Evaluating the Comprehensiveness of Informal City Sustainability Efforts

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Statement of Purpose

Growing concerns over environmental degradation and resource availability issues have prompted an increased interest in strategic planning, aimed at better protecting environmental and ecosystem services while simultaneously promoting social inclusion and economic development. As large centers of population, economic activity and resource consumption, cities play an especially important role in achieving improved environmental quality, economic stability and social character.   However, the development of short-term and long-term plans that can adequately identify and manage environmental impacts without compromising the economic and social character of the city can be challenging and complicated to implement.

The response to this challenge has varied across metropolitan regions of the U.S. Several cities, including New York, Philadelphia and Seattle, have adopted comprehensive and broadly-framed sustainability plans that address environmental, economic and social concerns. However, other cities have chosen to address urban sustainability by adopting separate environmental plans and social or economic initiatives that contain specific or targeted goals, such as greenhouse gas reduction, water quality, or economic development. While several frameworks and evaluations have been undertaken to determine whether a single comprehensive city sustainability plan can be considered adequate or effective, few have investigated the adequacy of the combined impact from multiple environmental, energy, climate, economic and/or social plans in cities without overarching sustainability plans.

This evaluation aims to identify whether the environmental, social and economic initiatives undertaken by two well-established cities can be looked at together to address the common elements of comprehensive sustainability plans and whether they may be considered effective implementation plans. The paper will also investigate if there are particular strengths and weaknesses to these informal sustainability approaches.

Work Statement

The proposed investigation stems from a long-standing interest in urban planning and the culmination of several urban sustainability-themed classes, such as: Sustainable Cities, Practicum in Environmental Planning, Transatlantic Learning: Lessons from European Energy and Environmental Policy, and Public Lands, Private Interests. This paper will draw upon the knowledge and reference base gained in those classes.

Project Work Plan and Methodology

Selection of Cities

The selection of cities was conducted using a methodology designed to avoid the arbitrary selection of cities and to normalize the differences between infrastructure and population density to the extent possible. First, cities were selected based on presence or absence of a comprehensive sustainability plan. Cities without a formal, municipally-adopted sustainability plan were selected.

Age of infrastructure was identified as a factor. For example, cities with relatively new sewage and transportation systems may have vastly different budget priorities. Therefore, cities which ranked among the 30 most populous cities in 1910 and also in 2009 were selected from the list of cities without comprehensive sustainability plans (U.S. Census, 1998; U.S. Census, 2010). Although each city may have received various updates to infrastructure over the past century, these cities are most likely to have similar historical and underlying infrastructure systems. The city histories were also briefly reviewed to ensure that no citywide, catastrophic event may have occurred to completely upheave the infrastructure.

Lastly, the population densities of the remaining cities were reviewed. Of the five remaining cities within the top 30 most populous cities in the U.S., two cities with the most similar population and density were selected. **Table 1** presents a brief overview of the selected cities.

Table 1. Final selection of cities. Selected cities are bolded.

City	Sustainability Plan?	Population rank in 2009	Population rank in 1910	Density (#/sq mi)	Population (millions)	Primary Economy
Chicago, IL	No	3	2	12,561	2.8	Diverse, Finance
Detroit, MI	**No**	**11**	**9**	**6,601**	**0.9**	**Steel, Automotive**
Columbus, OH[1]	No	16	29	3,663	1.3	Diverse, Military
Milwaukee, WI	No[2]	26	12	6,302	0.6	Brewing, Manufacturing
Washington, DC	**No**	**27**	**16**	**9,766**	**0.6**	**Government**

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[1] Major water infrastructure updates due to 1913 flood.
[2] Milwaukee does not have an official sustainability plan but was excluded due to an office of sustainability, a set of sustainability goals published in a 2005 letter to the mayor, and semi-annual sustainability newsletters which together act as a sustainability plan.

Data Collection

A literature review will be performed in order to collect each city's ongoing environmental, economic, and social plans. It is likely that many independent initiatives and plans exist within each city. For the purposes of this report, only plans and initiatives which are ongoing, part of a city campaign and adopted and promoted by the city, city council and/or mayor will be considered. This approach aims to keep the pool of applicable plans as consistent with formal sustainability plans as possible since a formal plan would require the same approvals and temporal and spatial scope. The city's main website as well as the websites for relevant municipal agencies will be searched for plans.

Framework Development and Evaluation

In order to conduct an unbiased comparative analysis, a set of evaluation criteria will be developed to collectively form an evaluation framework. Because sustainability has several meanings and applications, several references which discuss how cities can successfully and comprehensively achieve sustainability were identified to help guide the development of the criteria and overall framework structure. Portney's "Taking Sustainable Cities Seriously Index", Melbourne Principles for Sustainable Cities, STAR Community Index Sustainability Goals and Guiding Principles, the Perlman Principles, and McDonald et al.'s Green Infrastructure Plan Evaluation Framework were consulted. Their main principles for success and effectiveness of a sustainability plan will be adapted into the evaluation framework (Portney, 2003; UNEP, 2002; ICLEI, 2010; Perlman and Sheehan, 2007; McDonald et al., 2005). A brief description of the references is provided below:

- Portney's Index outlines 34 elements that have been incorporated into sustainability plans which were identified as effective. These include specific initiatives involving smart growth, transportation, and pollution prevention.

- The Melbourne Principles are a collection of guidelines adopted by the United Nations Environmental Programme in 2002 to aid leaders, planners and decisionmakers in the development and maintenance of a sustainable city. The principles include the incorporation of long-term vision and security, transparency, public engagement, recognition and enhancement of the sustainability 'triple bottom line'.

- The goals and principles developed for the STAR Community Index are considered a roadmap for local governments interested in sustainability. The goals outline the areas which communities should bear in mind when developing environmental, economic and social goals. The principles are a set of guidelines for successfully implementing those goals, such as instilling collaboration and using broad sets of indicators to track progress.

- The Perlman Principles are a set of statements that link social justice to the economic and environmental health of the city. The principles stress that sustainability of a city is not possible if all people and places of the city's socioeconomic spectra are not addressed.

- McDonald et al.'s Green Infrastructure Plan Evaluation Framework contains a series of best practices and concepts that should be included in green infrastructure plans and in the planning process. While not all of the indicators and elements discussed in the paper are directly applicable at the citywide sustainability plan level, the Implementation and Goal Setting practices outlined are extensive and significant enough to inform the sustainability framework proposed here.

The references will help guide the selection and development of criteria for inclusion in the framework. In addition to the standard overarching sustainability themes- Environment, Equity, and Economy- a category which highlights overall decision-making, defined support and progress tracking elements of the plans and initiatives will also be included in an attempt to evaluate the implementation, transparency, governance, feasibility and outreach. The preliminary elements for the framework are anticipated to include:

Implementation Criteria
- [Initiatives/ Plans are] Easy to understand and follow
- Uses decision support tool(s) for selections and implementation of initiatives
- Encourages public participation in development and progress of plan(s)
- Fosters public participation in development and implementation of initiative(s)
- Clearly defines responsibility for tracking initiatives
- Seeks federal, state, local and/or private funding opportunities
- Includes clear funding for proposed initiatives
- Commits to regular updates
- Clearly defines timelines for tracking initiative progress
- Includes long term vision for plans
- Endorsed by Mayor's Office or City Council
- Includes methods and commitment to measure progress

Environment Criteria
- Incorporates zoning and/or spatial planning to aid planning efforts and protect environmentally sensitive areas
- Fosters household solid waste recycling
- Revises procurement policies and waste reduction initiatives in city government
- Encourages green building through defined programs and other efforts
- Encourages water conservation through defined programs and other efforts
- Encourages energy conservation through defined programs and other efforts
- Reduces parking ratios

- Incorporates green infrastructure

Equity Criteria
- Targets open space and resource development in underserved communities
- Supports community based local food programs
- Includes Smart Growth/ brownfield redevelopment
- Expands/optimizes of public transit, bicycle ridership
- Aims to systematically reduce air pollution through a dedicated program
- Prioritizes infrastructure updates to underserved and most critical areas
- Includes community health protection and outreach from industrial areas.
- Ensures jobs training and education at all education levels in sustainability-related fields

Economy Criteria
- Encourages locally owned and operated business
- Includes focus on transit oriented development
- Provides planning and funding for infrastructure updates
- Promotes renewable energy and efficiency
- Includes jobs training and education in sustainability-related fields

These criteria and themes will be subject to modification and further development as warranted by further investigation.

The cities' initiatives and plans will be evaluated against whether they address each of the criteria outlined above. In addition, each criterion will be evaluated for comprehensiveness, timeliness, utility and feasibility of each initiative. A points system (e.g., one/two point(s) for partially/fully addressing the sustainability criteria, one point for feasibility, one point for timeliness of the initiative, etc.) will be devised to help illustrate the results of the evaluation. The points will be tabulated and analyzed for trends and general conclusions regarding the cities' sustainability as well as ability to monitor and improve the effectiveness of each plan.   The results will also be used to evaluate the relative strength of each plan.
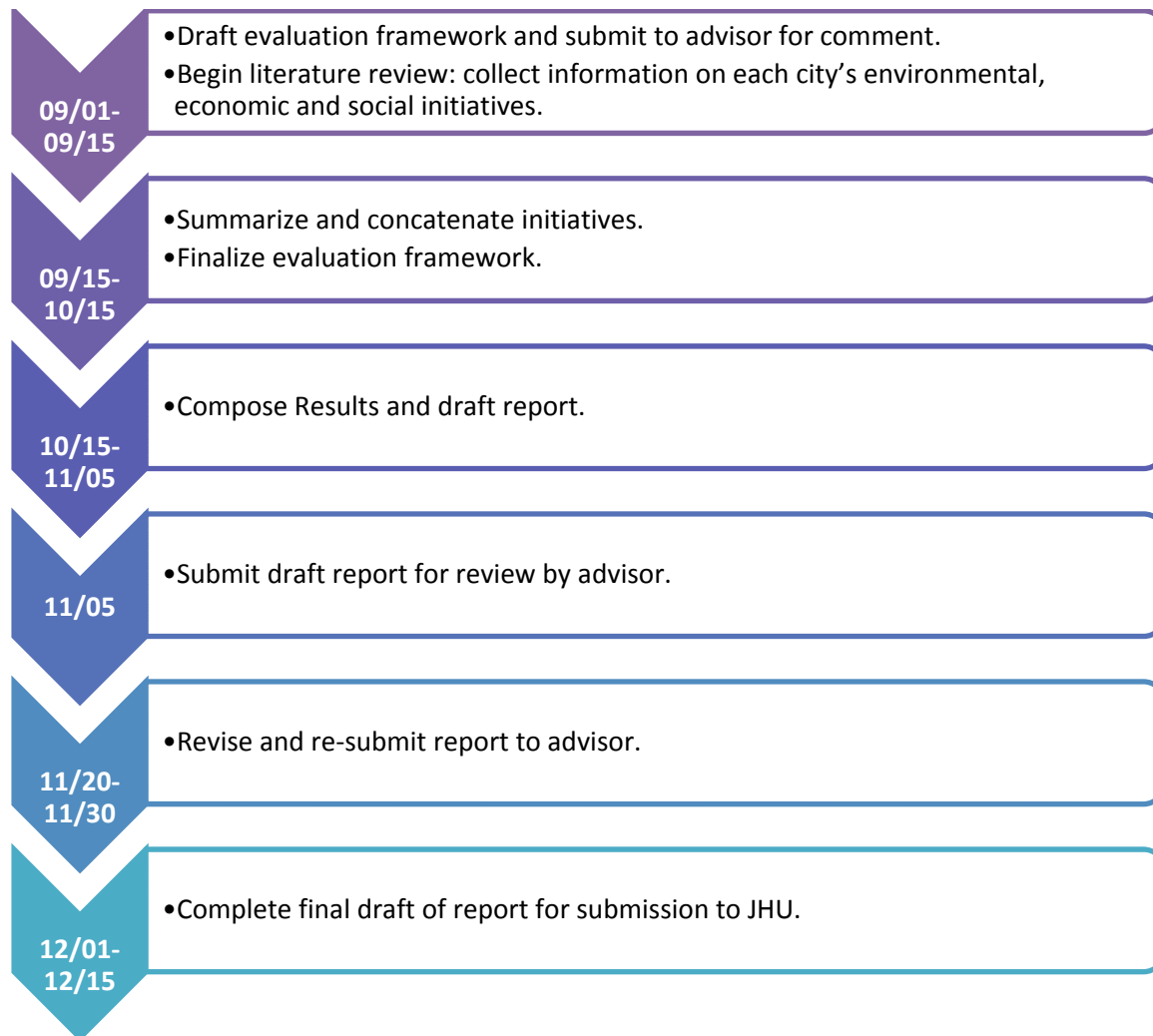
Research Opportunity

While indices and evaluations have been developed to help create and evaluate formal sustainability plans, evaluations of city initiatives as they relate to a comprehensive sustainability strategy has received little attention. Evaluating these "decentralized" plans against a sustainability evaluation framework provides the following opportunities:
- Determine if or whether the cities' ongoing environmental, economic and social plans meet the general indicators associated with formal sustainability plans.

- Identify the strengths and gaps in each city's plans, and whether the strengths or gaps are consistent among multiple cities.
- Investigate the potential effectiveness of the cities' ongoing initiatives as an informal sustainability plan, especially with respect to implementation and tracking.

Timeline

09/01-09/15
- Draft evaluation framework and submit to advisor for comment.
- Begin literature review: collect information on each city's environmental, economic and social initiatives.

09/15-10/15
- Summarize and concatenate initiatives.
- Finalize evaluation framework.

10/15-11/05
- Compose Results and draft report.

11/05
- Submit draft report for review by advisor.

11/20-11/30
- Revise and re-submit report to advisor.

12/01-12/15
- Complete final draft of report for submission to JHU.

References

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