



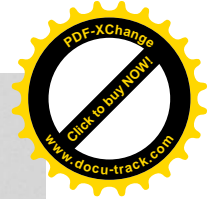
Climate change science and policy in Africa: a policy response

James MacGregor

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www.iied.org

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Climate change and economics at IIED



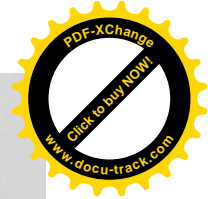
- The International Institute for Environment and Development
- Climate change economics at IIED finds fair and equitable solutions to CC impacts
- Network, collaboration, process nurture, knowledge management
- In Africa, CC economics uses novel methods to generate policy solutions using available data



Fair miles not food miles

Estimating the economic costs of CC in LICs



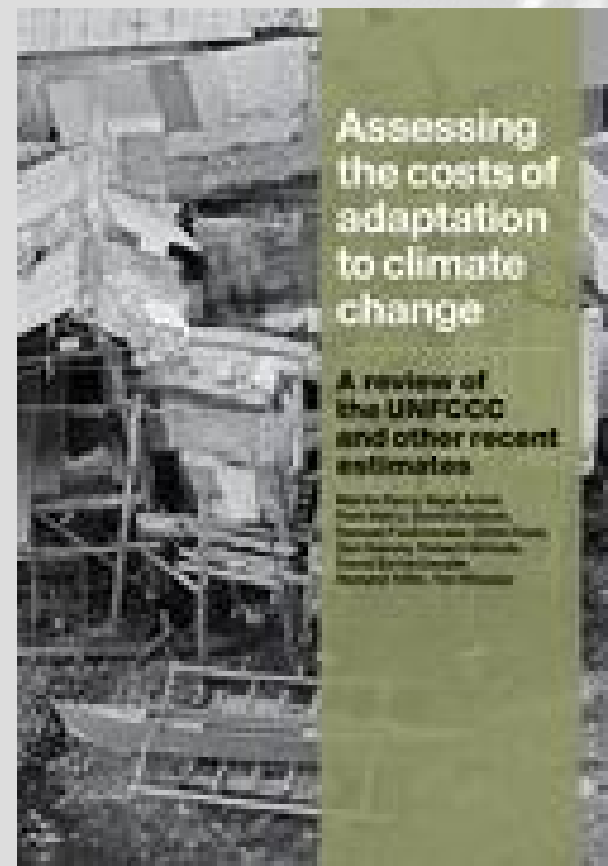


IIED and Grantham Institute



Assessing the costs of adaptation to climate change: A critique of the UNFCCC estimates

- Underestimates in the costs of adaptation by UNFCCC
- More funding is required
www.iied.org

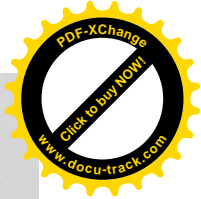




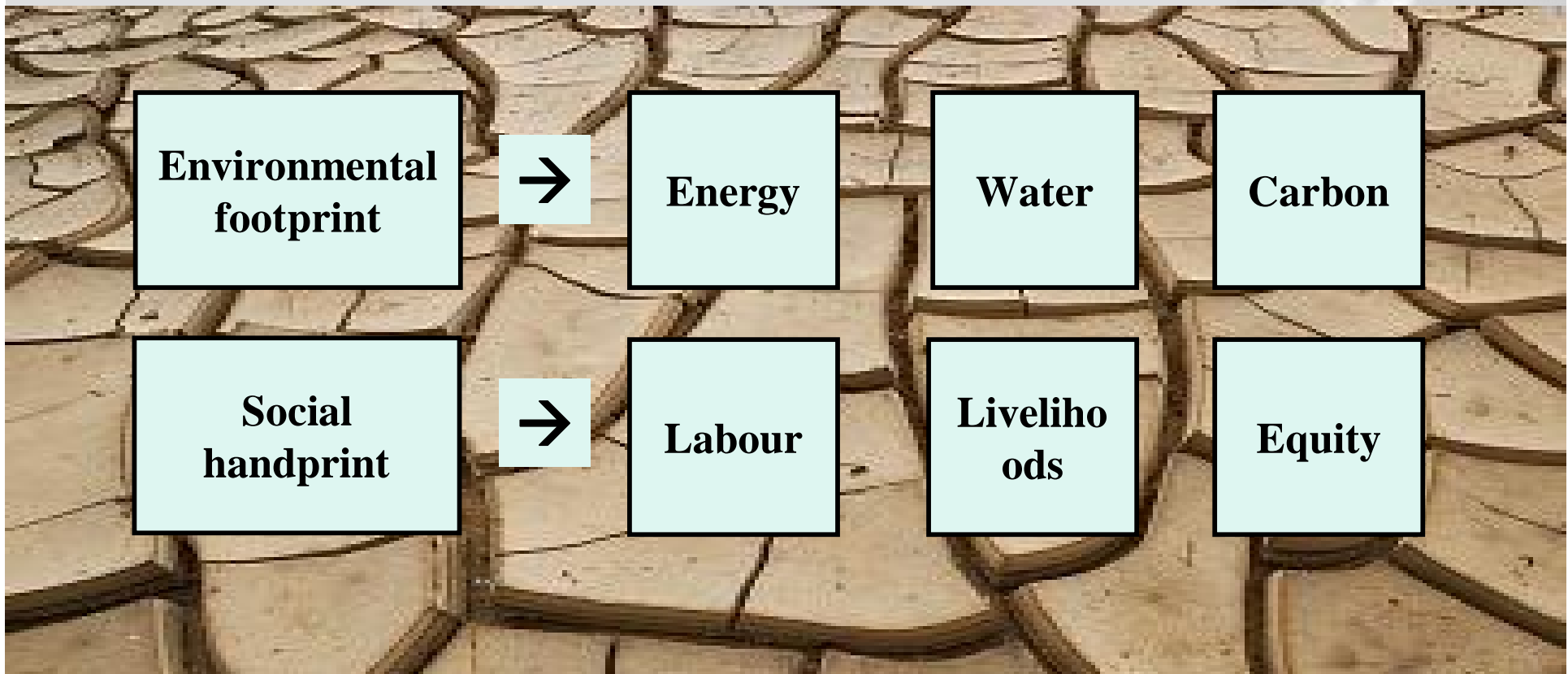
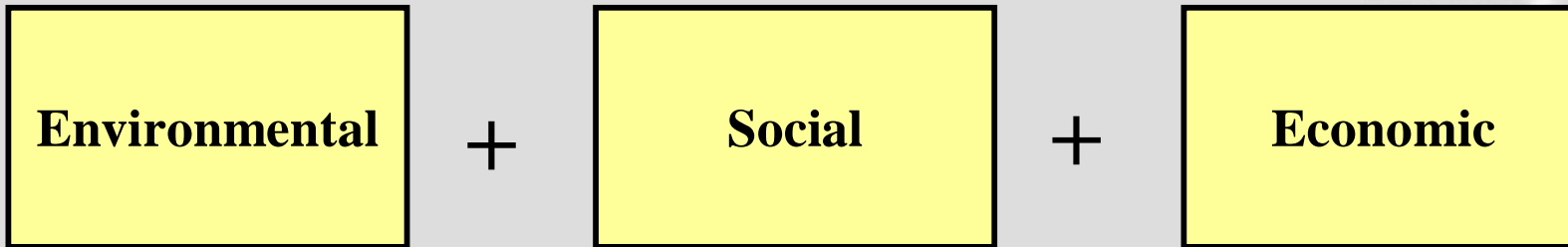
Responses

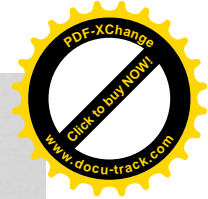
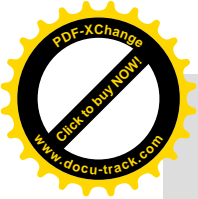


- Sustainable development & “differentiated responsibilities” frame policy, action
- Designing adaptation in the face of a ‘development deficit’
- Adaptation action is needed now
- No data ≠ no policy development ≠ no action!
- Growing our information base – rural economics and climate

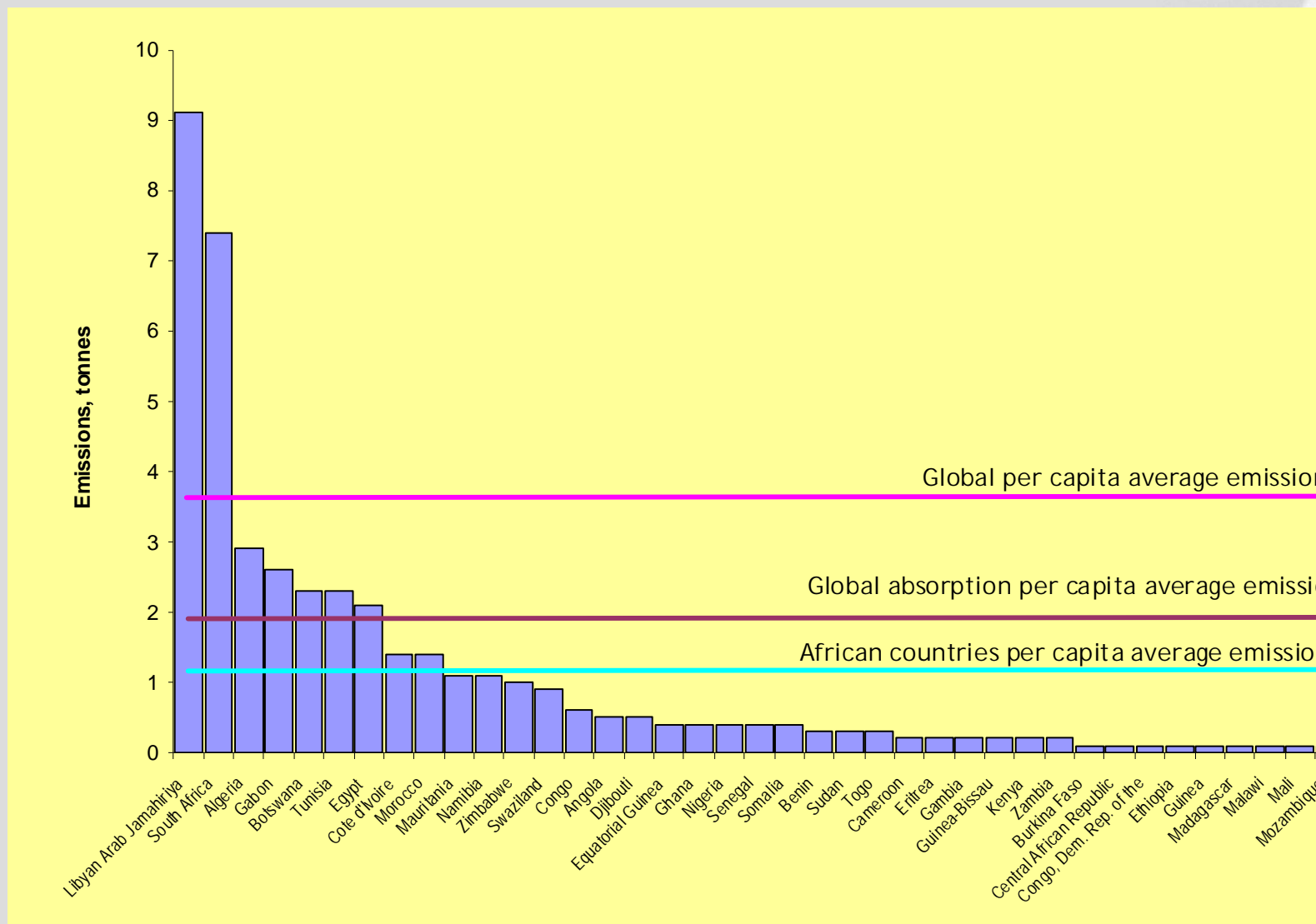


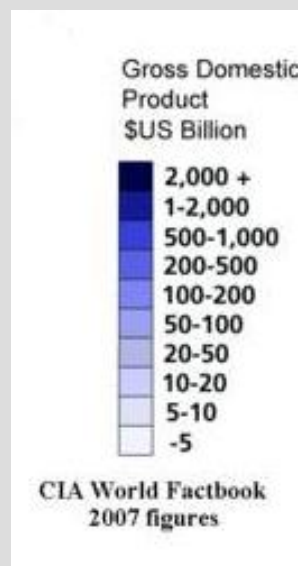
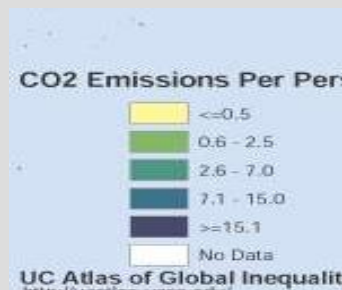
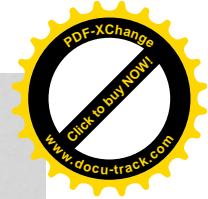
Sustainable development needs to be our guiding principle when designing policy, action





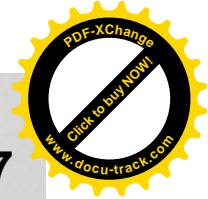
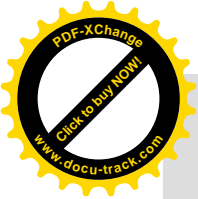
Differentiated responsibilities frame policy debate



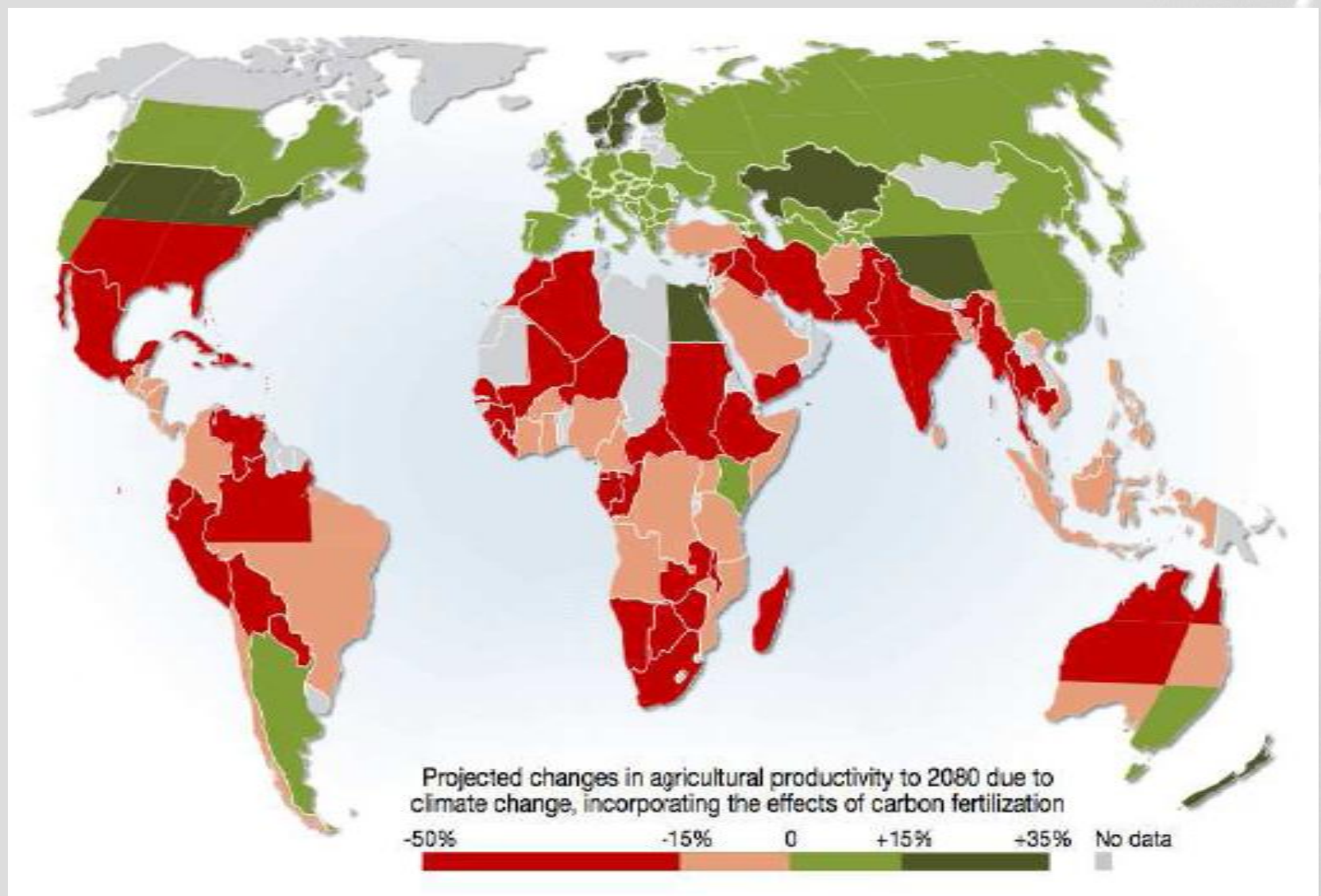


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Projected losses in food production due to climate change by 2080 (Cline, 2007)



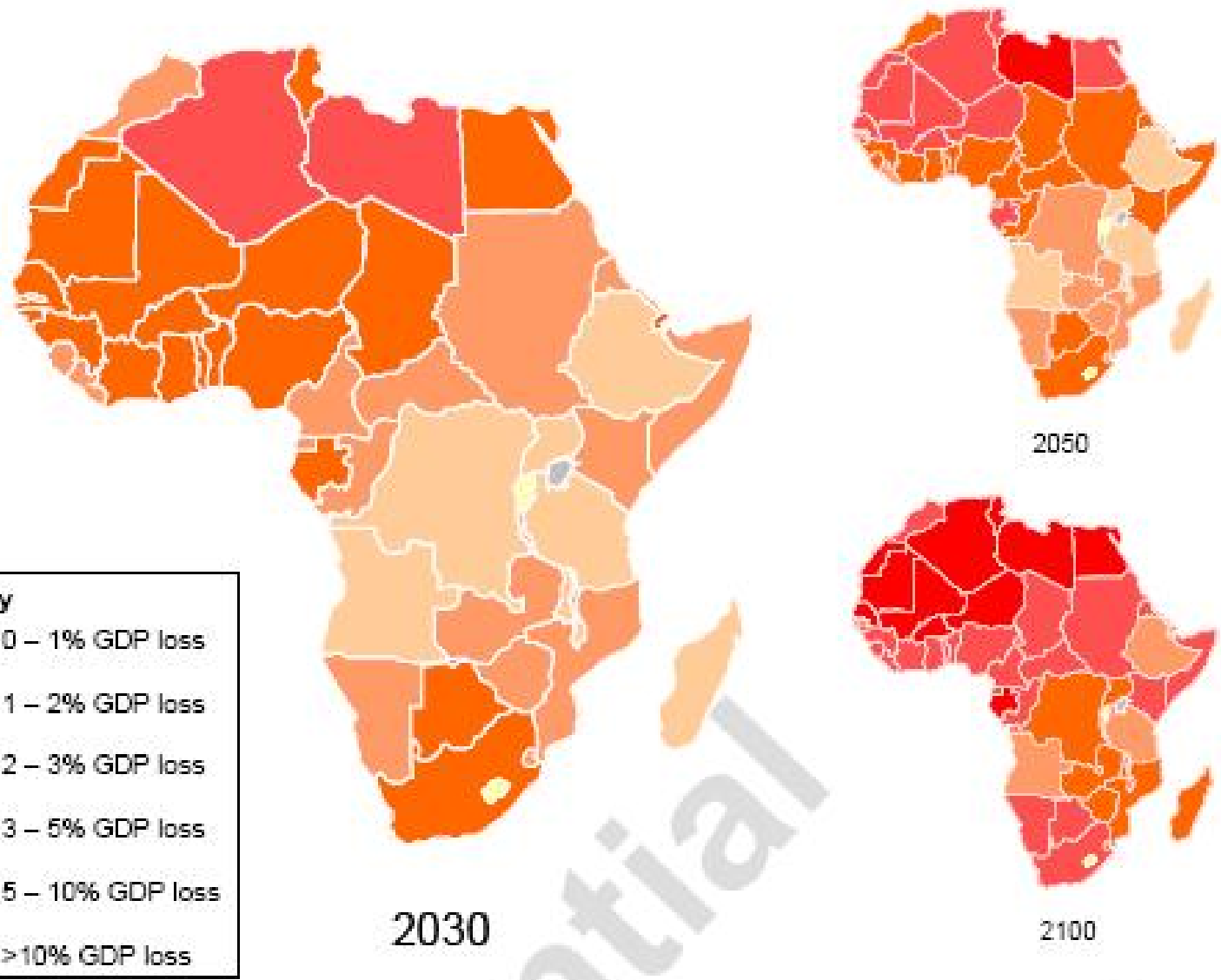
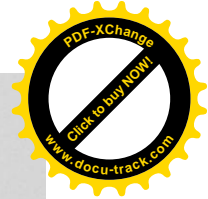
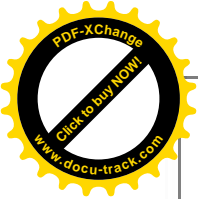


Figure 3. Annual Costs from Climate Change as a Fraction of GDP in Africa.
Source FUND national model

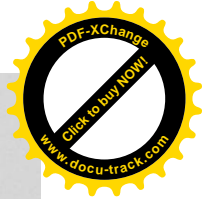
The PAGE Model: Africa Results



Sustainable development needs to be our guiding principle when designing **policy**, action



- International policy –
 - UNFCCC
 - Kyoto – differentiated responsibilities
 - Copenhagen COP
- National policy
 - NAPAs (30)
 - Sectors?

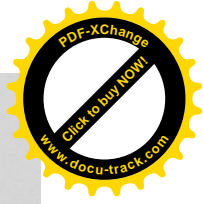


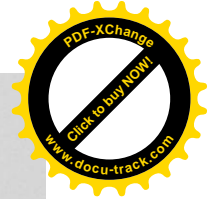


Designing adaptation in the face of a 'development deficit'

- Ideally, develop policy in a reasonably well-evidenced/robust manner and "policy into action"
- Economic information – informality,

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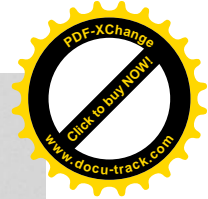
Adaptation action is needed now



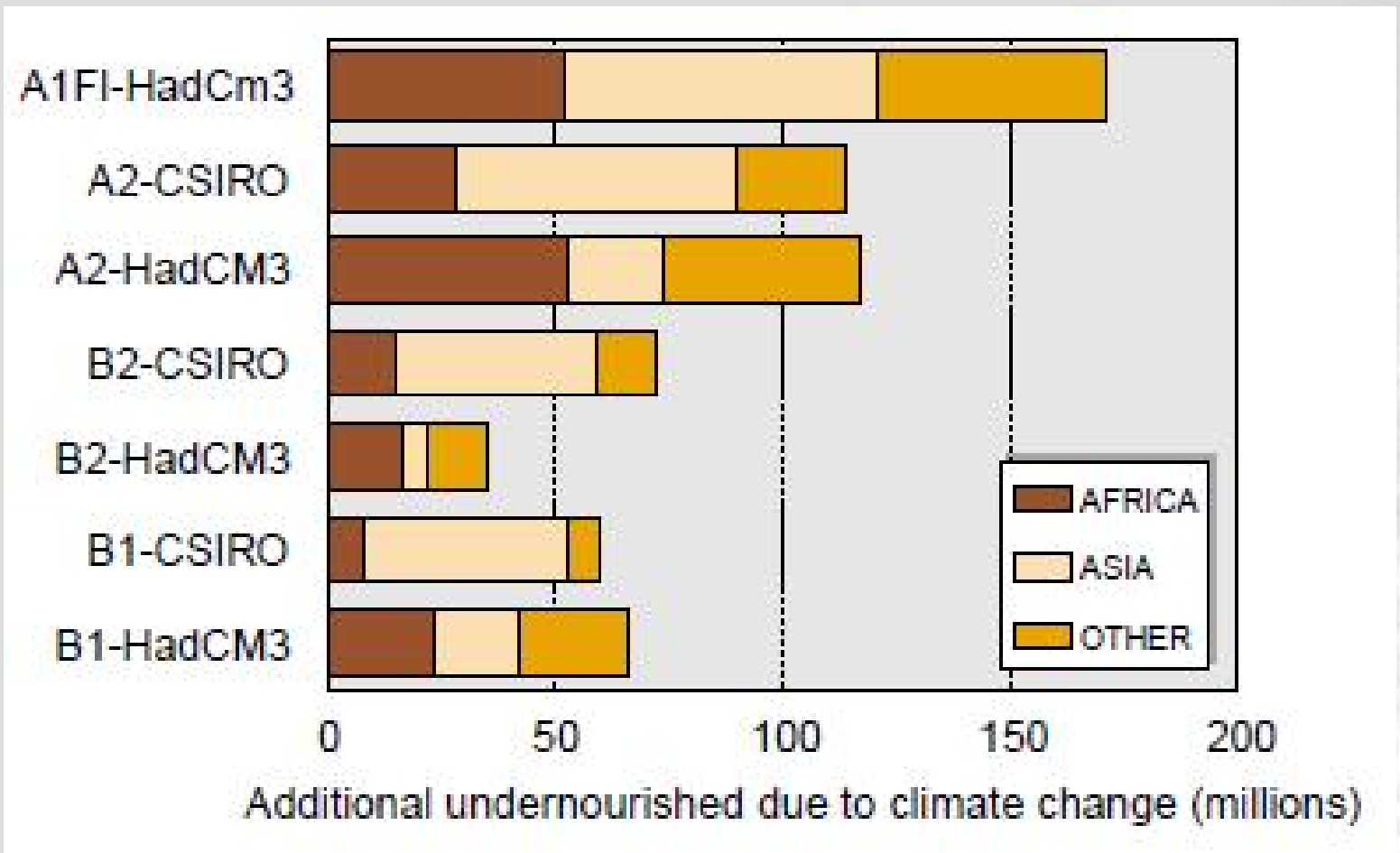
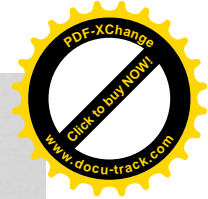
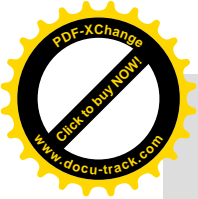
- Challenge: Working with vulnerable/poor/LICs: how to make best of available information and data
- CC impacts hardest on LICs
- Waiting for science to catalyse action is not an option
- Different forms of data, evidence
- Poorest need help adapting short-term
- Poor understand short-run climate variability

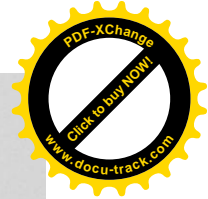
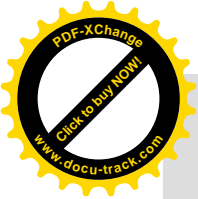
Ethiopia's NAPA, June 2007:

Traditional and contemporary coping mechanisms to climate variability and extremes in Et include changes in cropping and planting practices, reduction of consumption levels, collection of wild foods, use of inter-household transfers and loans, increased petty commodity production, temporary and permanent migration in search of employment, grain storage, sale of assets, livestock and agricultural tools, mortgaging of land, credit from merchants and money lenders, and early warning system, food appeal/aid, etc

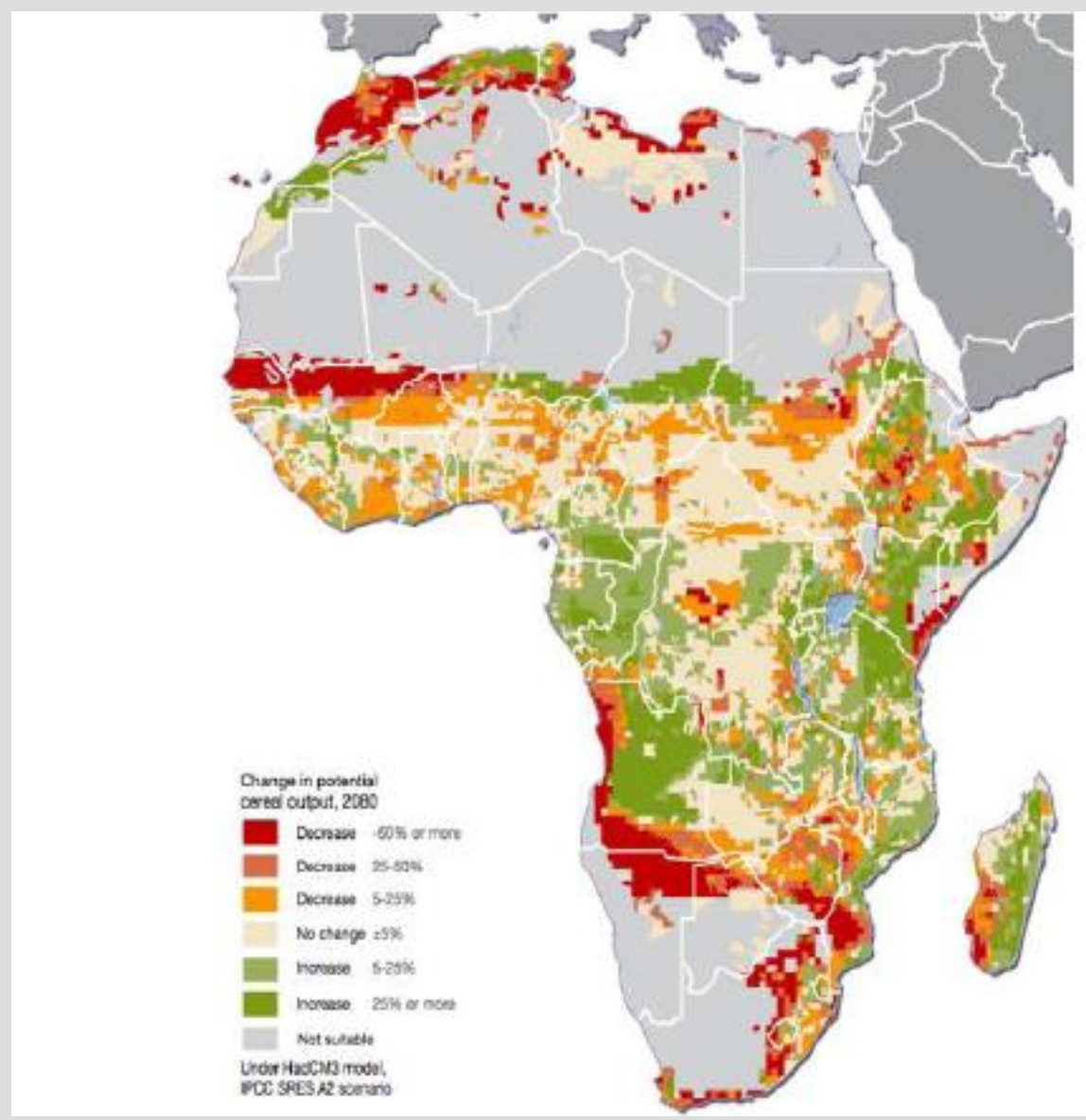


Project title	Rank	Estimated cost (USDm)
Promoting drought/crop insurance program in Ethiopia	1	8
Strengthening/enhancing drought and flood early warning systems in Ethiopia	2	10
Development of small scale irrigation and water harvesting schemes in arid, semi-arid, and dry sub-humid areas of Ethiopia	3	30
Improving/enhancing rangeland resource management practices in the pastoral areas of Ethiopia	4	2
Community based sustainable utilization and management of wet lands in selected parts of Ethiopia	5	2
Capacity building program for climate change adaptation in Ethiopia	6	3
Realizing food security through multi-purpose large-scale water development project in Genale– Dawa Basin	7	700



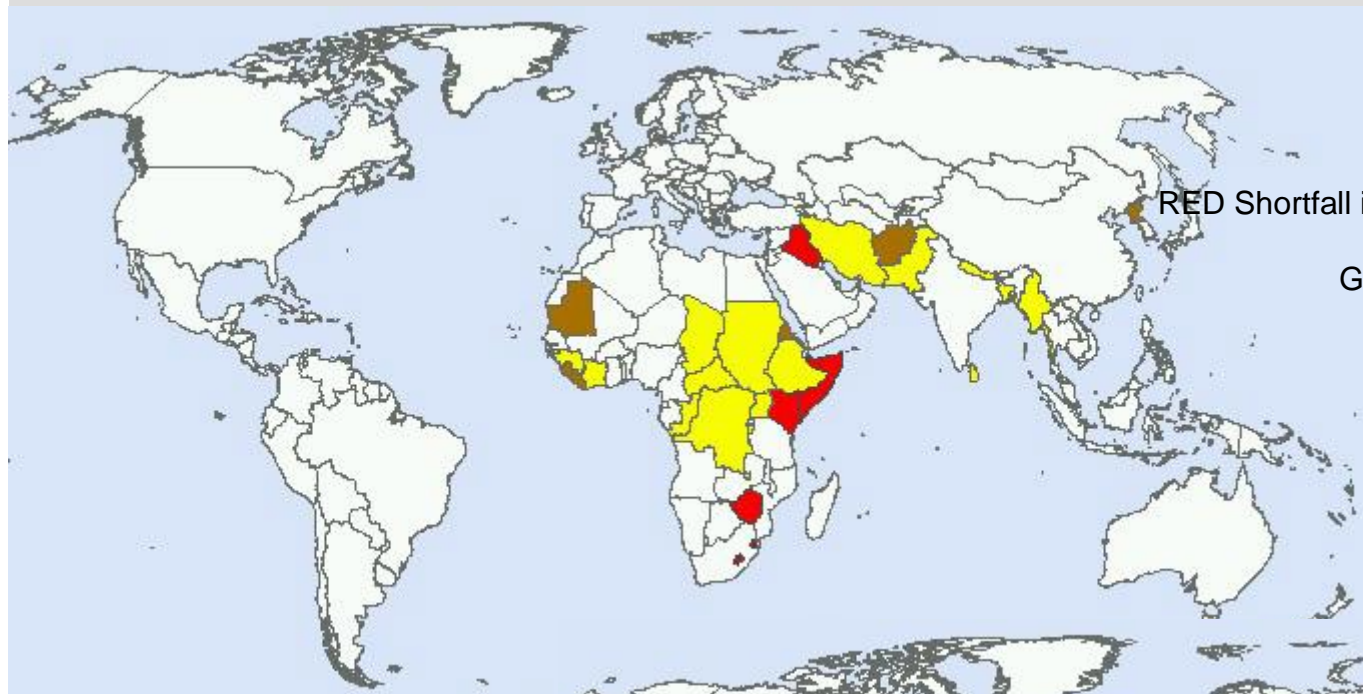
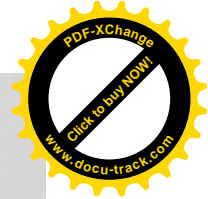


Impacts of climate change on cereal output in Africa (Fischer et al., 2005)





COUNTRIES IN CRISIS REQUIRING EXTERNAL ASSISTANCE

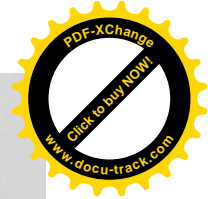
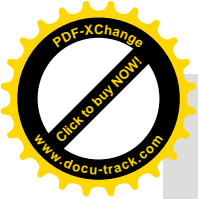


RED Shortfall in aggregate food production/ supplies
YELLOW Widespread lack of access
GREEN Severe localized food insecurity

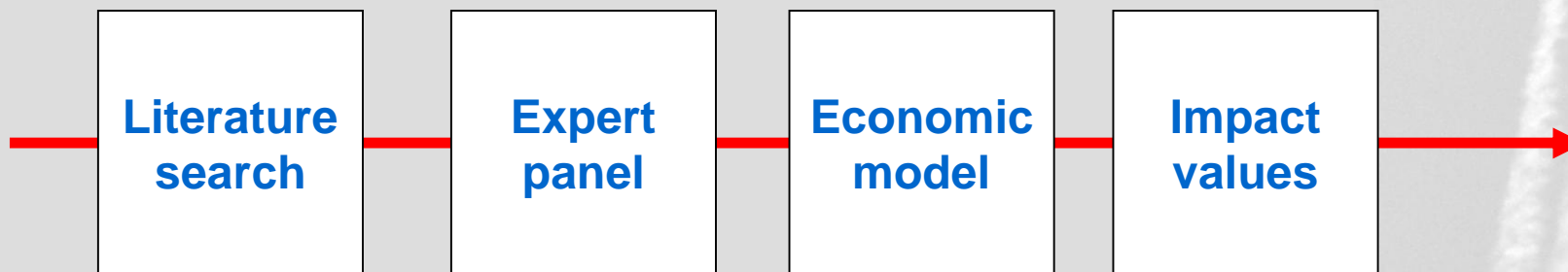
GIEWS, FAO: July 09

COUNTRIES WITH UNFAVOURABLE PROSPECTS FOR CURRENT CROPS (total: 9 countries)





No data ≠ no policy development ≠ no action!



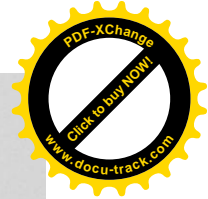
Namibia, 2007:
 1-6% drop in GDP
 over next 20 years;
 24% drop in unskilled
 wages

Tanzania, 2009:
 0.6-1% drop in
 GDP over next
 20 years;
 higher (5-68%
 drop in GDP)
 post-2030

Weaknesses

- National level – informal sector > 70% GDP
- Hidden food insecurity – wheat productivity up, maize



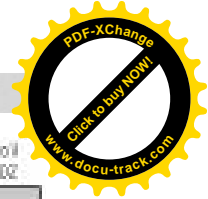


Growing our information base – rural economics and climate



- Agriculture is foremost a private sector activity
- Public sector relative under-investment in rural, informal





WAMIS/ACAMD – WMO

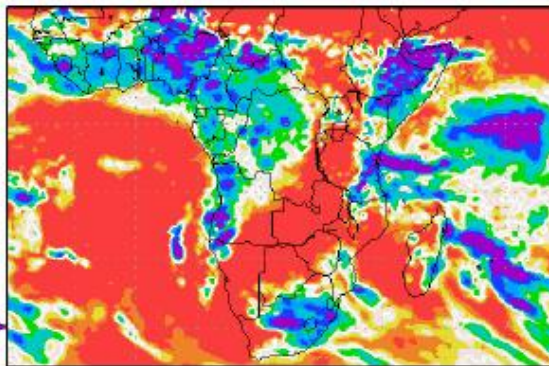
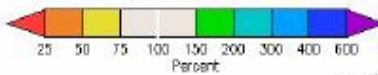
10-20 October 2009

Forecast

Soil Moisture changes

Precipitation (percent of normal) during the first 7.5-day period:

Wed, 21 OCT 2009 at 00Z
 –to–
 Wed, 28 OCT 2009 at 12Z



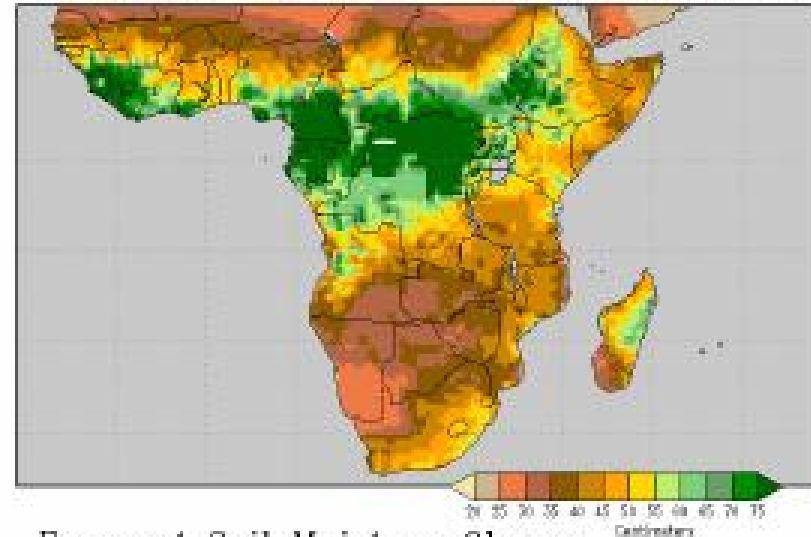
Precipitation forecasts from the National Centers for Environmental Prediction.
 Normal rainfall derived from Xie-Arkin (DMAP) Monthly Climatology for 1979–2003.
 Forecast Initialization Time: 00Z21OCT2009

GRADS: COLA/IDES

Figure 8: Precipitation forecast, Source : COLA

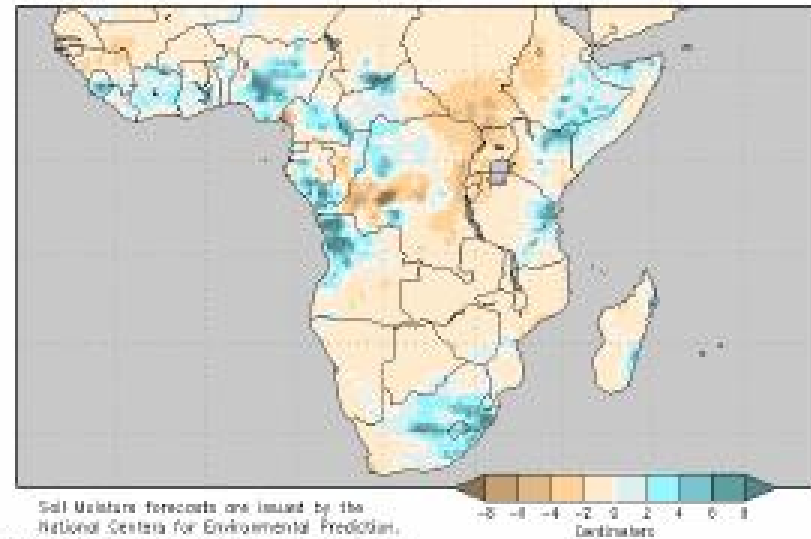
Initial Soil Moisture

Liquid Water in top 2 meters of soil
 valid time: Wed, 21 OCT 2009 at 00Z



Forecast Soil Moisture Change

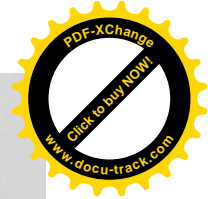
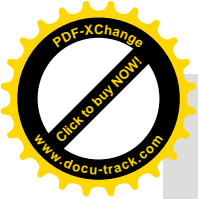
Wed, 21 OCT 2009 at 00Z –to– Wed, 28 OCT 2009 at 12Z



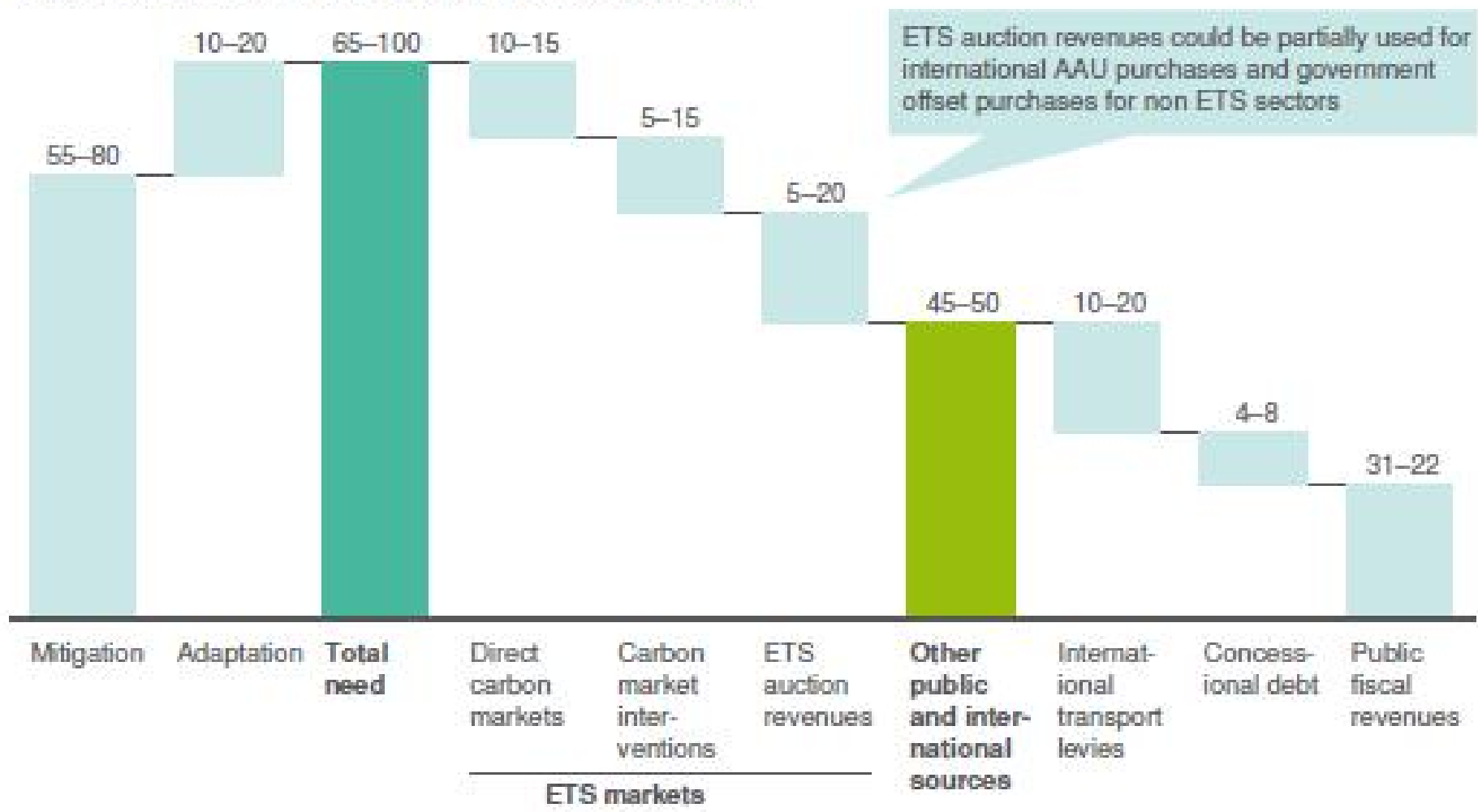
Soil Moisture forecasts are issued by the National Centers for Environmental Prediction.

GRADS: COLA/IDES

Figure 10 : Soil moisture forecast, Source: C



Financing needs and sources assuming 25% caps in developed countries, € billion, annual average 2010–20 rounded to nearest € 5 billion



Developing country financing needs and potential sources of financing (The ClimateWorks Foundation, 2009)



Conclusions



- Decisions based on best available information
- Development for adaptation first
- Science-based mitigation later: economic and climate downscaling required