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Sustainability, Measurement and Power

CRPLAN 6890

Spring 2015

Wednesday and Friday 2:20pm-3:40pm, 176 Knowlton Hall

Course Overview and Goals

Indicators drive decisions and inform action. This workshop introduces students to the history, theory and practice of measuring sustainability, with a focus on the metropolitan environment. Students will come to understand the relationship between sustainability, measurement and governance, analyzing and comparing specific indicators within their institutional, political and social contexts. How do communities, experts and organizations use and develop indicators, and how do they drive action and decision-making? The course is intended for students with an interest in sustainability in the urban environment, whether they intend to engage with these issues from a private, public or non-profit perspective.

The course is divided into four parts: **A History of Sustainability, Designing Sustainability Indicators in Practice, Case Studies of Sustainability Indicators, and Theories on Measurement and Governance**. During the first part of the course, students will be introduced to the history and importance of seeking to achieve sustainability in cities and regions. The second section of the course will introduce students to the practical elements of developing indicators for sustainability in urban environments. This section of the course forms the cornerstone for the final project, in which students develop an indicator or propose a specific process to develop an indicator for an issue related to urban or regional sustainability. Special emphasis will be placed on the relationship between the (proposed) indicator and policy and planning. The third part of the course will consist of a survey of 4 case studies. These consist of environments in which indicators and metrics have been developed to put the abstract sustainability concept into practice. Each week, students will be learning about a specific indicator, and an urban or metropolitan area in which it has been implemented. The final part of the course will consist of an overview of some critical theories about the role and efficacy of measurement in governance, with particular attention paid to the goals and limits of sustainability indicators as a tool to inform and influence action.

Upon finishing the course, the students will be able to:

- describe the basic characteristics of the most well-known sustainability indicators, their history and origins;
- analyze the relationship between measuring sustainability and decision-making in cities, in theory and practice for specific indicators;
- engage with normative questions about sustainability.

ASSIGNMENTS AND GRADING

The overall grade is calculated based on the following elements:

Attendance and Participation (10%):

This seminar requires active participation in discussions and critical reflection and assessment of the course material. Therefore, you should be prepared to discuss the main points of the readings, ask questions, provide constructive feedback, and generate and share critical perspectives. Some weeks you may be asked in advance to read and come prepared to summarize a particular article. Other weeks you will be asked to comment on the main arguments and ideas of readings. Your performance in these assignments and discussions will be the factors that determine your participation grade.

Deliverables for Working Sessions (40%):

After every section of the course, each student will write a brief (2-3 pages) “deliverable” relevant to sustainability in an urban or regional environment of his/her choice. The goal of these exercises is to develop the basic components of the sustainability indicator project, culminating in the final project. Based on these deliverables, students will be able to successfully work on the indicator project throughout the course.

Presentation on Sustainability Indicator (10%)

The cases of sustainability indicators will be introduced by student presentations. Based on the required readings, and any additional material students might want to bring in, students will present the strengths, weaknesses, opportunities and threats (SWOT) associated with the measurement systems. Presentation should be 10-15 minutes in length, and visual aides, like PowerPoint presentations or handouts are strongly encouraged, but not required.

Negotiation Simulation and Reflection Memo (10%):

Participation in the “Chemco” negotiation simulation is required, and each student has to write an individual reflection memo (1-2 pages) on the experience of trying to negotiate the development of this indicator. Answer one of the following questions:

- What was your strategy going into the negotiation, and how did it change (if at all) during the negotiation?
- The development of sustainability indicators often involves interactions between experts, communities and government officials. What did you learn about those kinds of interactions in this simulation?

Final Project and Presentation (30%)

Each student chooses an issue, community or technology related to urban or regional sustainability that (s)he believes could benefit from additional monitoring, measurement or attention. In a brief memorandum (10-12 pages) to a relevant actor, you describe the need for the use of an existing indicator, or for the development of a new indicator, as well as the steps the group proposes in order to create and/or implement that sustainability indicator. The new sustainability indicator, or the plan to implement an existing indicator or metric will be presented in class during the final session.

SCHEDULE

DATE	TOPIC	FOCUS
January 14	<i>Sustainability Indicators: Weird Science or Excellent Adventure?</i>	Course Overview
16	<i>Lifeboats and Spaceships</i>	A History Of Sustainability
21	<i>The Logic of Limits</i>	
23	<i>A Contested Concept</i>	
28	<i>Seeking Stability in Numbers</i>	
30	<i>Sustainable Future(s)?</i>	
February 4	<i>Categorizing Sustainability Indicators</i>	
6	<i>Working Session 1: Ideas for Indicators</i>	Designing Sustainability Indicators in Practice
11	<i>The Role(s) of Stakeholders</i>	
13	<i>Negotiation Simulation: CHEMCO</i>	
18	<i>Who Are the Stakeholders?</i>	
20	<i>Moving from Indicators to Decisions</i>	
25	<i>Skeptics and Critics</i>	
27	<i>Working Session 2: Partners for Sustainability</i>	Case Studies of Sustainability Indicators
March 4	<i>LEED certification</i>	
6	<i>LEED in Austin, TX.</i>	
11	<i>Community Indicators of Sustainability</i>	
13	<i>Participation and Sustainable Seattle</i>	
18 & 20	<i>Spring Break</i>	
25	<i>Urban Ecological Footprint Analysis</i>	
27	<i>San Francisco's Footprint Commitment</i>	
April 1	<i>Measuring Ecosystem Services</i>	Theories on Measurement and Governance
3	<i>Counting on the Environment in Oregon</i>	
8	<i>Working Session 3: Lessons from Practice</i>	
10	<i>Measurement and Governance</i>	
15	<i>Science, Coproduction and Civic Epistemologies</i>	
17	<i>Creating Nature</i>	
22	<i>Working Session 4: Indicator Epistemology</i>	
24	<i>Final Presentations</i>	

READINGS

Wednesday, Jan. 14: Sustainability Indicators: Weird Science or Excellent Adventure?

I. A HISTORY OF SUSTAINABILITY

Friday, Jan. 16: Lifeboats and Spaceships

Anker, Peder. "Buckminster Fuller as Captain of Spaceship Earth." *Minerva: A Review of Science, Learning & Policy* 45, no. 4 (October 2007): 417–34.

Hardin, Garrett. "Lifeboat Ethics." *Psychology Today*, 1974.

Wednesday, Jan. 21: The Logic of Limits

Meadows, Donella H., and Club of Rome. Introduction, p. 17-24 from: *The Limits to Growth; a Report for the Club of Rome's Project on the Predicament of Mankind*. New York: Universe Books, 1972.

Brundtland, G., Ch. 1 "A Threatened Future" pp. 27-42 In: *Our Common Future: Report of the World Commission on Environment and Development* (Oxford, 1987).

Friday, Jan. 23: A Contested Concept

Kidd, "The Evolution of Sustainability," *Journal of Agricultural and Environmental Ethics* 5, no. 1 (March 1, 1992): 1–26.

Goodland, Robert. "The Concept of Environmental Sustainability." *Annual Review of Ecology and Systematics* 26 (January 1, 1995): 1–24.

Wednesday, Jan. 28: Seeking Stability in Numbers

Costanza, R. and B. Patten, "Defining and Predicting Sustainability," *Ecological Economics* 15, no. 3 (December 1995): 193–196.

Vos, Robert O. "Defining Sustainability: A Conceptual Orientation." *Journal of Chemical Technology & Biotechnology* 82, no. 4 (April 1, 2007): 334–39.

Solow, R. An Almost Practical Step Toward Sustainability, *Resources Policy* (Resources for the Future, 1997).

Friday, Jan. 30: Sustainable Future(s)?

Castells, M., "Urban Sustainability in the Information Age," *City* 4, no. 1 (2000): 118–122.

Kaufman, Frederik. "The End of Sustainability." *International Journal of Sustainable Society* 1, no. 4 (January 1, 2009): 383–90.

Zolli, A. "Forget Sustainability, It's About Resilience" New York Times, (2012 November, 2)

Wednesday, Feb. 4: Categorizing Sustainability Indicators

Mori, K. and A. Christodoulou, "Review of Sustainability Indices and Indicators: Towards a New City Sustainability Index (CSI)," Environmental Impact Assessment Review 32, no. 1 (January 2012): 94–106.

For a large number of sample indicators from around the world, see: UN Habitat – Human Settlements Programme: Urban Indicators Project:
http://ww2.unhabitat.org/programmes/guo/urban_indicators.asp

Friday, Feb. 6: Working Session 1: Ideas for Indicators

Students present on the location, problem or population they would like to develop a sustainability indicator for, and discuss the basic steps they will pursue to do so.

II. DESIGNING SUSTAINABILITY INDICATORS IN PRACTICE

Wednesday, Feb. 11: The Role(s) of Stakeholders

Susskind L. and Van Maasakkers, M. "Building Consensus for Sustainable Development" Chapter 14 pp. 285-302 in: K. Zoeteman, Sustainable Development Drivers: The Role of Leadership in Government, Business and Ngo Performance (Edward Elgar Publishing, 2012)

Bell, S. and S. Morse, "Experiences with Sustainability Indicators and Stakeholder Participation: a Case Study Relating to a 'Blue Plan' Project in Malta," Sustainable Development 12, no. 1 (February 2004): 1–14.

Friday, Feb. 13: Negotiation Simulation: CHEMCO

General Instructions for CHEMCO. Confidential Instructions will be handed out in class.

Recommended Readings:

Fisher, R., W. Ury, and B. Patton, Getting to Yes: Negotiating Agreement Without Giving In (Penguin, 2011).

Wednesday, Feb. 18: Who Are the Stakeholders?

Reed, Mark S., Anil Graves, Norman Dandy, Helena Posthumus, Klaus Hubacek, Joe Morris, Christina Prell, Claire H. Quinn, and Lindsay C. Stringer. "Who's in and Why? A Typology of Stakeholder Analysis Methods for Natural Resource Management." *Journal of Environmental Management* 90, no. 5 (April 2009): 1933–49.

Susskind, Lawrence, Sarah McKernan, and Jennifer Thomas-Larmer. *The Consensus Building Handbook: A Comprehensive Guide to Reaching Agreement*. Thousand Oaks,

Calif.: Sage Publications, 1999. Chapter 2: Conducting a Stakeholder Assessment p. 99-136

Friday, Feb. 20: Moving from Indicators to Decisions

Hák, T. and Bedřich Moldan, Ch. 4 "Ensuring Policy Relevance" Pp. 65-82 In: Sustainability Indicators: A Scientific Assessment (Island Press, 2007).

Keirstead, J. and M. Leach, "Bridging the Gaps Between Theory and Practice: a Service Niche Approach to Urban Sustainability Indicators," *Sustainable Development* 16, no. 5 (October 2008): 329–340.

Dilworth, R. et al., "The Place of Planning in Sustainability Metrics for Public Works: Lessons From the Philadelphia Region," *Public Works Management & Policy* 16, no. 1 (January 1, 2011): 20–39.

Wednesday, Feb. 25: Skeptics and Critics

Bell, S. and S. Morse, "Breaking Through the Glass Ceiling: Who Really Cares About Sustainability Indicators?" *Local Environment* 6, no. 3 (August 2001): 291–309.

Brugmann, J. "Is There a Method in Our Measurement? The Use of Indicators in Local Sustainable Development Planning," *Local Environment* 2, no. 1 (1997): 59–72

Briassoulis, H. "Sustainable Development and Its Indicators: Through a (Planner's) Glass Darkly," *Journal of Environmental Planning and Management* 44, no. 3 (2001): 409– 427.

Friday, Feb. 27: Working Session 2: Partners for Sustainability

Students present the various stakeholders of relevance to the indicator project of their choice, as well as the method(s) to engage, convene or organize them.

III. CASE STUDIES OF SUSTAINABILITY INDICATORS

Wednesday, March 4: LEED certification

Cidell, Julie. "A Political Ecology of the Built Environment: LEED Certification for Green Buildings." *Local Environment* 14, no. 7 (August 1, 2009): 621–33.

United States Green Building Council's Leadership in Energy and Environmental Design: <http://new.usgbc.org/leed/rating-systems>

Navarro, Mireya. "Some Buildings Not Living Up to Green Label." *The New York Times*, August 31, 2009, sec. Science/Environment.

<http://www.nytimes.com/2009/08/31/science/earth/31leed.html>

Friday, March 6: LEED in Austin, TX.

Retzlaff, Rebecca C. "The Use of LEED in Planning and Development Regulation An Exploratory Analysis." *Journal of Planning Education and Research* 29, no. 1 (September 1, 2009): 67-77. doi:10.1177/0739456X09340578.

Burnett, M. "City buildings—Eco-labels and Shades of Green!," *Landscape and Urban Planning* 83, no. 1 (November 12, 2007): 29-38.

Schindler, S. "Following Industry's LEED: Municipal Adoption of Private Green Building Standards," *Florida Law Review* 62 (2010): 285. Pp. 287-350

Database of State Incentives for Renewables and Efficiency on Austin's Green Building Requirement for City Projects:
http://www.dsireusa.org/library/includes/incentive2.cfm?Incentive_Code=TX14R&Cur

Wednesday, March 11: Community Indicators of Sustainability

Valentin, A. and J. Spangenberg, "A Guide to Community Sustainability Indicators," *Environmental Impact Assessment Review* 20, no. 3 (June 2000): 381-392.

National Neighborhood Indicators Partnership:
<http://www.neighborhoodindicators.org>

Friday, March 13: Participation and Sustainable Seattle

Portney, K. "Civic Engagement and Sustainable Cities in the United States," *Public Administration Review* 65, no. 5 (2005): 579-591.

Holden, M. "Revisiting the Local Impact of Community Indicators Projects: Sustainable Seattle as Prophet in Its Own Land," *Applied Research in Quality of Life* 1, no. 3-4 (September 1, 2006): 253-277.

Additional Resources:
Sustainable Seattle: <http://www.sustainableseattle.org>

March 18 and 20: Spring Break

Wednesday, March 25: Urban Ecological Footprint Analysis: San Francisco, CA.
Rees, W. and M. Wackernagel, "Urban Ecological Footprints: Why Cities Cannot Be sustainable—And Why They Are a Key to Sustainability," *Environmental Impact Assessment Review* 16, no. 4-6 (July 1996): 223-248.

Moffat, I. "Ecological Footprints and Sustainable Development" In: *Ecological Economics* 32, (2000), pp. 359-362.

Friday, March 27: San Francisco's Footprint Commitment

Moore, D. et al. "Ecological Footprint Analysis San Francisco-Oakland-Fremont, CA" Global Footprint Network (June 30, 2011)

http://www.footprintnetwork.org/images/uploads/SF_Ecological_Footprint_Analysis.pdf

Tam, L. "Measuring San Francisco's Ecological Footprint" San Francisco Planning and Urban Research Association (SPUR), (July 5, 2011)

<http://www.spur.org/blog/2011-07-05/measuring-san-franciscos-ecological-footprint>

Wednesday, April 1: Measuring Ecosystem Services

Costanza, R., and Folke, C. (1997). Valuing ecosystem services with efficiency, fairness and sustainability as goals. In G. C. Daily (Ed.), *Nature's Services: Societal Dependence on Natural Ecosystems*, pp. 49-67. Island Press, Washington, D.C.

Robertson, M. "The Nature that Capital can See: Science, State and Market in the Commodification of Ecosystem Services" *Environment and Planning D: Society and Space*. 2006 Vol. 24 pp. 367-387.

Sagoff, M. "On the Value of Natural Ecosystems" *Politics and the Life Sciences*. March 2002, Vol. 21 No. 1.

Friday, April 3: Counting on the Environment in Oregon

Ruhl, J.B. and J. Salzman, "The Effects of Wetland Mitigation Banking on People," *National Wetlands Newsletter*, Vol 28, No. 2, 2006, FSU College of Law, Public Law Research Paper No. 179 (2006).

Layzer, J. Ch. 10 "Ecosystem-Based Management and the Environment" In: *The environmental case: translating values into policy* (Washington, D.C.: CQ Press, 2002).

Wednesday, April 8: Working Session 3: Lessons from Practice

Students present on the progress of their individual indicator projects, and present an overview of the way(s) in which the case studies have informed their proposed indicators.

IV: THEORIES ON MEASUREMENT AND GOVERNANCE

Friday, April 10: Measurement and Governance

Porter, T. (1995) *Trust in Numbers* (Princeton: Princeton University Press), Ch. 4 ("The Political Philosophy of Quantification"), pp. 73-86.

Power, M. "Audit Knowledge and the Construction of Auditees," in *The Audit Society* (Oxford [England]: Oxford University Press, 1997), 91-121.

Wednesday, April 15: Science, Coproduction and Civic Epistemologies

Jasanoff, S. Ch. 10 “Civic Epistemology,” in *Designs on Nature: Science and Democracy in Europe and the United States* (Princeton, NJ: Princeton University Press, 2005), 247– 271.

Miller, C. “New Civic Epistemologies of Quantification: Making Sense of Indicators of Local and Global Sustainability,” *Science, Technology & Human Values* 30, no. 3 (July 1, 2005): 403–432

Friday, April 17: Creating Nature

Scott, J. *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed* (New Haven [Conn.]: Yale University Press, 1998). Chapter 1 “Nature and Space” pp. 11-52.

Cronon, William. *Uncommon Ground: Rethinking the Human Place in Nature*. W. W. Norton & Company, 1996. Ch. 1: The Trouble With Wilderness; or, Getting Back to the Wrong Nature. P. 69-90.

Wednesday, April 19: Working Session 4: Indicator Epistemology

Students present on the epistemic communities within which they seek to embed their indicator project, and which types of evaluation mechanisms are relevant in that community.

Friday, April 24: Final Presentations

Each student presents on her/his final project for 10 minutes