



# REVISING GREEN INFRASTRUCTURE

Concepts Between Nature and Design

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# **REVISING GREEN INFRASTRUCTURE**

# Preface

If we consider infrastructure as a constructed landscape of channels, pipes, grids, and networks that extend across vast territories and that precondition urban life, then we can borrow from several disciplines—urban geography, civil engineering, public administration, botany, horticulture—and combine that knowledge with biophysical resources to form the essential services of urban regions and construct new histories and new lineages.

**Bélanger**  
2012, 290

Infrastructure increasingly plays a decisive role in urban design discourses. It no longer belongs exclusively to the realm of engineers (The Infrastructure Research Initiative at SWA 2011) but to “a crosscutting field that involves multiple sectors and where the role of designers is essential” (Shannon and Smets 2011, 70).

The term *infrastructure* in combination with prefixes like *green*, *landscape*, or *ecological* gains importance in landscape architecture and other disciplines related to the built environment, but there are multiple definitions and perspectives:

1. Handling the physical presence of infrastructure—its barrier effects, noise emission, and pollutions—by ways to conceive, to integrate, or to reconfigure infrastructures\* or by redesigning infrastructural spaces.†
2. The use of natural assets to conserve ecosystem values and functions providing associated benefits to human society, expressed in “interconnected green space networks” that consist of “natural or restored ecosystems” and “landscape features” in a system of “hubs,” “links,” and “sites” (Benedict and McMahon 2006). Beyond providing ecosystem services (MEA 2005) and enhancing biodiversity and habitat connectivity, ecological infrastructure also can “act as a framework to define urban growth and urban forms across scales” (Yu 2010, 59), suggesting the following idea.
3. Landscape itself could “be considered infrastructure when acting as a kind of conveyance and distribution network, capable of moving people and supporting a variety of living systems” (Arquino 2011, 7). Even the whole “urban-regional landscape” can be conceived as infrastructure based on decentralized economic structures, which should take into account, for example, material cycles and watersheds (Bélanger 2009).

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\* Shannon and Smets (2010) differentiate between *hiding/camouflage*, *fusion* (reconfiguring the preexisting setting into a new composite landscape) and *detachment* (astonishing spatial expressions disregarding the natural context).

† E.g., Hauck et al. 2011.

In the current discourse on sustainability and how to deal with climate change and limited natural resources, a controllable performance is attributed to nature and landscape. The landscape is seen as a physical object, which is no longer “scenic” or “romantic” but “productive” and “well-designed.” The capability to generate clean energy and healthy food, to clean water, to store rainwater, to protect against flooding, etc. is based on the idea of controlling processes in ecosystems so that the landscape works as a stable system serving human needs. Green infrastructure should be the technological means that not only provides ecosystem services but also ensures their production. “Ecology” as the guiding principle\* should be the basis for a new technological approach that is more “careful,” “softer,” or “holistic” and produces “site-specific,” “integrated,” and “multipurpose” infrastructures.

Similar to the critique about the classic infrastructure of the industrial era, a discrepancy between technological progress and the quality of their spatial organization is stated within the development of that “alternative,” “ecological,” technological approach. Green infrastructure is also being developed in sectorial planning processes for optimization of effectiveness and efficiency. Design considerations play a secondary role. This lack of so-called architectural culture is not reducible to the creative indifference of engineers and ecologists who develop their design from the logics of the relevant technologies. They hardly possess the instruments to include greater spatial relationships in the design. On the other hand, architects, urban designers, and landscape architects are proposing “transdisciplinary” approaches to create appealing spaces within this new “eco-technological regime.” They propose a wide range of conceptions as to how to collaborate and develop the interplay between design and ecology, but often they present nothing more than exuberant visions and utopias that are hardly functioning and incompatible with democratic decision making.

This gap between the technocratic and mostly uninspired approaches of ecologists and engineers and the pretentious aspirations of designers mirrors the discrepancy in the use of the term *ecology* in the professional culture.

But how can we close this gap? How do we handle the “convergence of landscape architecture, ecological planning and civil engineering” (Bélanger 2012, 314)? What are convenient terms and metaphors to communicate the interplay between design and ecology? What are suitable scientific theories and technological means? What innovations arise from multidisciplinary and cross-scalar approaches? What are appropriate aesthetic statements and spatial concepts? What instruments and tools should be applied?

This book asks these questions for discussion and presents innovative accesses in designing *green, landscape* or *nature* as infrastructure from different perspectives and attitudes instead of adding another definition or category of green infrastructure. The approaches range from retrofitting existing infrastructures through landscape-based integrations of new infrastructures and envisioning prospective landscapes as hybrids, machines, or cultural extensions. In four sections, this book presents the various relationships to “ecology” as well as the respective design or planning motifs and basic aesthetic attitudes necessary to differentiate and associate the contributions.

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\* Pierre Bélanger describes “ecology as the agent of urban renewal and expansion” (2012, 290) and “urbanism’s best insurance policy” (2012, 310).

Section I, Function and Process, discusses a “scientific” respective “functional” turn in landscape architecture. As an introductory piece, Hauck and Czechowski give a brief overview of the history of “green functionalism” in the United States and Germany. De Block reflects on the current relationship between infrastructure projects, design techniques, and imminent ecological apocalypse. The contemporary turn to parametric design is studied against the background of early 19th-century infrastructure interventions geared at curbing impending environmental crises in the emerging metropolis. The next three contributions are examples for how new “design logics” are deducted from “ecology” in order to meet both economic and environmental requirements and open new aesthetic relationships toward nature. Therefore, the authors use different theoretical frameworks. Marcinkoski formulates a “landscape-” and “ecology-driven” approach that uses “urban ecology” as an operative framework for developing urban settlements and infrastructures. Perrotti proposes a differentiation of the concept of energy to conceptualize landscapes as “energy infrastructure.” Roncken et al. refer to “evolutionary thermodynamics” in order to design “landscape machines.” Hausladen answers in a way critical to such attempts as he focuses on scientific as well as epistemic problems with the ecosystem theories of Howard and Eugene Odum, which are very popular within such approaches.

In Section II, Culture and Specificity, the contributors share a decidedly cultural perspective on nature as landscape. Their “ecological” view emphasizes the individual nature of specific local situations. Accordingly, their design ideas are based on a deep understanding of landscape structures, a historical analysis of landscape development, and a consideration of spatiotemporal changes in the landscape. From this cultural perspective, Clemmensen throws a critical light on the concept of landscapes as infrastructure and provides a cultural-historical exploration of the complex relationship between nature and infrastructure. Blondia and De Deyn work within this ambivalent relationship to investigate the possibilities of restructuring cultural landscapes with regional public transport infrastructures. Schöbel and Czechowski consider landscape as an intermediate level between infrastructure and superstructure. They argue that if landscape and open space are either only measured as functions or interpreted as abstract intellectual ideals, they lose their essential properties as social and spatial forms of nature. Compared to that, Wall and Dring use Fresh Kills on New York’s Staten Island as an example in order to analyze two different approaches of creative intervention onto this landscape of waste: additive “elegant layered diagrams” as done by Field Operations with the *Lifescape* master plan and the concept of adaptive interventions as done by Matta Clark and Ukeles that interact with the disparate and unpredictable processes of the site. Kurath notes a dissolving of the cultural differentiation between nature and its counterpart society and so between landscape and urban realm. He provides ideas for designing a new “culture” beyond these categories: “integral urban landscapes.” Skjonsberg analyzes a concept for designing the relationship of rural and urban as a dynamic balance using a musical analogy—contrapunctus—deducing different contrapuntal fields of application in landscape architecture and urban design.

Section III, Governance and Instruments, presents political ideas and programs defining social relations toward nature and their integration in different planning

systems\* as well as their impact on nature and society. The contributions deal with different ways of participation and cooperation within cities, regions, and nations.† Different spatial circumstances or contexts evoke complex spatial conflicts, revealing different understandings and priorities to protect or to develop nature or to establish so-called green infrastructures. Hansen et al. use a “transatlantic lens” on the implementation of goals that are formulated in the green infrastructure concept respective of the concept of ecosystem service in urban planning strategies, using examples of Berlin and Seattle. Kost is concerned with an approach called “new nature” that arose in the Netherlands as a strategy to handle complex questions in spatial planning. Schweiger focuses on ecological network planning by means of complex algorithms, using the example of habitat connectivity projects in Germany. Afterward, Elkin discusses how the global challenge of rapidly declining vegetative cover is being addressed by massive replanting projects that cross territorial, political, and cultural boundaries and presents two contemporary examples: “The Great Green Wall” in the Sub-Sahara and the “3 North Shelterbelt Program” in China. At the end of the section, Hannemann et al. introduce a neighborhood-led planning approach initiated in the emergent post-earthquake “city” of Canaan in Haiti, which strove not only for improvements on a household level but also aimed to tackle large-scale problems, such as the further occupation of flooding zones.

Section IV, Applied Design, describes projects implemented in local contexts to solve concrete problems or remediate malfunctions. Close to reality, these projects deal with the full scope presented and discussed throughout the book: the use of scientific knowledge, strategic thinking, communication with municipal authorities and local stakeholders, design implementation on site, and documentation and control of feedback and outcome with adequate indicators and metrics. Nemcova et al. respond to Lima’s decreasing water resources with a conceptual strategy based on the country’s flows of water and provision of ecosystem services. They demonstrate how the design of open space, while understanding the natural and man-made water infrastructure and the local ecology, can actively improve the urban water cycle, thus creating an essential socially valuable and economically feasible ecological infrastructure. Pellegrino et al. present an urban storm water plan in São Paulo and examine green infrastructure as a performance-based and performance-justified option to replace conventional gray infrastructure. Terrasa-Soler et al. propose a series of interventions to use the urban landscape of La Parguera, Puerto Rico, as a water treatment infrastructure that should improve urban quality and coastal ecosystem resilience and protect the shore against erosion and storm surges. Finally, De Meulder and Shannon discuss the interweaving of urbanism and forests by providing case studies in Flanders, Belgium, and the Mekong Delta, Vietnam. They state that, throughout history, forests almost always formed one of the major components of the planning of the territory.

The idea of this book arose during the international conference *Designing Nature as Infrastructure* at Technische Universität München that was organized and held by

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\* E.g., NYC High Performance Landscape Guidelines, <http://www.nycgovparks.org/greening/sustainable-parks/landscape-guidelines>.

† E.g., European Green Belt, <http://www.europeangreenbelt.org/>.



the editors in November 2012. The overwhelming interest in discussing ways nature is regarded in contrast to society, how human-natural systems could be organized, and how nature could be changed, optimized, or designed encouraged us to pursue this diverse and sometimes controversial discourse.

## REFERENCES

- Arquino, G. (2011). Preface to *Landscape Infrastructure: Case Studies by SWA*, The Infrastructure Research Initiative at SWA (Ed.), 6–7. Boston: Birkhäuser.
- Bélanger, P. (2009). Landscape as infrastructure. *The Landscape Journal* 28(1): 79–95.
- Bélanger, P. (2012). Landscape infrastructure: Urbanism beyond engineering. In *Infrastructure Sustainability & Design*, S. Pollalis, A. Georgoulas, S. Ramos, and D. Schodek (Eds.), 276–315, London: Routledge.
- Benedict, M. and E. McMahon (2006). *Green Infrastructure. Linking Landscapes and Communities*. Washington, DC: Island Press.
- Hauck, T., R. Keller, and V. Kleinekort (Eds.) (2011). *Infrastructural Urbanism: Addressing the In-Between*. Berlin: DOM Publishers.
- The Infrastructure Research Initiative at SWA (Ed.) (2011). *Landscape Infrastructure: Case Studies by SWA*. Boston: Birkhäuser.
- Millennium Ecosystem Assessment (MEA) (2005). *Ecosystems and Well-Being: Synthesis*. Washington, DC: Island Press.
- Shannon, K. and M. Smets (2010). *The Landscape of Contemporary Infrastructure*. Rotterdam: NAI Publishers.
- Shannon, K. and M. Smets (2011). Towards integrating infrastructure and landscape. *Topos* 74: 64–71.
- Yu, K. (2010). Five traditions for landscape urbanism thinking. *Topos* 71: 58–63.

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