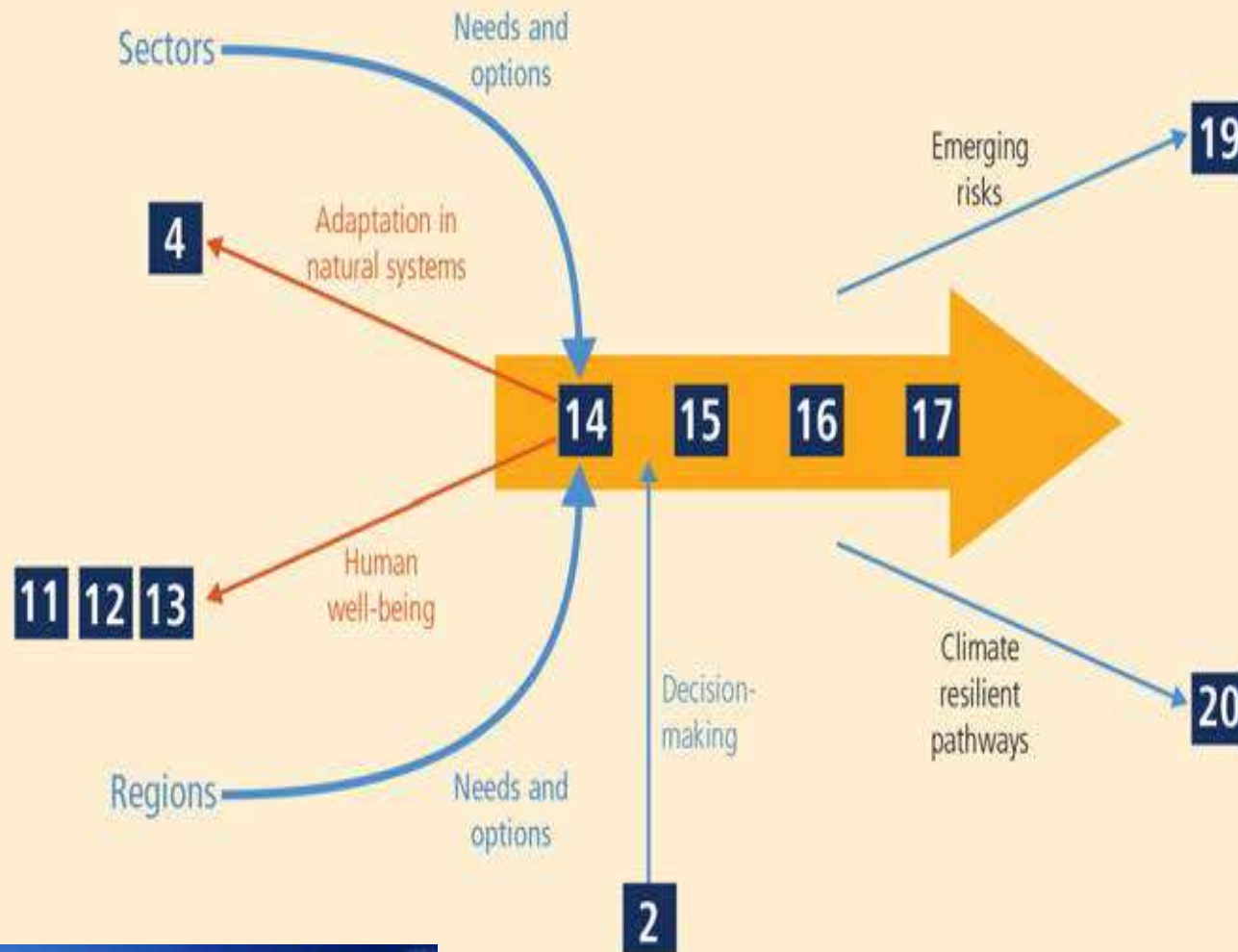
The process of adjustment to actual or expected climate change and its effects. In human systems, adaptation **seeks to moderate harm or exploit beneficial opportunities**. In natural systems, human intervention may facilitate adjustment to expected climate and its effects.



## Adaptability:

It is not the strongest of the species that survives, nor the most intelligent; it is the one that is most adaptable to change. (Charles Darwin)

# The relationship between the four adaptation chapters (14 to 17) of AR5 and other closely related chapters





# Adaptation needs

Adaptation needs arise when the anticipated risks or observed impacts of climate change require action to ensure the safety of populations and the security of assets, including ecosystems and their services. [14.2]  
(Moderate agreement, medium evidence).



# Africa –specific needs for Adaptation (1)

- **Multiple stresses**: climate change drivers will interact with non-climate drivers and stressors to exacerbate existing vulnerability
- **High dependency on Natural resources in their economies & livelihoods.**
  - **Water resources** : The population at **risk of increased water stress in Africa is** projected to be 75-250 million and 350-600 million people by the 2020s and 2050s, respectively
  - **Agricultural systems**, Parts of the Sub-sahara will show **agricultural losses of between 2 and 7% of GDP** by 2100 particularly in semi-arid areas
  - **Food security and Human Health**: Increase of 25 to 90% in proportion of the **undernourished** population **in Sub sahara Africa by 2050**

## Africa –specific needs for Adaptation (2)

### ■ Increased pressures on ecosystems and biodiversity

- Increased **risk of fire**, which threatens tropical forests and woodlands, especially in eastern Africa
- Projected increase in proportion of **arid & semi-arid lands** in Africa by 5-8% by 2080s
- Observed negative impacts on **ecosystem services**, such as water regulation, storm protection, and tourism

### ■ Health impacts :Increased transmission and associated costs **of malaria and water-borne diseases** –affecting human health and labour productivity.



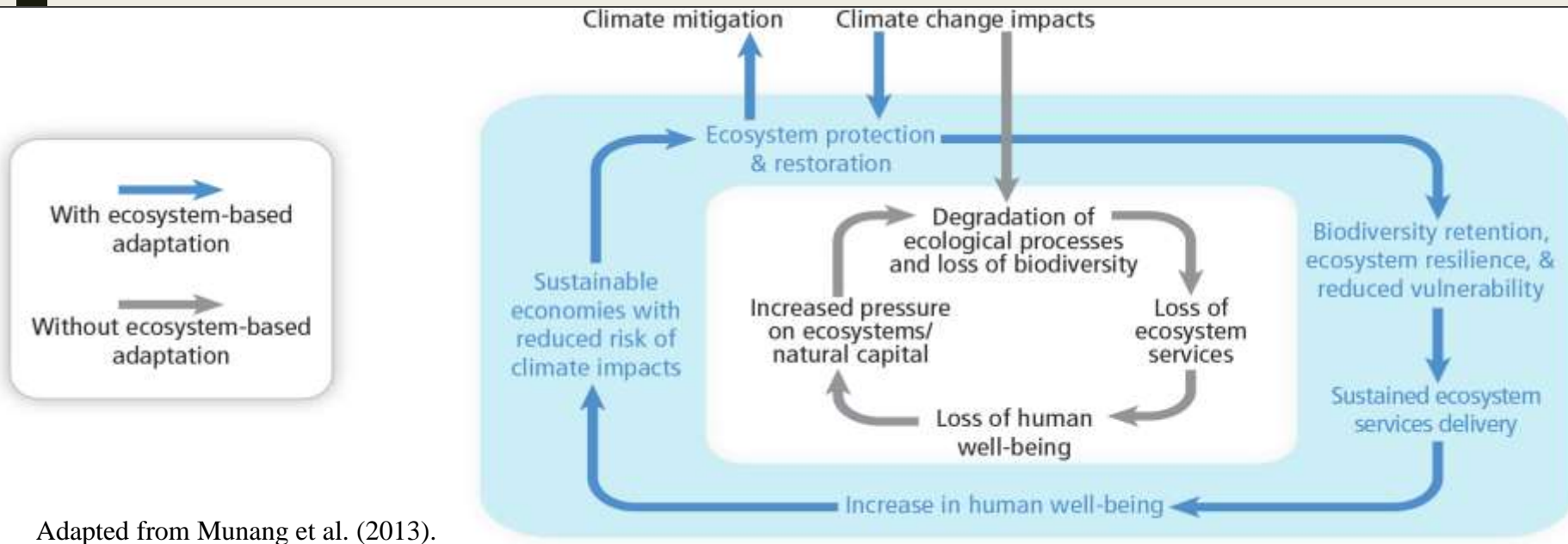
# Adaptation options

1- Engineered and Technological (E&T) adaptation options are still the most common adaptive responses, although there is growing experience of the value for ecosystem-based, institutional, and social measures, [14.3] (*High agreement, robust evidence*).



# Adaptation options

## 2- Ecosystem-based adaptation









































































































Adapted from Munang et al. (2013).





# Adaptation Opportunities, constraints and limits in different Sectors

## Sectors


























































































Sectors (Chapter)	Opportunities	Constraints	Limits
Freshwater (3)	     	      	
Terrestrial (4)	   	    	
Coastal (5)	    	      	 
Ocean Systems (6)	  	   	
Food systems (7)	     	     	 
Urban Areas (8)	     	      	 
Rural Areas (9)	     	     	 
Human Health (11)	    	    	  
Human Security (12)	 	    	 

## Icon legend

														
Awareness	Capacity	Tools	Policy	Learning	Innovation	Economic	Human	Social/	Governance	Financial	Information	Physical	Biological	Biophysical

# Opportunities, constraints and limits in different regions

## Regions

Regions (Chapter)	Opportunities	Constraints	Limits
Africa (22)	     	     	 
Europe (23)	   	  	  
Asia (24)	  	    	
Australasia (25)	   	    	 
North America (26)	  	     	
Central & South America (27)	  	     	
Polar Regions (28)	  	   	
Small Islands (29)	    	      	
Open Oceans (30)	   	 	

# **Key Findings IPCC-AR5-WGII Adaptation chapters**



## Key Global Findings(1)

- Since AR4, the framing of adaptation has moved further from a focus on biophysical vulnerability to the wider social and economic **drivers of vulnerability** and people's ability to respond *[14.1, 14.2, 14.3] (High agreement, robust evidence)*
- Adaptation assessments, have demonstrably led to a general awareness among decision makers and stakeholders of climate risks and adaptation needs and options. However, such awareness has often not translated into adaptation action. [14.4.3] **(High agreement, medium evidence)**

## Key Global Findings(2)

- The theory and the evidence indicate that adaptation cannot generally **overcome all climate change effects** ([17.2.2, 17.2.5]*high confidence*).
- Adaptation generally needs to be seen in the frame of the overall development path of the country, particularly for developing countries (*high confidence*)



## Key Global Findings (3)

- Opportunities exist to enable adaptation planning and implementation for actors across all sectors and geographic regions (*very high confidence*).
- Successful adaptation requires not only identifying adaptation options and assessing their costs and benefits, but also exploiting available mechanisms for expanding the adaptive capacity of human and natural systems (*high agreement, medium evidence*). [16.2; 16.3; 16.5; 16.8; Table 16-1; Box CC-EA)



# Africa Specific Findings (1)

- Climate change and climate variability have the potential to exacerbate or **multiply existing threats to human security including food, health and economic insecurity**, all being of particular concern for Africa (*medium confidence*).
- A wide range of **data and research gaps** constrain decision making in processes to reduce vulnerability, build resilience and plan and implement adaptation strategies at different levels in Africa (*high confidence*).



## Africa-relevant Findings (2)

- Progress has been achieved on **managing risks to food production** from current climate variability and **near term climate change** but these will not be sufficient to address **long-term impacts of climate change** (*high confidence*).
- In all regions of the continent, national governments are **initiating governance systems for adaptation and responding to climate change**, but evolving institutional frameworks **cannot yet effectively co-ordinate the range of adaptation initiatives being implemented** (*high confidence*).



## Africa-relevant Findings (3)

- Strengthened inter-linkages between adaptation and development pathways and a focus on building resilience would help to counter the current **adaptation deficit and reduce future maladaptation risks** (*high confidence*).





# HOW TO ADAPT



# How should we adapt?

- Adaptation issues are multi-dimensional and interdisciplinary – this gives it specific planning requirements:
  - Broader in scope to address socio-economic, as well as biophysical vulnerabilities
  - Follow an integrated responses rather than a narrow sectoral one.
  - Take account of macro as well as micro-level needs.
  - Aim at creating awareness & promote behavioural & perception changes.
  - Contribute to capacity development

# Which Approach to adapt??

## **An approach that:**

- **Addresses** climate change vulnerability and adaptation in the context of **multiple stresses**.
- **Sector-specific but also integrated** : to accommodate the sector concerns & its interactions with other sectors,
- **Involve learning by doing**: help to learn, understand, monitor and evaluate the nature of risk, vulnerability, impacts and sustainable adaptation options
- **Policy –relevant**: Be policy relevant with a feedback mechanisms to be informed by multiple stakeholders and inform the policy making process.



# Costing Adaptation in Africa



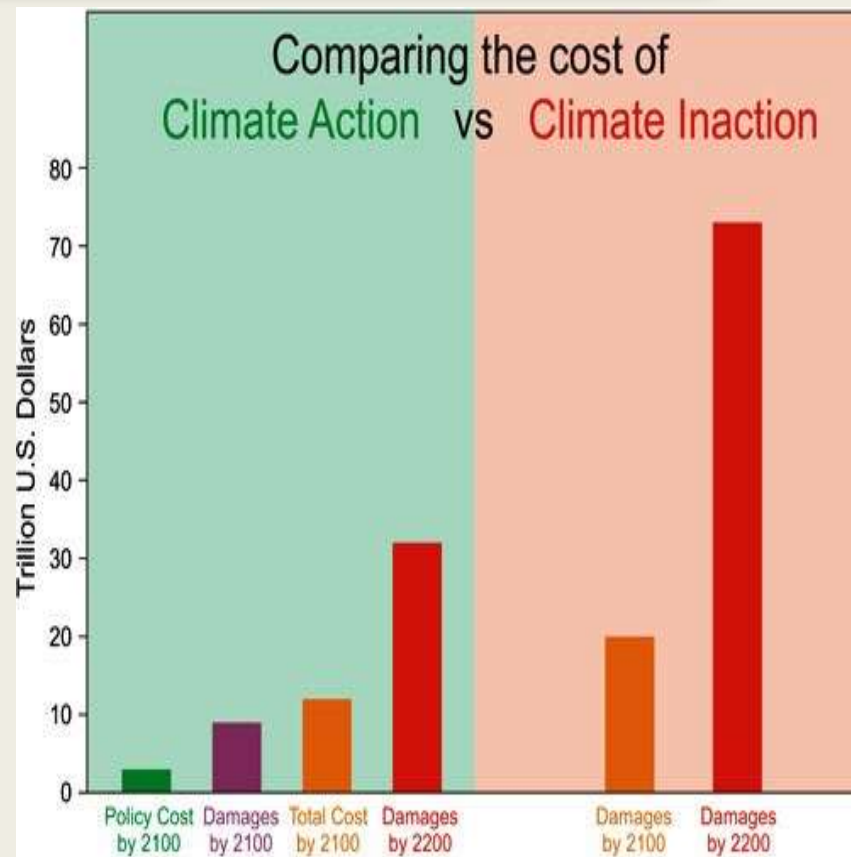
# Costing adaptation (1)

## 1-Analysing the cost:

■ All adaptation studies analyse the cost of dealing with “moderate CC of maybe 2 – 3°C, associated with substantial emissions cuts by 2050.

■ **The costs of dealing with more aggressive CC are less well understood but likely to be substantially higher**

(AfDB-Vivid Economics, 2013)



*Approximate costs of climate action (green) and inaction (red) in 2100 and 2200. Sources: [German Institute for Economic Research](#) and [Watkiss et al. 2005](#)*

# Costing adaptation (2)

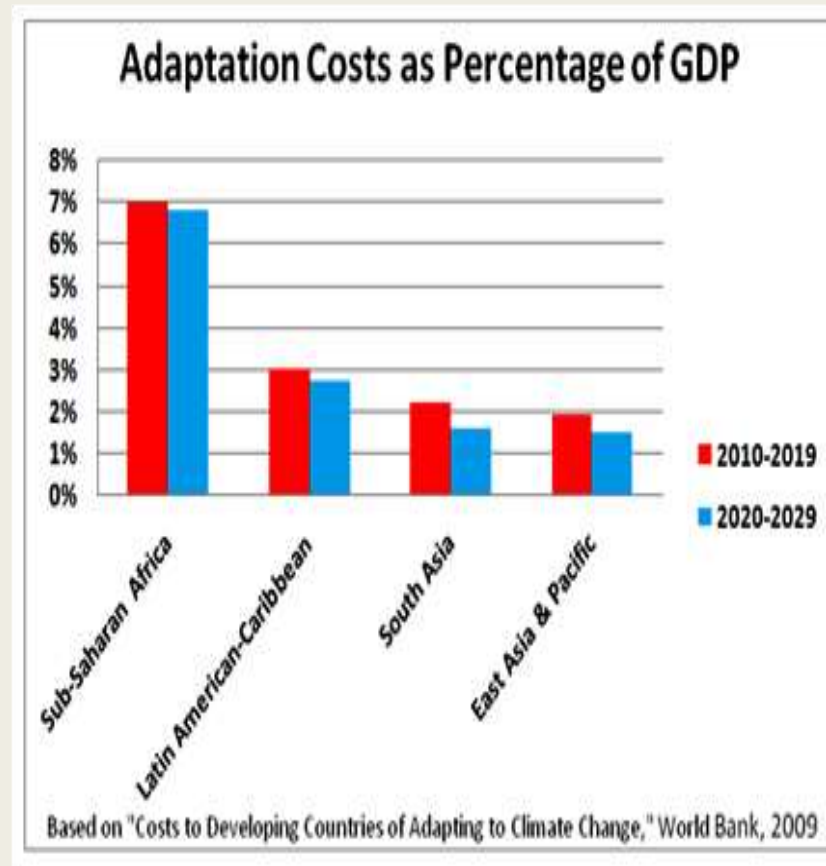
- Estimating the cost: Global adaptation cost estimates are greater than current adaptation funding and investment, particularly in developing countries, suggesting a funding gap and a growing adaptation deficit (*limited evidence, medium confidence*).
- Current global costs of adaptation are estimated between US\$ 56 billion & 73US\$ billion
- By 2050, the global cost of adaptation could reach up to US\$500 billion per year (UNEP, 2014).

# Cost of adaptation in Africa

All adaptation studies suggest - range between US\$20 – US\$30 billion per annum by 2030. Current flows of adaptation money to Africa are massively lower than this;

- Up to 2014, a cumulative total of US\$ 350m of adaptation funding approved for Africa, of which approximately US\$ 130m has been received

- Adaptation cost as a percentage of GDP may reach up to 7% by 2029 in sub-sahara Africa

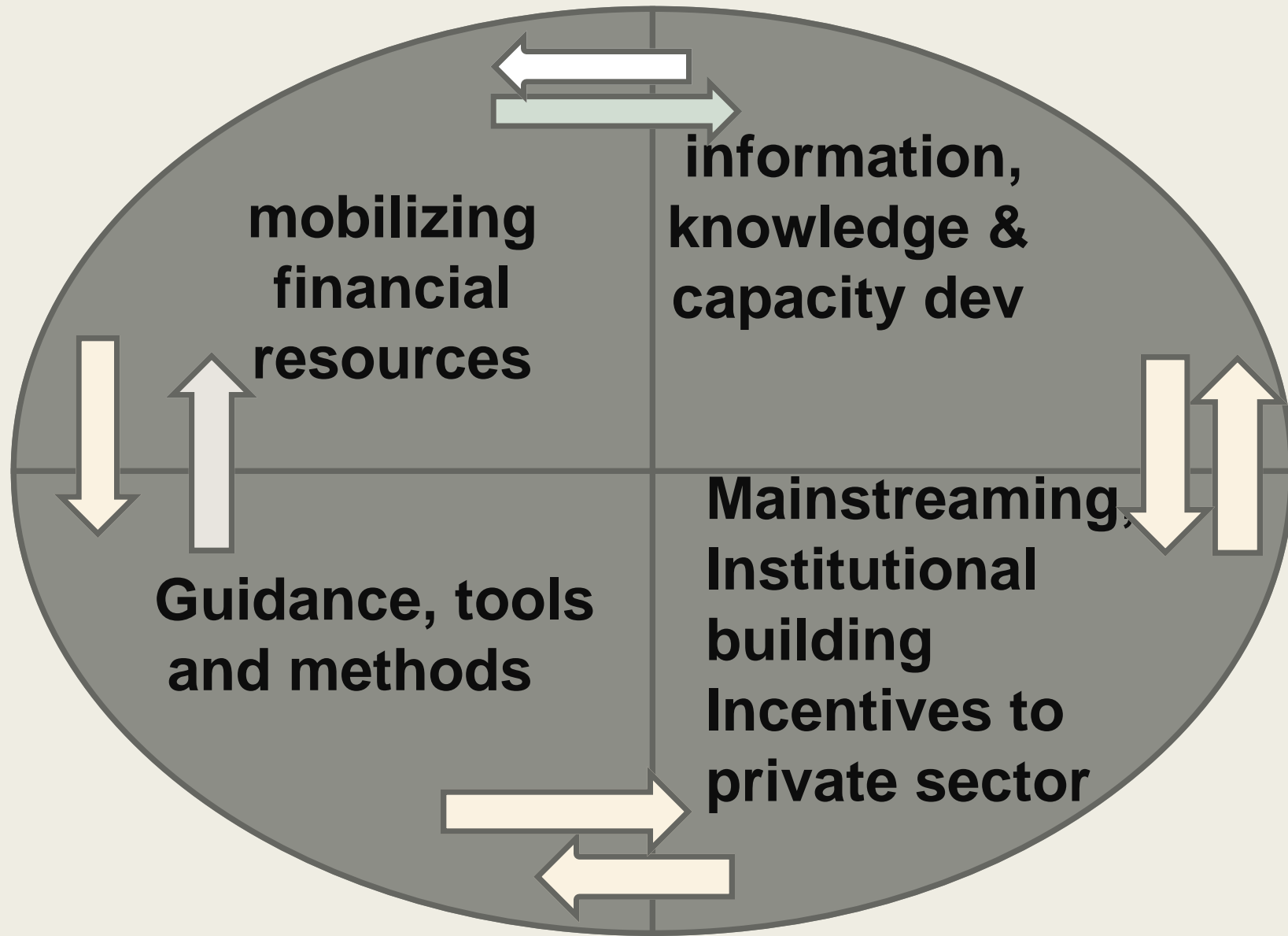




# Implementation of adaptation plans



## Implementation of adaptation: key issues for success



# **Implementation of adaptation:** key issues for success

## **1- Mainstreaming**

*The strong linkages between climate change & development calls for the mainstreaming of adaptation into the wider development agenda*

### **mainstreaming will:**

- ❑ bring out the synergies between development & adaptation
- ❑ Improve generation & access to credible, context-specific climate information
- ❑ Improve co-ordination between and across sectors and institutions
- ❑ identify the appropriate entry points at which to introduce climate change adaptation into development activities.

# Implementation of adaptation: key issues for success

## Guidance, tools & methods

- A number of climate change adaptation approaches, methods, guidance and tools have been developed over the past few years.
- The aim of the tools is to assist in developing VIA options, implement the adaptation plans and monitor its results
- More coordination is needed in the development of these tools





# Barriers to implementation of adaptation (1)

## 1- Institutional Barriers

- ▣ insufficient human & institutional capacity
- ▣ Lack of appropriate policies & legislative frameworks
- ▣ **Weak coordination** as a result of conflicting & overlapping mandates
- *It is important to build relations between institutions, improve **partnerships**, create **networks** and **linkages** across sectors and scales.*

# Barriers to implementation of adaptation (2)

## 2- Barriers related to knowledge & Information

- lack of a knowledge management system for the generation and efficient sharing of information on approaches & experiences among institutions at national and regional levels so as to promote the rapid and effective uptake and up scaling of innovative practices, technologies, and research results. (ClimDev Program, 2017)

# Conclusions(1)

- For successful implementation of adaptation it is important to acknowledge some mitigation goals **i.e. complementing adaptation with global emission reductions .**
- Beyond the immediate investment, it is crucial that African decision-makers factor climate change into **all long term strategic decisions starting immediately**

## Conclusions(2)

- Beside the Structural technical adaptation (hard ware)- More attention should be given to soft measures involving changing social perceptions and thinking – knowledge building and sharing – education, training and putting standards building codes
- More emphasis should be given to **local communities and the importance of environmental services for adaptation**
- Consider existing **traditional knowledge & practices as integral** parts of adaptation plans that should also be documented and shared.







**Thanks**  
**For more information**  
[www.ipcc.ch](http://www.ipcc.ch)

