# A Green Cities Checklist:
## A Subjective Rating Rubric

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***ABSTRACT:*** *To meet the challenges of mitigating global climate change it is not sufficient to merely design and construct sustainable buildings. Sustainability must be attained on the neighbourhood, city, and regional scales. How does one determine if a city is green or not? Challenged to delve into the complexities of green cities, our English Green Building Seminar began to develop a Green Cities Checklist to rate the cities described in Beatley's* Green Cities of Europe *based on the eight attributes he deemed necessary in order to attain sustainability. The checklist took on the form of a rubric that posed the extremes of success or failure for each attribute. The 2013 seminar's ratings for Copenhagen and Venice, both purported to be green, were found extremely differently through use of our checklist. Although our checklist is a rough draft, it shows potential to help wade through "greenwashing" and to compare the strengths and weaknesses of rated cities The Green Cities Checklist is a meta-tool for quickly comparing cites and evaluating their strengths and weaknesses because it relies on subjective judgments in only eight categories. Guidance will be provided to accomplish these assessments. The checklist will be useful to students and professionals in architecture and in planning for analysing current situations and making future plans for neighbourhoods, cities, and regions responsive to ameliorating global climate change.*

*Keywords: Green Cities, Rating Systems, City Planning, Urban Design, Sustainable Urbanism*

## INTRODUCTION

*"That we need new models of urbanization—that is, sustainable urbanization—is especially clear here in the U.S. Where to look for new models is always a question, and as this book* [Green Cities of Europe] *argues, European cities remain a powerful source of potent ideas and inspiring practice."*

—Tim Beatley

When Beatley's *Green Cities of Europe* was published in 2012 it struck a resonate chord: Our architecture program had been looking toward Europe as inspiration for successful green urban design solutions for more than a decade. Unlike the United States, the European Union has taken a proactive stance on combating climate change, first by signing the Kyoto Protocol in 1998 (ratified in 2002) and second by enacting regulations that set strict energy and emissions goals that municipalities and individual design firms have sought to achieve. Europe is at least a decade ahead of the United States in responding to climate change and in greening urban design. To experience this difference, we have been conducting a summer research studio in the United Kingdom since 2006, based primarily in London, but also visiting Edinburgh, Glasgow, Greenwich (figure 1), Kings Langley, Machynlleth, Nottingham, Oxford, and other towns. The students have been favourably impressed by signs of green living and planning in these cities, but have had no system for analytic evaluation. Beatley's book inspired us to develop and use (on cities described in Beatley's book) a rating system, the Green Cities

Scorecard, in preparation for our 2013 studies abroad course.



*Figure 1: Is Greenwich (UK) truly a green city or is it greenwashed?*

The Green Cities Checklist is a meta-tool for quickly comparing cities and evaluating their strengths and weaknesses because it relies on subjective judgments in only eight categories. Guidance is provided to accomplish these assessments. The checklist will be useful to educators, students, and professionals in architecture and in planning for analysing current situations and making future plans for neighbourhoods, cities, and regions responsive to ameliorating global climate change.

## RESEARCH OBJECTIVES AND HISTORY

The overarching objective of this project is to develop a teaching tool that helps us understand the complex workings of cities and that lends credence to their sustainability. This experience has been central to our

United Kingdom studies abroad offering (a spring term preparatory seminar and a month-long research studio in London and the UK) held every other year. In the seminar the students gain hands-on experience developing and refining the tool, using it, and critiquing it. This process gives them ownership of the checklist and helps them gain a better understanding of the scope and depth of sustainability at an urban scale.

The well-known aphorism is that sustainability is like a three-legged stool, supported by environmental, social/cultural, and economic legs. However, we've found trying to analyse green cities using only these three criteria too simplistic, while subdividing each into many facets too complex. There must be a better, more effective way to approach the problem.

Our project is a work in progress. We're in the midst of a three-phase attempt to define a useful rating system. The first effort was made by the students enrolled in the 2013 course, followed by those in 2015. The checklist will be finalized and further tested by students in the 2017 course.



| The Freiburg Charter for Sustainable Urbanism | | |
|---|---|---|
| **The Twelve** | **Guiding** | **Principles** |
| Spatial | Content | Process |
| Diversity, Safety, & Tolerance | Education, Science, & Culture | Long-Term Vision |
| City of Neighborhoods | Industry & Jobs | Communication & Participation |
| City of Short Distances | Nature & Environment | Reliability, Obligation, & Fairness |
| Public Transport & Density | Design Quality | Co-operation & Partnership |

*Figure 2: Freiburg's Twelve Guiding Principles*

The *Green Cities of Europe* was first assigned as the textbook for the 2013 English Green Building seminar. At the beginning of the semester the students were asked to develop a method to rate the greenness of the seven cities described in the text. They considered two options creating rubrics based on: (1) The Freiburg Charter for Sustainable Urbanism's 12 guiding principles (see figure 2) or (2) the contrast between the American dream and the European dream as described by Rifkin (2004) in *The European Dream*. After proposing assessment criteria for each, the students rejected both options. The twelve guiding principles (e.g., City of Neighborhoods or Reliability, Obligation, & Fairness) proved to be vague and cumbersome. The contrast between the American and European dreams was even less suitable. In the end they found Beatley's criteria to be the most straightforward and comprehensive basis for their analyses.

We've used scoring rubrics for more than a decade to assign grades for the complex and subjective student projects accomplished in design studio. When based on course requirements, the subtle and immeasurable differences in student projects become clear. In 1969, Malcolm Wells suggested such a method for assessing the success of buildings in meeting their environmental imperatives with his Wilderness-Based Checklist for Design and Construction later published in *Gentle Architecture* (1982). In 1999, the Society of Building Science Educators (SBSE) revised Wells' checklist as the Regeneration-Based Checklist for Design and Construction and posted it on their web site. These subjective checklists have proven to be useful tools for evaluating the environmental appropriateness of architectural designs and their sites. This past success in using subjective rubrics in performing useful, quick analyses of complex situations lends credence to their use in evaluating green cities, whose attributes, too, are complex and not always measurable.

The students worked in small teams facilitated by the teaching assistants and the instructor to brainstorm definition of the rubrics based on Beatley's section headings in the introduction to *Green Cities of Europe*— Sustainable Mobility, Walking Cities, Biophilic Cities, Climate Change and Renewable Energy, Sustainable Urban Metabolism, Green Cities/Green Governance, and Models for the Future. Further discussion simplified and morphed these seven headings into the 2013 scorecard's eight issues—mobility, walkability, biophilia, energy, metabolism, governance, planning, and culture. Extremes and some midpoints for each rubric were determined (see figure 3).



*Figure 3: The 2013 seminar's draft Green City Scorecard*

The next challenge was to use the scorecard for evaluating the seven cities presented in *Green Cities of Europe* in addition to Portland, Oregon (as a known local example). Both the requirement to produce full-colour graphic slide shows (*Green Cities of Europe* has black

and white images only) and to assess the greenness of the assigned city encouraged the students to seek information beyond that provided by the case studies in the text.

The students proved to be discerning analysts. Their presentations were well-received and stimulated discussion among class members. Their ratings of Copenhagen and Venice, both presented as green cities in Beatley's text, demonstrated different levels of green urbanism (see figures 4 and 5).
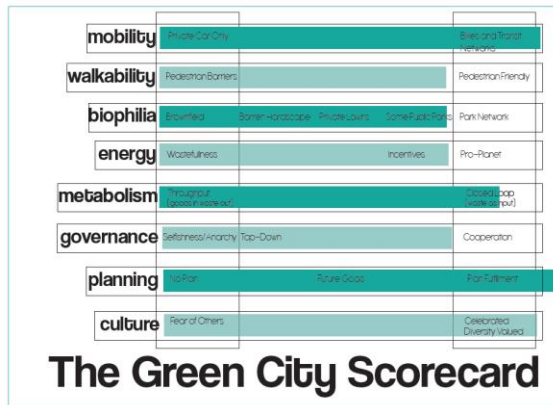


*Figure 4: Copenhagen rated as very green (2013).*
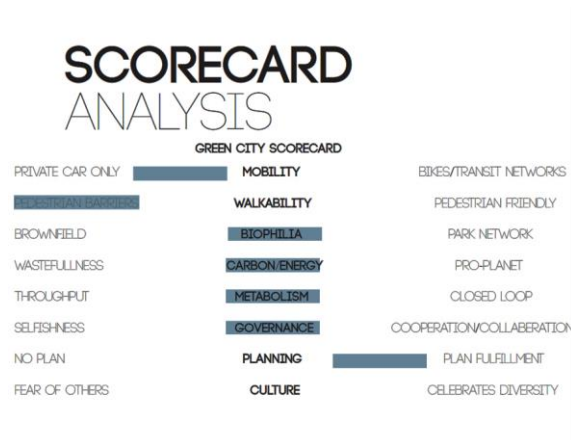


*Figure 5: Venice rated as not very green (2013).*

In London the students were assigned a variety of topically defined, self-guided discovery exercises to document and analyse places and experiences. It was hoped that the scorecard would be useful in these analyses, but the students were not able to fulfil this hope.

Although the scorecard we developed was a rough draft, it showed potential to help wade through "greenwashing" and to compare strengths and weaknesses of rated cities. However, more work would be needed to fill in the midranges of the rubric and to embed its use in the London on-site studies.

**CURRENT EFFORTS**
The 2015 seminar was given the task of further developing the 2013 scorecard into the Green Cities

Checklist including creating and writing guidelines for rating each issue. During three weekly seminar meetings, the students worked in small, facilitated teams to brainstorm and posit criteria for each element of the checklist as well as define intermediate values for each line. Their efforts resulted in a more fully developed basic rubric with a one-page guide for each issue in the checklist (figure 6).



*Figure 6: One-page guide for the issue of biophilia (2015)*

Students again rated five of the seven cities described in Green Cities of Europe using our newly revised checklist, each presented to the seminar during the term. While the underpinnings of each rubric item were not apparent in the presentations, the results were thorough and analyses well-structured. We looked at the ratings from both 2013 and 2015 to compare results. Copenhagen's rating for 2015 (figure 7) was similar to that of 2013 (figure 4), but more refined, while the presentation and discussion were better informed.
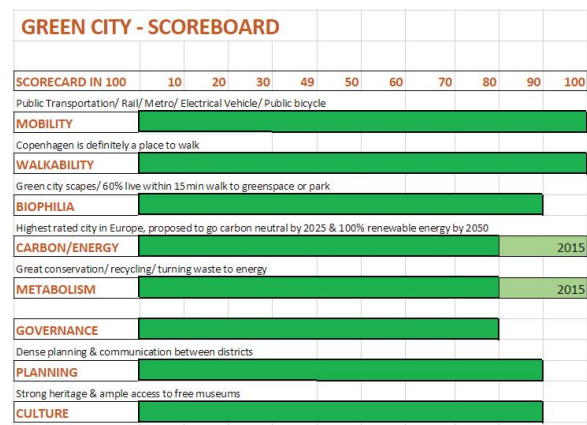


*Figure 7: Copenhagen again rated very green in 2015.*

The summer discovery exercises in London have been reconceived to be keyed to a specific criterion (e.g., Planning or Mobility) in the checklist (see figure 8) to investigate their usefulness. Students are being asked to analyse at least one additional criterion to evoke the complexity inherent in such assessments. At the time of writing this paper, the effectiveness of the students' efforts in refining and using the latest version of the checklist remains untested in a ground-truthing context.

**DISCOVERY 7: THE DOCKLANDS REVIVAL—PLANNING**
The site for this experience is Canary Wharf and its Museum of London Docklands, Victoria Docks and its Crystal Exhibition and Emirates Air Line, and/or the North Greenwich Peninsula with it's O$_2$ Centre.

**DISCOVERY 8: RAIL CONNECTIVITY—MOBILITY**
The sites for this experience are Euston, King's Cross, Paddington, and St. Pancras train stations and their connections to public transit—Boris bikes, bus, tube, and overground. You may augment the work with comparison to other railway stations throughout the UK.

*Figure 8: 2015 Discovery exercises 7 and 8*

The newly published sixth edition of *London's Contemporary Architecture* (2014), another seminar textbook, has been used to immerse students in virtual journeys of discovery that they have presented to the class. This text is not written with sustainability as a focus, thus London is presented as complex collections of artefacts that require analyses to understand their place in the context of green urbanism. The summer discovery exercises in addition to the student journals will play important roles in evaluating the 2015 checklist's validity and usefulness as a tool and will be reported on at PLEA 2016.

**FUTURE EFFORTS**
The plan for the 2017 seminar and London studies abroad course is to use feedback from this year's courses as well as students' journals to complete and refine the Green Cities Checklist and its accompanying guidelines.

**CONCLUSION**
The Green Cities Checklist is being developed as an instructional tool for stimulating critical thinking and subjective analyses of purported green cities as well as serving as a hands-on tool for exploring specific features of our London studies abroad course. So far the checklist development process has been successful in stimulating in-class discussions, critical thinking, and analytic presentations, but has yet to be proven viable as a hands-on tool for analysing and understanding sustainable urbanism.

Topics for further study include: how to further refine the London discovery exercises to better encourage students' overlaying checklist issues in their site analyses, if necessary; what additional exercises would better point their studies in that direction; how to amend the checklist

and its guidelines to support adoption in other academic endeavours or by other entities, such as city governments and architects and planners, interested in evaluating their efforts toward achieving greater sustainability.

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