

Sustainable Cities in a Comparative Perspective

New York University
Wagner Graduate School of Public Service
P11.2613
Fall 2006
Wednesday, 8:10-9:50 PM
Silver, Room 507

Instructor

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Course Description

According to estimates by the United Nations, between 2000 and 2030 the share of the world's population living in urban areas will increase from 47% to 60%, with the fastest growing cities located in developing countries. This course examines the social, economic and environmental dimensions of sustainability in cities. Policies and programs that try to address the challenges of sustainability from both developed and developing countries are studied and compared. Opportunities for avoiding unsustainable practices in developing countries through the use of modern technologies are also analyzed. Some of the major themes explored in the context of the sustainability of cities are indicators of sustainability, demographic trends and migration, income distribution, crime and security, green building, urban sprawl, ecological footprint, air and water quality, climate change, and sustainable energy and transportation policies.

Course Readings:

Two books will be required for the course. They are both available at the NYU Professional Bookstore (located at 530 La Guardia Place). They are:

The Sustainable Urban Development Reader, edited by Stephen M. Wheeler and Timothy Beatley. Routledge. 2003.

Taking Sustainable Cities Seriously, by Kent E. Portney. The MIT Press. 2003.

Additional readings will be assigned from a course packet available at Unique Copy Center, from the course's Blackboard site and from the Internet.

Class Assignments and Grading

1. Measuring Sustainability in Cities

This is a short analytical/writing assignment. Students will pick a city of their choice and in 5-10 pages will discuss indicators of sustainability and how they can be applied to that specific city. The paper should also discuss what the indicators suggest about the city's future sustainability. This assignment will be 30% of the grade. The assignment is due October 25.

2. Class participation

Students will be expected to actively participate in class discussions. Class participation will be 20% of the grade.

3. Final paper

The main assignment for the course will be a final paper. Students can choose a topic related to the sustainability of cities and discuss/analyze the topic in a paper of approximately 20 pages. This assignment will be 40% of the grade. The final assignment is due December 13.

4. Final paper presentation

Students will make a short presentation to the class on their topic and what they learned. The presentation will be 10% of the grade. Class presentations will take place December 6 and 13.

Schedule of Lectures, Topics and Reading Assignments

1. What is sustainability?

September 6. Introduction to the course and overview of the syllabus. Introduction to the concept of sustainability and how it applies to cities and urban areas.

Readings

- The Sustainable Urban Development Reader, "Perspectives, Problems, and Models", Pages 42-46.
- The Sustainable Urban Development Reader, "The Steady-State Economy," Pages 47-52.
- The Sustainable Urban Development Reader, "Towards Sustainable Development," Pages 53-57.

- The Sustainable Urban Development Reader, “The Rio Declaration on Environment and Development,” Pages 58-65.
- Taking Sustainable Cities Seriously, Chapter 1, pages 1-29.
- Web, “Human Domination of Earth’s Ecosystems,” Peter M. Vitousek, Harold A. Mooney, Jane Lubchenco and Jerry M. Melillo. SCIENCE, Vol. 277, 25 July, 1997: <http://www.sciencemag.org/cgi/reprint/277/5325/494.pdf>

2. Trends in urban population growth and urbanization

September 13. Current and past trends in urbanization and growth of cities. Emergence and growth of mega-cities. Differences in current and projected urbanization growth rates in developed countries and developing countries. Social indicators and general health issues in rapidly growing urban areas.

Readings

- Course Packet, “The Challenge of Slums,” Chapters 1 and 2, pages 5-33.
- Course Packet, “The State of the World’s Cities 2004/2005 – Globalization and Urban Culture,” United Nations Human Settlement Programme, pages 50-75.
- Web, “World Population Prospects, The 2002 Revision, Highlights,” United Nations (2003), pages 1-36: <http://www.un.org/esa/population/publications/wpp2002/WPP2002-HIGHLIGHTSrev1.PDF#search=%22world%20population%20prospects%20the%202002%20revision%20highlights%22>
- Blackboard, “Human Population Grows Up,” Joel E. Cohen, Scientific American, September 2005.
- Course packet, “Building Healthy Cities: The World Health Organization Perspective,” Roderick J. Lawrence, pages 479-501.

3. Measuring sustainability

September 20. How do we measure sustainability? Discussion of indicators of sustainability and how they can be applied to cities and urban areas.

Readings

- The Sustainable Urban Development Reader, “Urban Sustainability Reporting,” pages 203-210.
- The Sustainable Urban Development Reader, “What Is an Ecological Footprint?” pages 211-219.
- Taking Sustainable Cities Seriously, Chapter 2, pages 31-75.
- Web, “Ecological Footprint of Nations,” <http://www.redefiningprogress.org/publications/2004/footprintnations2004.pdf>

- Blackboard, “An integrated planning tool for sustainable cities,” Jan Rotmans et al. Environmental Impact Assessment Review.
- Blackboard, “Measuring Urban Sustainability,” Marina Alberti, Environmental Impact Assessment Review, pages 381-424.
- Blackboard, “A guide to community sustainability indicators,” Valentin et al, Environmental Impact Assessment Review, pages 381-392.

4. Urban sprawl and smart growth

September 27. Discussion about urban sprawl and smart growth. Definitions, trends and projections. Factors affecting and driving urban sprawl. Case studies of cities.

Readings

- Course Packet, “Ecopolis Now,” Fred Pearce, New Scientist, pages 36-45.
- The Sustainable Urban Development Reader, “The Next American Metropolis,” pages 73-80.
- Taking Sustainable Cities Seriously, Chapters 4 and 7, pages 101-123 and 177-219.
- Web, “Who Sprawls Most? How Growth Patterns Differ Across the U.S.” The Brookings Institution, pages 1-23. <http://www.brookings.edu/es/urban/fulton-pendall.htm>
- Blackboard, “The Compact City Fallacy,” Michael Newman, Journal of Planning Education and Research, pages 11-26.
- Web, City of Santa Monica. Santa Monica Sustainable City Plan. http://santa-monica.org/epd/scp/pdf/SCP_2003_Adopted_Plan.pdf
- Web, Green Manhattan Why New York is the greenest city in the U.S. By David Owen, The New Yorker. <http://www.walkablestreets.com/manhattan.htm>

5. Environmental justice, social equity and social dimensions of sustainability

October 4. Discussion about the social dimension of sustainability in cities. Environmental health risks and vulnerable populations, environmental justice, income inequality, crime rates and trends.

Readings

- The Sustainable Urban Development Reader, “People-of-Color Environmentalism,” pages 143-149.
- The Sustainable Urban Development Reader, “Domesticating Urban Space,” 150-156.
- Taking Sustainable Cities Seriously, Chapters 5 and 6, pages 125-175.
- Additional Readings TBA.

6. Green buildings and sustainable housing

October 11. Discussion about green building and housing. Description of the LEED (Leadership in Energy and Environmental Design) Green Building Rating System. Potential of green building in developing countries.

Readings

- The Sustainable Urban Development Reader, “Design, Ecology, Ethics and the Making of Things,” pages 181-187.
- The Sustainable Urban Development Reader, “Principles of Green Architecture,” pages 188-192.
- The Sustainable Urban Development Reader, “Sustainability and Building Codes,” pages 193-198.
- The Sustainable Urban Development Reader, “Urban Sustainability at the Building and Site Scale,” pages 299-300.
- Additional Readings TBA.

7. Sustainable transportation

October 18. Discussion of sustainable transportation systems and vehicles. Trends in transportation use and modes of transportation. Can developing countries learn from developed country experiences? The role of Intelligent Transportation Systems. Discussion of innovative case studies in developing countries: The bus rapid transit system of Curitiba, Brazil and the Cable Car of Medellín, Colombia. Air pollution and public health.

Readings

- The Sustainable Urban Development Reader, “Transit and the Metropolis: Finding Harmony,” pages 89-96.
- The Sustainable Urban Development Reader, “Traffic Calming,” pages 97-103.
- The Sustainable Urban Development Reader, “Bicycling Renaissance in North America,” pages 104-110.
- The Sustainable Urban Development Reader, “Urban Planning in Curitiba,” pages 237-248.
- Blackboard, “Automobile Dependence in Cities: An International Comparison of Urban Transport and Land Use Patterns with Implications for Sustainability,” Environmental Impact Assessment Review, Kenworthy and Laube, pages 279-308.
- Web, “Hypercars, hydrogen, and the automotive transition,” http://www.rmi.org/images/other/Trans/T04-01_HypercarH2AutoTrans.pdf

8. Sustainable energy

October 25. Past, current and projected trends in energy production and consumption. Alternative forms of energy production. Energy use, pollution and public health.

First assignment due.

Readings

- Blackboard, “How far can you drive on a bushel of corn? Crunching the numbers on alternative fuels.” Mike Allen. Popular Mechanics. May, 2006 issue. (Also available online at:
<http://www.popularmechanics.com/science/earth/2690341.html?page=1&c=y>)
- Blackboard, Various articles from Scientific American Special Issue, Energy’s Future Beyond Carbon, September 2006.
- Web, “Sustainable Cities – Best Practices for Renewable Energy & Energy Efficiency,”
<http://www.rmc.sierraclub.org/energy/library/sustainablecities.pdf#search=%22sustainable%20cities%20energy%22>
- Additional Readings TBA.

9. Sustainable use of materials and waste management

November 1. Trends of material use and waste production. Factors affecting waste production, re-use and recycling. Introduction to eco-efficiency.

Readings

The Sustainable Urban Development Reader, “The Metabolism of Cities,” pages 125-132.

The Sustainable Urban Development Reader, “Waste as a Resource,” pages 133-140.

Blackboard, “The Industrial Symbiosis in Kalundborg, Denmark,” pages 1-6.

Blackboard, “The International ÖKOPROFIT® Network - A Public Private Partnership Model to promote Sustainable Economic Development,” pages 1-20.

Blackboard, “ECOPROFIT - Sustainable Development in a Public Private Partnership,” pages 1-12.

Additional Readings TBA.

10. Sustainable water use

November 8. Trends in water use, water treatment and water scarcity. Differences in access to water in urban areas in developed and developing countries. Differences in use of water treatment technologies around the world. Access to clean water and sanitation, water pollution and public health in urban areas.

Readings

Blackboard, “Need for improved methodologies and measurements for sustainable management of urban water systems,” Bertrand-Krajewski et al, Environmental Impact Assessment Review, pages 323-331.

Additional Readings TBA.

11. Urban areas, parks, public spaces and biological diversity

November 15. Rates of urbanization around the world suggest urban areas will continue to grow and replace natural areas. Examples from Brazil, South Africa and the United States will be used to discuss how urban areas are affecting biodiversity hotspots.

Readings

- The Sustainable Urban Development Reader, “City and Nature,” pages 113-115.
- The Sustainable Urban Development Reader, “Land Development and Endangered Species: Emerging Conflicts,” pages 116-119.
- The Sustainable Urban Development Reader, “What is Restoration,” pages 120-122.
- Blackboard, “Preserving Biodiversity - Challenges for Planners,” Timothy Beatley, pages 5-20.
- Web, “Mapping the Central Corridor of the Brazilian Atlantic Rainforest,” William T. Sharp,
<http://gis.esri.com/library/userconf/proc05/papers/pap2255.pdf#search=%22atlantic%20rainforest%20brazil%20urban%20development%22>

12. Urban areas and global climate change

November 29. Discussion about global climate change and its impact on cities and urban areas. Topics explored will include sea level rise, extreme weather events and changes in temperature.

Readings

- Web, Intergovernmental Panel on Climate Change (IPCC). *Climate Change 2001: Impacts, Adaptation and Vulnerability*. Chapters 1, 7 and 18.
http://www.grida.no/climate/ipcc_tar/wg2/index.htm
- Web, Intergovernmental Panel on Climate Change (IPCC). *Climate Change 2001: Synthesis Report – Summary for Policymakers*.
http://www.grida.no/climate/ipcc_tar/vol4/english/pdf/spm.pdf
- Web, Intergovernmental Panel on Climate Change (IPCC). *Climate Change 2001: Mitigation*. Chapter 1. http://www.grida.no/climate/ipcc_tar/wg3/pdf/1.pdf

- Web, Pew Center. *Towards a Climate-Friendly Built Environment*. 2005.
<http://www.pewclimate.org/docUploads/Buildings%5FFINAL%2Epdf>
- Web, “Localizing Global Climate Change: Controlling Greenhouse Gas Emissions in U.S. Cities,” Michele M. Betsill, <http://www.ksg.harvard.edu/gea/pubs/2000-20.pdf#search=%22global%20climate%20change%20and%20cities%22>

13. Student presentations

December 6. First set of student presentations.

14. Student presentations

December 13. Second set of student presentations. Final course assignment due.