

Vulnerability and Adaptation Assessments Hands-On Training Workshop

Introduction and Overview of Vulnerability and Adaptation Frameworks



UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE

Outline

1. Some introductory thoughts and getting started
2. What is vulnerability and adaptation to climate change?
3. Overview of V&A frameworks



UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE

Some Introductory Thoughts



UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE

“To a Hammer, Everything Looks Like a Nail”

- Methods or models do not provide answers, but can help us gain insights
- The first step is to consider the question(s) being asked



UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE

Some Questions to Begin Assessment of Vulnerability and Adaptation

- **What is of concern?**
 - Food production, water supply, health?
 - Concerns may not be expressed in climate terms, e.g., extreme temperature, but in consequences of climate for people
- **Who may be affected?**
- **How far into the future is of concern?**
 - Note concerns may focus on current risks (which could be made worse by climate change)



UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE

Some Questions to Begin Assessment of Vulnerability and Adaptation (continued)

- **For what purpose is the assessment to be used?**
 - Raising awareness (education)?
 - Policy making? (e.g., to inform a particular decision)
- **What kind of output is needed?**



UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE

Additional Questions to Ask Before Getting Started

- What resources are available to conduct the study?
 - Money
 - Staff
 - Expertise
- How much time is available?



UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE

These Questions are Key Factors in Determining How to Conduct Your Study

- You should not begin with the methods or models you have in hand, but with these questions
- Select methods and models that best help you answer the questions



UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE

Different Questions May Lead to Different Approaches

- Questions about how climate change may affect resources may lead to analysis of long-term impacts, e.g., out to 2100
- Questions about adaptation may lead to analysis of vulnerability within a planning horizon, e.g., 5 to 50 years



UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE

Who Is Asking the Question(s) May Matter for How the Work Is Done

- Some may be content with research that is conducted by the researchers
- Others may wish for a hands-on approach
 - e.g. involve stakeholders in conducting the analysis



UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE

Bottom Line: What Information is Needed and When is it Needed?



UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE

What Are Vulnerability and Adaptation?



UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE

Vulnerability

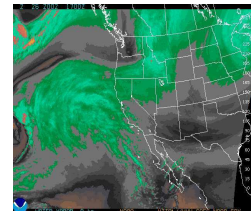
- **Vulnerability to climate change is the risk of adverse things happening**
- **Vulnerability is a function of three factors:**
 - Exposure
 - Sensitivity
 - Adaptive capacity



UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE

Exposure

- **Exposure is what is at risk from climate change, e.g.,**
 - Population
 - Resources
 - Property
- **It is also the climate change that an affected system will face, e.g.,**
 - Sea level
 - Temperature
 - Precipitation
 - Extreme events



UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE

Sensitivity

- **Biophysical effect of climate change**
 - Change in crop yield, runoff, energy demand
- **It considers the socioeconomic context, e.g., the agriculture system**
- **Grain crops typically are sensitive**
- **Manufacturing typically is much less sensitive**



UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE

Adaptive Capacity

- **Capability to adapt**
- **Function of:**
 - Wealth
 - Technology
 - Education
 - Institutions
 - Information
 - Infrastructure
 - "Social capital"
- **Having adaptive capacity does not mean it is used effectively**



UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE

Vulnerability is a Function of All Three

- **More exposure and sensitivity increase vulnerability**
- **More adaptive capacity decreases vulnerability**
- **An assessment of vulnerability should consider all three factors**



UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE

Impacts of Climate Change

- **Impact is typically the effect of climate change**
 - For biological systems, it can be change in productivity, quality, population, or range
 - For societal systems, an impact can be a change in income, morbidity, mortality, or other measure of well-being



UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE

Adaptation

- “adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities” (Third Assessment Report, Working Group II)
 - Notice includes “actual” (realized) or “expected” (future) changes in climate



UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE

Adaptation (continued)

- **Two types of adaptation:**
 - Autonomous adaptation or reactive adaptation tends to be what people and systems do as impacts of climate change become apparent
 - Anticipatory or proactive adaptation are measures taken to reduce potential risks of future climate change



UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE

Overview of Vulnerability and Adaptation Frameworks



UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE

Overview of Frameworks

- Description of some V&A frameworks
- One size does not fit all
- Select a framework or method that best suits:
 - Questions being asked
 - Who is asking them
 - What kind of answers are needed
 - What resources and time are available



UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE

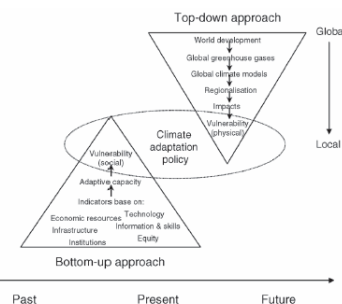
Two Types of Frameworks

- **Impacts**
 - Also known as “first generation” or “top down”
- **Adaptation**
 - Also known as “second generation” or “bottom up”



UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE

“Top Down” vs. “Bottom Up”



UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE

Impacts Frameworks Driven by Need to Understand Long-Term Consequences

- Tend to look out many decades (to 2100 or beyond)
- Tend to be scenario driven



UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE

Adaptation Frameworks Driven by Need to Supply Useful Information to Stakeholders

- Tend to address near-term concerns
 - Often address climate variability and change
 - Emphasis on socioeconomic context
- Driven by stakeholder identification of issues and involvement in process
 - Bring in analysis as necessary and appropriate
 - Could use non-analytic techniques



UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE

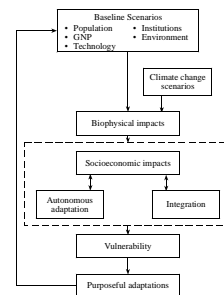
Impacts Frameworks

- IPCC Seven Steps
- U.S. Country Studies Program
- UNEP Handbook



UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE

Basic Structure for Impacts Frameworks



UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE

IPCC Seven Steps

- Define the problem
- Select the method
- Test the method
- Select scenarios
- Assess biophysical and socioeconomic impacts
- Assess autonomous adjustments
- Evaluate adaptation strategies



UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE

U.S. Country Studies Program

- Provided detailed guidance on specific methods
 - Coastal resources
 - Agriculture
 - Livestock
 - Water resources
 - Vegetation
 - Human health
 - Wildlife
 - Fisheries
 - Adaptation
- Publications



UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE

UNEP Handbook

- **Presents overviews of methods**
 - Source for information on different methods
 - Not detailed guidance
- **Topics include**
 - Climate change scenarios
 - Socioeconomic scenarios



UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE

UNEP Handbook (continued)

- Integration
- Adaptation
- Water resources
- Coastal zones
- Agriculture
- Rangeland and livestock
- Human health
- Energy
- Forests
- Biodiversity
- Fisheries



UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE

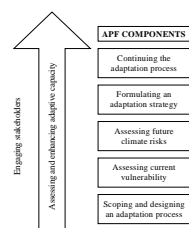
Adaptation Frameworks

- **UNDP Adaptation Policy Framework**
- **NAPA Guidance**
- **UKCIP**



UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE

UNDP Adaptation Policy Framework



UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE

UNDP Adaptation Policy Framework (continued)

- Contains technical papers on:
 - Scoping and designing an adaptation project
 - Engaging stakeholders in the adaptation process
 - Assessing vulnerability for climate adaptation
 - Assessing current climate risks
 - Assessing future climate risks
 - Assessing current and changing socioeconomic conditions
 - Assessing and enhancing adaptive capacity
 - Formulating an adaptation strategy
 - Continuing the adaptation process



UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE

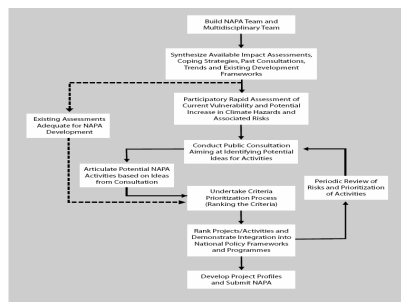
NAPA Guidance

- **National Adaptation Programmes of Action**
- **Least developed countries identify and rank proposed measures to adapt to climate change**
- **Decision 28/CP.7**



UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE

NAPA Process



NAPA Guidance (continued)

- Guidance provides framework for developing NAPAs
- Discusses:
 - Objectives and characteristics of NAPA's guiding elements
 - Process
 - Structure

UKCIP Framework

- Identify problem and objectives
- Establish decision-making criteria
- Assess risk
- Identify options
- Appraise options
- Make decision
- Implement decision
- Monitor, evaluate, and review



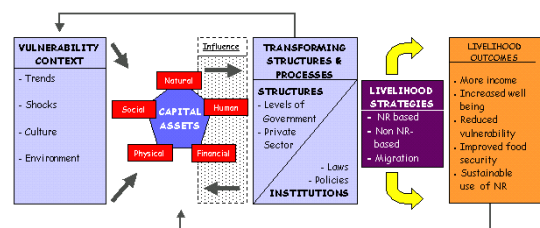
Other Approaches

- VARA
- Sustainable livelihoods

Vulnerability and Response Assessment for Climate Variability and Change

- Heuristic, not analytic device
- Nonquantitative
- Five step approach
 - Consider local factors affecting vulnerability
 - Estimate climate change impacts
 - Estimate local impacts
 - Identify coping capacity and resilience
 - Identify strategies for action

Sustainable Livelihoods



AIACC

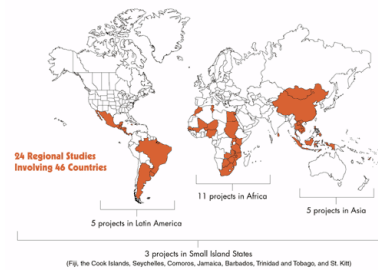
- Assessments of impacts and adaptations to climate change
- Covers both impacts and adaptation approaches



UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE

AIACC (continued)

Countries Involved in AIACC Regional Studies



UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE

Selecting a Framework

- We are not recommending use of a particular framework
 - Different frameworks are appropriate for different needs
- What is needed in the long run is integration of climate change predictions and adaptation with a baseline of vulnerability



UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE

Application of Frameworks

- Projects often take longer and cost more than originally thought (or proposed)
- Be careful about complex frameworks
- You may only get through the first few steps before running out of time or funds
- Do what you need early on



UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE

Key Factors in Determining How to Conduct Your Study

- You should not begin with the methods or models you have in hand, but with these questions
- Select methods and models that best help you answer the questions



UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE