Climate decision making in the Carolinas: The role of information networks in supporting adaptation

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National Climate Assessment research

- "Engaging Climate-Sensitive Sectors in the Carolinas"
  - Assess the capacity of the Carolinas to adapt to climate variability and change
  - Forestry, Government, Tourism, Water, Wildlife
  - Climate Concerns, Decisions, and Information Use
  - Climate Change Activities and Communication Frames
  - Adaptive Capacity
  - Needs and Recommendations

Background

- Identifying and improving understanding of the decision making context, existing patterns of knowledge exchange, and decision support needs can help to inform the development of more effective tools and processes for disseminating climate information and supporting adaptation (NRC 2010; Dilling 2007).

References:

NRC (National Research Council). 2010. *Informing an Effective Response to Climate Change*. Washington DC: National Academies Press

Dilling, L. 2007. Toward science in support of decision making: characterizing the supply of carbon cycle science. *Environmental Science & Policy* 10:48-61.

Research questions

- Climate Concerns, Decisions, Information Use
  - What are the primary climate-related decisions occurring in the study sectors?
  - What types of climate information are used by the study sectors?
  - Who are the major providers of climate information for the study sectors?
  - What factors influence why specific sources are used by the study sectors?

Methods

- Web-based search for documents, key sector leaders engaged with climate-related activities
- Documents (n = 128)
- Coupled Questionnaires/Interviews (n=117)
- NVivo used to code and analyze interview transcripts

The decision making context

- Many climate stressors in the Carolinas, however climate is not the primary focus of decisions
- Multiple time-frames
  - Operational, seasonal, annual, long-term
- Varying goals and objectives, use of weather and climate information

Examples of climate-related decisions and activities

Decision types	Operational	Seasonal	Annual	Long term
Forestry	Fire management			Timber management Conservation planning
	Paper mills: effluent releases	Biofuels: Research & Development		
Government	Utility operations Public health advisories Emergency management	Water, wastewater, and storm-water systems: management and infrastructure planning Public health planning Emergency management preparedness		
Tourism	Management of tourist destinations	Marketing and promotion		Land use planning and future development
Water	Monitoring water supplies, water quality, extreme events Utility operations			Infrastructure design
Wildlife	Fire management Resource monitoring and sampling	Impoundment management		Land use management Conservation planning

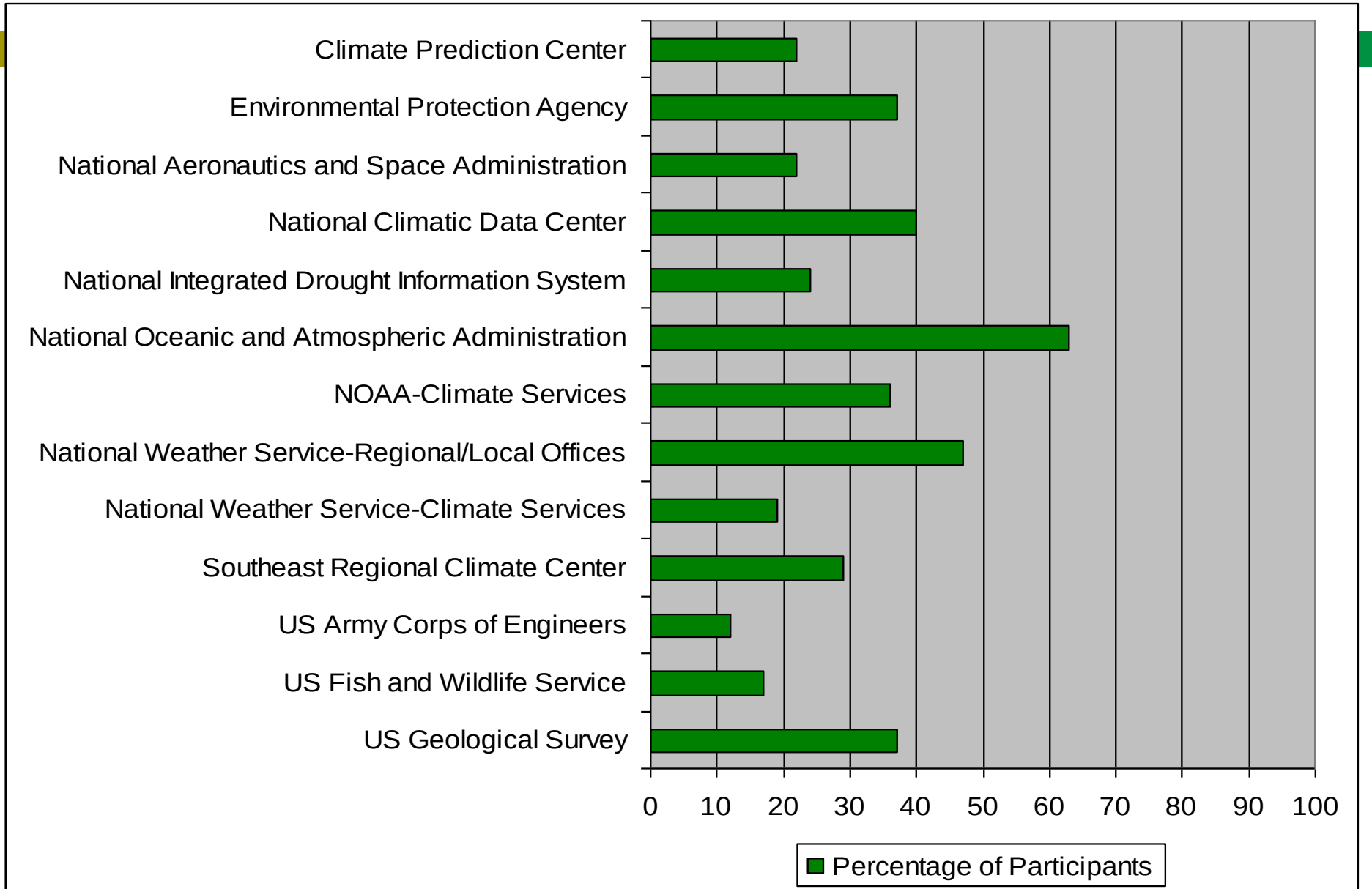
Information use by sector

- Forestry: forecasts-outlooks, drought, weather-climate variables
- Government: climate models, extremes, weather-climate variables, societal response
- Tourism: weather, forecasts-outlooks, extremes
- Water: hydrological-climate data and models, drought, extremes
- Wildlife: climate forecasts and models, climate change and impacts

Primary sources of climate information

- Federal Agencies
- State Agencies
- Printed Documents
- Other Sources

Federal agency sources

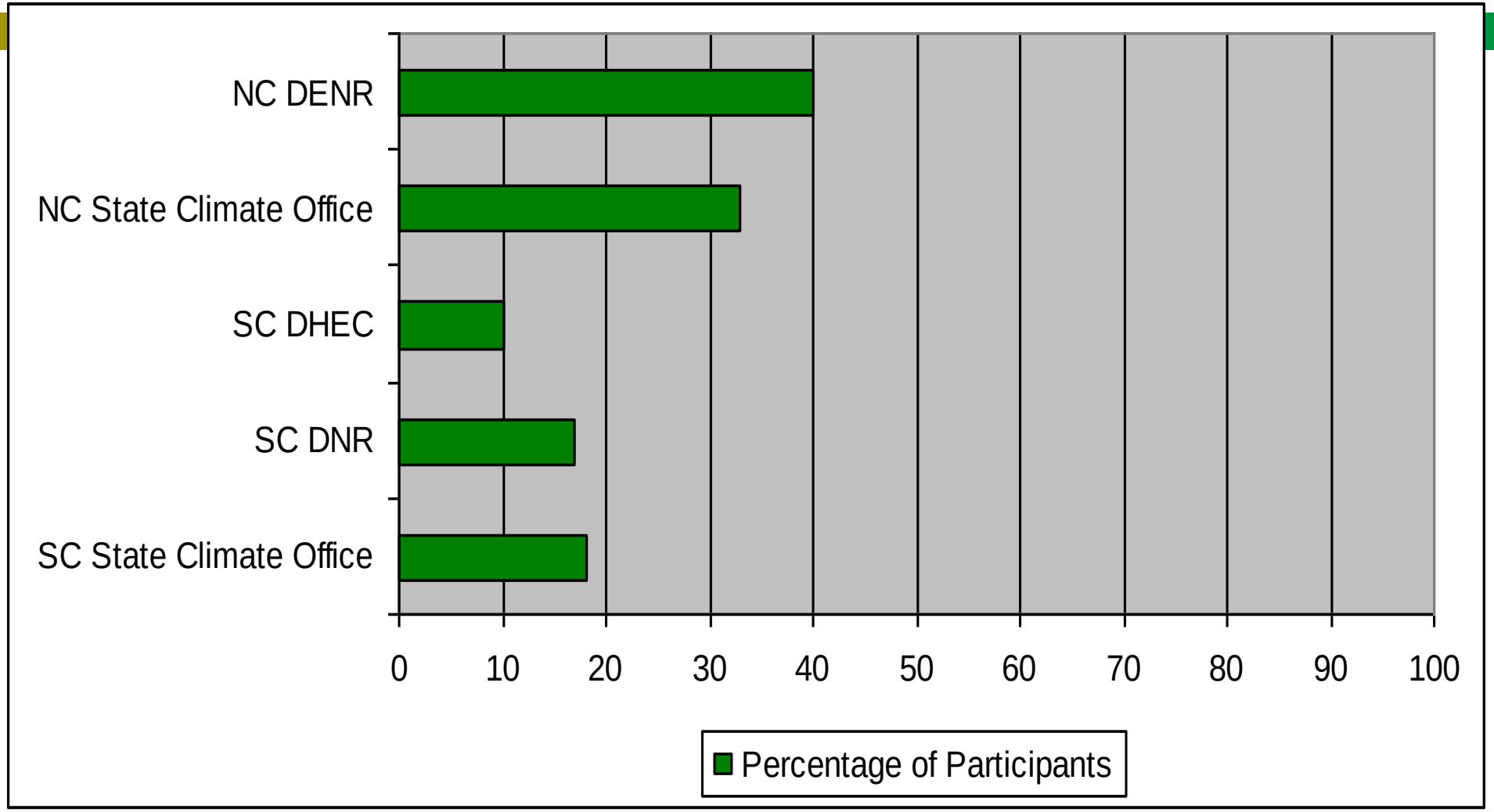


Federal agency sources

- Types of info obtained: climatologies, specific climate variables, forecasts and outlooks
- Credibility, trust in scientific sources

- Agency preferences
  - Certain types of information, e.g. sea levels, climatology, climate variables from NOAA-affiliated offices
  - By sector, e.g. Water/US Geological Survey, Forestry/US Forest Service
- Expertise, authority of particular agencies
  - USGS

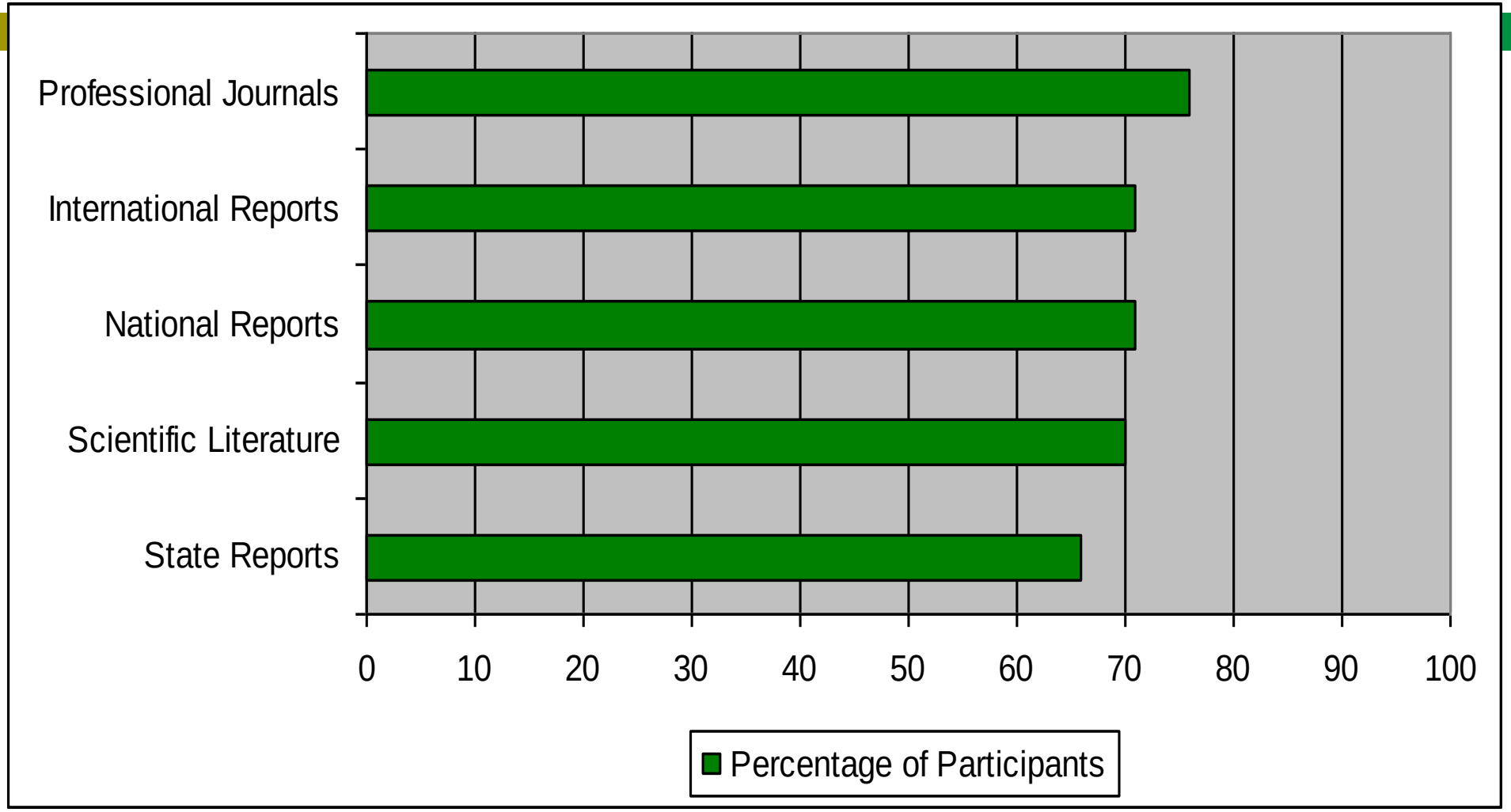
State agency sources



State agency sources

- Types of info used: climatologies, specific climate variables, forecasts and outlooks
  - Similar information as obtained from federal sources, however:
- Relevance to regional and local decisions
- Trust, personal relationships with information providers
- Technical competence, lack of bias

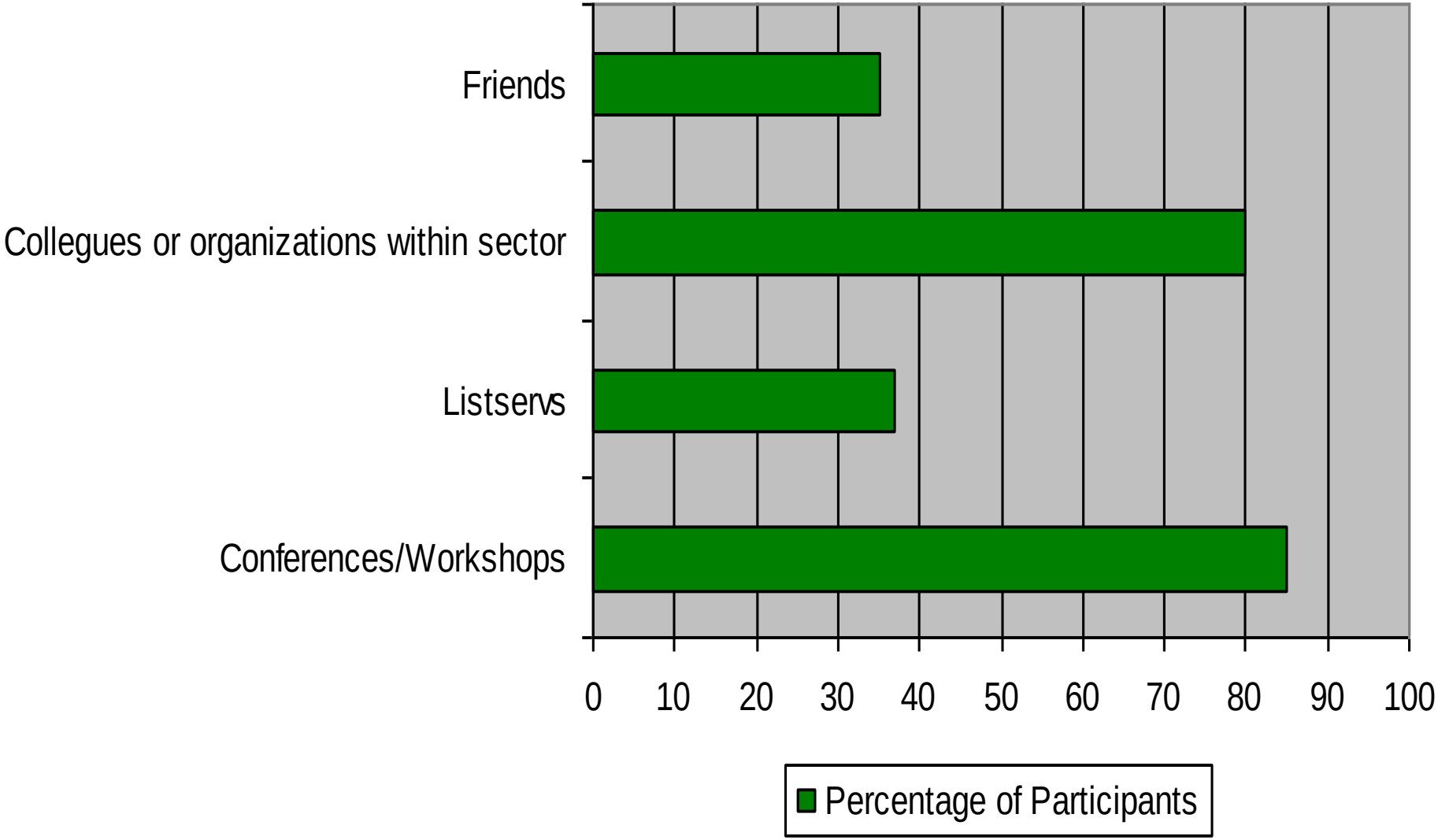
Documents


Professional Journals
International Reports
National Reports
Scientific Literature
State Reports
0
10
20
30
40
50
60
70
80
90
100
Percentage of Participants

Documents

- Credibility, trust
  - Professional, scientific sources
- Familiarity, accessibility
  - Previous knowledge or use of the source
  - Format, ease of use
  - Understandable, non-technical language

Other sources



Other sources

- Credibility, trust
  - Professional, scientific sources
  - Scale of information, personal relationships
- Relevance to decisions and job responsibilities
  - Expertise, authority of particular agencies
- Familiarity and accessibility
  - Professional associations, colleagues

Lessons from the Carolinas

- Heterogeneity of information sources used:
  - Underscores the diverse set of climate-related decisions and activities occurring in the Carolinas
  - Highlights the lack of a centralized source of climate information for the region or for any one sector
- Value of professional networks, associations, personal relationships

Implications for adaptation efforts

- Regional hubs
- National-level efforts to improve coordination and dissemination of climate information for adaptation

- Climate change adaptations are likely to be incorporated into existing decision making processes, activities, and routines, affecting how organizations use and adopt new information in addressing climate change (Berkhout 2012).

Reference:
Berkhout, F. 2012. Adaptation to climate change by organizations. *WIREs Climate Change* 3: 91-106.

THANK YOU

For more information please visit our website:

www.cisa.sc.edu

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