

ADDITIONAL INFORMATION
NORTH CENTRAL CLIMATE SCIENCE CENTER
FUNDING OPPORTUNITY: NEEDS AND EVALUATION CRITERIA

This Funding Opportunity addresses funding for both FY 2013 and FY 2014

Eligible Applicants:

Only members of the NORTH CENTRAL CLIMATE SCIENCE CENTER (NC CSC) University Consortium (see table below) and USGS centers, field stations and laboratories may submit proposals in response to this Funding Opportunity. The University Consortium members and lead contacts are given below. It is not necessary for a university lead contact to be included on the proposal, but these contacts have a strong sense of the primary objectives of the NC CSC. As such, University PIs may wish to discuss proposal ideas with their respective lead.

Each proposal must have a Principal Investigator (PI) from an eligible entity. Proposals with co-PIs, one from the USGS and one from a University consortium member are encouraged and will be evaluated more favorably.

Parties from other organizations (Federal, State, Tribal, or other) are encouraged to establish working partnerships with one of the recognized eligible applicants to seek participation as part of a project headed by a CSC/university consortium or USGS PI. Proposals with co-investigators from such organizations, showing clear benefits through a collaborative effort will be evaluated more favorably.

Consortium-initiated proposals must be submitted through Colorado State University (CSU). Other parties may participate on funded projects via subawards.

For questions on charges applied by CSU, please contact:

Neil Shropshire
Colorado State University,
Research Coordinator, Natural Resource Ecology Lab
(970) 491-4933
Neil.Shropshire@ColoState.EDU

NC CSC University consortium (listed alphabetically):

Consortium Member	Lead contact	e-mail address
Colorado School of Mines	Reed Maxwell	rmaxwell@mines.edu
Colorado State Univ.	Dennis Ojima	dennis.ojima@colostate.edu
Iowa State Univ.	Chris Anderson	cjames@iastate.edu
Kansas State Univ.	John Briggs	jbriggs1@ksu.edu
Montana State Univ.	Cathy Whitlock	ioedirector@montana.edu
Univ. of Colorado	Kristen Averyt	kristen.averyt@noaa.gov
Univ. of Montana	Ric Hauer	ric.hauer@fibs.umt.edu;
Univ. of Nebraska-Lincoln	Robert Oglesby	roglesby2@unl.edu
Univ. of Wyoming	William Lauenroth	wlauenro@uwyo.edu

Funds Flow: All funds will be transferred from NC CSC to either a USGS entity or CSU. These entities may then provide subawards to members of the CSC consortium or other parties.

Estimated Available Funds: Approximately \$1,000,000 may be available to fund projects that support NC CSC science priorities, with roughly half of these funds being distributed in each Fiscal Year 2013 and 2014.

Project funding amount: Total funding for individual projects will not exceed \$450,000.

Project Duration: Not to exceed 36 months.

NC CSC Contact: Dr. Jeff Morisette, Director
NC Climate Science Center
Natural Resource Ecology Lab
Dept. 1499
Colorado State University
Ft. Collins, CO 80523-1499
Office: 303-968-8986
Email: morisettej@usgs.gov

Submission Portal: [HTTPS://NCCWSC.USGS.GOV/RESEARCHFUNDS](https://nccwsc.usgs.gov/researchfunds)

BACKGROUND:

The North Central Climate Science Center (NC CSC) believes the strongest need at this point is to demonstrate how climate science can be integrated into resource management decision-making¹. This solicitation follows the recommendations of

¹ Throughout this solicitation, the term decision and decision-making is used in a general sense pertaining more to managers' allocation of their resources than to any specific or legally-binding decision.

the National Research Council (National Research Council, 2009) to focus on user's needs and gives priority to developing the process by which climate science can assist in land management decisions.

In its five-year plan, the NC CSC has adopted the 4-step resource management framework shown in Figure 1 (following the framework from "scanning the conservation horizons", Glick et al. 2011). While there is the need to iterate within this process, the NC CSC is seeking teams and projects that can successfully demonstrate at least one iteration through a climate change vulnerability assessment process (or similar framework to incorporate climate science into a management decision process) within three years.

Proposal teams are encouraged to utilize a framework that incorporates stakeholder outreach and engagement. Using the Glick et al (2011) framework, for example, resource managers, the public, and other stakeholder can be engaged in step 2 to help assess vulnerability to climate change – based on what they are observing on the ground – to build a better understanding of how their management target is impacted by long-term weather patterns and climate change.

Furthermore, inclusion of social-ecological system framing of the project is encouraged and incorporation of research that includes analysis of the socio-political dimensions will be viewed favorably. Research approaches which enhance the understanding of vulnerability and adaptive capacity of the social-ecological system in which the issue is nested are desired. This can be either through collaboration with social scientists at their institution, in their existing network, or with the help of the NC CSC.

In reference to Figure 1, the NC CSC considers the term "conservation" goals and targets fairly broadly and is taken to include renewable energy and cultural resources. Also, the term "vulnerability assessment" tends to focus on potential negative consequences. The NC CSC is open to consideration of potential positive opportunities that may be presented by future climate changes. Swapping "Assess vulnerability to climate change" with "Assess *opportunities from* climate change" in step 2 allows for the framework to be applied in such cases.

Overarching Conservation Goal(s)

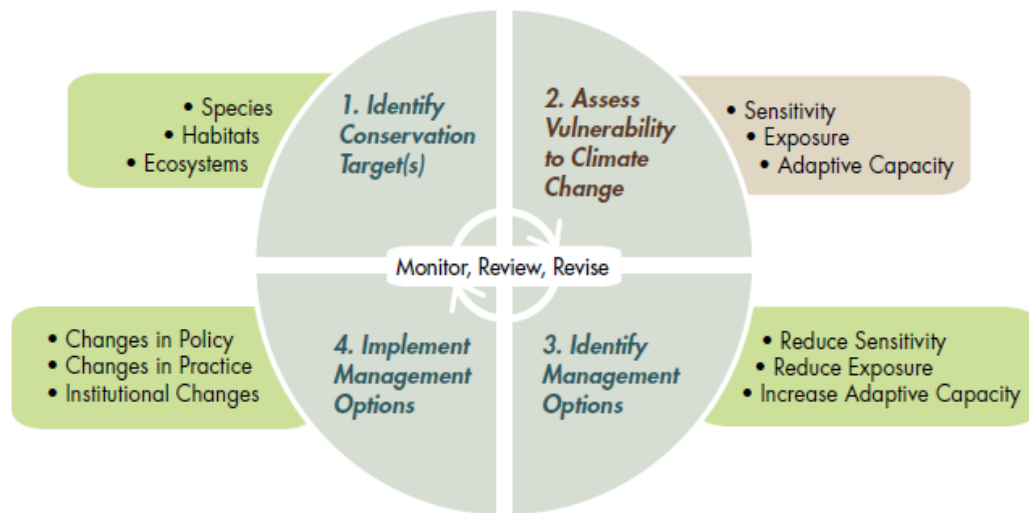


Figure 1: example four-step conservation vulnerability assessment framework.

Building on the NC CSC five year plan [<http://pubs.usgs.gov/of/2012/1265/>], the NC CSC has established the Resource for Vulnerability Assessment, Adaptation and Mitigation Planning (ReVAMP, Figure 2) as its primary science delivery tool.

The objective of ReVAMP is to develop a regional resource for resource managers to access and utilize the best available climate science and synthesis to inform their strategic planning and management decision.

Proposals invited through the solicitation are for teams that will serve as initial users of ReVAMP. As such, teams are expected to be both engaged and flexible and, as pilot users, help direct the configuration of this resource. Therefore, this solicitation is looking to have climate science inform a decision process with management teams ready and willing to use and help define the ReVAMP.

The National Research Council (2009) suggests that government agencies organize their climate-related decision support efforts around six principles:

- 1) begin with user's need in mind (decision makers, communities, and other stakeholders)
- 2) give priority to process over products
- 3) link information producers and users
- 4) build connections across disciplines and organizations
- 5) seek institutional stability and
- 6) design process for learning.

The NC CSC is looking for work solicited here to integrate with ReVAMP to help the NC CSC develop these principles. The work solicited here will be the foundation for principles 1-3. Points 5 and 6 will be addressed through the NC CSC's long term

commitment to ReVAMP, through its science delivery and foundation science areas (Figure 2). Principle 4 will be developed by having the decision processes solicited here serve as a catalyst for interaction across the NC CSC foundational research areas to meet the information needs of that decision process.

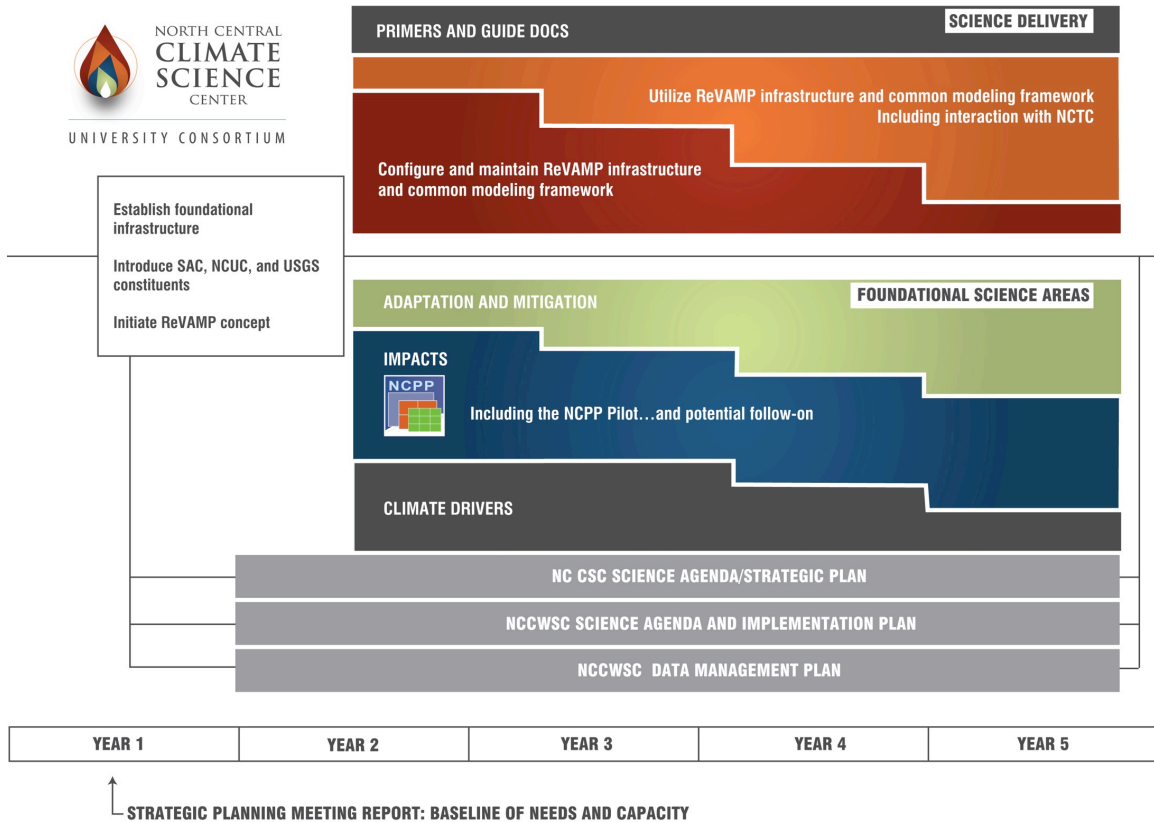


Figure 2: the five-year strategy of the North Central Climate Science Center

SOLICITATION CRITERIA

Evaluation of Statements of Interest: the NC CSC will instruct the review panel to use the following criteria to evaluate SOIs, according to specific weights (in parentheses):

- (20%) An explicit description of how the project is connected to a resource management concern.
- (20%) A clear description of how the management target may be impacted by climate.
- (25%) A project team that is actively engaged with the intended users of the scientific output (e.g., inclusion of managers on study teams, periodic “check-in” meetings with stakeholders, creation of practitioner advisory teams, etc.).
- (20%) A project team with qualifications to understand complex social-ecological-climatological issues related to the management target(s).

- (15%) A project that provides opportunities for cross-CSC collaboration, builds upon existing work and capacity, and/or coordinates funding with collaborating partners and leverages additional resources to carry out the proposed project

Evaluation of Invited Proposals: The following information provides details on the criteria for full proposals (with specific weights in parentheses).

1. Management Significance (20%):

A clear articulation of the resource management topic and decisions/management actions that are being considered which addresses important Department of Interior land, water, fish and wildlife, or cultural heritage resources in the region and/or Regional Tribal interests.

2. Scientific merit and quality of the proposed research (20%):

A strong demonstration and presentation of evidence that climate drivers have a significant impact on the resource management issue. Proposals should demonstrate that the relevant available data and climate science are at the stage where they can inform the decisions identified. Proposal should consider current climate or weather trends to establish a baseline. And the project should aim to build an understanding of how the resource target(s) may be impacted by a dynamic and non-stationary climate.

Oftentimes the results needed or desired are not within the capabilities of predictive climate or ecological response models or on the time scale or spatial scale needed for certain types of decisions. Given the evolution of the science and the models, and that some types of decisions are better suited for what climate science can provide, successful proposals must be framed with realistic goals and outcomes. That is, proposals must demonstrate that the desired scientific capabilities match the desired decisions.

3. Coordination and Engagement (25%):

Proposals should present:

- expressed willingness directly from resource managers to have climate science inform the decision process using the four-step assessment cycle (Figure 1) or similar framework (e.g., Cross et al, IPCC 2007, etc) over the next two to three years.
- a clear statement of how the proposed effort contributes to Landscape Conservation Cooperative (LCC) and/or Tribal resources management issues, and
- expressed willingness and strategy to work closely with NC CSC to use and help define the ReVAMP.
- expressed strategies to inform and engage relevant members of the potentially affected communities and stakeholders in order to learn from their experience and on-the-ground observations and build understanding of climate change as it relates to resource conservation and use

Proposals should also describe how the project is coordinated, complementing, or integrating with existing work of the study team members.

All resource managers involved with the project should provide a letter of support that clearly demonstrate their understanding of how the proposed research can help inform their decisions, and how a better understanding of climate is needed in that decision process. This letter should demonstrate some level of understanding of the climate science issues and limitations described in point #2.

4. Study Team qualifications (20%):

The proposing team should have the appropriate interest, high-level training, and qualifications to understand complex social-ecological-climatological research. Proposal should demonstrate a commitment for end-to-end participation from an interdisciplinary, inclusive team with the following members:

- on-the-ground managers that will ultimately be responsible for carrying out the management decision
- upper level managers that have the power to commit resources and make final implementation decisions and
- relevant climate, biophysical, and social scientists who are qualified to provide high-quality, rigorous scientific analysis and results that are usable understandable, and defensible.

(As noted in the National Climate Change and Wildlife Science Center “Annual Funding Opportunity”: applicants with significant issues regarding timely or effective completion of projects will be eliminated from further consideration until the issues are addressed to the satisfaction of the CSC and NCCWSC.)

5. Budget/work plan (15%):

Project budget and work plans should reflect the proposed level of work, expected benefits, complexity and/or scope of effort, and practicality and achievability of the proposed project. Work plans should present a detailed schedule of milestones, workshops, or meetings needed to engage key stakeholders and integrate climate science into the decision framework, and specific plans for communicating the process and outcomes to decision makers and stakeholders (e.g. outreach). Projects should build upon existing work and capacity and/or coordinate funding with collaborating partners and leverage additional resources to carry out the proposed project

ADDITIONAL CONSIDERATIONS

Capacity available through the NC CSC is described at its University Consortium web site: revampclimate.colostate.edu. As selected teams will be the initial users of the ReVAMP, proposal teams are encouraged to utilize the capacity available through this resource (which includes the North Central Climate Science Center and assistance from its University Consortium) to inform the decision process over the course of the project.

Proposal team are encouraged to develop as much capacity as possible within their team but also use the resources available through the NC CSC. We appreciate that each proposing team will likely have a unique balance between the proposal team's capacity and what can be utilized and expected from the NC CSC. Proposing teams are encouraged to contact the NC CSC director to discuss how the NC CSC capacity could be utilized by a proposed project.

Through this solicitation the NC CSC is primarily looking to connect to a current planning or management decision process. There is internal capacity within the NC CSC as well as some funds that have been retained for directed support. Both are available to augment, through collaboration, the proposal teams. So, proposal teams should a) focus on assembling a team that has a very strong connection to the management issue(s) and decision process, b) include collaborators on the proposal team with expertise in relevant climate, ecological, social-economic science as such connections and collaborators are available to the PI/(s), and c) recognize that the NC CSC has staff and capacity that can be used to provide support in the fundamental science and modeling that will be needed.

It is helpful to consider this solicitation in light of both Figure 1 and Figure 2 and how they relate to each other. The work solicited here is looking for teams that can iterate through a management framework (e.g., Figure 1, Cross et al, IPCC 2007, agency planning processes, etc). The NC CSC is looking to support that activity through ReVAMP and its foundational science areas. The NC CSC is using directed funds and its own staff and resources to develop the "horizontal" components; while using the work solicited here to "vertically" integrate across those components, as represented in Figure 3.

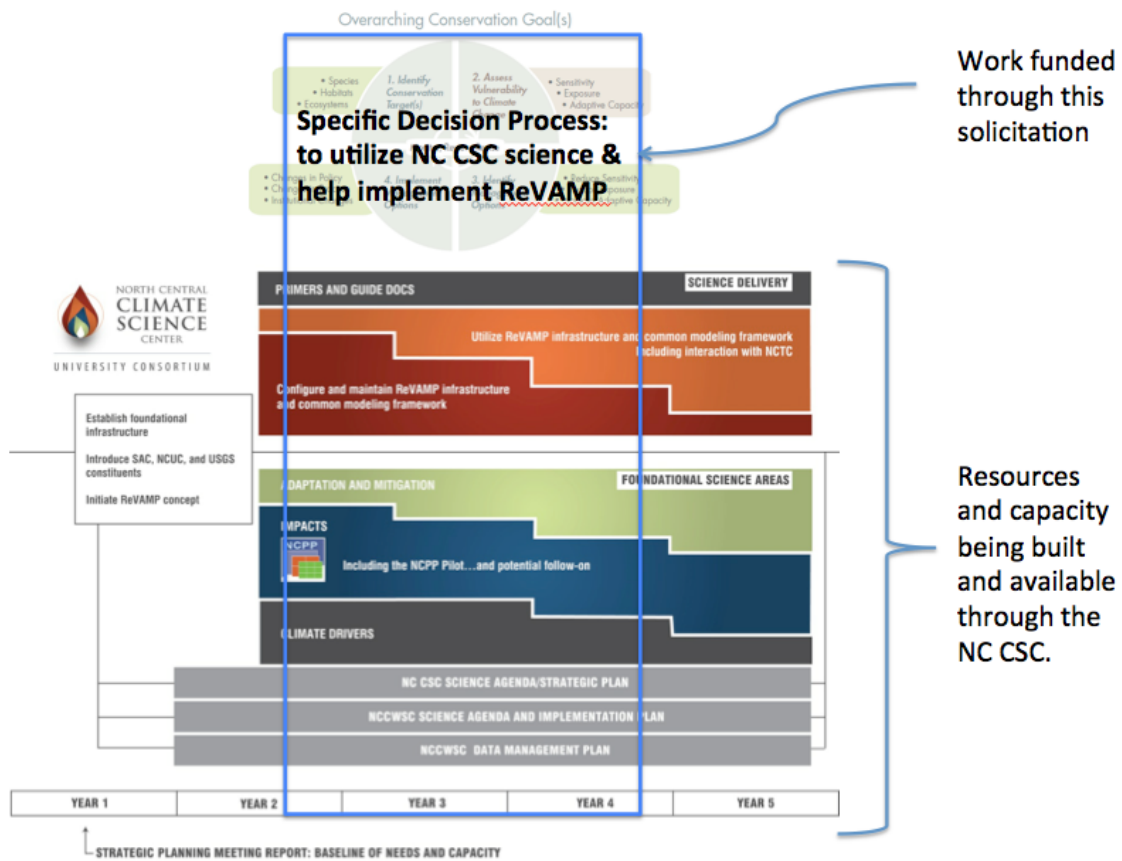


Figure 3: integration of ReVAMP and the foundational science areas through the decision processes funded through this call.

Proposing teams are encouraged to focus on resource management issue(s) that are a priority for one or more LCC or Tribes in the region. Proposal teams that can provide such a connection will be evaluated favorably. The LCCs provide an excellent resource to identify specific resource managers as well a clearinghouse on regional resource issues. Proposers are encouraged to contact LCC to understand the critical conservation targets and managers associated with those particular targets.

Primary Landscape Conservation Cooperatives within the North Central Domain

Great Plains http://www.greatplainslcc.org/	Heather Whitlaw	heather_whitlaw@fws.gov
Great Northern http://greatnorthernlcc.org/	Yvette Converse	Yvette_Converse@fws.gov
Plains and Praire Potholes http://plainsandprairiepotholeslcc.org	Rick Nelson	Richard_D_Nelson@fws.gov
Southern Rockies http://www.fws.gov/mountain-prairie/lcc/southernRockies/	Kevin Johnson	Kevin_M_Johnson@fws.gov

Essentially, the NC CSC is looking to “solicit for the clients” (that is, requesting team that can apply and explore the integration of climate-social-ecological systems analysis in a decision-making context or process). Another way to consider this solicitation is an end-to-end participatory framework where climate is being mainstreamed into the process; specifying that climate science be explicitly and demonstrably integrated into the decision process. The resulting effort should focus on the co-production of knowledge.

Example of climate-related decisions that would be appropriate for this solicitation:

- Species or habitat conservation, ranching, or water system management plans that consider river-basin scale eco-hydro-climatology impacts such as drought, floods, or seasonal changes within the relevant social-ecological systems.
- Implications of climate variability and change in the success or failure of reintroduction of keystone species.
- Decision to use, and/or the selection of, surrogate species (relative to keystone, umbrella, or indicator) based on climate trends and scenarios.
- How climate variability and change might affect threatened or endangered species management.
- Livestock grazing and wildlife habitat management actions that consider how climate variability and change may affect vegetation composition, distribution and resilience
- Fire regimes and fuels management strategies or plan that include the potential implications of climate change
- Integration or mainstreaming of climate knowledge into a management plan (e.g., Forest, Refuge, State Wildlife Action Plans).
- Easement purchases or Conservation Reserve Program implementation (amount and location for such lands) related to preserving species, habitat, or migration routes that may change under a dynamic climate.
- Specific implementation of control efforts for invasive species that might proliferate in a dynamic climate.

- Dam releases and stream flow management under a changing precipitation, temperature, and snowpack/runoff regime.
- Location of energy development with socio-ecological-climate considerations and implication for DOI resources.
- Integrated energy-water-land management plans or agreements that consider a changing climate or outreach and extension programs to private lands..
- Climate sensitive mitigation plans, for instance related to bioenergy, renewable energy development, carbon sequestration, energy conservation in rural and/or tribal communities.

This solicitation does not anticipate funding activities to collect new data. However, if within the decision framework there is research involving any animal or human subjects, proper procedures must be followed as detailed in the NCCWSC “Annual Funding Opportunity” document.

Additional Information

- Background information on the North Central Climate Science Center can be found at revampclimate.colostate.edu
- The North Central Climate Science Center will host two questions and answer sessions pertaining to this solicitation:

Tuesday, January 15, 2013, 11:00 Mountain time:

<https://usgs.webex.com/usgs/j.php?ED=189306927&UID=482885877&RT=MiM2>
Teleconference: 703-648-4848, passcode: 67416#

Thursday, January 17, 2013, 2:00pm Mountain time:

<https://usgs.webex.com/usgs/j.php?ED=189306957&UID=482885877&RT=MiM2>
Teleconference: 703-648-4848, passcode: 67416#

- NOTE RE: PASS THROUGH INDIRECT COSTS: All proposals submitted by non-USGS entities will be funded through a cooperative agreement with the host institution. For the NC CSC, this is Colorado State University. It is the agreement with CSU as the host institution to apply indirect charges (in the amount of 31.3% to be applied to the first \$25,000 of any funds passed through to a third institution. Please include the appropriate indirect charges on the budget sheets for your proposal.

References Cited

Cross, M. S., Zavaleta, E. S., Bachelet, D., Brooks, M. L., Enquist, C. a F., Fleishman, E., Graumlich, L. J., et al. (2012). The Adaptation for Conservation Targets (ACT) framework: a tool for incorporating climate change into natural resource

management. *Environmental management*, 50(3), 341–51. doi:10.1007/s00267-012-9893-7

Glick, P., Stein, B.A., and Edelson, N.A., eds., 2011, Scanning the conservation horizon: A guide to climate change vulnerability assessment: Washington, D.C., National Wildlife Federation, 176 p.

IPCC. (2007). *Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*. (M. L. Parry, O. F. Canziani, J. P. Palutikof, P. J. van der Linden, & C. E. Hanson, Eds.). Cambridge, U.K.: Cambridge University Press. Retrieved from <http://www.ipcc.ch/ipccreports/ar4-wg2.htm>

National Research Council, 2009. Informing Decisions in a Changing Climate. Panel on Strategies and Methods for Climate-Related Decision Support, Committee on the Human Dimensions of Global Change. Division of Behavioral and Social Sciences and Education. Washington, DC: the National Academies Press. 188 p.