

Promoting climate resilient development within SDC programs in East
and Southern Africa

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Monitoring & evaluation (M&E) for adaptation

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Presentation outline

- Some key challenges
- Addressing challenges
 - Institutional climate risk management indicators
 - Vulnerability & resilience indicators
 - Combining indicators of losses/damages & well-being with climate information to measure long-term results of interventions

Some key challenges

No single or universal metric

- *cf* Emissions reduction (mitigation), where metrics are clear
 - CO2 emitted (country, sector, industrial process or plant)
 - CO2 concentration (global atmosphere)
- Adaptation needs, measures & goals are highly **context specific**
 - Vary with sector, location, timescale, livelihood contexts, etc
- Adaptation will mean different things in **different contexts**
 - Adaptation of whom, to what, with respect to what outcome(s)?
- Different contexts will require **different metrics**
- Projects often seek to improve ‘**resilience**’, increase ‘**adaptive capacity**’, or reduce ‘**vulnerability**’
 - abstract concepts that need to be operationalised on a context-by-context basis, and will depend on many different factors

Timescale issues

Ultimate results of adaptation to evolving or anticipated climate risks that may intensify or emerge at some point in the future will not be apparent over timescales typically associated with interventions (i.e. implementation period, project lifetimes):

“Some of these indicators have very different time frames and a true impact reporting is probably not possible for a significant time span (10-15 years)”

Revised PPCR Results Framework, 2012

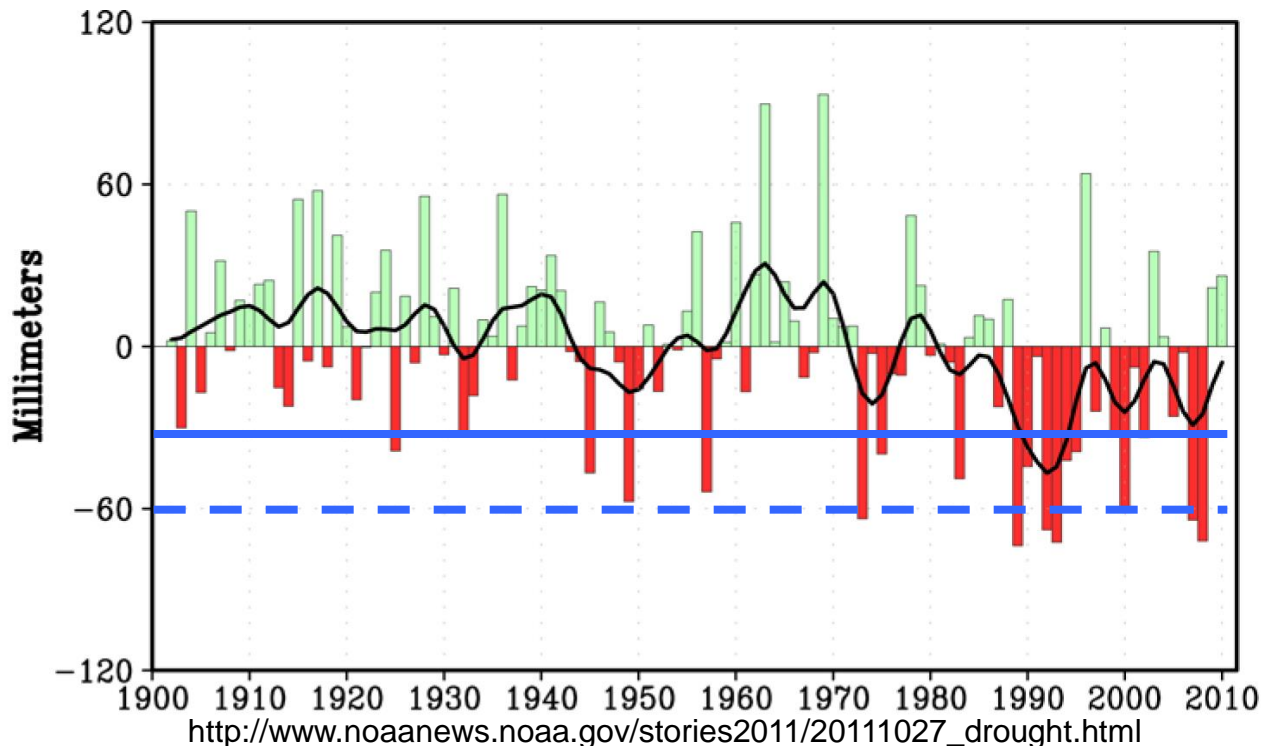
Makes measurement of longer-term project/programme impacts particularly problematic

Evolving hazards – shifting contexts/baselines

Improvements in well-being or reductions in losses/damages, might be due to amelioration of hazards rather than to intervention being assessed...

Where losses/damages increase or well-being declines, is this because

1. Intervention has failed & vulnerability has increased
 2. Vulnerability (to historical hazards) has declined, but hazards more severe
- *In this case, has the intervention prevented things becoming even worse?*



How are challenges being met?

“Current results frameworks on resilience [adaptation] are not outcome-oriented and risk emphasising spending over results.”

Independent Evaluation Group of the World Bank (2013)

Other shortcomings highlighted by IEG

- ▶ difficulty of identifying precisely what proportion of an investment is ‘adaptation-related’
- ▶ likely omission of investment that delivers indirect adaptation benefits
- ▶ unsuitability of current approaches for indicating cost-effectiveness

Not very well!

Addressing challenges of adaptation M&E – how to move beyond outputs

Defining adaptation 'success'

What do we mean by successful adaptation?

Actions that secure human well-being in the face of climate change

- Enable development goals to be met despite climate change
- Reduce losses/damages triggered by climate hazards despite CC
- Secure improvements in health, economic well-being, etc.

How do we achieve this?

Reduce exposure to climate hazards

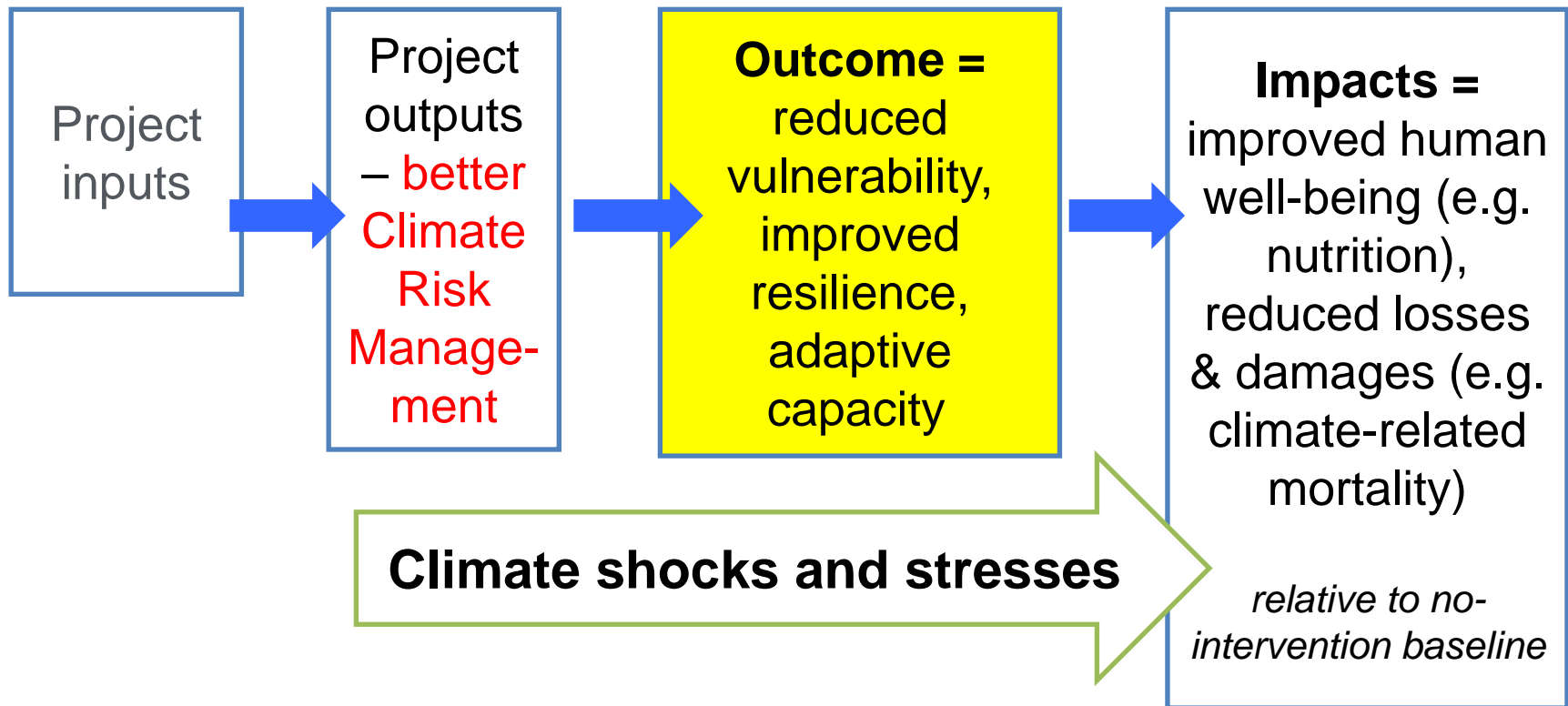
- Facilitate migration, relocate assets & infrastructure, etc.

Reduce vulnerability, increase resilience, enhance adaptive capacity

- i.e. people's ability to anticipate, avoid, plan for, cope with, recover from, and adapt to evolving climate stresses & shocks, on a variety of timescales

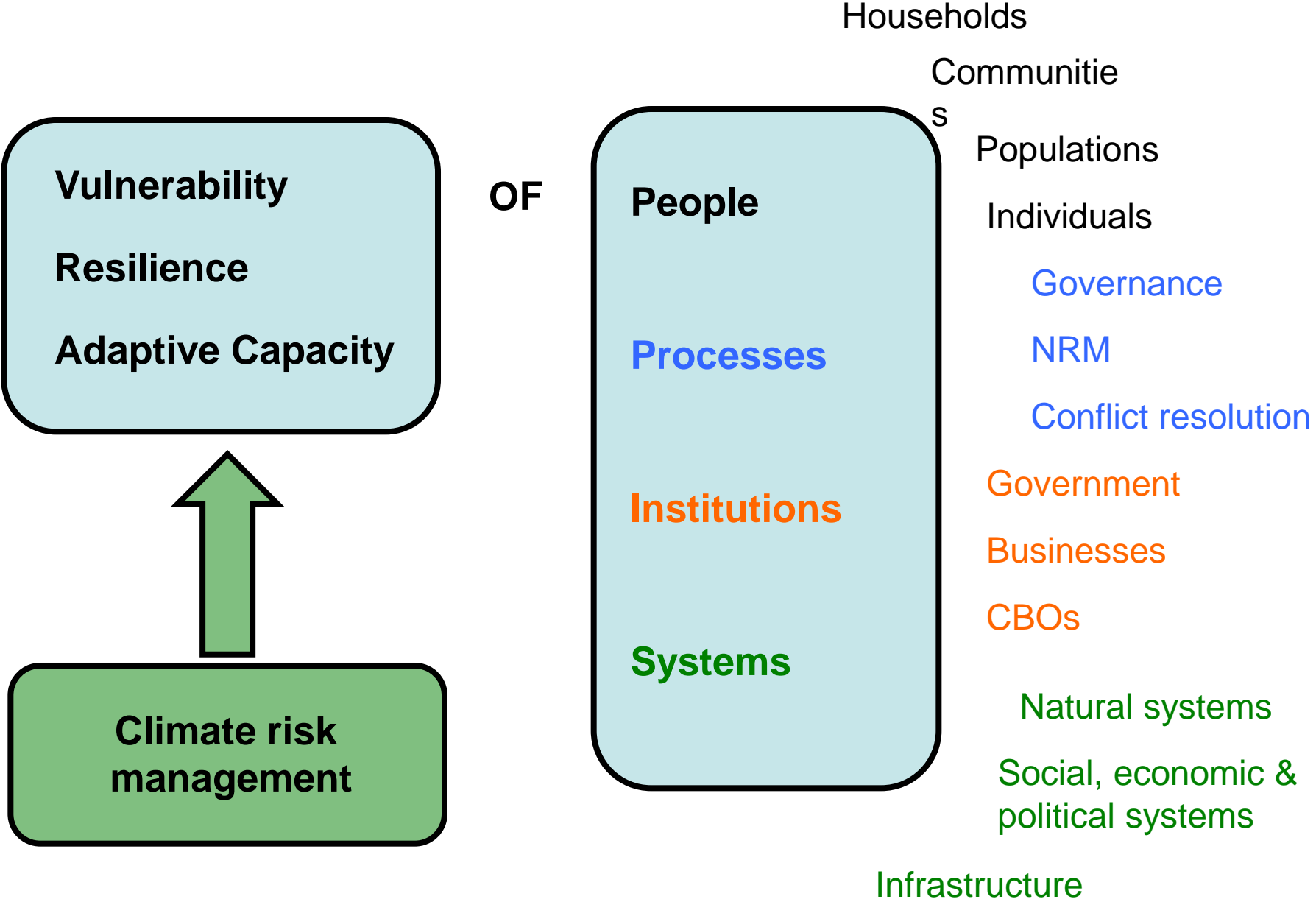


A theory of change for adaptation M&E

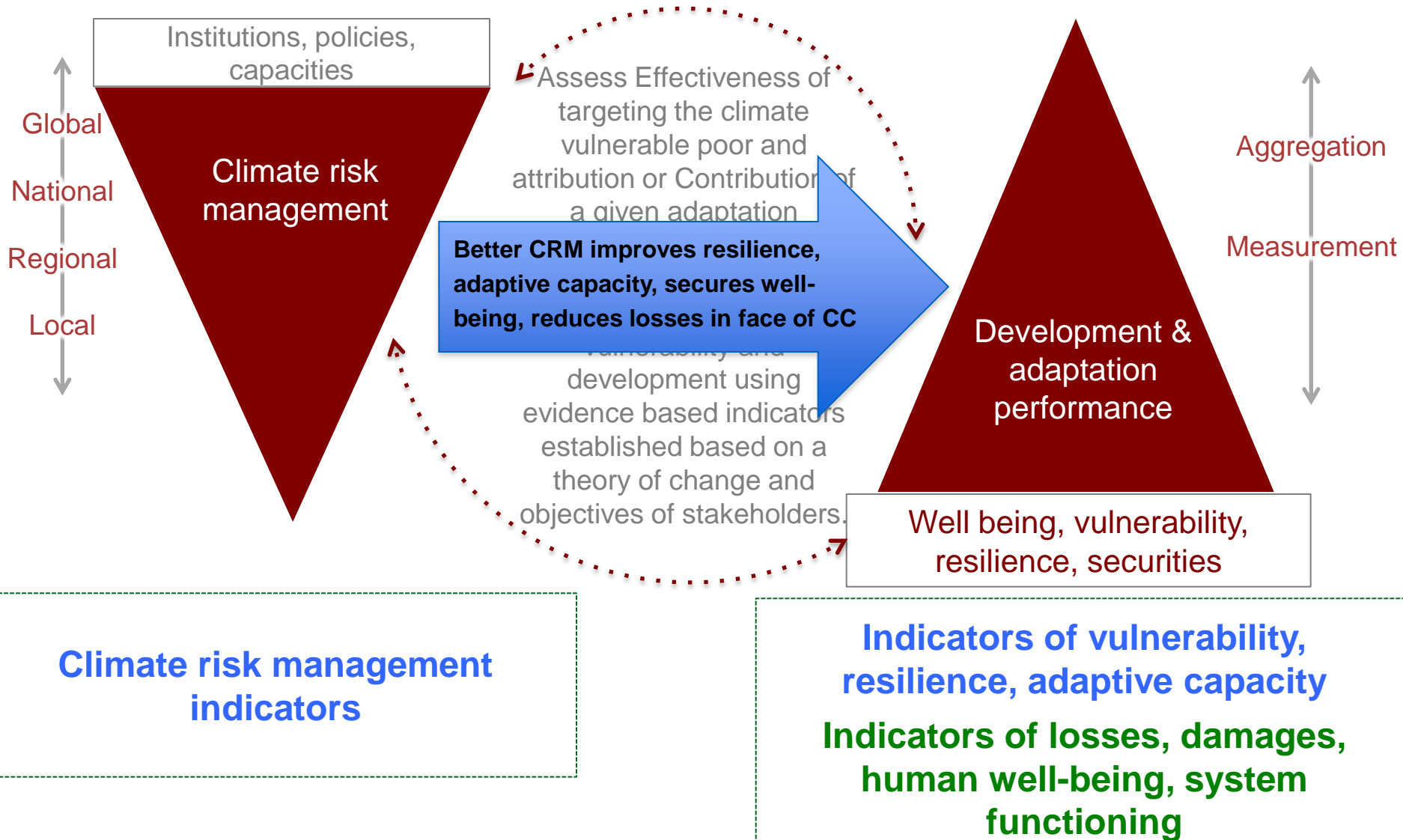


1. Develop vulnerability, resilience indicators to measure at outcome level
 - Can measure changes over short term, in absence of climate shocks/change
2. Use climate data to contextualise impact indicators (loss, damage, etc.)
 - Use to estimate difference from 'no intervention' baseline, not past

Vulnerability/resilience of who/what?



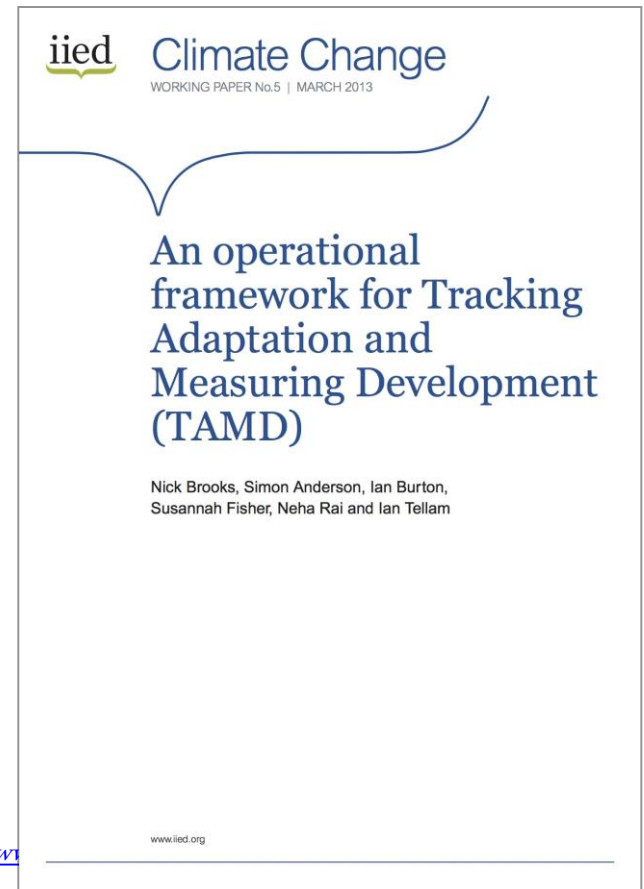
The Tracking Adaptation & Measuring Development (TAMD) framework



Institutional climate risk management indicators

From *Tracking Adaptation & Measuring Development* framework

1. **Climate change mainstreaming/integration into planning**
2. **Institutional coordination for integration**
3. **Budgeting and finance**
4. **Institutional knowledge/capacity**
5. **Use of climate information**
6. **Planning under uncertainty**
7. **Participation (vertical and horizontal)**
8. **Awareness among stakeholders**



Supported by methodological notes available for download at <http://www.iied.org/development>

See also Brooks et al. 2013 (IIED Climate Change Working Paper No.5, download via above link)

Example TAMD CRM indicator

Indicator 1. Climate change integration into planning	No	Partial	Yes
Representation of strategies that address climate change in relevant planning documents & processes			
1. Is there a climate change plan or strategy set out in a dedicated strategy document and/or embedded in the principal planning documents at the level being assessed (e.g. national, sector, ministry)?			
2. Is there a formal (e.g. legal) requirement for climate change (adaptation/mitigation) to be integrated or mainstreamed into development planning (cf requirement for EIA for certain activities/projects)?			
3. Have specific measures to address climate change (adaptation/mitigation) been identified and funded?			
4. Are climate-relevant initiatives routinely screened for climate risks?			
5. Is there a formal climate safeguards system in place that integrates climate risk screening, climate risk assessment (where required), climate risk reduction measures (identification, prioritisation, implementation), evaluation and learning into planning?			
Score (No. of "YES" answers x 2, plus no. of "PARTIAL" answers x 1)			

Indicators of vulnerability, resilience & adaptive capacity

What do these indicators measure?

INDICATORS OF:

ARE SPECIFIC TO:

Vulnerability,
resilience, AC...

Vulnerability

Resilience

Adaptive Capacity

Context/exposure

Hazard

Impact

Timescale

..of who or what?

..to what

..with respect to
what impacts?

..over what period?

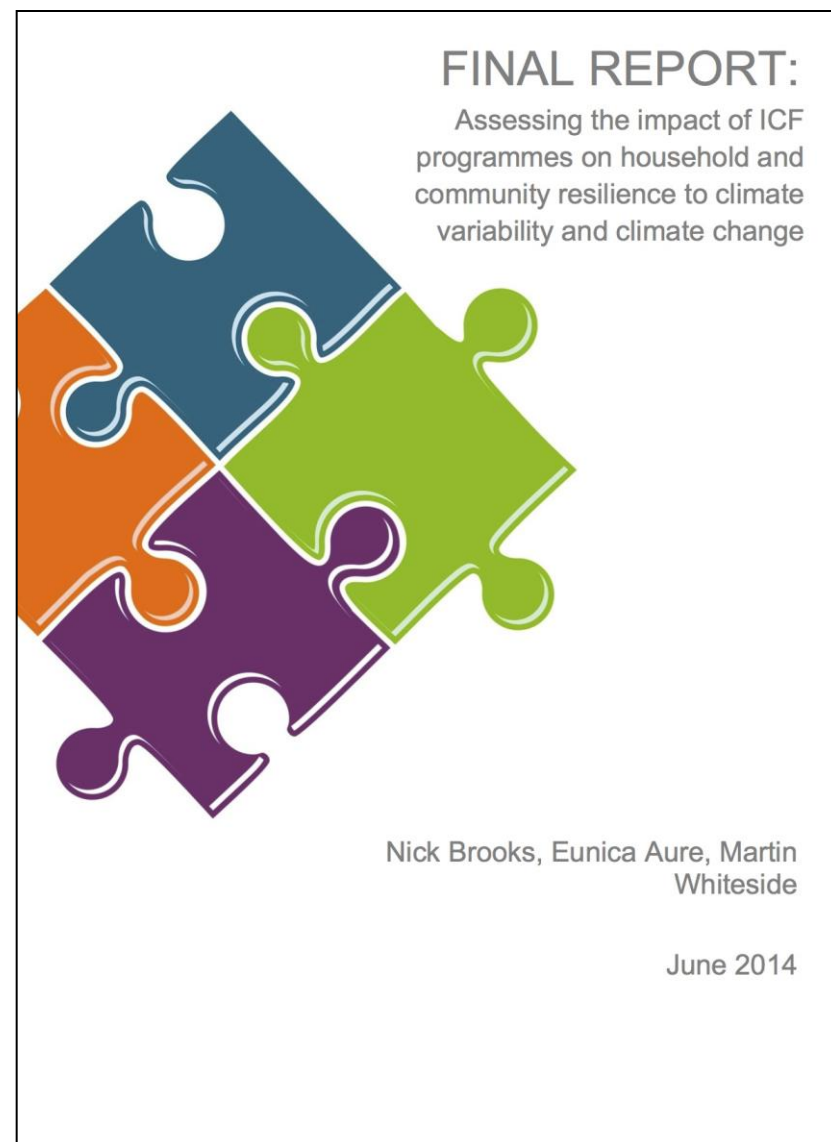
Indicators of vulnerability, resilience & adaptive capacity

How do we construct & measure these indicators?

- Identify key factors that influence how hazards affect people, places and systems – differential vulnerabilities etc. – **participatory methods**
- Develop **context-specific indicators** based on above factors
 - Which of these represent factors influenced by intervention?
- **For assessing vulnerability/resilience of populations:**
 - ❑ **Longitudinal/panel survey** – most powerful but resource intensive
 - ❑ **Random/cross-sectional survey** – more practical but yield less information
 - ❖ Might embed panel survey in larger random survey for ‘calibration’, or choose small but ‘representative’ sample for panel survey
 - ❖ Disaggregate by gender, livelihood, other criteria
- For assessing vulnerability/resilience of other systems use e.g. ecological/environmental indicators, indicators of effectiveness of processes, etc.

Indicators of vulnerability, resilience & adaptive capacity

- Recent review of approaches to measuring resilience, prepared for DFID's BRACED programme.
- “Methodology for reporting against KPI4 – Number of people whose resilience has been improved as a result of project support” – general guidance on measuring resilience that is widely applicable at local scale – download at <http://bit.ly/1qBMYqF>



Indicators of losses/damages, well-being

Role & importance of climate data

1. Track impact indicators alongside **climate indicators/indices**
 - What are trends in impact indicators?
 - What are trends in hazard indicators (more frequent, severe, etc.)?
2. Use hazard indices to interpret changes in impact indicators
 - Qualitative or semi-quantitative methods
 - Are impact indicators stable/improving despite worsening hazards (or vice versa)?*
 - Should we expect a greater deterioration in impacts than we are seeing?*
 - Quantitative methods such as statistical modelling
3. Support interpretation with beneficiary narratives/feedback

Indicators of losses/damages, well-being

Using climate data in qualitative interpretations of results

Example

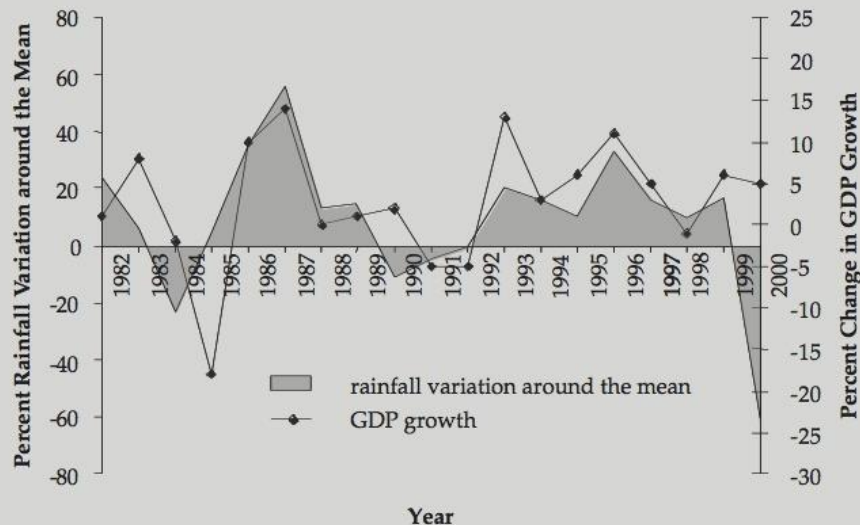
- ▶ **No improvement** in loss, damage or well-being indicators
- ▶ Climate indices show **intensification of hazards**
- ▶ Vulnerability indicators show **vulnerability reduced**
- ▶ Likely that intervention has **stabilised risk** by offsetting intensified hazards with reduced vulnerability – has stopped things getting worse
 - ⇒ *Intervention may be delivering benefits that are ‘invisible’ if we just use absolute measures of losses, damages and well-being (e.g. standard ‘off-the-shelf’ development indicators)*
 - ⇒ *Test this hypothesis using beneficiary feedback, attribution methods, etc.*

Indicators of losses/damages, well-being

Quantitative adjustment of indicators using climate data (I)

- Loss, damage, well-being indicators may be highly correlated with climate variables
- This enables climate variables to be used to model/predict losses/damages, changes in well-being, based on historical relationship
- Modelled/predicted changes can be compared with observed changes – deviations from expected changes might indicate successful adaptation/decoupling

Figure ES.2. Rainfall Variation Around the Mean and GDP Growth



Need good historical data

Relationships between climate & development variables often complex – statistical correlations may be weak

Left: Relationship between variations in annual rainfall and GDP growth for Ethiopia. From World Bank 2006: *Ethiopia: Managing Water Resources to Maximize Sustainable Growth*. World Bank Country Water Resources Assistance Strategy.

Indicators of losses/damages, well-being

Quantitative adjustment of indicators using climate data (II)

- Relationships between climate hazards/variations not necessary linear
- May involve thresholds beyond which people/systems find it hard to cope
 - E.g. rainfall deficit > 1.3 standard deviations below long-term mean (Sahel)*
 - Temperature or humidity index above certain threshold (varies with location)
 - Might predict e.g. excess mortality above certain temperature threshold based

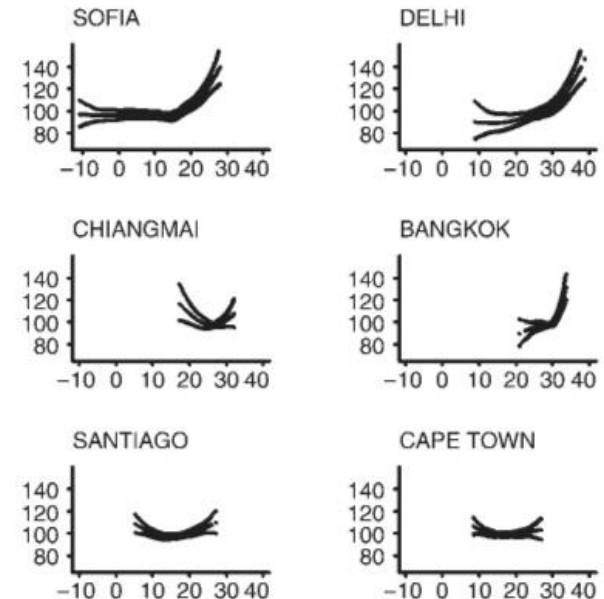
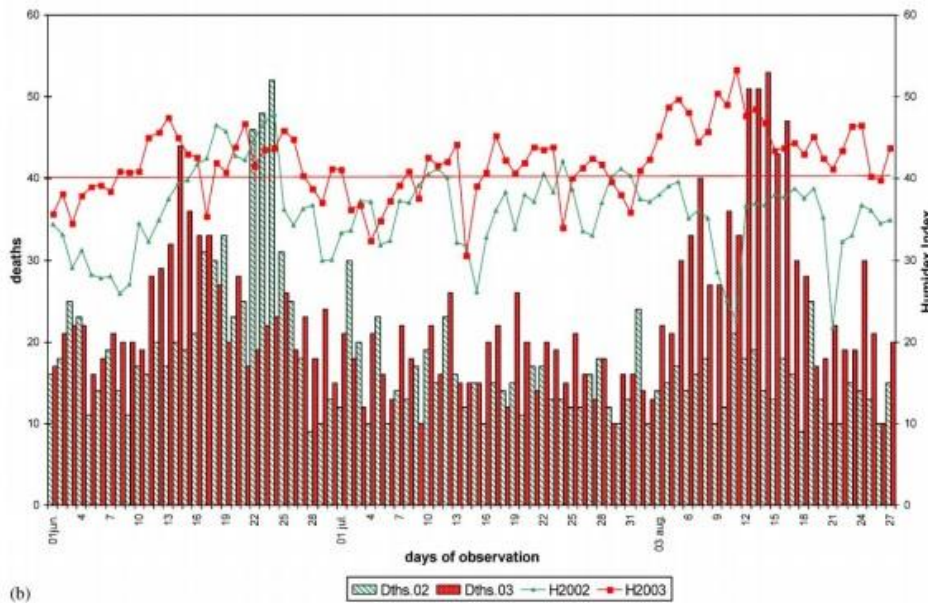


Fig. 1. The trend in daily mortality and the humidex for the summer periods of 2002 and 2003. (a) Turin, (b) Milan, (c) Genoa, (d) Rome, and (e) Bari. Dths.02: deaths in 2002; Dths.03: deaths in 2003; H2002: humidex for 2002; H2003: humidex for 2003.

Left: Daily mortality and temperature in Milan for 2002 and 2003 (from Conti et al. 2005); Right: Mortality as % of annual average versus temperature for six cities (from McMichael et al. 2008); *Tarhule & Woo 1997

Attribution of results to intervention

- Qualitative explanation of how & why intervention contributed to outcomes & impacts
- (Semi-)quantitative comparisons with past events (losses, experience, etc.)

Project staff informed by feedback from beneficiaries

- Quantitative comparisons between different groups
 - Compare before & after intervention, with supporting explanatory narratives
 - Between beneficiaries at different stages of a phased intervention
 - Between beneficiaries & control groups (practical & ethical issues, applicability)
 - **Difference in difference**
 - Compare **difference** in well-being/socio-economic development indicators **between pre- and post-intervention periods**, for target and control group¹
- Assessment of extent to which intervention helped
 - No. of respondents indicating intervention has helped
 - Intervention helped 'not at all'. 'a little', 'a lot', etc
 - Build attribution questions into participatory methods & surveys – M and E

¹ ISET 2014: <http://pubs.iied.org/pdfs/10084IIED.pdf>

Some key M&E references

General guidance and reviews

- Bours, D., McGinn, C. and Pringle, P. 2014. Monitoring & evaluation for climate change adaptation and resilience: A synthesis of tools, frameworks and approaches. SeaChange & UKCIP, May 2014.
- OECD (Lamhauge et al. 2012). Monitoring and Evaluation for Adaptation: Lessons from Development Co-operation Agencies.
- GIZ (2011). Making Adaptation Count: Concepts and Options for Monitoring and Evaluation of Climate Change Adaptation.

Frameworks and tools for general use

- GIZ (2012). Adaptation Made to Measure: A Guidebook to the Design and Results-Based Monitoring of Climate Change Adaptation Projects.
- UKCIP (2011). AdaptME toolkit: <http://www.ukcip.org.uk/adaptme-toolkit/>.
- WRI (Dixit et al. 2012). Ready or Not: Assessing Institutional Aspects of National Capacity for Climate Change Adaptation.
- Brooks et al. 2011. Tracking Adaptation and Measuring Development. IIED Climate Change Working Paper No. 1, IIED.
- Brooks et al. 2013. An Operational Framework for Tracking Adaptation and Measuring Development (TAMD). IIED Climate Change Working Paper No. 5, IIED.

Climate funds results frameworks

- Adaptation Fund. Results Framework and Baseline Guidance: Project-Level.
- Climate Investment Funds. Revised PPCR Results Framework

END