United Nations Framework Convention on Climate Change

CGE HANDS-ON TRAINING ON VULNERABILITY AND ADAPTATION ASSESSMENT

Vulnerability and adaptation component of a future comprehensive national system

Content

- Define objectives for national communications on vulnerability and adaptation (V&A)
- Similarities and differences among vulnerability, impacts, and adaptation assessments
- How to get started conducting an assessment
- What choices are there among V&A frameworks?
  a) Look in some detail at some frameworks

A Little History

- How V&A evolved

  a) Primary emphasis on identifying vulnerabilities

    - To raise awareness

  b) Much more emphasis on adaptation

    - This poses many challenges for how to conduct V&A assessments

OBJECTIVES FOR YOUR NATIONAL COMMUNICATION

Reporting on adaptation in plans in national communications from non-Annex I Parties

Annex to decision 17/CP.8: **Guidelines for the preparation of national communications from Parties not included in Annex I to the Convention**

Paragraph 33. Non-Annex I Parties are encouraged to include a description of approaches, methodologies and tools used, including scenarios for the assessment of impacts of, and vulnerability and adaptation to, climate change, as well as any uncertainties inherent in these methodologies.

Paragraph 36. Where relevant, Parties may report on the use of policy frameworks, such as national adaptation programmes, plans and policies for developing and implementing adaptation strategies and measures.

NATIONAL COMMUNICATIONS OPTIONS

- Reporting on V&A is the minimum required
- NC's also present an opportunity to make a clear statement about policy needs and actions
- First, what are the climate vulnerability priorities? What are the most important climate risks faced by your country?
    - In the near term
    - In the long term

NATIONAL COMMUNICATIONS OPTIONS - 2

Second, this can be a very important message to:

- Those developing adaptation plans
- Also sustainable development plans, poverty reduction plans, etc.
- Donors

NATIONAL COMMUNICATIONS OPTIONS - 3

- Think of the National Communications as an opportunity to describe how your country is integrating climate change into its sustainable development.
    - For example:
        - Define sustainable development objectives
        - Identify how climate change can pose a threat to some or all objectives
        - Identify adaptations to protect sustainable development objectives

OBJECTIVES FOR V&A

Define Objectives for V&A Assessment

- Fundamental choice (not mutually exclusive)

  a) Understand vulnerabilities
  - What can be affected?
  - Who can be affected?
  - How seriously?
  - By when?
  - What level of confidence?

  b) How to reduce impacts (adaptation)
  - Mitigation (not covered)
    - Note that more mitigation reduces climate change impacts
    - Adaptations can decrease or increase GHG emissions
  - What are the options for adaptation?
    - (Are they being integrated into development policies?)

Three basic choices for impact, vulnerability and adaptation assessment

- **Impact assessment**
  a) Estimate impacts of climate change without considering adaptation, e.g.,
    - How much land could be inundated by sea level rise or coastal storms?
    - How much would crop yields change?
    - How would runoff of freshwater increase or decrease?

- **Vulnerability assessment**
  a) How vulnerable is an affected system to climate change?
    - Key that *autonomous adaptation* is included
      - Autonomous adaptations are adaptations we can expect the affected system to make
        - E.g., farmer changing planting and harvesting dates
    - Fundamental question is - What is residual harm (or gain) once autonomous adaptation is accounted for?

Three basic choices for impact, vulnerability and adaptation assessment (cont.)

- **Adaptation assessment**
  a) Emphasis on proactive and reactive adaptation above and beyond autonomous adaptations
     - e.g., policy interventions
  b) Assessment will typically include analysis of
     - Effectiveness of adaptations
     - Costs
     - Feasibility
     - Sometimes will include other factors, e.g.,
        - Co-benefits
        - Potential harm to other systems

- **National communication may include**
  a) Analysis of potential impacts and vulnerabilities
  b) Identification and analysis of adaptation options

Identify Objectives, Audience, and Outcomes

- **What will the assessment be used for?**
  a) Raise awareness
  b) Support policymaking

- **What do we want to learn from the assessment?**
  a) Understand vulnerability
  b) Support mitigation policymaking
  c) Support adaptation policymaking

- **Is the assessment supporting a process such as:**
  a) National communication
  b) NAPAs
  c) NAPs

- Answers to these questions can shaper your assessment

(Based on GIZ, 2014)

Identify objectives, audience, and outcomes

- **Who is the target audience?**
  a) Policymakers
  b) Stakeholders
  c) Public
  d) Others?

- **What outputs are expected?**
  a) National communication
  b) Report
  c) Maps
  d) Briefings, etc.

(Based on GIZ, 2014; cont.)

Scope of the assessment

- Geographic scope
  a) Entire country
  b) Region(s)
  c) Localities

- Sectors
  a) Coastal (Chapter 5)
  b) Water (Chapter 6)
  c) Agriculture (Chapter 7)
  d) Health (Chapter 8)

- Timeframe for analysis
  a) Vulnerability assessments tend to go further in time in the future
  b) Adaptation assessments tend to go no further than a few decades

Relationship between assessment objectives and scenarios

- **Vulnerability assessment**

  a) Might want to know how bad climate change can be
     - Low economic growth and high population
     - Relatively high-magnitude climate change scenarios

  b) Or might want to know what outcomes are more likely
     - Use probabilities or projections toward middle of range

  c) Rare that want to know best case
     - High economic growth and low population
     - Relatively low-magnitude climate change scenarios

Relationship between assessment objectives and scenarios (cont.)

- **Adaptation assessment**

  a) Critical to use reasonable range of outcomes
     - Often consider high and low ranges and middle of distribution of scenarios
     - Do not want biased result e.g., from one end of spectrum of possibilities

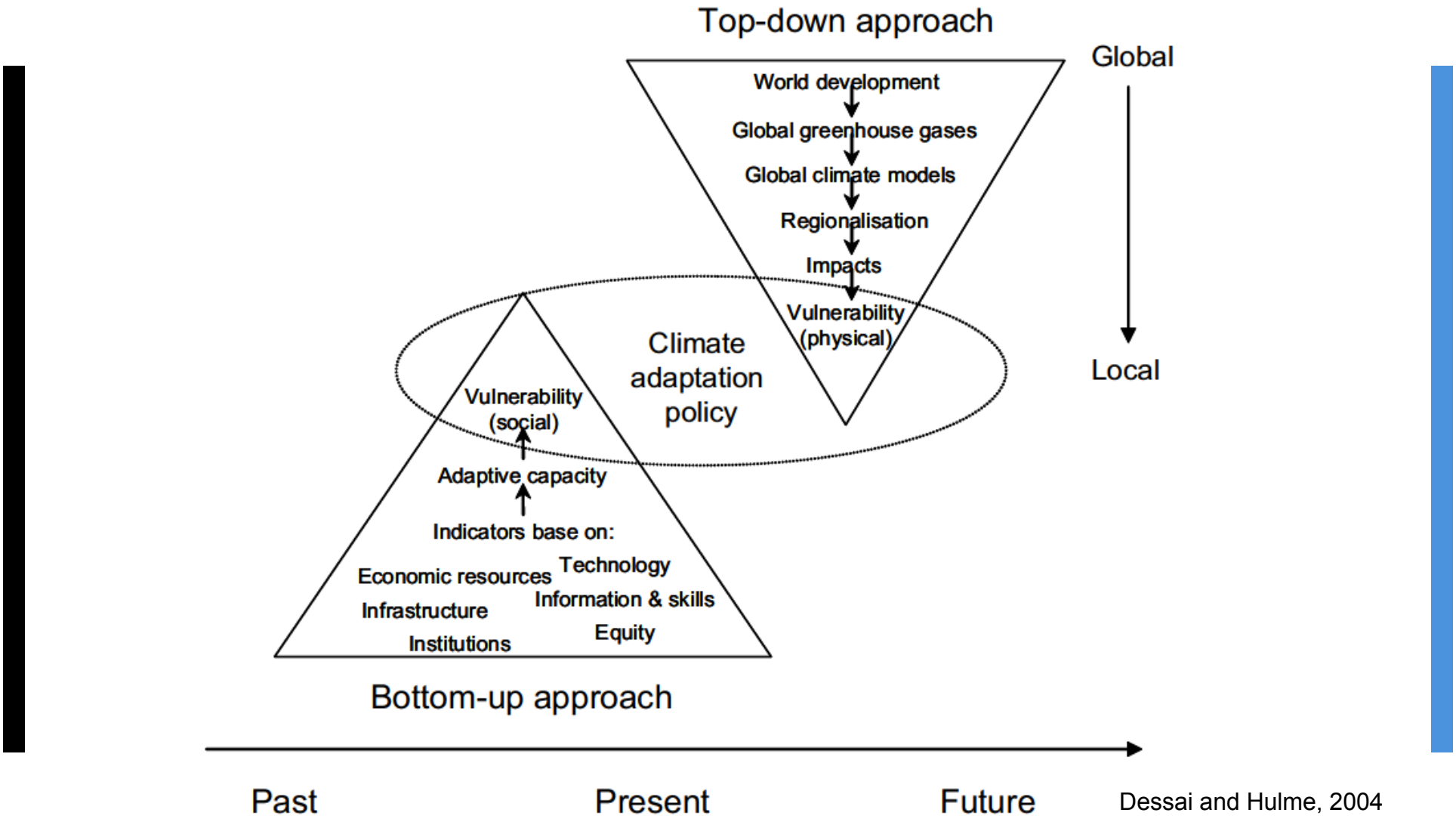
  b) Important to include bad or worst case outcomes
     - Even if low probability

- **Should consider**

  a) Baseline socioeconomic scenarios (Chapter 3)
  b) Climate change scenarios (Chapter 4)

Types of V&A Frameworks

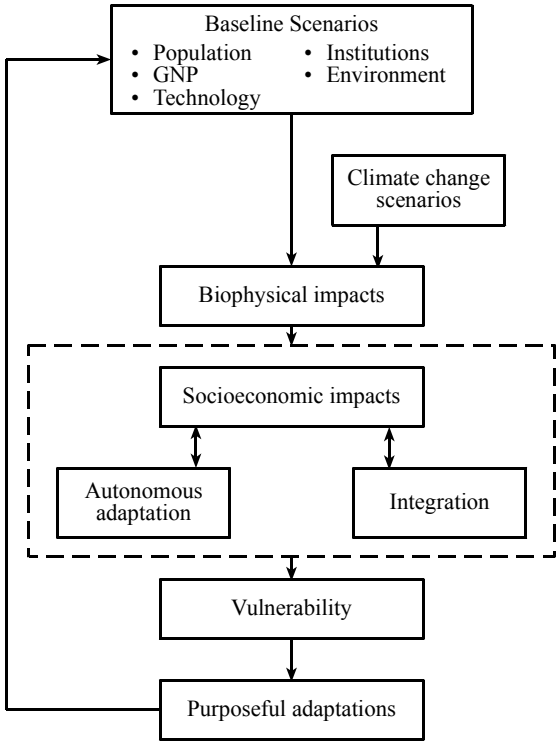
“Top-down” vs. “bottom-up” approach



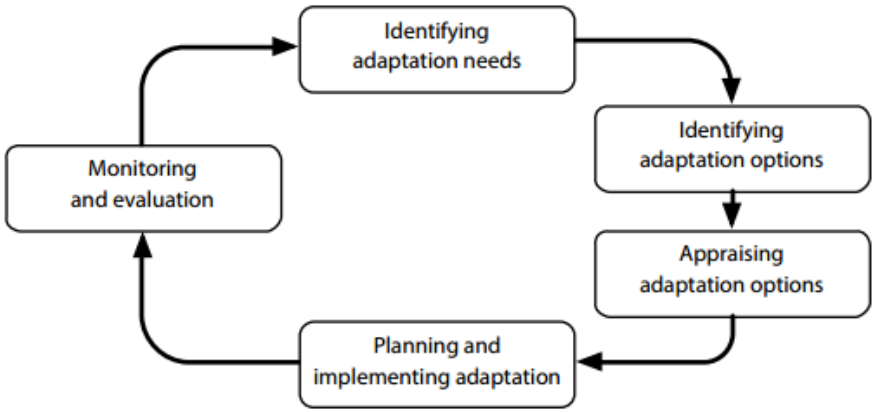
Dessai and Hulme, 2004

“Top-down” vs. “bottom-up” approach (cont.)

Top-down



Bottom-up



Steps in top-down vs. bottom-up

Top-down: IPCC seven steps

1. Define the problem
2. Select the method
3. Test the method
4. Select scenarios
5. Assess biophysical and socioeconomic impacts
6. Assess autonomous adjustments
7. Evaluate adaptation strategies

Source: Carter et al., 1994

Bottom-up: PROVIA

1. Identify adaptation needs
2. Identify adaptation options
3. Appraise adaptation options
4. Plan and implement adaptations
5. Monitor and evaluate adaptations

Source: PROVIA, 2013

IPCC

"Decision-support for impacts, adaptation, and vulnerability has expanded from science-driven linear methods to a wide range of methods drawing from many disciplines." (Jones et al., 2014, p 198)

Examples of V&A Frameworks

NATIONAL ADAPTATION PLANNING (NAPs)

The National Adaptation Plan process under the Convention

Decision 1/CP.16

*-**Paragraph 15**: Decides to hereby establish a process to enable least developed country Parties to formulate and implement national adaptation plans, building upon their experience in preparing and implementing national adaptation programmes of action, as a means of identifying medium- and long-term adaptation needs and developing and implementing strategies and programmes to address those needs;*

*-**Paragraph 16**: Invites other developing country Parties to employ the modalities formulated to support the above-mentioned national adaptation plans in the elaboration of their planning effort…"*

The decision is available at:

http://unfccc.int/resource/docs/2010/cop16/eng/07a01.pdf#page=2

A country-driven National Adaptation Plan process

Decision 3/CP.20

Paragraph 3 reiterates that the **national adaptation plan process is a country-driven**, gender-sensitive, participatory and fully transparent approach, taking into consideration vulnerable groups, communities and ecosystems, and should be based on and guided by the best available science and, as appropriate, traditional and indigenous knowledge, with a view to integrating adaptation into relevant social, economic and environmental policies and actions, where appropriate;

A country-driven National Adaptation Plan process

Decision 3/CP.20

Paragraph 11 Requests the Adaptation Committee and the Least Developed Countries Expert Group, in collaboration with the Green Climate Fund, as an operating entity of the Financial Mechanism, to consider how to best support developing country Parties in accessing funding from the Green Climate Fund for the process to formulate and implement national adaptation plans…".

The decision is available at:

http://unfccc.int/files/adaptation/application/pdf/10a02.pdf

Technical guidelines for the National Adaptation Plan process

The COP requested the LDC Expert Group (LEG) to elaborate technical guidelines for the NAP process based on the initial guidelines for the formulation of NAPs, and to arrange a review of these technical guidelines (decision 5/CP.17, paragraphs 15-16).

The LEG organized a review meeting from 29 to 31 October 2012 in Bonn, Germany, to review a draft of the guidelines. The meeting was attended by experts and representatives of the Global Environment Facility (GEF), UN agencies and other relevant research, academic and non-governmental organizations.

Further information is available at:
http://unfccc.int/adaptation/workstreams/national_adaptation_programmes_of_action/items/7279.php

National Adaptation Plans

ELEMENT A. LAY THE GROUNDWORK AND ADDRESS GAPS

1. Initiating and launching of the NAP process
2. Stocktaking: identifying available information on climate change impacts, vulnerability and adaptation and assessing gaps and needs of the enabling environment for the NAP process
3. Addressing capacity gaps and weaknesses in undertaking the NAP process
4. Comprehensively and iteratively assessing development needs and climate vulnerabilities

ELEMENT B. PREPARATORY ELEMENTS

1. Analysing current climate and future climate change scenarios
2. Assessing climate vulnerabilities and identifying adaptation options at the sector, subnational, national and other appropriate levels
3. Reviewing and appraising adaptation options
4. Compiling and communicating national adaptation plans
5. Integrating climate change adaptation into national and subnational development and sectoral planning

ELEMENT C. IMPLEMENTATION STRATEGIES

1. Prioritizing climate change adaptation in national planning
2. Developing a (long-term) national adaptation implementation strategy
3. Enhancing capacity for planning and implementation of adaptation
4. Promoting coordination and synergy at the regional level and with other multilateral environmental agreements

ELEMENT D. REPORTING, MONITORING AND REVIEW

1. Monitoring the NAP process
2. Reviewing the NAP process to assess progress, effectiveness and gaps
3. Iteratively updating the national adaptation plans
4. Outreach on the NAP process and reporting on progress and effectiveness

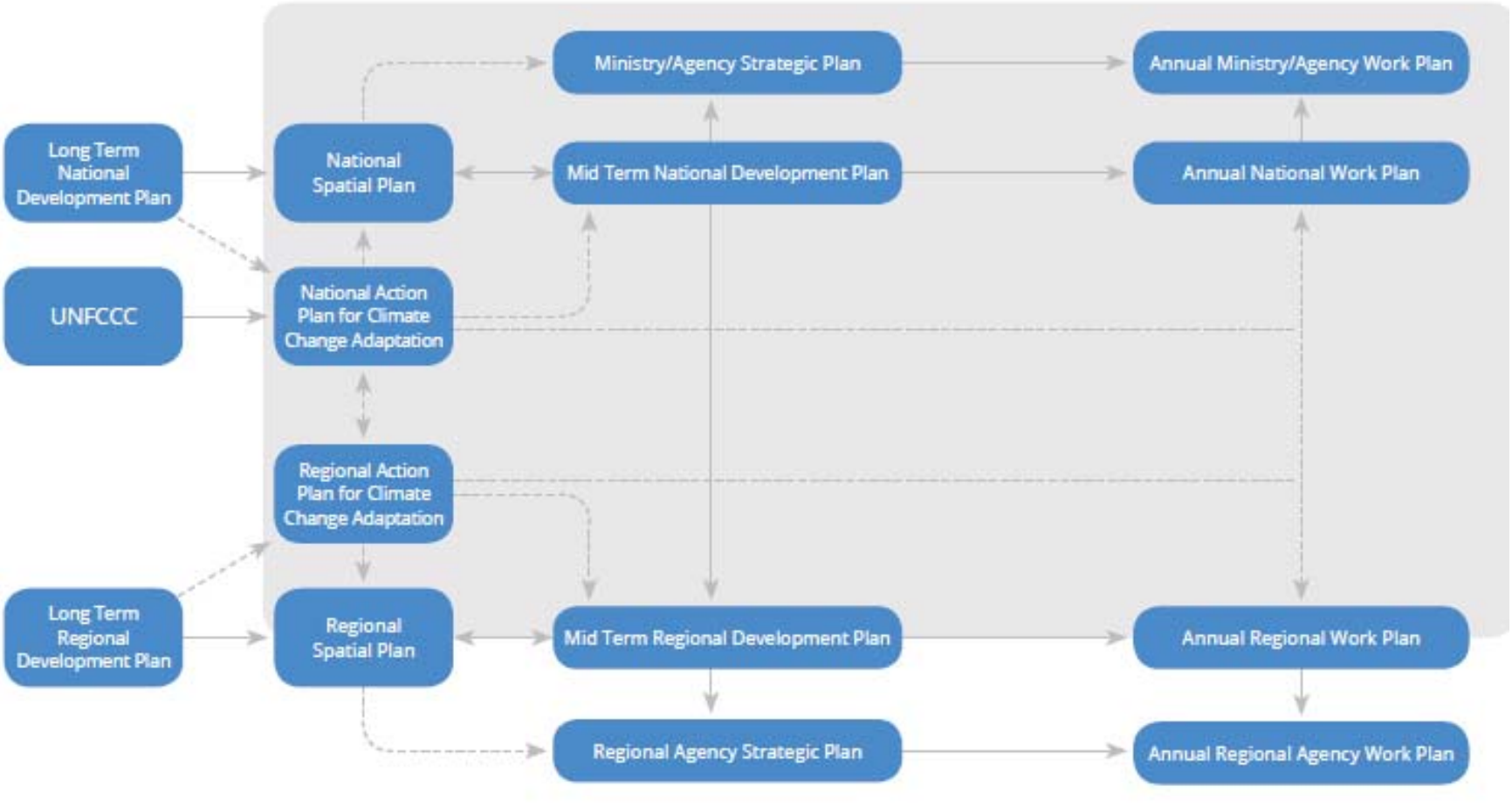
Integration of National Adaptation Planning in Indonesia

- Indonesia prepared National Action Plan for Climate Change Adaptation (RAN-API) and contains:
  a) Action plan for short term adaptations (2013-2014)
  b) Mainstreaming into National Medium Term Development Plan (RPJMN) (2015-2019)
  c) Long term adaptation policy direction
  d) Direction for local adaptation

- State Ministry for National Development Planning/ National Development Planning Agency responsible for implementing RAN-API
  a) Coordinates across the government
  b) Works with stakeholders

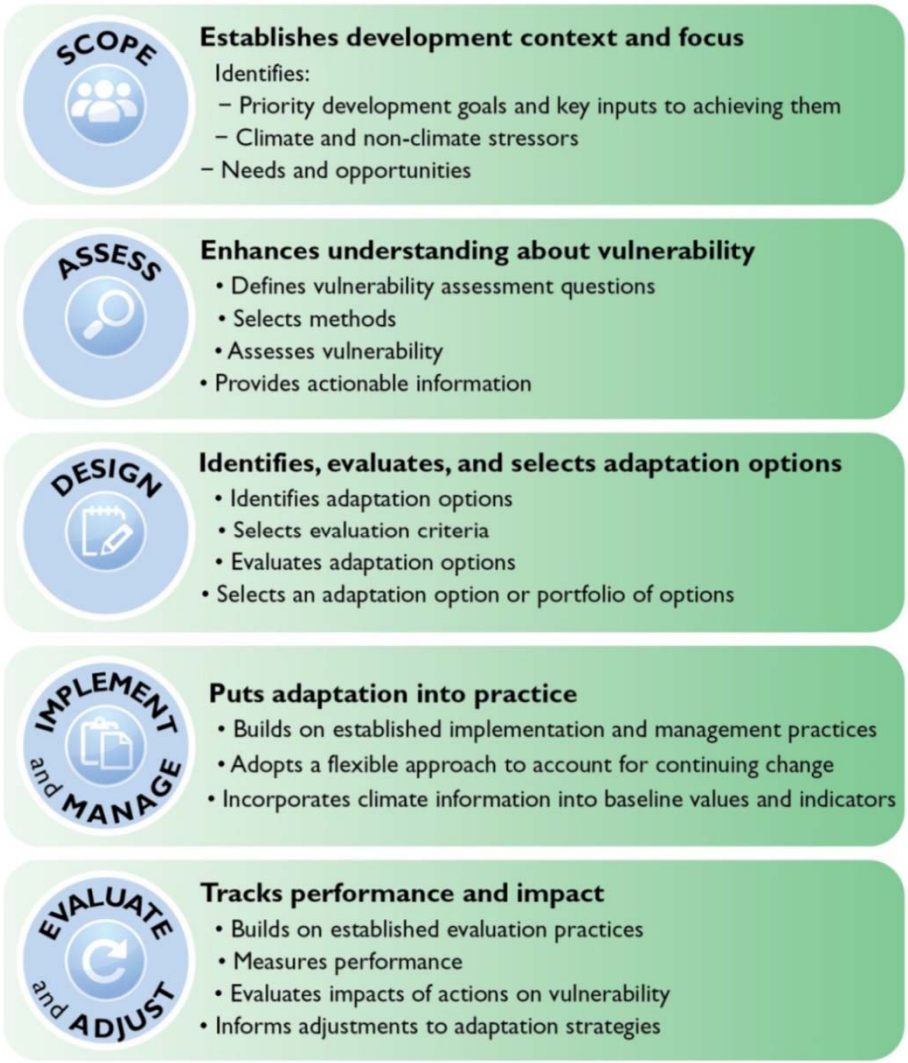
- Is an example of integrating national adaptation planning into development planning

Indonesia: Integration of National Adaptation Planning into Development



OTHER FRAMEWORKS

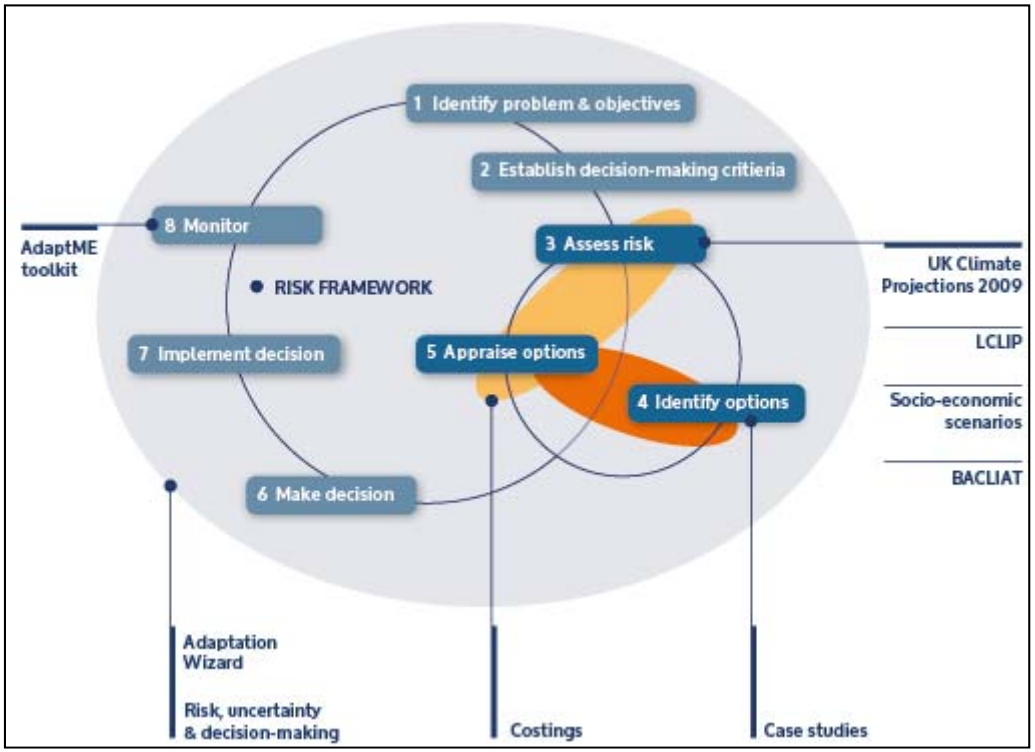
USAID Climate Change Resilient Development



National Adaptation Planning in West Africa

National Adaptation Planning in Tanzania

UKCIP Adaptation Wizard

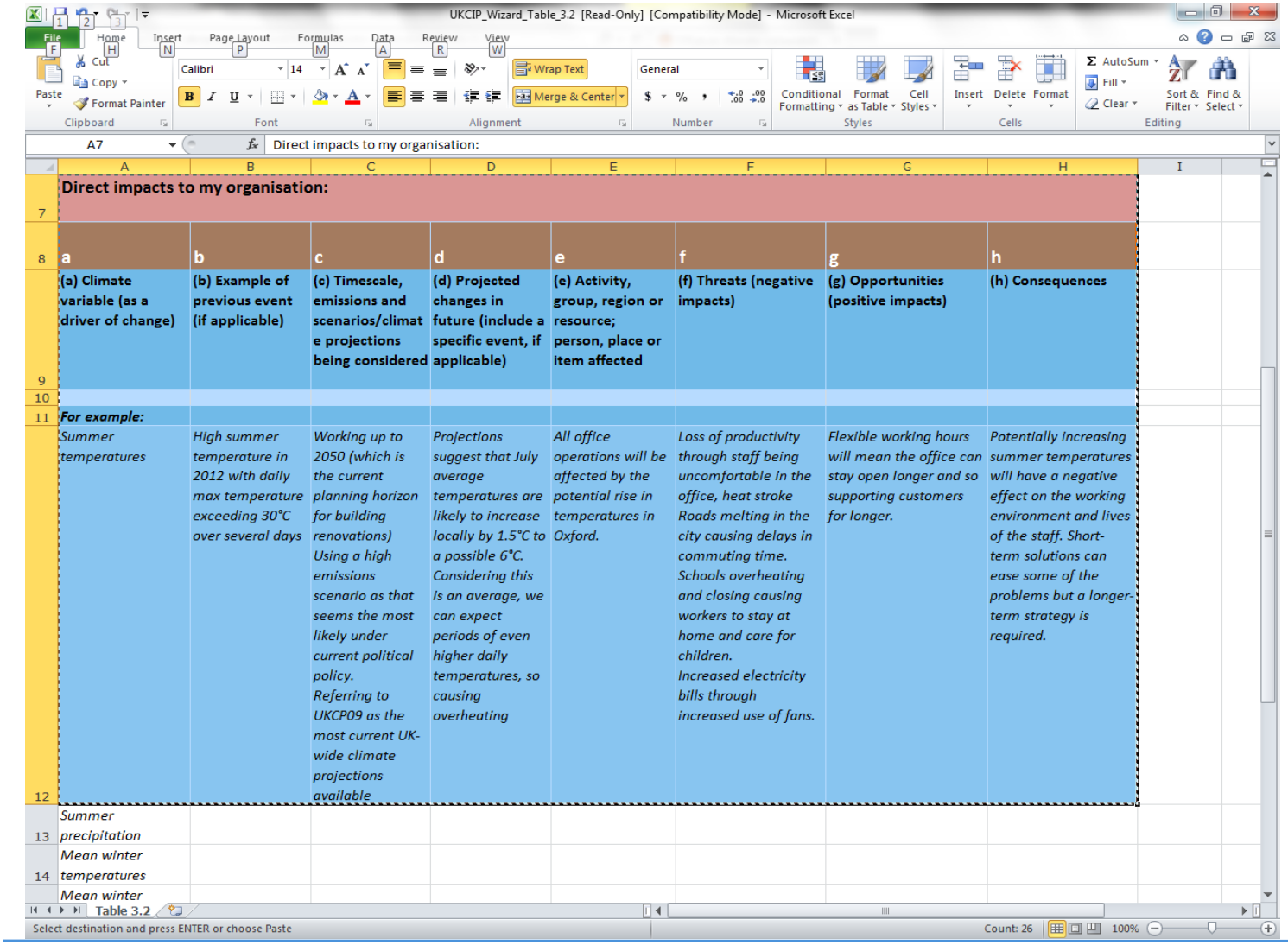


Web Page UKCIP

Current Climate Vulnerability Assessment (table 2.1)

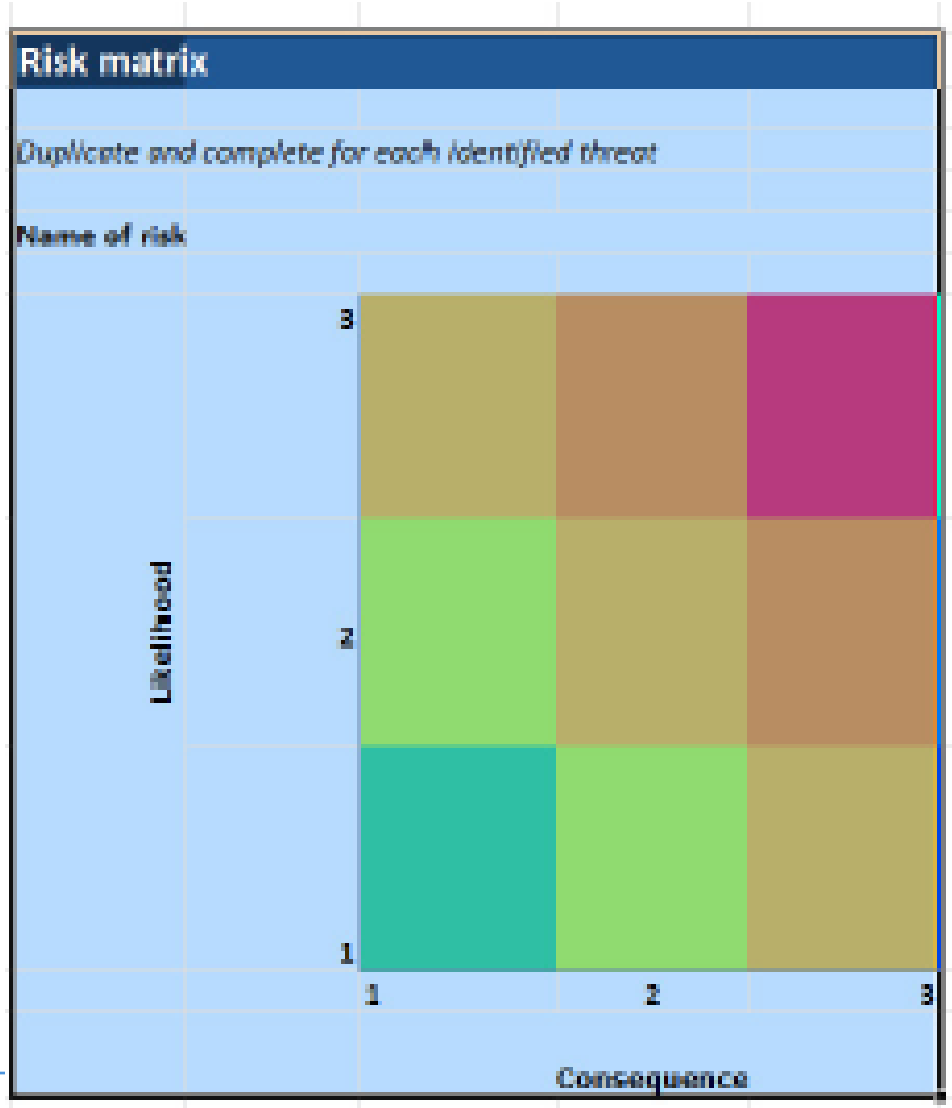
a	b	c	d	e	f	g	h
Type of weather event (a)	Specific event (b)	Identify any critical thresholds (the point at which sudden or rapid change occurs) (c)	Impact(s) (d)	Consequence(s) (e)	Actions taken to address impact (f)	Effectiveness of those actions (g)	Source & credibility of information (h)
For example:							
High summer temperatures	Very hot summer in 2012 with temperatures often in excess of 30°C	Internal office temperatures exceed 28°C	Offices overheated	Staff uncomfortable	Relax dress code; flexible working hours; use fans; supply staff with cold drinking water	highly effective though needed initial high spend to buy fans and water	Past experience. Reliable

Future Vulnerability Assessment (Table 3.2)



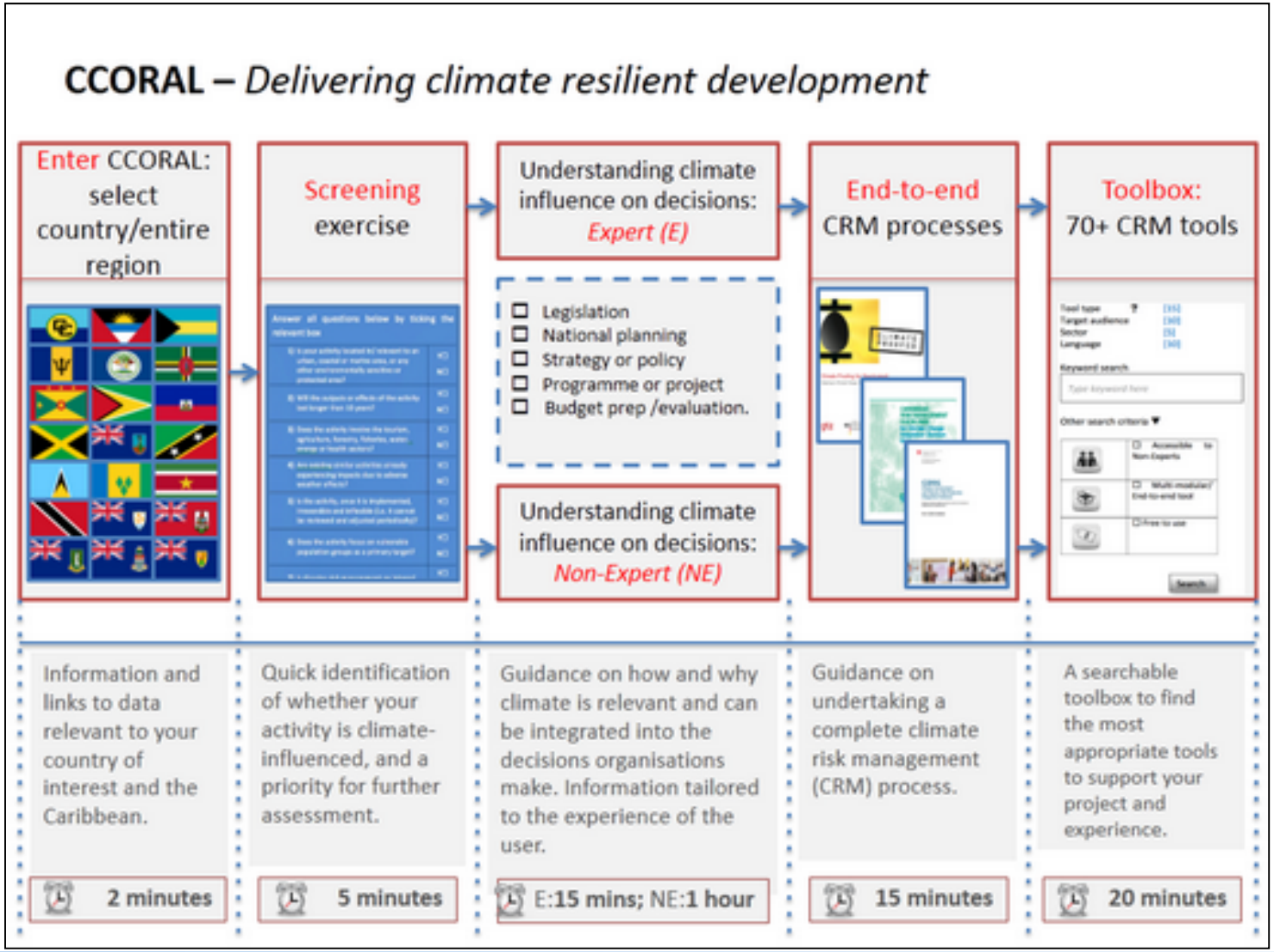
Direct impacts to my organisation:							
a	b	c	d	e	f	g	h
(a) Climate variable (as a driver of change)	(b) Example of previous event (if applicable)	(c) Timescale, emissions and scenarios/climate projections being considered	(d) Projected changes in future (include a specific event, if applicable)	(e) Activity, group, region or resource; person, place or item affected	(f) Threats (negative impacts)	(g) Opportunities (positive impacts)	(h) Consequences
For example:							
Summer temperatures	*High summer temperature in 2012 with daily max temperature exceeding 30°C over several days*	*Working up to 2050 (which is the current planning horizon for building renovations) Using a high emissions scenario as that seems the most likely under current political policy. Referring to UKCP09 as the most current UK-wide climate projections available*	*Projections suggest that July average temperatures are likely to increase locally by 1.5°C to a possible 6°C. Considering this is an average, we can expect periods of even higher daily temperatures, so causing overheating*	*All office operations will be affected by the potential rise in temperatures in Oxford.*	*Loss of productivity through staff being uncomfortable in the office, heat stroke Roads melting in the city causing delays in commuting time. Schools overheating and closing causing workers to stay at home and care for children. Increased electricity bills through increased use of fans.*	*Flexible working hours will mean the office can stay open longer and so supporting customers for longer.*	*Potentially increasing summer temperatures will have a negative effect on the working environment and lives of the staff. Short-term solutions can ease some of the problems but a longer-term strategy is required.*
Summer precipitation							
Mean winter temperatures							
Mean winter							

Risk Assessment: Table 3.4

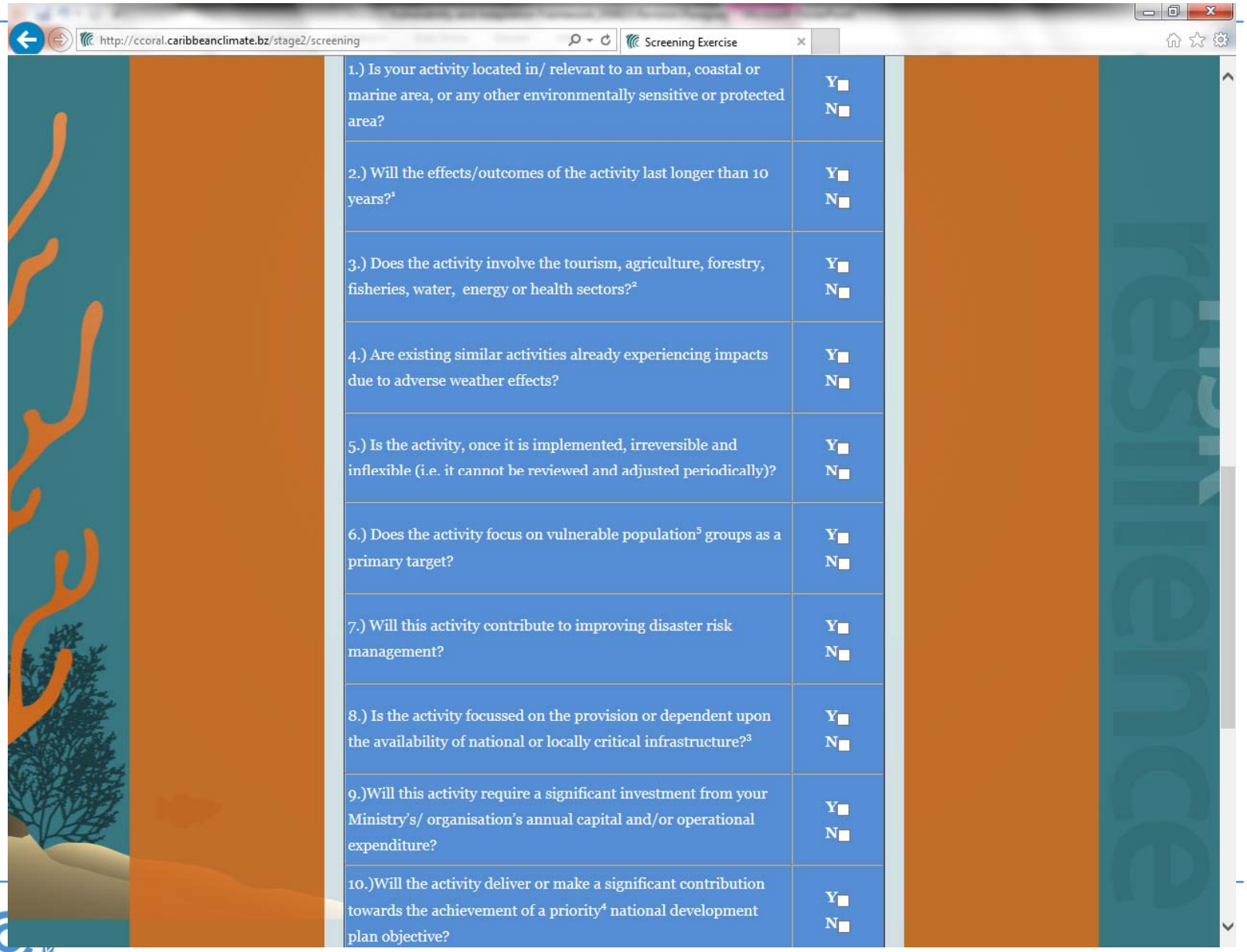


Caribbean Climate Online Risk and Adaptation Tool

CCORAL


CCORAL – Delivering climate resilient development
Enter CCORAL: select country/entire region
Screening exercise
Understanding climate influence on decisions: Expert (E)
Legislation
National planning
Strategy or policy
Programme or project
Budget prep /evaluation.
Understanding climate influence on decisions: Non-Expert (NE)
End-to-end CRM processes
Toolbox: 70+ CRM tools
Information and links to data relevant to your country of interest and the Caribbean.
2 minutes
Quick identification of whether your activity is climate-influenced, and a priority for further assessment.
5 minutes
Guidance on how and why climate is relevant and can be integrated into the decisions organisations make. Information tailored to the experience of the user.
E:15 mins; NE:1 hour
Guidance on undertaking a complete climate risk management (CRM) process.
15 minutes
A searchable toolbox to find the most appropriate tools to support your project and experience.
20 minutes

CCORAL: Screening Exercise



Risk Management

Australia Greenhouse Office

KEY POINTS

- National Communications

  a) Minimum report on vulnerability and adaptation assessments

  b) Reach higher

    - Integrate with Development/ Sustainable Development Objectives and Plans
    - Set priorities for vulnerability
    - Identify adaptation needs and options

Thank you