



Workshop on the Status of Modelling Activities to Assess the Adverse Effects of Climate Change and the Impact of Implemented Response Measures – Bonn, Germany, 16–18 May 2002

Gaps and Limitations in Current Approaches to Vulnerability Assessment

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Gaps and Limitations in Current Approaches to Vulnerability Assessment


OUTLINE


- Vulnerability assessment – what and why?
- The role of stakeholders in vulnerability assessment.
- Towards a new generation of vulnerability assessments.
- Ongoing activities.
- Conclusions.





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vulnerability	stakeholders	a new generation	ongoing activities	conclusions
<p>VULNERABILITY TO CLIMATE CHANGE</p> <ul style="list-style-type: none"> • “The degree to which a system is sensitive to and unable to cope with adverse impacts of climate change. Vulnerability is a function of a system’s exposure, sensitivity and adaptive capacity.” <p>(adjusted from IPCC TAR, 2001)</p>				
				
				3


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<p>PURPOSE OF VULNERABILITY ASSESSMENT</p> <ul style="list-style-type: none"> • To produce information that helps to understand how a system is potentially affected by and responds to a change in climatic conditions. • To contribute to policymaking by presenting this information to stakeholders and recommending adaptation measures, including implementation considerations. 				
				
				4


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<p>TYPICAL APPROACH TO VULNERABILITY ASSESSMENT</p> <ul style="list-style-type: none"> • Outlined in IPCC Technical Guidelines (Carter <i>et al.</i>, 1994). • Applied in many country studies, reported in National Communications and academic papers. • Impact assessment based on model-derived, downscaled climate scenarios and heroic assumptions on adaptation (dumb farmer, dumb engineer, clairvoyant farmer). • Adaptation assessment limited to identification of options. 				
				5

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<p>LIMITATIONS OF THE TYPICAL APPROACH</p> <ul style="list-style-type: none"> • Uncertainty surrounding climate scenarios, particularly at national and local scales and for climate variables other than temperature and sea level. • Availability of quantitative data required for modelling impacts. • Time horizon of analysis. • Results are not likely to be used in planning and policymaking. 				
				6

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<p>WHY INVOLVE STAKEHOLDERS?</p> <ul style="list-style-type: none"> • Exchange of information. • Reality check. • Reformulation or sharpening of research questions. • Link to policy / management / adaptation. • Stakeholders can benefit from good vulnerability assessments, vulnerability assessments can benefit from good stakeholders. 				
				7

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<p>HOW TO INVOLVE STAKEHOLDERS?</p> <ul style="list-style-type: none"> • Questionnaires / interviews / workshops. • Need to be able to explain project goals, methodology and results in simple and concrete terms. • Need to show the mutual added value of a stakeholder dialogue. 				
				8

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<p>HOW TO INCORPORATE STAKEHOLDERS' INTERESTS, IDEAS, PERCEPTIONS AND BEHAVIOUR?</p> <ul style="list-style-type: none"> • Qualitative input into problem definition, identification of key issues and scenario and indicator development. • Mental model describing current and perceived future options and decision-making relationships that affect vulnerability and adaptation. • (Semi-) quantitative, agent-based modelling. 				
				
				9


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<p>ISSUES TO CONSIDER</p> <ul style="list-style-type: none"> • Timing of stakeholder involvement. • Selection of stakeholders and scale of stakeholder interests. • Trade-off desirability with feasibility of type, depth and resolution of analysis and modelling. • Form of stakeholder dialogue and relevant materials. 				
				
				10

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vulnerability stakeholders **a new generation** ongoing activities conclusions

A NEW GENERATION OF VULNERABILITY ASSESSMENT

- First generation: characterised by model and scenario-based analyses of potential impacts, limited consideration of adaptation.
- Second generation: includes assessment of adaptive capacity, involves stakeholders, links climate change with climate variability.



11

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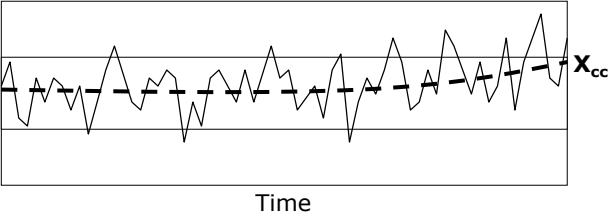
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Value of climatic attribute or effect


$+X^*$

X_{pc}


$-X^*$





X_{pc} Mean value of the climatic attribute X at the start of the time series.
 X_{cc} Mean value of the climatic attribute X at the end of the time series.
 $+X^*$ Upper critical value of X for the system of interest.
 $-X^*$ Lower critical value of X for the system of interest.
 - - Trend in mean value of X.
 Coping range or zone of minimal hazard potential for system of interest.





12


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<p>LINK WITH TODAY'S CLIMATE VARIABILITY</p> <ul style="list-style-type: none"> • Analysis of a country's ability to cope with impacts associated with today's natural climate variability can provide useful empirical information on its capacity to adapt to climate change. • It can also be the basis of a prioritisation of adaptation needs that will reduce vulnerability to both today's and tomorrow's climate. 				
				13


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<p>SECOND-GENERATION VULNERABILITY ASSESSMENT</p> <ul style="list-style-type: none"> • Advantages: increased policy relevance, results relate directly to stakeholders' activities and opportunities. • Disadvantages: greater reliance on expert judgement, qualitative results hamper mutual comparison, no clear methodology available. 				
				14


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<p>THE AIACC PROJECT</p> <ul style="list-style-type: none"> • AIACC: Assessment of Impacts of and Adaptation to Climate Change in Multiple Regions and Sectors. • IPCC-initiated project, funded by GEF. Executive agency is UNEP, implementing agencies are IGBP-START and TWAS. • Project funds are ~ USD 7.5 million, used for 25+ transnational interdisciplinary projects in developing countries. • Project leader: IGBP-START (Neil Leary-nleary@agu.org). 				
				15

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<p>INNOVATIVE ASPECTS OF AIACC</p> <ul style="list-style-type: none"> • AIACC encourages the involvement of stakeholders and is less dependent on quantitative data. • It encourages consideration of adaptation in the context of ongoing planning activities and policies on natural hazards and resource management. • It requires the involvement of social scientists in a multi-disciplinary research group. 				
				16

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<p>FROM ADAPTATION TO ADAPTIVE CAPACITY</p> <ul style="list-style-type: none"> • Implicit in most vulnerability studies using the IPCC Technical Guidelines is the assumption that there are no constraints in implementing the adaptation options identified and analysed. • Information on the extent to which mechanisms are in place and technologies, expertise and other resources are available is likely to give a more reliable picture of vulnerability to climate change. 				
				17

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<p>THE ADAPTATION POLICY FRAMEWORK (APF)</p> <ul style="list-style-type: none"> • GEF and Switzerland-funded project to enable countries to assess adaptation in the context of current and future development policies. • Nine Technical Papers are being prepared on issues relevant to adaptation and development, including risk management, stakeholders, socio-economic scenarios and adaptive capacity. • The APF is being tested in Central America. 				
				18

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<p>THE PHILOSOPHY OF THE APF</p> <ul style="list-style-type: none"> • First-generation vulnerability studies have created awareness of the need to adapt but they provide limited guidance to adaptation planning. • For adaptation to be effective it must be integrated into ongoing development activities and natural disaster reduction. • The APF should provide non-prescriptive guidance. • Project leader: UNDP-GEF (Bo Lim-bo.lim@undp.org). 				
				19

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<p>CONCLUSIONS</p> <ul style="list-style-type: none"> • Modelling the adverse effects of climate change has been useful to create awareness of the potential magnitude of climate change and the need to respond. • However, the contribution of top-down modelling to adaptation planning is limited. • The traditional modelling approach must be complemented by local, bottom-up information on stakeholders' interests, priorities and capacities, including development and natural hazards. 				
				20