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Policy issues: state of the environment

**Programme of Research on Climate Change Vulnerability,
Impacts and Adaptation**

Note by the Executive Director

Addendum¹

Summary

The present addendum supplements the information provided in the note by the Executive Director on the Programme of Research on Climate Change Vulnerability, Impacts and Adaptation (PROVIA) (UNEP/GC.27/INF/12). Section I provides an overview of PROVIA Activity 1, its work on the development of an international agenda for research on vulnerability, impacts and adaptation through a series of activities aimed at identifying research gaps, describing its objectives, suggesting a process to be followed and steps to be taken in future and setting out priorities. Section II provides an overview of PROVIA Activity 4, its work on the development of guidance on tools and methods to assess vulnerability, impacts and adaptation. The revised guidance will serve as a much-needed update of the 1994 Guidelines for National Greenhouse Gas Inventories of the Intergovernmental Panel on Climate Change and the 1996 Handbook on Methods for Climate Change Impact Assessment and Adaptation Strategies of the United Nations Environment Programme. The objectives, scope and relevance of the activity in terms of providing information on vulnerability, impacts and adaptation to Governments and decision makers are set out.

* UNEP/GC.27/1.

¹ Issued without formal editing.

I. PROVIA responding to the adaptation challenge: a global agenda of research on vulnerability, impacts and adaptation

Background

The research community provides scientific information on vulnerability, impacts and adaptation (VIA) related to climate change, but there is a demand from policy makers for an adaptation knowledge-base that is clearer and more coordinated. PROVIA serves as a platform whereby the scientific community can better harmonize, mobilize and communicate vital research to stakeholders.

One key PROVIA initiative is the development of a Research Agenda in consultation with both experts and policymakers. The PROVIA Research Agenda includes new and emerging VIA topics, the importance of which is now coming into focus, and topics that have long been recognized as important but for which research is still required. A common theme is the importance of building capacity for adaptation research and assessment in developing countries.

Process

To develop the Research Agenda, input was gathered from expert and policymaker communities through separate solicitation pathways. The expert prioritization of research topics began with a gap analysis based on existing literature from a range of sources including recent IPCC Working Group II Reports, peer-reviewed articles, books, reports, and white papers. Based on input from PROVIA's Interim Scientific Steering Committee (SSC) a Draft PROVIA Research Agenda was then distributed as an electronic survey for input from the VIA research community.

A research prioritization process with policymakers was developed in parallel with the expert community process. Three policymaker meetings were held with at least 15 policymaker participants representing both developed and developing countries. The input from the policymaker and expert processes, based on continuing feedback from both communities, was then combined to produce the PROVIA Research Agenda, which consists of 33 priority topics.

Next Step

PROVIA is organizing workshop to bring together implementing agencies and other main stakeholders working on climate change and adaptation to present the outcomes of PROVIA's work on international research priorities to promote VIA research and assessment and help to bridge the research gaps to allow policy options based on appropriate scientific evidence.

THE PROVIA RESEARCH AGENDA

Section A. Information Needed to Support a Broad Range of Policymaker Activities

A.1 Identifying the Problem

A.1.1 Develop Indicator and Monitoring Systems

A.1.2 Measure and Map Vulnerability

A.1.3 Understand Risks of Extreme Climate Events, Non-Linear Impacts, and Tipping Points

A.2 Advancing Vulnerability Reduction and Adaptation Solutions

A.2.1 Identify Factors that Support or Hinder Vulnerability Reduction and Adaptation

A.2.2 Develop Integrated Solutions that Maximize Mitigation and Sustainable Development

A.2.3 Advance Understanding of Effective Implementation

A.3 Providing Improved and More Inclusive Cost-Benefit Estimates

A.3.1 Advance Methods and Conduct Comprehensive Assessments of Monetary Costs of Impacts and Adaptive Measures

A.3.2 Improve Methods for Valuing Non-monetary Measures including Ecosystem Services Related to Vulnerability Reduction, Adaptation, and Mitigation

- A.4 *Enhancing Communication and Stakeholder/Public Participation*
- A.4.1 Conduct Studies that Result in Practical Ways to Build Capacity of Local Communities and Institutions to Communicate about Climate Change and VIA
- A.4.2 Determine how Communication between the VIA Research Community and Policymakers can be more Effective
- A.4.3 Advance Research on Lessons Learned from Developing Country Experiences, as well as Local and Traditional Knowledge

Section B. Sectors and Regions

- B.1 *Natural Resources and Key Sectors*
- B.1.1 Food Systems – Study VIA in Context of Extreme Events, Multiple Stresses, and Mitigation
- B.1.2 Water Resources – Study VIA in context of Extreme Events, Multiple Stresses, and Mitigation
- B.1.3 Ecosystems – Study VIA in context of Extreme Events, Multiple Stresses, and Mitigation
- B.1.4. Energy Systems – Study VIA in context of Extreme Events, Multiple Stresses, and Mitigation
- B.2 *Human Well-being*
- B.2.1 Advance Research on Climate Change and Human Health
- B.2.2 Investigate How Climate Change Modifies Human Security and the Risk of Conflict
- B.2.3 Identify Processes that Amplify or Dampen Climate Impacts on Vulnerable Populations
- B.3 *Critical Geographical Areas*
- B.3.1 Increase Understanding of Natural Processes and VIA in the Most Vulnerable Coastal Areas and Islands
- B.3.2 Focus Studies on Issues facing Arid and Semi-Arid Regions
- B.3.3 Expand Research on Key Open Ocean Topics
- B.3.4 Advance Understanding of VIA Issues in Mountain Regions and the Cryosphere
- B.3.5 Investigate VIA Challenges in Urban Areas and Cities as Early Responders

Section C. Emerging Topics

- C.1 Explore the Potential for, and VIA Implications of, Transformative Change
- C.2 Investigate the Impacts of Geoengineering on VIA
- C.3 Improve Understanding of Role of Law, Legal Tools, and Legal Principles in VIA
- C.4 Apply a Systems Approach to the Food-Water-Energy-Security Nexus and Other Interdependent Systems
- C.5 Research Participatory Processes that Enable Stakeholders to Explore Mitigation and Adaptation Decisions, including the Use of Global and Regional Scenarios such as the Shared Socio-economic Pathways (SSPs)
- C.6 Conduct Integrated Impact Model Intercomparisons to Improve System Understanding, Characterize Uncertainty, and Test Adaptation Strategies
- C.7 Advance Decision Theory Research
- C.8 Characterize the Relationships among Risk Perception, Climate Knowledge, and Behavior
- C.9 Test the Effectiveness of Different Types of Governance, Collaborative Frameworks, and Networks in Support of VIA policies
- C.10 Investigate How Planning and Design can Support Adaptation and Mitigation, in the Context of Sustainable Development

II. PROVIA guidance on assessing vulnerability, impacts and adaptation to climate change

Background

In 1994 the Intergovernmental Panel on Climate Change published *Technical Guidelines for Assessing Climate Change Impacts and Adaptations*. These guidelines outlined a series of generic steps to be followed when designing and conducting a climate change impact and adaptation assessment. The guidelines were complemented in 1996 by the *UNEP Handbook on Methods for Climate Change Impact Assessment and Adaptation Strategies*. The IPCC Guidelines and the UNEP Handbook were applied in a range of country studies during the decade following their publication. They also inspired the publication of additional guidance, including the *International Guidebook for Vulnerability and Adaptation Assessments* carried out as part of the US Country Studies Program, and the *Adaptation Policy Frameworks for Climate Change: Developing Strategies, Policies and Measures*, published by UNDP.

The past decade has seen a shift from centralised guidance for climate vulnerability, impact and adaptation assessment to the development of specific, often sectoral or place-based approaches. There has been a proliferation of assessment methods and tools, and it has become increasingly difficult for decision-makers and policy-makers to understand the utility, benefits, requirements and trade-offs of those methods and tools. Stakeholders' demand for knowledge on vulnerability, impacts and adaptation needs to be matched with the supply from the research community of clear technical guidance that takes into account both the academic developments of the past twenty years as well as user needs at local, national and international levels.

Objective of the Guidance

The Global Programme of Research on Climate Change Vulnerability, Impacts and Adaptation (PROVIA) responds to this challenge by revising and improving existing guidance for assessing climate change vulnerability, impacts and adaptation, covering the range of available approaches, methods and tools. The guidance should be informative rather than prescriptive in nature. Intended users are researchers, adaptation practitioners, decision-makers and those involved in policy formulation. It consists of three elements, which are being prepared in parallel: (i) framing the questions and approaches; (ii) approaches, methods and tools in vulnerability, impact and adaptation assessment; (iii) the adaptation process.

The vision underpinning PROVIA in general, and this PROVIA Activity in particular, is improved decision-making on adaptation to climate change in developed and developing countries, based on the best available knowledge on vulnerability, impacts and adaptation. The goal is to match stakeholders' demand for knowledge on climate change vulnerability, impacts and adaptation with the supply of clear technical guidance that takes into account both the academic developments of the past twenty years as well as user needs at local, national and international levels.

Scope and Status of the Activity

A group of ten international experts prepared a first draft of the PROVIA Guidance, which underwent extensive review in mid 2012. A final draft is currently being prepared. Throughout 2013 the consultation document will undergo in-depth testing by a variety of users operating in different geographical settings and with different assessment needs. It is also anticipated that an electronic, clickable version of the PROVIA Guidance will appear in 2013.

The PROVIA Guidance is structured along a four-stage iterative adaptation learning cycle, which comprises the following tasks:

- Appraising climate change vulnerability and impacts
- Appraising adaptation and choosing adaptation options
- Implementing adaptation actions
- Monitoring and evaluating adaptation action and learning.

An innovative aspect of the PROVIA Guidance is its reliance on the use of decision trees. Decision trees guide the user through various choices that are made when conducting an assessment, based on criteria specific to each stage of the adaptation learning cycle.

How is the Guidance Relevant?

The PROVIA Guidance is designed to be used on any spatial and institutional scale; its potential users are therefore manifold and diverse. The UNFCCC process, however, has been identified as a key 'audience' from the outset. In preparing the PROVIA Guidance, authors have interacted closely with the Least Developed Countries Expert Group (LEG) to ensure consistency with the guidance developed to support the preparation of National Adaptation Plans. In addition, authors have supported efforts by the Consultative Group of Experts on National Communications from Parties not included in Annex I to the Convention (CGE) to develop training materials on vulnerability, impacts and adaptation. Funding permitting, in 2013 PROVIA intends to continue to work with the UNFCCC Secretariat and the respective expert groups to develop dedicated materials, based on the PROVIA Guidance consultation document.
