Sustainable Development of the Greater Bay Area

The primary goal of this course is to provide a venue for students to develop an understanding of sustainable development as a collective effort among diverse stakeholders. Pursuing that goal will enable students to understand science, policy, business and other specializations can contribute sustainable systems, and see how their specialization can contribute to sustainable development. In order to achieve this goal, the venue for our investigation represents one of the predominant sustainable development challenges.

Sustainable development is a multi-scale process, integrating global and local ecosystems and socio-economic systems. We examine sustainable development by investigating the Greater Bay Area (GBA) because this megacity region is a particularly powerful expression of the integration of global and local forces. The innovativeness and economic productivity of these regions drive growth and trade and megacity regions are also global scale polluters and resource users. The GBA can be an important model for sustainable development of megacity regions.

In order for megacity regions to become sustainable requires the collective effort of many stakeholders within different cities and sectors. We examine pressures on the environment, such as the economic patterns of development, pollution and other environmental issues as collective action problems shared by the cities of the region. In regard to solutions we investigate governance systems and how planning and policy can help to coordinate action among cities and the efforts of the region to pursue the sustainable development goals (SDGs).

Students are introduced to theories and concepts appropriate to each of these issues to build a basis for further analysis of sustainable development of an issue faced by the region. A group project provides a window into the GBA, other regions and sustainable development.

Course Requirements

This course requires substantial reading, research, discussion and presentation. Readings are discussed in class to ensure that you have understood key points and arguments. Attendance is mandatory. The readings are also guides for your research on your final project.
You will be evaluated on:

- Attendance and participation in class 10%
- Short presentations through semester (two) 30%
- Group final presentation 20% (grade derived from project coherence)
- Final report 40% (grade derived from individual contribution)

Group Projects:
The goal of the project is for students to experience the potentials and constraints on sustainable development by trying to devise a solution for an issue shared by the cities of the GBA. In this project you choose a sustainability issue, determine how the cities and stakeholders of the GBA balance cooperation and competition on the issue and develop a proposal on how they can improve. The issue may focus on a coordination need of all cities or activity where a city’s policies and actions have regional impacts (see examples below). Groups of 3-5 members will be formed and choose a topic after a few weeks into the semester. Classes and presentations through the semester will help you build your understanding and generate improvements for your sustainability issue.

The group will make a presentation in the last 2 weeks of class and final reports are expected shortly after classes end. The presentation will be graded on the group’s overall and collective understanding of the issue and creativeness of approach taken to deal with the issue. In the final report, each member will prepare a section on their own project and it will be marked individually.

Depending on group size: Twenty-Forty pages, 4000-8000 words (references excepted), double spaced, submitted on Microsoft Word.

Dimensions of the issue for inclusion projects:

- Environmental, social and economic considerations
- Collective action problems
- Competition and cooperation and strategies of different stakeholders
- Multi-level governance
- Indicator systems
- Planning and policy approaches
- Technical and managerial approaches (e.g. industrial ecology, infrastructure)

Short presentations: Each group will make 2 short presentations through the semester. In the presentations, groups will discuss the previous week’s topic in relation to their issue, and the presentation should be 15-30 minutes.

Schedule

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Presentations</th>
<th>In-class task</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Feb 7</td>
<td>Sustainable development and you</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Date</td>
<td>Topic</td>
<td>Description</td>
<td></td>
</tr>
<tr>
<td>------------</td>
<td>-----------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>2. Feb 14</td>
<td>The Mega-City Region Sustainability Challenge</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Group allocation and environmental topic assignment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Feb 21</td>
<td>The GBA's environment</td>
<td>Describe the state of an environmental issue in the GBA. All groups.</td>
<td></td>
</tr>
<tr>
<td>4. Feb 28</td>
<td>The PRD's competitive development</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Mar 6</td>
<td>Sustainable development, collective action and the SDGs</td>
<td>Defining SDGs for your project.</td>
<td></td>
</tr>
<tr>
<td>6. Mar 13</td>
<td>Sustainability transitions</td>
<td>Collective action problems of issue (1/3 of groups)</td>
<td></td>
</tr>
<tr>
<td>7. Mar 20</td>
<td>Agglomeration, clusters, green growth</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Mar 27</td>
<td>Governance, policy and planning</td>
<td>Marine air emissions case study</td>
<td></td>
</tr>
<tr>
<td>9. Apr 3</td>
<td>Sustainable cities and megacity regions: models and benchmarks</td>
<td>How is your topic governed? (1/3 of Groups)</td>
<td></td>
</tr>
<tr>
<td>10. Apr 17</td>
<td>Stakeholder analysis, engagement, indicators</td>
<td>Benchmarks (1/3) of groups</td>
<td></td>
</tr>
<tr>
<td>11. Apr 24</td>
<td>Presentations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. May 8</td>
<td>Presentations</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Weekly Readings

READINGS: CANVAS=pdf available on Canvas; ELECTRONIC=electronic book available from library; RESERVE=on reserve at library

1. Sustainable Development and You

Core Readings

Supplemental readings

2. The Mega-City Region Sustainability Challenge

Core Readings
- Ch. 2 “Towards Sustainable Development” and Ch. 9 “The Urban Challenge” in World Commission on Environment and Development 1987 *Our Common Future* United Nations (CANVAS) or [http://www.un-documents.net/wced-ocf.htm](http://www.un-documents.net/wced-ocf.htm)

Supplemental readings

3. The State of the PRD’s Environment: air and water sheds, land interactions, biodiversity, nature and agriculture, culture, ecological footprint

Core Readings:
- "People Said Extinction Was Not Possible:" 2,000 Years of Environmental Change in South China 2003 Robert Marks (CANVAS)
- Future flood Losses in major coastal cities 2013 Stephane Hallegatte et al. *Nature Climate Change* COI: 10.10 38/NClimate1979 (CANVAS)

Supplementary readings
- *Liquid Assets* 2009 Civic Exchange (CANVAS)
• One Country, Two Systems, One Smog: Cross-Boundary Air Pollution Policy Challenges for Hong Kong and Guangdong 2003 Lisa Hopkinson and Rachel Stern *China Environment Series* 6 pgs. 19-36 (CANVAS)

• Ch. 6 Ecological-Environmental Plans 2009 in HKSAR, Guangdong Construction Ministry etc. *Building a Coordinated and Sustainable World-class City-region* (CANVAS)

• A conceptual framework for the study of human ecosystems in urban areas 1997 Steward Pickett et al. Urban Ecosystems 1 pgs. 185-199. (CANVAS)

• Tracking emission sources of sulfur and elemental carbon in Hong Kong/Pearl River Delta region 2012 Jimmy Fung et al. *Journal of Atmospheric Chemistry* 69 pgs. 1-22. (CANVAS)


• PRD Regional Air Quality Monitoring Network 2012 (CANVAS)

• Urban heat island effects of the Pearl River Delta city clusters—their interactions and seasonal variation 2011 Jian-Bin Wu et al. *Theoretical and Applied Climatology* 103 pgs. 489-499 (CANVAS)

• Pearl River Delta Water Quality Model 2008 HK EPD (CANVAS)

• “Ch. 6 The Biophilic City” in Newman P. and Matan A. 2013 *Green Urbanism in Asia*. Hong Kong: World Scientific. (CANVAS)


4. The PRD’s competitive development

Core Readings:


Supplemental readings

- InvestHK Greater PRD Report 2010 (CANVAS)
- InvestHK Greater PRD Report 2014 (CANVAS)

5. Sustainable Development, collective action and the SDGs

Core Readings:


Supplementary readings

- Rio Declaration (CANVAS)
- Hardin, G. 1968 The Tragedy of the Commons, Science 162: 1243-1248. (CANVAS)
- Ostrom, E. 1999 Collective Action and the Evolution of Social Norms (CANVAS)
- Ostrom, E. 1999 Collective Action and the Evolution of Social Norms (CANVAS)
- Ostrom, E. et al. 1999 Revisiting the Commons: Local Lessons, Global Challenges, Science 284: 278-282. (CANVAS)
• Ch. 10 The Prisoners’ Dilemma and Repeated Games in Dixit, A., Skeath, S. and Reilly, D. 2015 Games of Strategy, New York: W.W. Norton & Co. (CANVAS)
• Ch. 11 Collective Action Games in Dixit, A., Skeath, S. and Reilly, D. 2015 Games of Strategy, New York: W.W. Norton & Co. (CANVAS)

6. Sustainability Transitions

Core Readings:


Supplementary readings


7. Agglomeration, clusters and green growth

Core Readings:

• Ch. 1 “Perspectives on regional economic development” in Stimson, Robert, Stough, Roger and Brian Roberts 2006. Regional Economic Development: Analysis and Planning Strategy. Springer. (ELECTRONIC and CANVAS)
• Ch. 2 “Agglomeration and Clustering” in Philip McCann 2013 Modern Urban and Regional Economics. Oxford: Oxford University Press. (CANVAS)

Supplementary readings

• Ellen McArthur Foundation (2013) Towards the Circular Economy (Canvas)
• “Creating integrated business and environmental value within the context of China’s circular economy and ecological modernization” 2010 Park, J., Sarkis, J. and Wu, Z. Journal of Cleaner Production 18: 1494-1501 (CANVAS)

8. Governance, policy and planning

Core Readings:
• Outline Development Plan for the Guangdong-Hong Kong-Macao Greater Bay Area (CANVAS)

Supplementary readings
• Ch. 2 Ch. 9 “The Urban Challenge” in World Commission on Environment and Development 1987 Our Common Future United Nations (CANVAS) or http://www.un-documents.net/wced-ocf.htm
• Storper, M. 2014 Governing the Large Metropolis, Territory, Politics, Governance 2:115–134. (CANVAS)
• Feiock, R. 2016 Regional Governance and Institutional Collective Action for Environmental Sustainability in China, Lincoln Institute of Land Policy, Working Paper WP16RF1
• Vogel, R. et al. 2010 Governing Global Megacities in China and West Progress in Planning 73, 1–75 (CANVAS)
• PRD Governments 2011 Regional Cooperation Plan on Building a Quality Living Area (CANVAS)
• Xu, J. 2017 Contentious space and scale politics: Planning for intercity railway in China’s mega-city regions, Asia Pacific Viewpoint, 58: 57–73

9. Sustainable Cities and Megacities: models and benchmarks

Core Readings
• Chapter 3 What are the high-priority green growth policies for cities? in OECD (2013), Green Growth in Cities, OECD Green Growth Studies, OECD Publishing. (CANVAS) and download at http://dx.doi.org/10.1787/9789264195325-en

Supplementary Readings
• Beatly, T. 2012 Green cities of Europe Washington: Island Press (CANVAS)
• Simpson, R. and Zimmerman, M. 2013 The economy of green cities London: Springer (CANVAS)
• Case Studies on sustainable cities and their activities at ICLEI website: http://www.iclei.org/resources/publications.html?tx_solr%5Bq%5D=ICLEI\ntsolr%5Bfilter%5D%5B0%5D=agenda_stringM%253ASustainable%2BCity
• http://www.sustainablecities.eu
• EIU 2012 Supersized cities China’s 13 megalopolises (CANVAS)
• McKinsey Global Institute 2009 Preparing for China’s Urban Billion (CANVAS)

10. Stakeholder analysis, engagement, indicators
Core Readings

- “Introduction: Sustainability—A Broad Perspective” and “Ch. 16 The Zofnass Rating System for Infrastructure Sustainability and Decision Making,” 2013 in Pollalis, Spiro N. Georgoulias, Andreas Ramos, Stephen J. eds. Infrastructure Sustainability and Design. Florence, KY: Routledge. (Electronic)
- OECD Framework for Effective and Efficient Policies (Canvas)
- Landcare research, Stakeholder Analysis

Supplementary Readings

- Ch. 1 Sustainable Development—the local context. 1996 ICLEI THE LOCAL AGENDA 21 PLANNING GUIDE An Introduction To Sustainable Development Planning (CANVAS).
- OECD 2001 OECD Environmental Indicators: development, measurement and use Paris: OECD (Canvas)
- Reload, Methods for Stakeholder Analysis

11. Presentations

12. Presentations