

Expert meeting on assessing risk of Loss and Damage

An African Perspective



Background

Impacts depend on

Climate extremes

Exposure

Vulnerability

*Non-extreme event can
produce extreme impact*

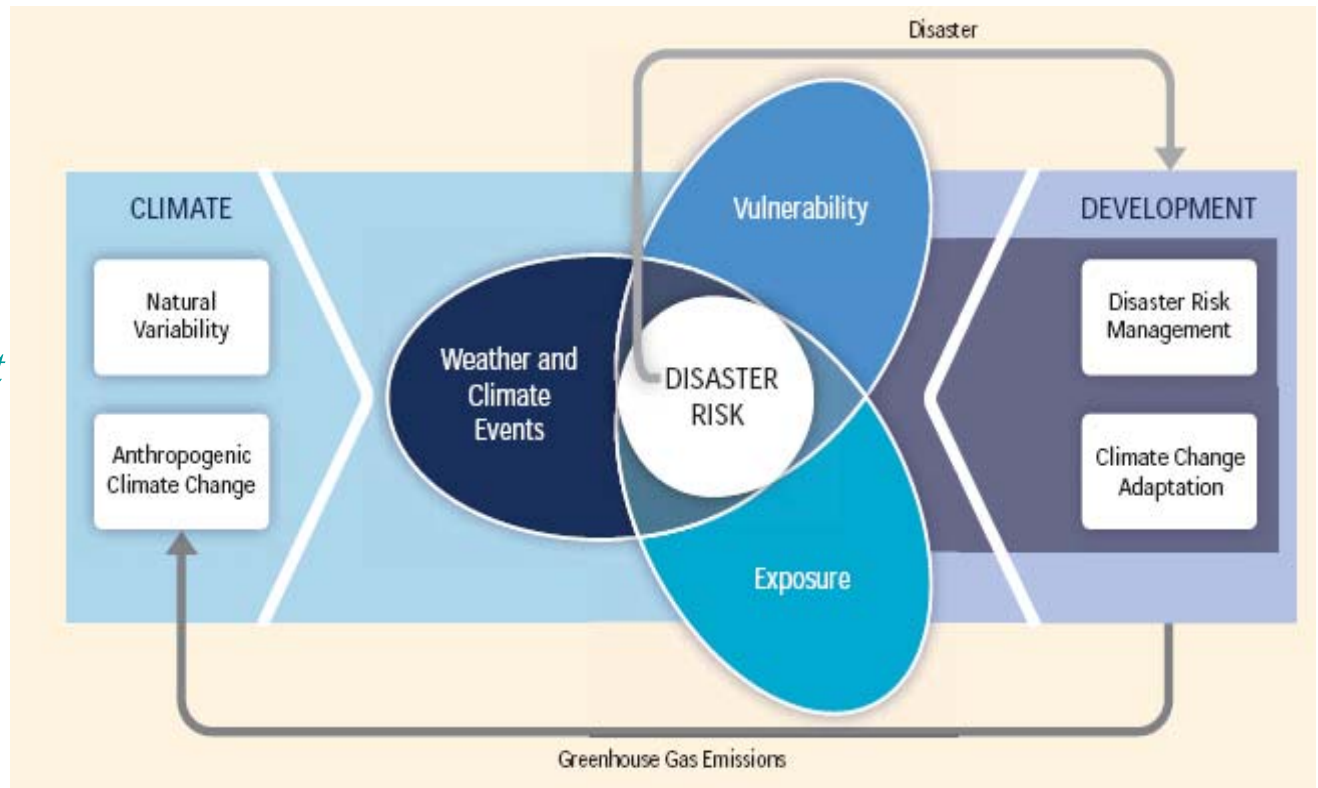
Extremes, exposure,

vulnerability

anthropogenic CC

Variability

Socio-economic development



L&D in the agriculture sector

- Impact most pronounced in in Sub-Saharan Africa
- African agriculture: rain-fed, low investment, high poverty rates, poor infrastructure
- Crop model indices – by 2050, average rice, wheat, and maize yields will decline by up to 14 percent, 22 percent, and 5 percent, respectively
- Irrigation water supply reliability, the ratio of water consumption to requirements, is expected to worsen in Sub-Saharan Africa due to climate change.



How exposed is the continent to Loss and Damage

L&D manifests itself most significantly in the following sectors:

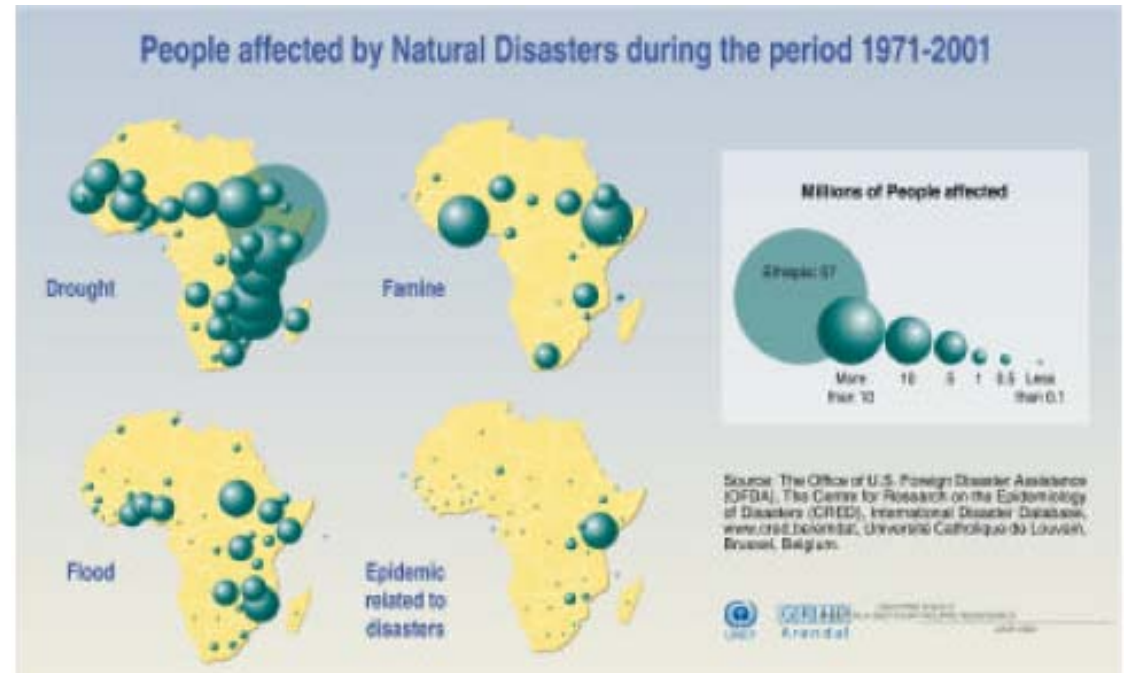
- The agricultural sector – food and livelihoods
- Infrastructure – hard and soft
- Water resource availability

Health and nutrition

- **Food availability:** w/o climate change, calorie availability is to increase in SSA between 2000 and 2050. With climate change, food availability in the region will average 500 calories less per person in 2050, a 21 percent decline.
- **Malnutrition in children:** increase in the number of malnourished children between 2000 and 2050, from 33 to 42 million. Climate change will further increase this number by over 10 million, resulting in 52 million malnourished children in 2050.

Climate extremes in Africa

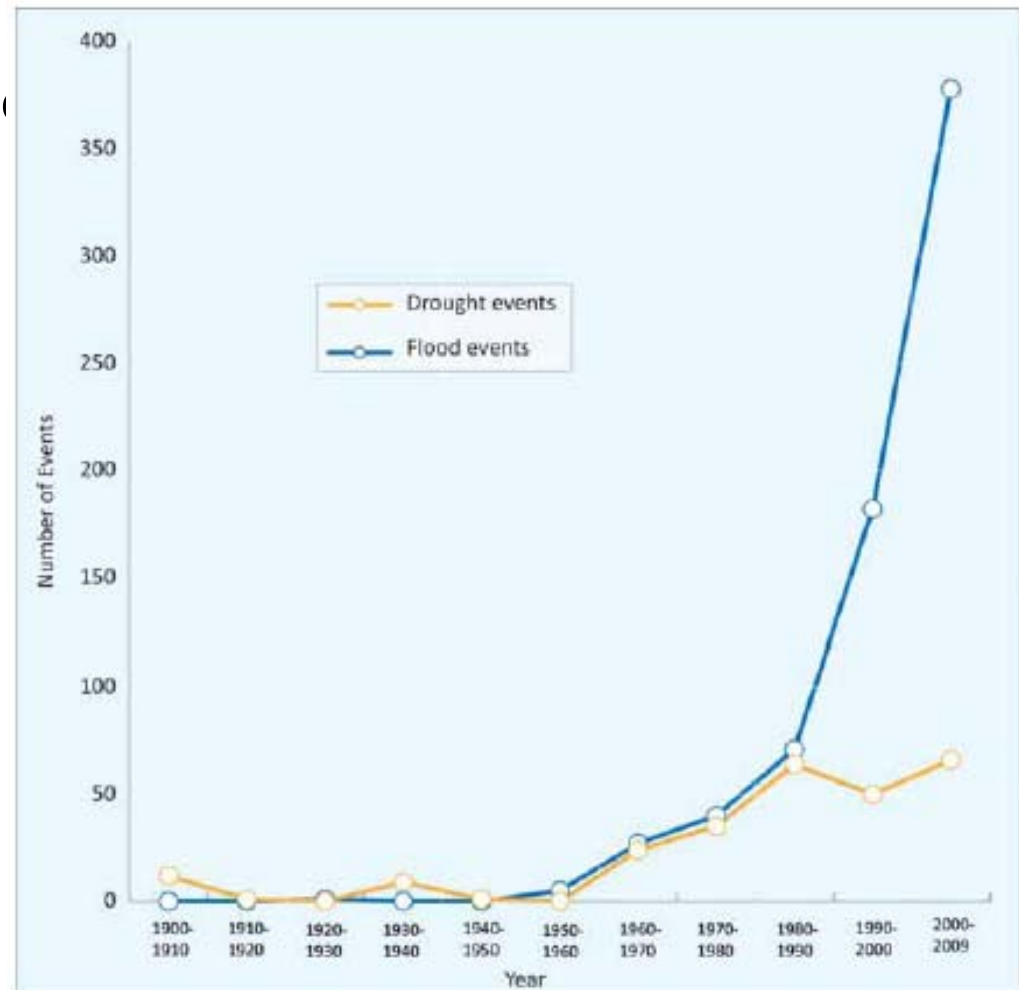
- African Sahel - past 30 years
 - A 25% decrease in rainfall
- 30% of Africa's countries
 - Risk of inundation – sea level
- Hydrometeorological disasters in Africa
 - 66.5% in 2000-2009
 - 82.6% share in 2010
- Records are incomplete



Climate extremes in Africa

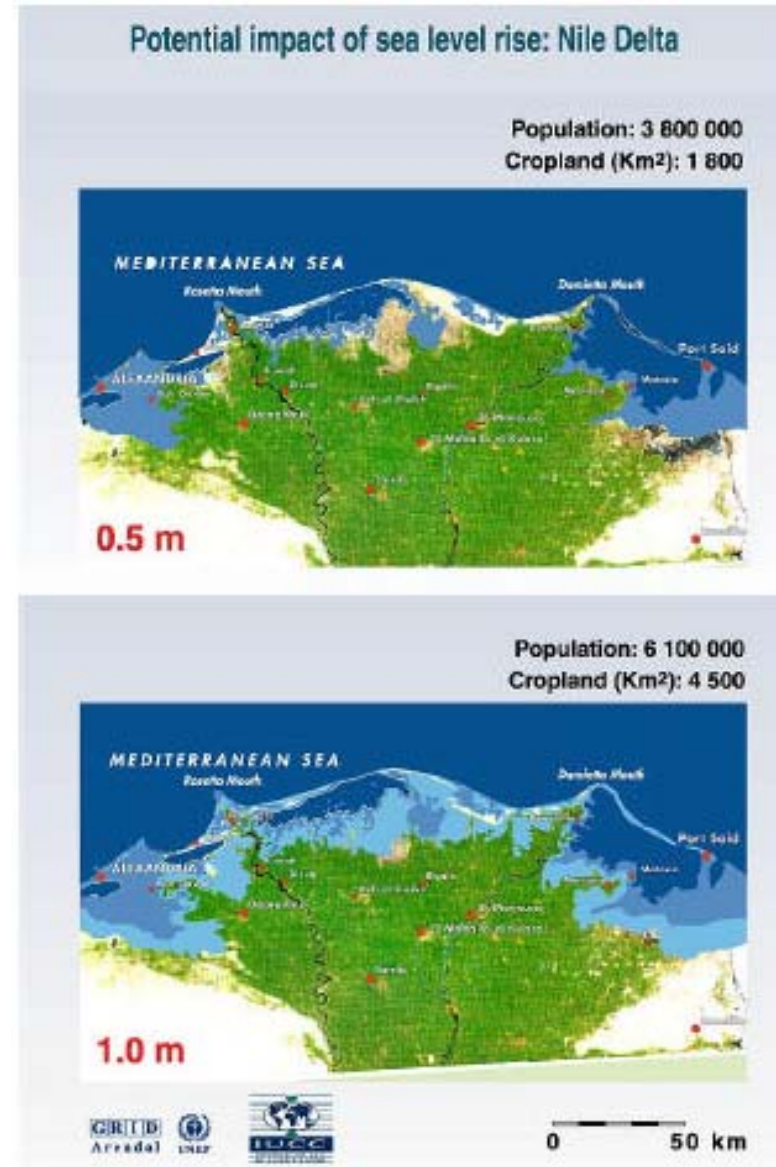
Trends in drought and flood events in Africa

- Hydrometeorological disasters in Africa (Shongwa et al., 2011)
 - East Africa
 - 1980s – 3 events per yr
 - 1990s – 7 events per yr
 - 2000-2006 – 10 events per yr
 - Southern Africa
 - 1980s – 5 events per yr
 - 2000-2006 – 18 events per yr



Impact of climate change – sea level rise

- > 25 % of Africa's population lives within 100 km of the coast
- 30 percent of Africa's coastal countries is at risk of inundation
 - The most flood risk occurs in
 - North, West and Southern Africa
 - Small Islands
- Impacts of sea level rise:
 - Reduced productivity of coastal fisheries;
 - Migration and health issues;
 - negative impacts on tourism;



Impacts of Climate Extremes on infrastructure

- Most important impact on is through flooding
 - Roads (urban/rural), bridges and transportation in general
 - Housing infrastructure – residential and social amenities – schools, hospitals, social centers
- Impact of increased temperature and heat waves
 - Most parts including urban areas of Africa – Heat waves
 - Affect roads
 - Livelihoods



Tanzania flooding (December, 2011) - the heaviest rains since 1961.

Impacts of Climate Extremes to Infrastructure

- Hydrological extremes - major macro-economic impacts
 - Ethiopia, Kenya, Mozambique all losing 1% GDP annually
- Loss in production and infrastructure
 - Bring backs development by some years
 - Flooding in Algeria brought the village dev't to 10 yrs back
- Affects costs/efficiency of infrastructure
 - Reduced life spans of roads
- Affects optimal choice of infrastructure technologies
 - E.g. Paved vs. unpaved roads
- Poor infrastructure development
 - Can increase vulnerability e.g. Nairobi informal settlement

What mechanisms to address L&D due to Climate Extremes

- How much does L&D cost and who bears the costs?
- Typology of costing – direct costs borne by individual households and societal costs
- Households/communities (ex ante, ex post)
 - External aid (food, rebuilding of assets?), disposal of own assets
 - Index based insurance
 - Cultural/social networks
 - Livelihood diversification, savings
- Society/government level/external agencies (ex ante, ex post)
 - External aid
 - Physical barriers e.g. dykes, multipurpose water harvesting dams
 - Very limited ex ante approaches

What role can governments and agencies play?

- Multi-spectral –cross sectoral approaches
- Policy convergence
 - Agriculture, infrastructure, private sector, social development
 - Comprehensive approaches – need empirical evidence
- Role of experts in evidence based policy recommendations – ACPC – Ag sector, water sector, energy

Limitations to assessment of risk of L&D in Africa

- Low technical capacity in Africa
 - Assessment - complex involving extremes-exposure-vulnerability
 - A wide range of methods are available
 - Regional, national, local and Single sector , multi-sector, etc
- Data gaps
 - Sparse, poor quality and delay in reporting
 - Socio-economic data, instantaneous records of discharge, etc
- Inexistence or low reliability of early warning systems
- Large uncertainties in future climate projections particularly in Africa
 - Use of foreign models
 - Complex terrain and dominance of convective type rainfall
 - Smaller scale than resolution of current GCMs

ACPC projects on L&D

- Covers 3 African countries (Ethiopia, Burkina Faso and Mozambique)
 - To have empirical evidence on
 - Impact of droughts and floods
 - Impact on productivity and human-settlement
- The following issues will be addressed
 - Impact of a climate variable on productivity and human settlement
 - Variation of impact according to community groups
 - Coping mechanisms
 - L&D as a result of inability to deal with the impact
 - The policy implications

Thank you!!!

