What is a Climate Change Vulnerability Assessment?

Why should we care about climate change?

Climate change is not a distant problem. It is an immediate regional and local phenomenon that must be taken into account by local governments, cities, states and nations around the world. This fact sheet describes a useful tool that can be used by decisionmakers to meet the emerging climate challenges.

What is Vulnerability?

Vulnerability has emerged in recent years as a central organizing concept for facilitating a structured process to identify and assess relative risks.

Vulnerability is defined as the "degree to which a system is susceptible to, or unable to cope with, adverse effects of climate change, including climate variability and extremes"(IPCC, 2014).

Vulnerability (V) is measured as function of Exposure (E), Sensitivity (S), and Adaptive Capacity (AC)

$$V = f(E, S, AC)$$

Vulnerable systems are usually both sensitive to climate and are less able to adapt.

What is a Vulnerability Assessment?

Vulnerability assessments (VA)'s are an approach for synthesizing information on biophysical conditions, infrastructure, economics, social characteristics and other locally important factors. They provide a framework and iterative process for examining vulnerabilities and evaluating potential intervention

Who Uses Them?

To prepare for the risks imposed by climate change VA's are used in a variety of sectors including – disaster management, public health, poverty, food security, ecology and climate change research. Practitioners include land, water utility, and natural resource managers, local authorities, planners, policymakers, academics, scientists, as well as agricultural producers.

Vulnerability Assessments are useful for?

- ***Identifying and prioritizing threats -*** that are regional; and assessing local vulnerability across different sectors.
- ***Guiding decision-making*** - for prioritizing specific mitigation strategies that reduce vulnerability.
- ***Advancing your own discourse*** - and dialog about adaptation and resilience using language and indicators that reflect local concerns.
- ***Identifying and strategizing funding*** - for the accompanying range of adaptation measure that need to be taken.

General Steps-

Step 1 **DEFINE** the concepts and criteria for VA together with stakeholders. Hypothesize who is vulnerable to what- identify biophysical drivers, sectors, and the spatial and temporal scale.

Step 2 **COLLATE** the required Information for indicators representing E, S, and AC.

Step 3 **INTERGRATE** Operationalize model with normalization and aggregation of indicators

Step 4 **ASSESS** Visualize results with chloropleth maps or radar charts. Results can be both socially and spatially referenced which is useful for understanding outcomes as vulnerability is associated with social and environmental phenomena, which often have locational components.

Step 5 **COMMUNICATE** use the outputs of assessment to explore and communicate adaptation options.

Conclusion – Take Away Points

1. VA's are used for informing the decision-making of specific stakeholders about adapting options
2. Completion of a VA provides a diagnosis. With this information decision-makers are better equipped to identify threats, communicate challenges and respond to emerging challenges pro-actively.
3. **NEXT STEPS-** Attend our next two webinars with ITEP, or contact Anna (apalmer@dri.edu) or Derek (kaunecki@ohio.edu) for more information.

This factsheet is made possible by the generous support of the United States Department of Agriculture (USDA) National Institute of Food and Agriculture (NIFA) as part of the Native Waters on Arid Lands project (NWAL). The contents are the responsibility of and do not necessarily reflect the views of USDA, NIFA or the United States Government.
For more information please visit www.nativewaters-aridlands.com

For more information on this topic please contact:
Anna Palmer, Research Faculty at the Desert Research Institute (DRI)
T: +845-721-5221 | E: apalmer@dri.edu | W: annaepalmer.com
Derek Kauneckis, Associate Professor of environmental studies at the Voinovich School of Leadership and Public Affairs, Ohio University T: +740-566-7049 |E: kaunecki@ohio.edu