Chapter 11
Exploring Critical Urbanities: A Knowledge Co-Transfer Approach for Fragmented Cities in Water Landscapes

Flavio Janches, Lisa Diedrich, and Diego Sepulveda

Abstract The urban conditions of many metropolitan regions in the Global South are marked by growing informal settlements, growing inequalities, and socio-spatial fragmentation. They face alterations of their natural-spatial context imposed by climate change and new hydrological patterns. Knowledge is needed to direct their transformation toward more sustainable futures. Academia plays an important role in this knowledge production process that bridges disciplines and geographies. It ensures links to professional actors, public authorities, and civil society in their respective localities. This chapter introduces the adaptation of a more collaborative, trans-disciplinary, and multi-directional working method called "Beyond Best Practice" that raises research questions around ever-evolving, multi-actor collaborations from a design thinking perspective. These research experiences allowed us to promote an open-ended, co-transfer thematic, and methodological knowledge process by developing and testing ideas in real-world laboratory situations. Its results can be redirected to the Global North, where patterns of informality increasingly characterize hotspots of critical urbanity and, in turn, would benefit from knowledge sourced in the Global South.

Keywords Informal urbanism · Trans-disciplinarity · Collaborative design process · Transferring knowledge · Site specific

F. Janches (✉)
School of Architecture, Design and Urbanism, University of Buenos Aires, Arias 1691, appart. 1C, 1429 Buenos Aires, Argentina
e-mail: flavio.janches@fadu.uba.ar

L. Diedrich
Landscape Architecture; Department of Landscape Architecture, Planning and Management, Swedish University of Agricultural Sciences, Malmö, Sweden
e-mail: lisa.diedrich@slu.se

D. Sepulveda
Department Urbanism, Delft University of Technology, Julianalaan 134, 2628 Delft, BL, Netherlands
e-mail: D.A.SepulvedaCarmona@tudelft.nl

G. Marinic and P. Meninato (eds.), *Informality and the City*,
https://doi.org/10.1007/978-3-030-99926-1_11

Like the health crisis of the first half of the twentieth century, the coronavirus pandemic has called into question aspects of urban life, determined not only by conditions of health efficiency but also by factors that structure our coexistence. The close relationship among density, overcrowding, and the spread of the virus demonstrates how the health crisis has brought about a change in the dynamics of communities. In many cases, this has meant the risk of "accentuating a process of stigmatization and segregation of populations that inhibits the capacity of cities to consolidate the coexistence necessary to confront this or any other known or exceptional conflict."[1] Pandemic containment policies, therefore, face the dual challenge of preventing the spread of the disease, as well as the creation of new physical and symbolic carriers to the strengthening of mutual aid systems.

As such, the new reality determined by the needs of the pandemic is also an opportunity to consider how to "reflect on the habits of mind that lie in the shadow of everyday academic and professional structure; to explore meta-critical reflections determined in translations and transfers between two or more domains of practice."[2] Although the research work presented in this chapter was undertaken before the onset of the pandemic, considering it in relation to this crisis can help us to re-evaluate its objectives. It can be applied to new parameters associated with attitudes, capacities, rights, and obligations for people to organize their own survival dynamics.

The work was carried out, integrated, and implemented into an active model of co-transference between academia, local community, and local government. These actions contributed to informing, conceiving, improving, and evaluating possible generative strategies for planning and implementing change in known and unexpected critical conditions. The experience presented here seeks to advance the adaptation of a more collaborative, trans-disciplinary, and multi-directional working method. As a constantly evolving multi-stakeholder collaboration, it is possible to develop and test ideas, as well as to co-transfer thematic methodological knowledge.

At the same time, it progresses in models of transdisciplinarity—from a specific contribution in the co-development of evolutionary possibilities of evaluation, communication, and discussion—to enhance these models and contribute to the broadening of possible future actions. The limitations recognized in the implementation of trans-disciplinary processes, particularly in the definition of actors to be involved, their particularities, and their different languages and etymologies, are tested on the use of co-evaluated spatial designs. These take the form of spatial configurations, within problems caused by climate variability in areas of social risks, such as districts with informal settlements in areas at risk of flooding and/or high pollution. This work is conceived as an activator of co-transferring processes. It is structured on dialogue platforms with inhabitants and other existing actors in each real-world laboratory situation. Its value lies in aspects that are jointly produced through the interaction of multiple actors and disciplines. It includes how the work can detect, interpret, and communicate conceptual and shifting aspects that determine alternative design and planning processes.[3]

Based on this iterative (pre-designed) method of collaborative thinking and conversations between trans-local and trans-disciplinary academic institutions, we

elaborate a non-cyclical and continuous research process to understand and experiment "…in a critical otherness, alternative methodological and design opportunities to our disciplinary practices."[4]

From integrated research approaches between urban design, strategic planning, and landscape architecture, the work fostered a new balance of distribution and access to conditions of cooperation and mutual aid between the communities. These actions were convened through existing social programs in the municipality—as well as between the community and environment—to consolidate the accessibility, stability, and permanence of the proposed changes. The methodological frameworks and proposed transformative strategies are co-transferable to contexts with comparable conflicts and conditions of social exclusion, environmental crisis, and urban fragmentation. The value of the results obtained is also expressed in their capacity to be re-signified as viable models of urban transformation; they produce concepts and processes applicable in more than one place and over time.

Finally, it is also important to highlight the use of spatial design as a research methodology because the creative process can influence change through new imaginaries and narratives. In critical contexts where actions taken in one sector have consequences in the other, design becomes relevant as it allows us—using the concepts of Richard Foqué—to develop a "working hypothesis that can be tested, adapted, adjusted, and replaced without being true or false, while coexisting with other hypotheses."[5] Contrary to traditional empirical research, the design process as research explores future solutions determined by factors that can be adapted, corrected, or ignored according to the process of socio-territorial evolution. In this sense, the creativity of the project is not focused on the specific design, defined in its morphological aspect, but on the ability to redefine components of integration, growth, and environmental reconversion. Understanding urban design as a research process becomes particularly relevant in the working context. It seeks to influence urban and social realities through existing and prospective factors that can inform future development processes.

This view of the value of design thinking as a method of conversation, cooperation, speculation, and re-valuation is based on theoretical principles and concepts developed by Diedrich, Kahn, and Lindholm, professors in the Department of Landscape Architecture at SLU University in Malmö. These concepts were published in the paper entitled, *Beyond Best Practice, Re-valuing mindsets and re-imagining research models in urban transformation.* This work, defined as a co-evaluated urban transformation process, is structured around the value of the process itself. It is used both to define the framework for discussion and agreement, as well as to promote the transfer of knowledge generated in situ.

Our theoretical framework was based on constructing common values posed by co-production or co-creation theories,[6] recognizing guiding principles to reveal, and co-construct collective values and define shared benefits. The methodological approach to building development-adaptation strategies addressing climate change and urbanization in socio-environmentally critical conditions is also based on principles of collaborative planning.[7] It seeks to activate a co-participatory approach (structured as an ongoing collective assessment between academics, local government officials,

and residents) to the specific problems and opportunities for replicability in contexts with comparable conditions.

Based on the recognition of this partnership of various academic disciplines and local stakeholders, as a platform of shared learning,[8] a collective agency can be validated as a process of change. It recognizes the transformative adaptations co-defined as a multi-directional enabler of knowledge co-creation.[9] In this way, it is also possible to ensure the vision of a long-term systemic change that responds to the dynamic variables of natural and social systems. It contemplates the need to activate and integrate with the evolution of development and adaptation to climate variability, a greater and more diverse variety of stakeholders for local socio-environmental transformation over time.

Local Elements as Conditioning Factors

One of the goals of our trans-disciplinary research project was to understand community capacities to produce integral development processes both in the communities and in the study environment. Through meetings and interviews with the local government and social institutions, it was possible to recognize and interpret the social reality, current needs, and demands, as well as their relationship with conditions of the territory. The value of this interview process, at both local and regional levels, was that it made clear what Javier Auyero and Debora Swistun refer to as "…the relationship between objective space and subjective representation (habitat and habits), that represent the diversity of coexistence and the local capacity to interact with authorities and other stakeholders in order to achieve common goals."[10]

Recognizing the level of social conflict, the immaturity of the planning process, and the weakness of institutional capacities, as well as the environmental and topographical conditions existing in the working area, we were able to access (through direct participation) local knowledge and relevant factors to propose alternatives for the community. For Imparato and Ruster, this type of intrinsically co-produced work helps to "establish clear channels for participation in decision-making to give people the opportunity to influence actions that shape their lives."[11] The value of the collective diagnostic process is based on its capacity to associate responses with values defined by different local actors and, thus, giving overall coherence to actions and collective identification of what is proposed. This understanding of local conditions is determined by three main premises:

- Understanding existing socio-spatial experiences, proposals are defined in the values of everyday life and cultural significance of their spatial representation
- Recognition of the volatility of the challenges to be solved, due to uncertain changes in the possible environmental crisis, as well as in existing social behavior
- Community participation as a facilitator of the process of change, negotiated agreements can define the design and construction of proposals and their long-term sustainability

Based on this analytical criterion, transformation strategies may be organized in agreement with two systems that determine the manner of occupation and use of the territory—public space and the dynamics of movement. The combination and integration of both systems allows change to consolidate their objective through the balanced distribution of urban activities and services. It strengthens existing or potential dynamics of socialization between communities and with the environment. Proposals define the scenarios, uses of a place, and how it adapts to the inhabitants' expectations and way of life. Reversing the process of decay and abandonment of the urban/environmental context is determined not only by what is proposed but how its "non-predetermined evolution" complements, completes, and gives life to it. Consequently, the coexistence of what is diverse and different makes it possible as a balanced and equitable redistribution of urban and environmental resources to improve the conditions that determine quality of life.

Co-create and Co-transfer Knowledge

Based on this theoretical/methodological framework, collaborations between disciplines, and conversations involving comparable conflicts and initiatives, we developed a trans-disciplinary research project between the Urban Design FADU-UBA, Landscape SLU, and Strategic Planning TU Delft programs. Our Buenos Aires-based project aimed at promoting integrated development strategies in areas characterized by critical socio-environmental conditions. Using the technological, methodological, and design components of the "Emscher Park Narrative"—a study that looks at long-term transformation of the Emscher River Basin (ERC) in the German "rust belt" since 1989—as a model, our project applied its strategies to the Reconquista River Basin (CRR) in Argentina. Both territories continue to suffer from disproportionate risks due to dysfunctional infrastructure—polluted by agricultural, industrial, and/or housing waste. Both are subject to extreme climatic effects induced by heightened climate variability.

Like the ERC region, the CRR is characterized by challenges related to industry, informal settlements, and a lack of flood control infrastructure. Historical deficiencies in state-led spatial planning have led to the expansion of unregulated informal settlements, waste facilities, and industrial complexes on flood-prone land. In the context of climate change, issues of concern include increased risk of extreme floods and inequalities related to their impacts.[12] The extremely high level of river pollution strongly affects the urban population and creates serious health problems.

Building on the success of a powerful narrative observed in the German experience, we developed a series of initiatives that as methodological and technological tools offer responses to socio-territorial fragmentation and environmental deterioration in the Reconquista River region. The experience in the Morón River (a tributary of the basin) as a "living laboratory space" allowed us to investigate the issue of waterscape and its relationship to unregulated settlements. The specific characteristics of

the area, inhabitants, and governance were co-evaluated with European experiences and applied to this new context (Fig. 11.1).

The research fostered a new narrative that integrated initiatives for the government and local community. Therefore, the “linear park for environmental control and remediation” along the Morón River established collective objectives to restructure urban space and new dynamics of urban life. The range of development and management strategies devised as "top-down" and "bottom-up" initiatives proposed an open process of evolutionary transformation, combining large-scale hydrological projects with small-scale neighborhood intervention projects. These interventions were placed in public space and aimed at integrating continuous and concurrent processes of research and innovation. They interacted with public–private and institutional–personal partnerships (Fig. 11.2).

The most significant result of this project is its unique contribution to updating knowledge on tools and techniques of local strategic planning procedures (Fig. 11.3). They are more agile, as well as adapted to local conditions that can be transferred to landscapes with comparable socio-territorial conditions. A critical examination of the conditions of the area, development perspectives, and sustainable responses was used as the basis for addressing conflict (Fig. 11.4). These points offer a way to reach and recognize the risks and potentials of each designed scenario.

By recognizing these dynamics, work was carried out by students from three academic institutions and disciplines. Students proposed different strategic processes of urban regeneration based on socio-economically productive activities, capacities, and innovative environmental technologies based on three main components:

- Strategic vision in water management at regional and local scales
- Strategic vision on the dynamics of activities and spatiality of the urban fabric
- Strategic vision of specific community development interventions

In this way, the multi-scalar approach of our work took advantage of the relationships between different actors. It consolidated a balanced, short- and long-term vision with impacts on both local and regional scales. To organize and establish coherence in the integration between strategies, each project included two dimensions of work aimed at improving the socio-community conditions of informal neighborhoods. Projects addressed immediate contexts and sought to recover and redefine water landscapes.

The interrelationship between the two components opened a new strategic and aesthetic dimension of urban design. It is based on continuous and interdependent evolutionary processes, appealing to all involved people’s senses and their imagination. Termed “radicant,”[13] this idea of urban design prevents from addressing sites in radical ways, i.e., through erasing everything and constructing it anew (the modern tabula rasa approach) or through preserving everything in a historic freeze frame (the post-modern museumification attitude). Instead, urban sites are explored in multiple iterations with multiple stakeholders from different origins and perspectives. These actions work together to transform urban areas consecutively.

Without a predefined end scenario, even without the idea, the urban transformation process would never come to an end. The open endedness of radicant design rejects

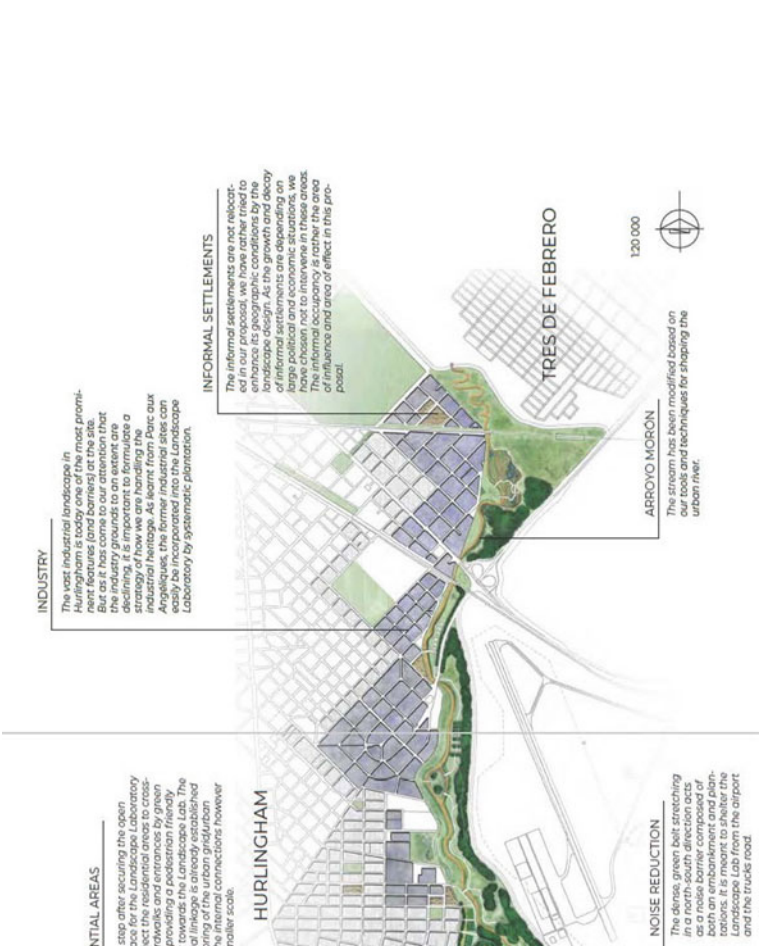

Fig. 11.1 Experimental landscape design for a polluted watercourse in the Metropolitan Area of Buenos Aires. Morón River area. *Drawing* by Dag Lindbom, Nelly Theander

Fig. 11.2 River project with a strategy for socioeconomic transformation. Morón River area. *Drawing* by Sofia Videla, Agustina Cuoco, Valentina Gertiser

urban projects conceived as static architectural forms. Instead, it shapes them as dynamic transformations or journey forms.[14] In this understanding of design, the radical rootedness of a project refers to the etymology of the term "root," deriving from the Latin word "radix," generating the adjective "radical." It distinguishes itself from "radicant," used in botany to discern plants like ivy that grow secondary roots, plants that do not anchor in one particular place but react to whatever conditions arise, in a never-ending process. These plants develop through enrootings (a verb in gerund, dynamic), not based on a single root (a noun, static).

Radical rootedness seems inappropriate for 21st century urban districts subject to various dynamisms, such as climate change-induced water regime alterations and globalization proffered economic and social change. Alternatively, radicant enrootings are considered a powerful framework for adapting to whatever situation arises

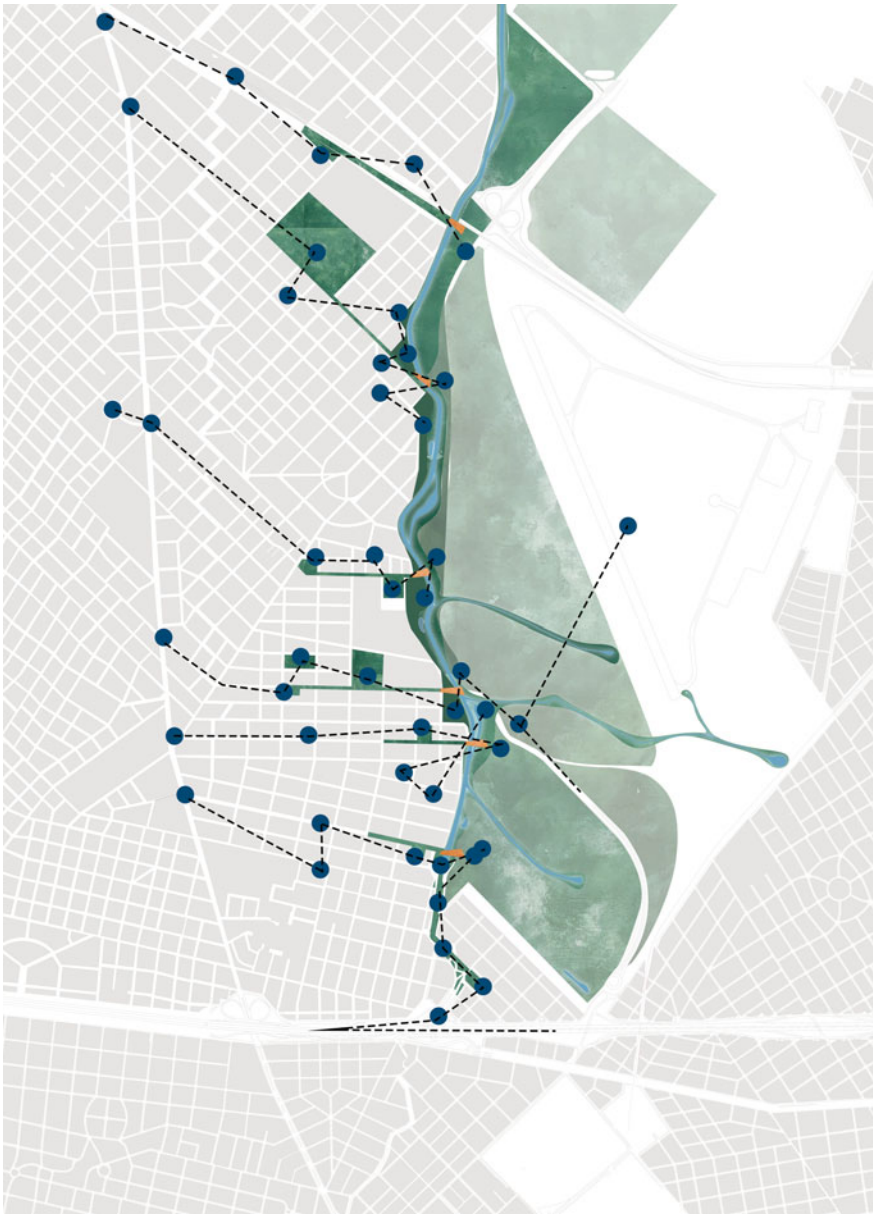

Fig. 11.3 Network of corridors and connectors. Morón River area. *Drawing* by Sol Cabanellas, Manuela Fontenla, Sofia Van Den Heuvel

Fig. 11.4 Interventions for Morón River area. *Drawing* by Sol Cabanellas, Manuela Fontenla, Sofia Van Den Heuvel

in the urban transformation process. From this perspective, the actions were simultaneously a product of "…influence and integration, ceasing to be personal, direct, and momentary to position themselves in a system of trans-individual transformation, as the self-transformation, and the transformation of others are equally progressive, one being a consequence of the other."[15] Therefore, the result was an interdependent and polycentric network that embodies a continuous open and evolving process, social articulation and/or environmental remediation. This perspective of a city "in transformation" made it possible to establish, from a local dynamic of active interaction of sub-centralities, functional centralities, and of mobility, new operational functional links. These conditions arise from spatial demands and the potentiality of each place (determined by the people who use it and the environmental conditions) to be recognized, elaborated, and appropriated.

Understanding the transformation process from the correlated synergies revealed allowed for different instances of negotiation between disciplines, with the participating government institutions and with the community, thereby laying the groundwork for activating a strategic planning framework defined in "the intensity of the social relationships they facilitate, the potentiality to create and strengthen group interactions, and the capacity to foster symbolic identification, expression and cultural integration between people and places."[16] This framework is the condition sine qua non for radicant design. The objective implies recognizing the collective and the role of landscape architecture, strategic planning, and urban design in reorganizing and strengthening the re-appropriation of urban-environmental space, as well as the civic awareness of the inhabitants.

Conclusion

Each of the experiments contained in this project illustrated specific ways of dealing with the conflicts studied, as well as ways of modifying their parameters of interpretation and the resulting opportunities for transformation. The need to consider an integrated response, activated from three complementary disciplines, determined ways of interpreting, designing, and assessing the socio-environmental conflicts studied and the opportunities to address them. The complexities that determine interpretations and responses to socio-territorial conflicts were defined as:

- Local conditioning factors—physical/environmental, with water being the main focus—recognizing the economic conditions, technical requirements, and decision-making capacity of local actors involved or considered. In addition, with the particularity/need to involve local actors to ensure continuity, and thereby value, while ensuring adaptive change over time.
- Development of a trans-disciplinary model, from an urban and landscape design base, to strengthen an integrated and evolving strategic framework with actors at different levels of governance.

In terms of comprehensive development strategies, the project promoted ways of coordinating and facilitating actions to develop the local economy. It engaged people living and working in different areas, promoted formal and informal commerce, and contributed to creative and cultural activities. The reevaluation of the components studied allows us to formulate new questions to reconsider the organizational framework, components of the dialogue, and possible transformative outcomes. At the same time, the specific features of the study and associated critical socio-environmental situations raise new questions regarding the implementation and design of trans-disciplinary methods.

Endnotes

1. Sennet, Richard, "How should we live? Density in post-pandemic cities," in *Domus Magazine* #1046, May 2020, https://www.domusweb.it/en/architecture/2020/05/09/how-should-we-live-density-in-post-pandemic-cities.html?; accessed October 1, 2020.
2. Diedrich, Lisa, Gunilla Lindholm, Andrea Kahn, "Beyond Best Practice—Revaluing Mindsets and Re-imagining Research Models in Urban Transformation." *Transvaluation—Making the World Matter*. Proceedings of International Symposium Searching for Alternative Making of Values Through and In Research (Gothenburg: Chalmers University of Technology).
3. Kahn, Andrea, *Constellations: Constructing Urban Design Practices.* Publisher: Columbia University GSAPP; New York, 2007.
4. Diedrich, Lisa, et al. "Beyond Best Practice".
5. Foqué, Richard, "On the true meaning of Research by Design," in Anja Langenhuizen, Marieke van Ouwerierk, and Juergen Rosemann, *Research by Design,*

International Conference Faculty of Architecture Delft University of Technology in cooperation with the EAAE/AEEA. November 1–3, 2000. Conference proceedings B, Delft University Press: Delft, 2001, 11.
6. Bremer, Scott, and Simon Meisch, "Co-production in climate change research: reviewing different perspectives," *Wiley Interdisciplinary Reviews: Climate Change*, 2017.
7. Healey, Patsy, *Collaborative Planning: Shaping Places in Fragmented Societies.* UBC Press, 1997.
8. Folke, Carl, Thomas Hahn, Per Olsson, and Jon Norberg, "Adaptive Governance of Social-Ecological Systems," *Annual Review of Environment and Resources*, 2015.
9. Zagare, Veronica, Diego Sepulveda, "Scenario Development and Participatory Processes as a Tool for Integrating Urban and Environmental Planning: The Case of the Lower Paraná Delta, Argentina," *International Journal of Climate Change: Impacts and Responses*, vol. 8, issue 4. Common Ground Research Networks, 2016.
10. Auyero, Javier and Debora Alejandra Swistun, *Flammable: Environmental suffering in an Argentine shantytown*. Oxford: Oxford University Press. 2009.
11. Imparato, I. and Ruster, J., *Slum Upgrading and Participation: Lessons from Latin America.* Washington DC.: World Bank Publications, 2003.
12. IPCC at al., Climate change 2014: synthesis report. https://www.ipcc.ch/site/assets/uploads/2018/05/SYR_AR5_FINAL_full_wcover.pdf; accessed September 19, 2019.
13. Diedrich, Lisa, "Translations—Radicant Design for Transforming Harbour Sites," *Portusplus, issue 2011*, 2012.
14. Bourriaud, Nicolas, *The Radicant*. New York: Lukas & Sternberg, 2009.
15. Freire, Paulo. *Pedagogy of the oppressed*. Continuum: London, 2005, 159.
16. Borja, Jordi, "Espacio público y derecho a la ciudad," Journal *Viento sur: Por una izquierda alternativa, 116*, 2011, 39–49.

Flavio Janches Ph.D. studied architecture at the University of Buenos Aires and holds a postgraduate degree in urban design from the same institution. He received his doctoral degree in urbanism from Delft University of Technology. Dr. Janches currently works as a professor of architecture and urban design at the University of Buenos Aires where he directs the Urbanism Institute. In addition, he collaborates with TU Delft as a Guest Researcher in the Chair of Spatial Planning and Strategies and leads BJC Architects in Buenos Aires.

Lisa Diedrich Ph.D. studied architecture and urbanism in Paris, Marseilleand Stuttgart, as well as landscape architecture at the University of Copenhagen where she received her doctoral degree. She currently works as a professor of landscape architecture at the Swedish University of Agricultural Sciences (SLU) in Malmö and directs the research platform SLU Urban Futures. Dr. Diedrich is editor-in-chief of the book series *Landscape Architecture Europe* and co-editor-in-chief of *scape*the international magazine for landscape architecture and urbanism.

Diego Sepulveda Ph.D. is a designer and a regional planner. He works as a teacher and senior researcher in the Department of Urbanism at Delft University of Technology where he received his Ph.D. in Integrated Infrastructure Development. Dr. Sepulveda is an active researcher in the complex city region and delta urbanism groups for spatial planning in The Netherlands. He coordinates the Urbanism Master Lab in the Faculty of Architecture and the Built Environment at the Delft University of Technology.