

BOOK REVIEW

Handbook on green infrastructure: Planning, design and implementation, edited by Danielle Sinnett, Nick Smith, and Sarah Burgess, Northampton, MA, Edward Elgar, 2015

Green infrastructure (GI) is an increasingly conventional approach to increasing quality of life and decreasing the cost of infrastructure in cities around the world. It has been proposed for purposes as broad as addressing urban shrinkage, promoting resilience in the face of climate change, alleviating urban poverty, and promoting health in urban areas.

The *Handbook on Green Infrastructure*, edited by Danielle Sinnett, Nick Smith, and Sarah Burgess, is a strong contribution to the practice of, and research into, GI. It goes beyond first-generation GI textbooks because its chapters, for the most part, assume that the benefits of GI are real and established. This is not to say that the validation of GI is ignored; the first section of the book dedicates five chapters to reviewing scientific evidence that supports the value of GI. However, the pervading sense, found throughout older texts in the field, that there is a pressing need to justify the field's existence and value is no longer here. Though GI may still be defined differently by researchers and practitioners in the field, this volume demonstrates that it has otherwise coalesced around a distinct set of values, practices, methods, and beliefs.

This book contains 23 chapters that have been consigned to four main sections: "The Role of Green Infrastructure in the Urban Environment," "Strategic Planning for Green Infrastructure," "Designing Green Infrastructure for All," and "Implementation and Management of Green Infrastructure." A fifth section, "Looking Forward," includes a single chapter "The Future of Green Infrastructure."

The *Handbook's* first section is perhaps the strongest and covers a standard range of topics in a book on the benefits of GI. With individual chapters dedicated to GI's impact on health, air quality, water management, economic valuation, and biodiversity, this section succinctly and coherently makes the case for GI. Exploring historical trends, recent data and research results, and case studies of projects implementing GI, these chapters provide valuable and accessible resources for both GI practitioners and students in the field.

The second section, consisting of six chapters on the general topic of planning for GI, begins with an introductory chapter by Ian Mell, who argues that currently GI is in stage 3, "a more refined approach to policy-making, drawing heavily on the decade of green infrastructure evidence" (p. 107). The five subsequent chapters (planning GI on a landscape scale in both England and Portugal, GI planning in the United States and United Kingdom, GI planning in metropolitan landscapes, and GI planning for inclusivity) support Mell's assertion that GI planning increasingly does not follow a one-size-fits-all approach. As a result, the case studies included in this section may be useful resource guides for those studying similar problems, but the generalizability of their findings will be limited as GI researchers and practitioners strive for ever-more-individualized policies and designs.

Another challenge to the general applicability of the *Handbook*, particularly from the U.S. perspective, is the degree to which these chapters are written from a distinctly European and/or UK perspective. Some chapters, largely those located in the planning section, are more successful at transcending the cultural and administrative differences between the United States and Europe. Carla Goncalves and Paulo Silva's "Planning Green Infrastructure from a Landscape Perspective" suggests a methodology for articulating and integrating landscape quality objectives using a Portuguese case study that would be easy to translate to similarly scaled and situated landscapes elsewhere. Nick Smith's chapter, "Delivering Green Infrastructure Through Strategic Development: Some Reflections From Cambridge, UK and Cambridge, USA," relates and contrasts the two

eponymous cities in a manner that overcomes cultural differences and delivers easily comparable findings.

As might be expected, problems in translating European and UK practices for a U.S. audience occur more frequently in the fourth section, on implementation and management of GI. Annie Coombs' "Community Involvement in Green Infrastructure" is about the need for citizen participation throughout GI planning, design, and implementation. However, due to structural and administrative differences between U.S. and UK governments, including regulations like England's 2011 Localism Act and funding sources through the European Union, it is hard to draw guidance for U.S. localities. I had a similar reaction to Sarah Payne and Adam Barker's "Implementing Green Infrastructure Through Residential Development in the UK." This chapter's findings about attitudes among residential homebuilders in the United Kingdom are specific and provide direction for future research and regulations supporting GI in the United Kingdom. They are, however, not generally applicable in the United States, given the differences between the two countries in residential development markets and in support among professionals for GI.

The third section, "Designing Green Infrastructure for All," is this book's weakest section. The chapters are focused more on inclusion (involving the public in the design process) than on GI as a substantive field. Case studies in planning practice covering open space, intergenerational play areas, and green spaces in conservation/preservation planning represent valuable contributions to planning practice. They are, however, not about GI, despite the thin veneer of GI added by their respective authors.

The *Handbook* does, however, devote adequate space to design and GI. Joao Marquez-da-Cruz and Eduardo Costa Pinto's "Landscape, Beyond Green and Grey Infrastructure" is an excellent example of the type of research into design and GI that will be required to increase public acceptance and demand for civically funded GI projects. Contributed by two Portuguese designer-researchers, this chapter consists largely of two case studies of waterfront transformations in Figueira da Foz, Portugal, and Chioggia, Italy, positing human-designed naturally based remediation to human-created environmental problems between "static artificial structures" and "dynamic natural structures" (p. 321). Another strong design contribution, Tallis et al.'s "The Impacts of Green Infrastructure on Air Quality and Temperature" gives planting/design suggestions for using urban vegetation to improve urban air quality, mitigate climate change, and manage increasing urban temperatures. This chapter would be useful for any designer interested in taking advantage of the multifunctionality of urban vegetation to create healthier, more resilient spaces.

The *Handbook on Green Infrastructure: Planning, Design and Implementation* is a significant contribution to stage 3 GI literature. The first section's evidence-based contributions are particularly strong, as are the second section's chapters on planning for GI. Though the chapters on implementation and management of GI would be more useful for practitioners and academics in the United Kingdom and European Union, this is not a fatal shortcoming. Hopefully, the *Handbook* will stimulate more U.S.-based research and publishing on GI implementation and management, as well as the universal need for more work to be undertaken and disseminated on design with or for GI.

Leah Hollstein

University of Cincinnati

✉ Leah.Hollstein@uc.edu

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