

SUMA PS5530 - The Urbanization Paradox: Crisis and Opportunity for Global Sustainability

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Contact: Response to emails within 48 hours

Course Overview

The world is witnessing one of the most dramatic environmental and demographic transformations of all time. At the start of the twentieth Century, only 15% of people lived within densely built environments, while most others inhabited agrarian or natural landscapes. Today, 55% of the global population is urbanized and by 2050 that number will reach 75%, for a total of six billion urban dwellers. Cities now produce more than 80 percent of global GDP, consume two-thirds of all energy, generate 70 percent of greenhouse gas emissions, and are disproportionately impacted by climate change and coastal risks. It is an understatement to say that global sustainability will succeed or fail in cities.

The goal of this course is to confront what has been called “the paradox of urbanization.” On the one hand, the surging growth of urban areas is devouring land and natural resources, destroying biodiversity, and exposing billions of people to hazardous conditions. On the other hand, researchers, policy makers and activists are looking towards cities as the nexus of sustainable living. Urban dwellers live more efficiently, have wider access to resources, and drive innovation. So can the urbanization paradox be resolved sustainably?

This course will employ a range of analytical and interpretive frameworks to address this question. Through lectures, in-class discussions, extensive reading, and the preparation of a semester long case study, students will develop a strong and nuanced understanding of the causes, impacts, and opportunities of global urbanization. Particular focus will be given to the emerging “science of urbanization” and to multi-disciplinary research, field work, and policy-making. Students will have the opportunity to conduct in-depth analysis of a single city of their choice and gain high-level exposure to numerous other cities through class discussion and presentations. By the end of the course, students will acquire the analytic skills and critical thinking to contribute to the challenging pursuit of global urban sustainability.

Course Schedule

PART I. URBANIZATION THEORY AND PRACTICE

- Session 1 (May 24): Introduction
- Session 2 (May 31): Theories of Urbanization
- Session 3 (June 5): Drivers of Urbanization and Global Environmental Change
- Session 4 (June 7): Special Panel Discussion: “On Fieldwork”
- Session 5 (June 14): The Promise and Limits of Urban Reform

PART II. CRITICAL ISSUES

- Session 6 (June 21): Land Use and Mobility
* No class on June 28
- Session 7 (July 5): Climate Change
- Session 8 (July 12): Water
- Session 9 (July 19): Energy

PART III. CASE STUDIES & SYNTHESIS

- Session 10 (July 26) Case Studies
- Session 11 (August 2): Case Studies
- Session 12 (August 9): Synthesis

Learning Objectives

By the end of this course students will be able to:

- Understand and discuss the primary drivers and impacts of rapid urbanization
- Acquire rigorous diagnostic skills and comparative frameworks to evaluate urbanization challenges and opportunities
- Critically assess and proposed policies, programs, and proposals that are aimed at promoting urban sustainability

Course Assignments

Annotated Bibliography (10%): Students will select a city and create an annotated bibliography with at least 10 sources that they will use as part of their research. Cities should be selected from one of the following regions unless otherwise approved by the instructor: South and Central America; East, South, and Southeast Asia; Sub-Saharan African and the Greater Middle East.

Case Study Proposal (15%): Students will submit a two-page proposal that describes the objectives / key questions of their case study. The case study should utilize the DPSIR Framework (Driving Forces – Pressures – State – Impacts – Responses).

Case Study Presentation (15%): Students will present their case study proposal and selected city in a 10-minute slide presentation followed by a 10-minute Q&A.

Final Case Study (50%): Students will submit a 10 to 15-page paper (with appendices as necessary) that utilizes the DPSIR framework to assess an urban/environmental challenge in their chosen city.

Evaluation/Grading

Component	Points	Evaluation criteria
Class Participation	10 Points	Each student will be evaluated for the frequency and quality of her/his contributions to class discussions. Students are expected to attend all sessions unless approved by instructor.
Annotated Bibliography	10 Points	Points will be awarded as follows: 3 points for completing the assignment with the required number of sources and annotations; up to 3 points for the range and depth of the selected sources; up to 4 points for the clarity and thoughtfulness of the annotations.
Case Study Proposal	15 Points	Points will be awarded as follows: 5 points for completing the case study proposal on time; up to 5 points for describing the objective and relevance of the case study; up to 5 points for describing the research plan and possible range of findings.
Case Study Presentation	15 Points	Points will be awarded as follows: 5 points for completing the presentation; up to 5 points for the quality and organization of the presentation visuals; up to 5 points for the brevity, clarity and persuasiveness of the spoken presentation.
Final Case Study	50 Points	Points will be awarded as follows: 20 points for completing the case study on time; up to 20 points for the quality of the analysis and for utilizing key concepts from the course; up to 20 points for the clarity and persuasiveness of the findings and recommendations.
TOTAL	100 Points	The following clarifies how points awarded to individual assignments translate into letter grades for the course: A+ is for extraordinary work (>96 points); A= 93-96 points; A-=90-92 points; B+=87-89, B= 83-86, B-=80-82, C+=77-79, C=73-76, C=70-72, D+=67-69, D= <67

Course Policies

Attendance and Participation: On-time attendance at each class meeting is expected. Partial attendance, i.e. lateness or early departure, if not excused in advance, will negatively impact the class participation portion of the course grade. You are expected to do all assigned readings, attend all class sessions, and engage with others in online discussions.

Late work: Late work will be accepted with a 15% reduction unless otherwise approved by the instructor prior to the due date.

Citation & Submission: All written assignments must cite sources using the Chicago style. Submit assignments through Canvas

School Policies

Copyright Policy

Please note -- Due to copyright restrictions, online access to this material is limited to instructors and students currently registered for this course. Please be advised that by clicking the link to the electronic materials in this course, you have read and accept the following:

The copyright law of the United States (Title 17, United States Code) governs the making of photocopies or other reproductions of copyrighted materials. Under certain conditions specified in the law, libraries and archives are authorized to furnish a photocopy or other reproduction. One of these specified conditions is that the photocopy or reproduction is not to be "used for any purpose other than private study, scholarship, or research." If a user makes a request for, or later uses, a photocopy or reproduction for purposes in excess of "fair use," that user may be liable for copyright infringement.

Academic Integrity

Columbia University expects its students to act with honesty and propriety at all times and to respect the rights of others. It is fundamental University policy that academic dishonesty in any guise or personal conduct of any sort that disrupts the life of the University or denigrates or endangers members of the University community is unacceptable and will be dealt with severely. It is essential to the academic integrity and vitality of this community that individuals do their own work and properly acknowledge the circumstances, ideas, sources, and assistance upon which that work is based. Academic honesty in class assignments and exams is expected of all students at all times. SPS holds each member of its community responsible for understanding and abiding by the SPS Academic Integrity and Community Standards posted at <http://sps.columbia.edu/student-life-and-alumni-relations/academic-integrity-and-community-standards>. You are required to read these standards within the first few days of class. Ignorance of the School's policy concerning academic dishonesty shall not be a defense in any disciplinary proceedings.

Accessibility

Columbia is committed to providing equal access to qualified students with documented disabilities. A student's disability status and reasonable accommodations are individually determined based upon disability documentation and related information gathered through the intake process. For more information regarding this service, please visit the University's Health Services website: <http://health.columbia.edu/services/ods/support>.

Readings

A textbook will not be required for this course. All readings are listed in the Course Schedule section of this syllabus and will be posted to Canvas or available online. "Required" readings are to be read BEFORE coming to class. Additional readings, listed as "For Reference / Further Reading" are also provided for enrichment and to provide context for class discussion.

Resources

Columbia University Library

Columbia's extensive library system ranks in the top five academic libraries in the nation, with many of its services and resources available online: <http://library.columbia.edu/>.

SPS Academic Resources

The Office of Student Life and Alumni Relations (SLAR) provides students with academic counseling and support services such as online tutoring and career coaching: <http://sps.columbia.edu/student-life-and-alumni-relations/academic-resources>.

Readings

PART I. URBANIZATION THEORY AND PRACTICE

SESSION 1

May 24 - Introduction

Required reading

Seto, K., R. Sanchez-Rodriguez, and M. Fragkias. "The New Geography of Contemporary Urbanization and the Environment." *The Annual Review of Environment and Resources* 35 (2010): 167-94.

Glaeser, Edward. "Triumph of the city. How Our Greatest Invention Makes Us Richer, Smarter, Greener, Healthier, and Happier. New York: Macmillan, 2011: 1-15.

Muggah, Robert. "A Manifesto for the Fragile City." *Journal of International Affairs* 68, no. 2 (Spring/Summer 2015): 19-37.

Radelet, Steven. "Prosperity Rising: The Success of Global Development—and How to Keep It Going." *Foreign Affairs* 95, no.1 (January/February 2016): 85-96.

For reference / further reading

United Nations, Department of Economic and Social Affairs. *World Urbanization Prospects: The 2014 Revision*. New York: United Nations, 2014.

United Nations. Sustainable Development Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable. <https://sustainabledevelopment.un.org/sdg11>

United Nations. New Urban Agenda: Resolution adopted by the General Assembly on 23 December 2016.

SESSION 2

May 31 - Theories of Urbanization

Required reading

Mumford, Lewis. "What is a City?" In *The City Reader*, 91-95. New York: Routledge, 1996. Previously published in *Architectural Record* 82 (1937).

Wirth, Louis. "Urbanism as a Way of Life." *The American Journal of Sociology* 44, no. 1 (1938): 1-24.

Childe, V. Gordon. "The Urban Revolution." *The Town Planning Review* 21, no. 1 (April 1950): 3-17.

Molotch, Harvey. "The City as a Growth Machine: Toward a Political Economy of Place." *American Journal of Sociology* 82, no. 2 (September 1976): 309-32.

Marcotullio, Peter J., and William Solecki. "What is a City? An Essential Definition for Sustainability." In *Urbanization and Sustainability*, edited by Christopher G. Boone and Michael Fragkias, 11-25. Human-Environment Interactions 3. New York: Springer, 2013.

For reference / further reading

Saalman, Howard. *Medieval Cities*, 11-45. Planning and Cities Series. New York: George Braziller, 1968.

SESSION 3

June 5 or 6 - Drivers of Urbanization and Global Environmental Change

***DUE: Case Study City and Issue selection*

Required reading:

- Elmqvist, Thomas, Charles L. Redman, Stephan Barthel, and Robert Costanza. "History of Urbanization and the Missing Ecology." *Urbanization, Biodiversity and Ecosystem Services: Challenges and Opportunities: A Global Assessment*. 2013.
- Beaverstock, Jonathan V., Richard G. Smith and Peter J. Taylor, "World-City Network: A New Metageography?" *Annals of the Association of American Geographers*, Volume 90 Issue 1 (2000). 123-134
- Blanco, Hilda. "Range of Contemporary Urban Patterns and Processes." In *Rethinking Global Land Use in an Urban Era*, edited by Karen C. Seto and Anette Reenberg, 1-21. Cambridge, MA: MIT Press, 2014.
- Seto, Karen C., Anette Reenberg, Christopher G. Boone, Michail Fragkias, Dagmar Haase, Tobias Langanke, Peter Marcotullio, Darla K. Munroe, Branislav Olah, and David Simon. "Urban Land Teleconnections and Sustainability." *Proceedings of the National Academy of Sciences of the United States of America*, Volume 109 Number 20. May 15, 2012. 7687-7692
- Parnell, Susan, David Simon, and Coleen Vogel. "Global Environmental Change: Conceptualizing the Growing Challenge for Cities in Poor Countries." *Area* 39, no. 3 (September 2007): 357-69.
- Pickett, S.T.A., M.L. Cadenasso, J.M. Grove, Christopher G. Boone, Peter M. Groffman, Elena Irwin, Sujay S. Kaushal, Victoria Marshall, Brian P. McGrath, C.H. Nilon, R.V. Pouyat, Katalin Szlavecz, Austin Troy, and Paige Warren. "Urban Ecological Systems: Scientific Foundations and a Decade of Progress." *Journal of Environmental Management* 92, no. 3 (March 2011): 331-62.
- Solecki, William, Karen C. Seto and Peter J. Marcotullio "It's Time for an Urbanization Science." *Environment Magazine*. January 2013.

For reference / further reading

- Friedmann, John. "The World City Hypothesis." In *The Global Cities Reader*, edited by Neil Brenner and Roger Keil. New York: Routledge, 2006. Previously published in *Development and Change* 17, 69-83. Malden, MA: Blackwell Publishers, 1986.
- Raudsepp-Hearne, Ciara, Garry D. Peterson, Maria Tengö, Elena M. Bennett, Tim Holland, Karina Benessaiah, Graham K. MacDonald and Laura Pfeifer. "Untangling the Environmentalist's Paradox: Why Is Human Well-being Increasing as Ecosystem Services Degrade?" *BioScience*, Vol. 60, No. 8 (September 2010), pp. 576-589
- DeFries, Ruth S., Thomas Rudel, Maria Uriarte and Matthew Hansen. "Deforestation driven by urban population growth and agricultural trade in the twenty-first century." *Nature Geoscience*. Volume 3 (March 2010). 178-181.
- Richards, Peter and Leah VanWey, "Where Deforestation Leads to Urbanization: How Resource Extraction Is Leading to Urban Growth in the Brazilian Amazon." *Annals of the Association of American Geographers*. Volume 105, Number 4 (2015). 806-823.
- Aguilar, Adrian G., Peter M. Ward, and C. B. Smith, Sr. "Globalization, Regional Development, and Mega-City Expansion in Latin America: Analyzing Mexico City's Peri-Urban Hinterland." *Cities* 20, no. 1 (February 2003): 3-21.
- Zhang, Li, Richard LeGates, and Min Zhao. "Double Dual Transformation: Understanding Urbanization with Chinese Characteristics." Chapter 9 in *Understanding China's Urbanization: The Great Demographic, Spatial, Economic, and Social Transformation*. Northampton, MA: Edward Elgar Publishing, Inc., 2016. 319-355.

SESSION 4

June 7 - Special Panel Discussion: "On Fieldwork"

WomenStrong International is a consortium of non-governmental organizations in five countries dedicated to eradicating extreme urban poverty by enabling women and girls to live healthy, fulfilling lives.

Dr. Susan M. Blaustein
Founder, WomenStrong International
<https://www.womenstrong.org/people/susan-blaustein>
<https://www.womenstrong.org/>

M.P. Vasimalai ("Vasi")
Founder and Executive Director of DHAN Foundation
Madurai District, Tamil Nadu, India
<https://www.womenstrong.org/people/m-p-vasimalai-vasi>
<https://www.womenstrong.org/projects/dhan-foundation-empower-womenstrong-madurai>

Abenaa Akuamo-Boateng
Executive Director, Women's Health to Wealth
Kumasi, Ghana
<https://www.womenstrong.org/people/abenaa-akuamo-boateng>
<https://www.womenstrong.org/projects/women-s-health-to-wealth>

Beldina Opiyo
Founder and Director, Alice Visionary Foundation Project
Kisumu, Kenya.
<https://www.womenstrong.org/people/beldina-opiyo-omolo>
<https://www.womenstrong.org/projects/alice-visionary-foundation-project>

Required reading

Speaker bios and organizational descriptions linked above.

SESSION 5

June 14 - The Promise and Limits of Urban Reform

****DUE: Annotated Bibliographies**

Engels, Frederick. *Condition of the Working Class in England*. London, GBR: ElecBook, 2001. ProQuest ebrary.

Hall, Peter. "The City of Dreadful Night." In *Cities of Tomorrow: An Intellectual History of Urban Planning and Design Since 1880*, 12-48. 4th ed. Malden, MA: Wiley Blackwell, 2014.

Parker, Simon. "The City Described: Social Reform and the Empirical Tradition in Classic Urban Studies." Chapter 3 in *Urban Theory and the Urban Experience: Encountering the City*. New York: Routledge, 2015. 28-51.

Gieryn, Thomas F. "City as Truth Spot: Laboratories and Field-Sites in Urban Studies." *Social Studies of Science* 36, no. 1 (February 2006): 5-38.

Davis, Mike. *Planet of Slums*. Brooklyn: Verso, 2006. 11-50.

United Nations Human Settlements Programme. *Streets as Tools for Urban Transformation in Slums: A Street-led Approach to Citywide Slum Upgrading*. Nairobi, Kenya: UN-Habitat, 2012.

United Nations Conference on Housing and Sustainable Urban Development (Habitat III). *Policy Paper 10: Housing policies*. New York: United Nations, June 2016.

United Nations Conference on Housing and Sustainable Urban Development (Habitat III). *Policy Paper 1: Right to the city and cities for all*. New York: United Nations, June 2016.

United Nations Conference on Housing and Sustainable Urban Development (Habitat III). *Policy paper 4: Urban governance, capacity and institutional development*. New York: United Nations, June 2016.

United Nations Conference on Housing and Sustainable Urban Development (Habitat III). *Policy paper 6: Urban Spatial Strategies: Land Market and Segregation*. New York: United Nations, June 2016.

For reference / further reading

Jackson, Kenneth T. *Crabgrass Frontier: The Suburbanization of the United States, 12-72*. New York: Oxford University Press, 1985.

Angelil, Marc, and Cary Siress. "The Paris Banlieu: Peripheries of Inequity." *Journal of International Affairs* 65, no. 2 (Spring/Summer 2012): 57-67.

Obermayr, Christian. *Sustainable City Management: Informal Settlements in Surakarta, Indonesia*. Cham, Switzerland: Springer International Publishing, 2017.

Chetty, Raj, Nathaniel Hendren, and Lawrence F. Katz. "The Effects of Exposure to Better Neighborhoods on Children: New Evidence from the Moving to Opportunity Experiment." Unpublished manuscript, Harvard University, Cambridge, MA, August 2015.

PART II. CRITICAL ISSUES

SESSION 6

June 21 - Land Use and Mobility

Pojani, Forina and Dominic Stead (Editors). *The Urban Transport Crisis in Emerging Economies*. Cham, Switzerland: Springer International Publishing, 2017.

Banister, David. "The Sustainable Mobility Paradigm." *Transport Policy* 15, no. 2 (March 2008): 73-80.

Kenworthy, Jeffrey R. "The Eco-City: Ten Key Transport and Planning Dimensions for Sustainable City Development." *Environment & Urbanization* 18, no. 1 (April 2006): 67-85.

Hossein Haghshenas and Manouchehr Vaziri, "Urban sustainable transportation indicators for global comparison." *Ecological Indicators*. Volume 15, Issue 1, April 2012.

Bakogiannis: *Case Studies and Sustainable Urban Mobility Research Schemes: A Communication Channel Among Researchers and Interdisciplinary Community Groups*

Recommended Readings

Joss, Simon. "Eco-cities and Sustainable Urbanism." *International Encyclopedia of the Social and Behavioral Sciences*. 2nd Edition, Volume 6. 2015. 829-837.

Tsolakis, Naoum and Leonidas Anthopoulos. "Eco-cities: An Integrated System Dynamics Framework and a Concise Research Taxonomy." *Sustainable Cities and Society*. 17 (2015). 1-14.

Hodson, Mike, Simon Marvin, Blake Robinson and Mark Swilling. "Reshaping Urban Infrastructure: Material Flow Analysis and Transitions Analysis in an Urban Context." *Journal of Industrial Ecology*. Volume 16 Number 6 (2012). 789-800.

SESSION 7

July 5 - Climate Change

****DUE: Case Study Proposals**

Required reading:

Cities and Climate Change: An Urgent Agenda. Vol. 10. Washington, DC: The World Bank, 2010.

Rosenzweig, Cynthia, William D. Solecki, Stephen A. Hammer, and Shagun Mehrotra, eds. *Climate Change and Cities: First Assessment Report of the Urban Climate Change Research Network*. Cambridge, UK: Cambridge University Press, 2011.

Small, Christopher, and Robert J. Nicholls. "A Global Analysis of Human Settlement in Coastal Zones." *Journal of Coastal Research* 19, no. 3 (Summer 2003): 584-99.

Shaping Climate-Resilient Development: A Framework of Decision-Making. N.p.: Economics of Climate Adaptation Working Group, 2009. 1-33.

Pelling, Mark. "Cities as Sites of Disaster." In *The Vulnerability of Cities: Natural Disasters and Social Resilience*, 19-41. Sterling, VA: Earthscan Publications, 2003.

Climate Action in Megacities. Publication no. 1. N.p.: C40 Cities and ARUP, 2014.

Bloomberg, Michael and Carl Pope. *Climate of Hope: How Cities, Businesses and Citizens Can Save the Planet*. New York: St. Martin's Press, 2017.

Recommended Readings

United Nations Conference on Housing and Sustainable Urban Development (Habitat III). *Policy paper 8: Urban ecology and resilience*. New York: United Nations, June 2016.

Wealthier, Healthier Cities: How Climate Change Action is Giving us Healthier Wealthier Cities. London: CDP, 2013.

Kreft, S., D. Eckstein, L. Junghans, C. Kerestan, and U. Hagen. *Global Climate Risk Index 2015*. Bonn: Germanwatch, 2014.

City of New York. *A Stronger, More Resilient New York*. New York: City of New York, 2013. 33-36.

SESSION 8

July 12 - Water

Brown, Casey. "Water, Ecosystems and Poverty: Roadmap for the Coming Challenge." In *Integrating Ecology and Poverty Reduction*, edited by J.C. Ingram et al. New York: Springer Science + Business Media, 2012.

FitzHugh, Thomas, Colin Apse, Ridge Schuyler, and John Sanderson. "Balancing Human and Ecosystem Needs for Water in Urban Water Supply Planning." In *Integrating Ecology and Poverty Reduction*, edited by J.C. Ingram et al. New York: Springer Science + Business Media, 2012.

Enjie Li, Joanna Endter-Wada and Shujian Li, "Characterizing and Contextualizing the Water Challenges of Megacities," *Journal of the American Water Resources Association*. Volume 51, Number 3 (June 2015): 589- 613.

Robert I. McDonald, "Water on an urban planet: Urbanization and the reach of urban water infrastructure." *Global Environmental Change*. Volume 27 (June 2014). Pages 96-105.

Feldman, David Lewis, *The Water-Sustainable City: Science, Policy and Practice*. Northampton, MA: Edward Elgar Publishing, 2017.

The Water and Sanitation Program. *Guidance Notes on Services for the Urban Poor: A Practical Guide for Improving Water Supply and Sanitation Services.*

For reference / further reading

Gandy, Matthew. *Concrete and Clay: Reworking Nature in New York City.* Cambridge, MA: The MIT Press, 2002. 1-51.

McHarg, Ian L. *Design with Nature.* Garden City, NY: Doubleday/Natural History Press, 1971. 127-185.

SESSION 9

July 19 - Energy

Wrigley, E. A. *Energy and the English Industrial Revolution.* New York: Cambridge University Press, 2010.1-47.

Lavelle, Marianne. "The Solvable Problem of Energy Poverty." *National Geographic News.* September 23, 2010.
<http://news.nationalgeographic.com/news/2010/09/100921-energy-poverty-cookstoves/>

International Energy Agency. *Energy poverty: How to Make Modern Energy Access Universal?* Paris: IEA, 2010.

UN Habitat, United Nations Environment Programme (UNEP) and ICLEI Local Governments for Sustainability. *Sustainable Urban Energy Planning: A handbook for cities and towns in developing countries.* UN Habitat, 2009

Creutzig, Felix, Giovanni Baiocchi, Robert Bierkandt, Peter-Paul Pichler and Karen C. Seto. "Global Typology of Urban Energy Use and Potentials for an Urbanization Mitigation Wedge." *Proceedings of the National Academy of Sciences of the United States of America*, Volume 15 Number 20. May 19, 2015. 6238-6288.

Recommended Readings

World Bank, Energy Sector Management Assistance Program, and International Energy Agency. *Sustainable Energy for All. Global Tracking Framework.* World Bank, 2013.

International Energy Agency. *World Energy Outlook 2016.* Paris: International Energy Agency, 2016.

Michal Krzyzanowski, et al. "Air Pollution in the Mega-cities." *Global Environmental Health and Sustainability. Current Environmental Health Reports.* Volume 1, Issue 3. September 2014.

SESSION 10

July 26 - Case Study Presentations (3 hours)

No Required Readings

SESSION 11

August 2 - Case Study Presentations (3 hours)

No Required Readings

SESSION 12

August 9 - Synthesis

Freed, Adam. "Acting Locally, Sharing Globally: The Positive Ripple Effect of Cities." In *Urban Futures: An Atlantic Perspective*, by Neal Peirce, Adam Freed, and Anthony Townsend, 33-62. Wider Atlantic Series. Washington, DC: The German Marshall Fund of the United States, 2013.

Plastrik, Peter, and Julia Parzen. *Toward a Sustainable City: The State of Innovation in Urban Sustainability.* Urban Sustainability Directors Network (USDN), 2013.

United Nations, Science, Technology and Innovation for Sustainable Urbanization. 2014.

United Nations Conference on Housing and Sustainable Urban Development (Habitat III). *Policy paper 9: Urban services and technology*. New York: United Nations, June 2016.