

The Integrated City Sustainability Database: A Project Overview

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Presentation Outline

- Project Rationale
- The ICSD Project
- ICSD Source Data
- Data Management and Processing
- Expected Outcomes and Dissemination Plan
- Broader Impacts

Project Rationale

- Local governance provides a valuable setting for the study of political decision-making, policy innovation, and organizational functioning.
- The lack of comprehensive public data on local sustainability has led scholars to
 - focus on small number of case studies
 - conduct research with qualitative orientation
 - rely on surveys with low response rates and limited scope of information

The ICSD Project

- The Integrated City Sustainability Database (ICSD)
- A nationwide database that
 - will describe municipal sustainability programs and policies
 - will be publicly available in the future for use by researchers and practitioners

The ICSD Project

- To build a comprehensive data set of U.S. municipal government sustainability programs and policies
- To provide a valuable resource for scholars in multiple disciplines investigating local environment and energy sustainability
- To add missing elements to the research infrastructure for the study of local government policy

ICSD Source Data

- The ICSD will constitute seven surveys of city sustainability programs conducted in 2010-2011.
- Sample frames include U.S. cities with populations greater than 50,000.
- Four of the surveys cover smaller population cities.
- Five of the surveys were designed and implemented by the Principal Investigators.

ICSD Source Data

Survey	Dates Administered	Sample	Responses	Response Rate
ICMA	2010	8,569 LGs \geq 10,000	2,176	25.4%
NLC	Summer/Fall 2010	1,708 mayors	442	26.6%
EECBG Grantee Implementation Survey	Winter 2010 & spring 2011	970 LGs receiving EECBG awards	747	77.0%
Implementation of Energy Efficiency & Sust. Programs	Fall 2010 & Spring 2011	1,180 LGs \geq 50,000 and random sample of 500 LGs 20,000 - 50,000	679	57.5%
Survey of Sust. Management in U.S. Cities	September and November 2010	601 LGs \geq 50,000	263	44%
Municipal Climate Protection Survey	April & May 2010	664 LGs \geq 50,000	329	49.5%
Municipal Government Questionnaire	September & October 2011	425 LGs \geq 50,000 with explicit involvement in climate protection	255	60.0%

Data Management and Processing

- Data Cleaning
 - Ensure that non-responses are appropriately identified
 - Add standardized identifiers
- Cross-walking
 - Identify questions that exactly match
 - Identify questions that measure same action or concept but use different wording
 - Identify multiple questions that measuring the same concept
- Recode, Aggregate, and Validate

Three Tiers of Data Aggregation

- Tier One: Questions for which there is a direct match.
 - Compare multiple survey responses for individual respondents for agreement across instruments
 - Develop common coding
 - Collapse to binary but retain ordinal measure
 - Examine agreement across instruments for individual respondents
 - Attempt to reconcile any deviations
 - Follow-ups
 - Aggregation rules

Data Aggregation – Tier Two

- Questions measuring the same concept or activity but with different wording.
- Recoding
 - Align to common coding
 - Apply Multiple Imputation Techniques
 - MI is a Monte Carlo technique in which the missing values are replaced by $m > 1$ simulated versions

Data Aggregation – Tier Three

- Questions measuring different components of a broader concept.
- Apply Multiple Imputation Techniques
- Reduce with Factor Analysis
 - Item Response Theory (IRT) Procedures

Example: Funding, Staffing, and Resource Commitment

- Matching questions measuring dedicated funding for sustainability
 - Tier 1: 4 surveys
 - Tier 2: 3 surveys
- Matching questions measuring staffing for sustainability
 - Tier 1: 3 surveys
 - Tier 2: 4 surveys

“Dedicated Budget” – Tier 1

From which survey	Exact wording in survey	Matching
EECGB	11. Provided a budget specifically for sustainability efforts Not adopted / adopted before 2009 / after 2009	Tier 1
NLC	8. Does your city have a dedicated budget for sustainability work? Yes / No / Don't Know	Tier 1
Hawkins and Wang	5. To finance sustainability, our city has... [] Budgeted for the city government's sustainability initiatives	Tier 1
ICMA	2. Please indicate which of the following actions your locality has taken.... Provided a budget specifically for the sustainability effort	Tier 1

“Dedicated Budget” – Tier 2

Krause1	25. Do climate protection activities receive designated funding in the city's budget? Yes / No	Tier 2
Krause2	Designated money in the city budget to fund climate protection activities Yes / No / In progress	Tier 2
Feiock 2010	4. Do energy conservation or climate protection activities receive designated funding in the city's budget? Yes / No	Tier 2

Staffing – Tier 1

From which survey	Exact wording in survey	Matching
ICMA	Please indicate which of the following actions your locality has taken Dedicated staff to the sustainability effort	Tier 1 <i>Coding: 1 = Yes / 0 = No</i>
EECGB	Dedicated staff to the sustainability effort	Tier 1 <i>Coding: 1 = Yes / 0 = No</i>
Hawkins and Wang	To develop and achieve goals for sustainability, our city has... a) Designated an office to coordinate city's sustainability initiatives b) Designated individual(s) (but not an office) to coordinate city's sustainability initiatives	Tier 1 <i>Coding: 1= Yes / 0 = No</i>
NLC	Which scenario best describes your city's staffing on sustainability? a) Dedicated staffing in the city manager's office b) Dedicated staffing in the mayor's or council office c) Dedicated staffing within a single department d) Dedicated staffing spread across multiple departments e) No dedicated staffing but a citywide task force/ committee f) No dedicated staffing but goals recognized throughout departments g) No staffing	Tier 1 <i>Coding: 1 = a - f 0 = g</i>

Staffing – Tier 2

Krause1	<p>Has a single individual or office been tasked with coordinating the energy efficiency, sustainability, or "green" efforts across all city departments?</p> <p>a) Yes - this is the responsibility of a single individual</p> <p>b) Yes - this is the responsibility of a specific office or department</p> <p>c) This is under consideration or in progress</p> <p>d) No</p>	<p>Tier 2</p> <p>Coding:</p> <p>1 = Yes</p> <p>0 = in progress/no</p>
Krause2	<p>Assigned a specific individual or group of individuals the responsibility to manage city climate protection activities</p> <p>Yes / No / In progress</p>	<p>Tier 2</p> <p>Coding:</p> <p>1 = Yes</p> <p>0 = in progress/no</p>
Feiock 2010	<p>Has your government established an Energy or Sustainability Office? No / Yes</p>	<p>Tier 2</p> <p>Coding: 1 = Yes</p> <p>(This question only allows us to add a yes and not a "no" because "no" might still mean that there is a staff.)</p>

Resource Commitment to Sustainability – Tier 3

- Use imputed variables computed in Tier 2 and data reduction techniques to develop measures of broad concepts.
- Ex. Resource Commitment comprised of:
 - Funding
 - Personnel

Possible Additional Data to Add

- Political/Institutional
- Climate Policy
- Census (pop, business, finance)
- Add crosswalk identifiers rather than data?

Match to other Units of Analysis

- Other Levels of Government
 - State level
 - County level
 - Multilevel analysis
- Large City (Portney)
- Regions (Gerber)
 - Match surveys across policy domains (Cooperation in ED and Env.)
- Individual States
 - Florida
 - Indiana
 - California

Expected Outcomes and Dissemination Plan

- Enhance and improve individual and collective research efforts
- Train students as local government scholars
- Inform local government sustainability decisions
- Publicly release the ICSD for use by
 - Urban sustainability researchers
 - Scholars working to advance general knowledge in local policy, implementation, and governance

Expected Outcomes and Dissemination Plan

- Two components of dissemination plan
 - Conduct original research using the ICSD
 - Present papers at research conferences
 - Publish results of empirical studies in peer-reviewed journals
 - Develop and submit a book proposal to a university press
 - Workshop for researchers and policy experts on the ICSD
 - Release the ICSD to research community
 - Develop webpage to disseminate the ICSD

Broader Impacts

- Benefit future research by
 - Establishing a solid baseline for the included variables to facilitate the development of panel data
 - Standardizing a subset of key questions to encourage researchers to apply the format specified and update the database with new data as it becomes available
- Enrich research training and practice
- Serve as resource for training students
- Disseminate to local government managers and elected officials through summary reports