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EDITORIAL

Water Resilience: Creative Practices Past, Present and Future

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Around the world people are facing urgent challenges in terms of their relationship with water—how they live with it, manage it, and how they engage with water-related cultural heritage. Some of the most pressing challenges involve climate change, rapid urbanization, environmental degradation and migration. Several of the UN Sustainable Development Goals are directly (6, 14) and indirectly (3, 13, 15) linked to water challenges.[1] Policy makers, professionals, academics and citizens are grappling with huge uncertainties posed by sea-level rise, storm surges, drought, salinization and soil subsidence, drinking water shortages, water pollution, and increased demand for agricultural irrigation.

1 United Nations, "About the Sustainable Development Goals," accessed July 20, 2019. https://www.un.org/sustainabledevelopment/sustainable-development-goals/.

A deeper understanding of the spaces and practices around water in the past, present and future is key to understanding how societies face the challenges connected to life on this planet. This understanding is also intimately linked to the development of creative practices around water that will allow societies to thrive in the future. Developing a climate-adapted water system requires collaboration and action among diverse public, private, and civic partners, as well as open and participatory practices based on a collective (rather than only a professional) understanding of water systems. Stakeholder engagement is key to creating more sustainable societies, as it allows for the building of support for policies and measures that ensure good water management, as well as the gathering of non-professional knowledge that supports effective policy-making and design. Intangible heritage in the form of cultural practices connected to how societies traditionally manage and live with water is a key element of sustainability.

This is why we pursue a research agenda based on understanding water heritage in its iterative relationship with territories, institutions, and technology, as well as cultural and spiritual practices. We believe that this multidimensional and interconnected understanding of water heritage can help us formulate new and better strategies for dealing with water-related challenges, because they are the frameworks that define our human relationship with water, beyond the crucial issues of sanitation, water provision and management. In fact, we believe that sectors that have traditionally pursued a strong disciplinary approach to water, thus constituting separate ontologies about it, could benefit from joining up their perspectives and having a more holistic understanding of our human relationship with water and how it shapes our territories, institutions, technologies, cultural practices and spiritual beliefs.

Lessons from history

Over centuries, living with water has involved the creation of a system of institutions and practices, as well as buildings, cities and landscapes that embody the lived history of water heritage and adaptations to local geographies, histories and conventions. Contemporary institutions and practices are embedded in physical structures and traditions. To paraphrase Winston Churchill: we shape the landscape and the landscape shapes us.[2] Using the lens of historical institutionalism,[3] we argue that spatial forms

2 Speaking at the House of Lords on 28 October 1943, Winston Churchill said: "We shape our buildings; thereafter they shape us."

3 André Sorensen, "Taking Path Dependence Seriously: An Historic Institutionalist Research Agenda in Planning History," *Planning Perspectives* 30, no. 1 (2015); André Sorensen, "New Institutionalism and planning theory," in *Routledge Handbook of Planning Theory*, edited by Michael Gunder, Ali Madanipour and Vanessa Watson (London, New York: Routledge, 2017), 250-263; André Sorensen, "Planning History and Theory: Institutions, Comparison, and Temporal Processes," in *The Routledge Handbook of Planning History,* edited by Carola Hein (New York, London: Routledge, 2017).

and intangible cultures create path dependencies that need to be recognized and addressed if we wish to innovate and establish more sustainable and resilient practices. To give just one example: For many centuries and in many parts of the world, the predominant approach to combatting floods has been resistance. As notably seen in the Netherlands, engineers have developed large and strong systems of coastal defenses, dykes and other engineering structures to keep water under control. In recent decades, this approach has proved increasingly ineffective and has been slowly replaced by a different type of thinking based on the concept of resilience, in which natural systems are preserved and often rebuilt in order to allow for a more harmonious integration of urban life and landscape.[4] The question of how contemporary societies are going to address water-related challenges is just one example of the complex relationship between water, institutions and tangible and intangible heritage.[5]

Beyond few case studies, the role of water shaping institutions, territories, spaces and cultural practices is still relatively understudied.[6] Historical research contributes to understanding how water management has shaped historical power structures, social biases and ethical values related to water and the role of buildings, infrastructures and landscapes. As such, it connects to various fields of inquiry, such as discussions on planetary urbanisation, deep mapping, hydro-biographies and water-related cityscapes.[7] Water-related heritage preserves and passes on forgotten best practices and the memory of catastrophic events. It harbors the long histories of water systems and safeguards our cultural memory for generations to come.

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4 Han Meyer, "Making Urbanizing Deltas More Resilient by Design," in *International Planning History Society Proceedings*, edited by Carola Hein (Delft: BK Books, 2016).

5 See http://portcityfutures.org, accessed November 8, 2019.

6 Willem Willems and Henk van Schaik, eds., *Water & heritage. Material, conceptual and spiritual connections* (Leiden: Sidestone Press, 2015). P. Huisman, *Water in the Netherlands. Managing checks and balances* (Delft: Netherlands Hydrological Society, 2004). OECD, *Water governance in the Netherlands: fit for the future?* OECD studies on water, OECD publishing, 2014, accessed July 20, 2019, http://www.oecd.org/cfe/regional-policy/publicationsdocuments/BrochureWaterNL%20.pdf. J. Janssen et al., "Heritage planning and spatial development in the Netherlands: changing policies and perspectives," *International Journal of Heritage Studies* 20, no. 1 (2014): 1–21. World Heritage Center, "Living with water," *World Heritage*, vol. 59 (March 2011). Carola Hein, ed., *Adaptive Strategies for Water Heritage – Past, Present and Future* (Berlin: Springer, 2019). Reinout Rutte and Bram Vannieuwenhuyze, *Stedenatlas Jacob van Deventer* (Hamburg: Toth, 2018). Reinout Rutte and Jaap-Evert Abrahamse, *Atlas of the Dutch Urban Landscape – A Millennium of Spatial Development* (Hamburg: Thoth, 2016).

7 Neil Brenner, *Implosions/Explosions: Towards a Study of Planetary Urbanization* (Berlin: Jovis, 2014). Neil Brenner, *New Urban Spaces: Urban Theory and the Scale Question* (Oxford: Oxford University Press, 2019). Nancy Couling and Carola Hein, "Viscosity," *Society & Space: Volumetric Sovereignty Part 3: Turbulence* (2019). David Bodenhamer et al., *Deep Maps and Spatial Narratives* (Minneapolis: Indiana University Press, 2015). Jan Kolen et al., "History matters: the temporal and social dimension of Geodesign," in *Geodesign by integrating design and geospatial sciences*, edited by Danbi J. Lee et al. (Berlin: Springer, 2014), 173-181. OECD, *Water governance in the Netherlands: fit for the future?*. Sander van Alphen, *Tidal dynamics – The hydro-biography as a guide for future water management in the Lauwersmeer* (Vrije Universiteit Amsterdam, 2018). Gene Desfor, *Transforming Urban Waterfronts: Fixity and Flow* (London: Routledge, 2013). Carola Hein, *Port Cities* (London: Routledge, 2011). Jan Kolen et al., *Landscape Biographies* (Amsterdam: Amsterdam University Press, 2015).

Future perspectives

For the purpose of this issue, we have defined water heritage broadly. Water heritage is not just related to engineering structures, buildings or landscapes, and to traditions and cultural practices. We regard water heritage as a complex system intimately connected to questions of how societies organize their socio-spatial practices, carefully negotiated over time. As such, it connects to issues of democracy, participation and power. We took this approach because we believe that history and heritage matter when we wish to design new relationships with water. Historical knowledge about more or less successful water related strategies can help to identify sustainable processes, understand their prerequisites and parameters and thus optimize future decisions. Traditional ways to govern and manage water can teach us much about harmonious coexistence between humans and the natural systems we are hoping to preserve and foster.

New investigations of water history and heritage can help us move forward with sustainable and resilient water management; they are relevant to the redevelopment, redesign, and reuse of existing and ancient water systems as well as to the design of new systems. Historical systems can make an important contribution to the resilience and quality of life of communities, and to their sense of place and identity. Finally, understanding and analyzing the diverse aspects of water-related heritage can also help us refine our understanding of heritage more broadly.

We argue that a thorough and structured understanding of centuries-old, tangible structures and intangible practices can provide insight into earlier moments of water transitions and the long-term implications of policies and structures, focusing on access as well as opportunities for the design of everyday life spaces. Of course, around the world there are many differences in terms of geography, climate, cultural and political contexts, economic and social settings, societal models and also different attitudes towards present and future threats. Scholars and policymakers must closely examine these differences to understand water politics, policy, and management, as well as future design opportunities[8]. When research into the past is closely linked to forward-looking practices in engineering, architectural design, and planning, we are able to make heritage an integral part of future solutions, and a means through which the design of future sustainable practices can be achieved. A multidisciplinary, cross-temporal, and global analysis is needed to explore the relationship between water and heritage based on thorough theoretical and methodological investigation and carefully executed case studies.

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8 Tapio S. Katko et al., "Water Services Heritage and Institutional Diversity," in *Water and Heritage. Material, conceptual and spiritual connections*, edited by Willem Willems and Henk van Schaik (Leiden: Sidestone Press, 2015), 297-312.

Water and heritage initiatives

Several initiatives are aimed at addressing these questions globally. A series of conferences has explored the issue: *Protecting deltas: heritage helps!* (Amsterdam 2013), *Water and Heritage for the Future* (Delft/Fort Vechten 2016), *The international heritage of the water industry* (Barcelona 2018), the panel 'Heritage and Water' at the *UNESCO International Water Conference* (Paris 2019) and *Water-as-Heritage* (Chiayi 2019). An international initiative, Water and Heritage for the Future, with members of leading heritage and water institutions, promotes dialogue between scientists, professionals and policy makers to make water-related heritage a helpful and inspiring part of planning and legislation. In addition, the recent entry of the Water Management System of Augsburg in the UNESCO World Heritage List reflects the increasing relevance of water-related heritage. Reports on two recent events on the topic are included in the notes section of this special issue. This special issue adds only a small piece to this large puzzle. It complements other initiatives such as the forthcoming edited volume *Adaptive Strategies for Water Heritage: Past, Present and Future* (Berlin: Springer 2019), edited by Carola Hein, that brings together articles on five areas of importance to water heritage: drinking water supply, agriculture, land reclamation, protection and defense, transport and trade. The volume is published in open access and is available here https://link.springer.com/content/pdf/10.1007%2F978-3-030-00268-8.pdf.

Many other important subjects have not been touched upon in recent discussions on water heritage. For example, the role of canals and sewerage systems in water heritage merits further examination. Other, larger themes, such as hydropower, natural, industrial and urbanized waterscapes, water narratives, legal issues, and education connected to water heritage also deserve additional attention. To date, the discussion on water and heritage has largely neglected issues of the open sea. New scholarship is emerging on the urbanization of the oceans (their increased use for shipping, raw material extraction, energy production, and the siting of pipelines, cables, and other networks). The question of whether and how to preserve drilling rigs and other sea-based construction as heritage is also being addressed.[9] These concerns all call for renewed attention to how water shapes institutions, cultural practices and territories. They also demand attention to how water related technology shapes our built environment and our relationship with water. Scholarly investigation of long-term consequences can be of help to planners and policymakers who need to integrate historical knowledge and experience into future-oriented and sustainable solutions that are resilient, socially just, and durable. In addition to the necessary deepening of these tangible aspects of water-related heritage, more intensive study of specific spiritual and also legal concerns in relation to water and its use can illuminate issues of equitable distribution and inclusion.

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9 Nancy Couling and Carola Hein, "Blankness: The Architectural Void of North Sea Energy Logistics," *Footprint* 23 (2018).

Topic of this issue

This special issue brings together five peer-reviewed main articles from both established scholars and emerging researchers with two contributions from practitioners.

The Lausanne-based New Zealand architect and urban researcher Nancy Couling, the Berlin and Santiago based German architect and urban researcher Paola Alfaro d'Alençon and the Zürich based German-Turkish architect Medine Altiok focus on water territories and the need to develop water-based methods of conceptualizing and visualizing waterscapes, their history and potentiality. They particularly emphasize the value of narrative cartography as a means to tell individual stories and to explore shared relationships with water. They analyse the potential of such cartographic experiments by focusing on two projects: Streamscapes in Germany and Mittelmeerland in the Mediterranean.

Harty den Hartog, a Dutch Shanghai-based urban designer and researcher, analyses the evolution of China's Yangtze River Delta, a region crisscrossed by natural and man-made water bodies that have all but disappeared due to rapid urbanization. He develops a critique of the recent shift toward well-manicured and visually attractive but functionally inadequate waterfronts. Den Hartog concludes with recommendations on how to reverse this trend.

The Italian urban planner Gloria Pessina investigates the case of Ahmedabad, India, where new interests in heritage and waterfront property have been intertwined with local and national politics as well as real estate development interests, leading to profound spatial transformation of the city. Although part of an effort to modernize Ahmedabad, the transformation is also connected to the growing strength of reactionary Hindu nationalism.

The Finnish civil engineers Laura Inha and Jarmo J. Hukka use the long history of adaptation and sustainable development in the city of Seattle to investigate how democratic policy-making has led to an enviable state of environmental sustainability in the city. The article considers how a specific set of policies and practices can lead to sustainable water management, and concludes by reaffirming the importance of engagement and action at the local level.

The Dutch architect Klaas de Jong, finally, uses an architectural project that formed part of his master's thesis to explore the political significance of water in the Israeli-Palestinian conflict. De Jong explores form and function in a proposal for a Temple of Water that could potentially act as a connecting space between two opposed communities. While doing so, the author explores the role of water in the ongoing conflict and describes how Israelis and Palestinians could be united in their need for sustainable water management in the region.

The practice section includes two contributions that provide practitioner perspectives. In the first contribution, the British social scientist Angela Connelly, the German based Jordanian environmental engineer and water policy expert Serene Hanania, and the French-Polish environmental engineer Joanna Kiernicka-Allavena explore how practitioners can consider both water management and heritage at a time when climate change demands greater resilience. They consider the aesthetic and social importance of water as well as its technical and economic contributions. Considering two case studies – the deculverting of the River Roch and responses to the disastrous flooding of the city of Wroclaw – the article makes recommendations for practice. In an era when climate change demands greater resilience, more attention must be paid to the intimate relationships between water and heritage.

In the second contribution, the Iranian-Dutch heritage specialist and architectural historian Arash Salek and the Dutch water specialist Henk van Schaik explore Persian Qanats, a traditional form of fresh water supply. The article focuses on the vital interaction of man and Qanat within the arid Iranian plateau and shows how inventiveness and traditions have institutionalized the interaction between water and man over thousands of years. From both a technical and a socio-cultural perspective, the article argues for the application the Actor-Network Theory as a methodological principle for revitalizing the Qanats in the Middle East and as a helpful tool for sustainable development.

This special issue is intended to promote further work on water heritage in all its forms and to contribute to a new understanding of heritage. Historical sites and practices are by no means merely objects of historical value, but can play a crucial role in meeting the challenges of our time. Here, equal cooperation between historians, engineers and politicians will play a key role. We hope that the multidisciplinary character of this issue may inspire the readers accordingly.

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Tino Mager is postdoc researcher at the chair History of Architecture and Urban Planning at the Department of Architecture of the Delft University of Technology. Tino's main interests include heritage conservation and cultural heritage theory. In addition, he has published on post-war modernist architecture and its preservation, on Japanese architecture and the transnational education of artists in the 19th century. As part of the ArchiMediaL project, he is working on the development of methods for the use of artificial intelligence in architectural historical research

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References

Bodenhamer, David, John Corrigan and Trevor M. Harris. *Deep Maps and Spatial Narratives*. Minneapolis: Indiana University Press, 2015.

Brenner, Neil. *Implosions/Explosions: Towards a Study of Planetary Urbanization*. Berlin: Jovis 2014.

———. *New Urban Spaces: Urban Theory and the Scale Question*. Oxford: Oxford University Press, 2019.

Couling, Nancy and Carola Hein. "Blankness: The Architectural Void of North Sea Energy Logistics." *Footprint* 23 (2018). https://doi.org/10.7480/footprint.12.2.2038

———. *"Viscosity." Society & Space: Volumetric Sovereignty Part 3: Turbulence* (2019). Accessed September 6, 2019. http://societyandspace.org/2019/03/17/viscosity/.

Desfor, Gene. *Transforming Urban Waterfronts: Fixity and Flow*. London: Routledge, 2013.

Hein, Carola, ed. *Adaptive Strategies for Water Heritage – Past, Present and Future*. Berlin: Springer, 2019. Available at https://link.springer.com/content/pdf/10.1007%2F978-3-030-00268-8.pdf

———. *Port Cities*. London: Routledge, 2011.

Huisman, Peter. *Water in the Netherlands*. *Managing checks and balances*. Delft: Netherlands Hydrological Society, 2004.

Janssen, Joks, Eric Luiten, Hans Renes and Jan Rouwendal. "Heritage planning and spatial development in the Netherlands: changing policies and perspectives." *International Journal of Heritage Studies* 20, no. 1 (2014): 1–21. https://doi.org/10.1080/13527258.2012.710852

Katko, Tapio S., P.S. Juuti, P.E. Pietilä and R.P. Rajala. "Water Services Heritage and Institutional Diversity." *In Water and Heritage. Material, conceptual and spiritual connections*, edited by Willem Willems and Henk van Schaik, 297-312. Leiden: Sidestone Press, 2015.

Kolen, Jan, Niels van Manen, Maurice de Kleijn. "History matters: the temporal and social dimension of Geodesign." In *Geodesign by integrating design and geospatial sciences*, edited by Danbi J. Lee, Eduardo Dias, Henk J. Scholten, 173-181. Berlin: Springer, 2014.

Kolen, Jan and Rita Hermans. *Landscape Biographies: Geographical, Historical and Archaeological Perspectives on the Production and Transmission of Landscapes*. Amsterdam: Amsterdam University Press, 2015.

Meyer, Han. "Making Urbanizing Deltas More Resilient by Design." In *International Planning History Society Proceedings*, edited by Carola Hein. Delft: BK Books, 2016.

OECD, *Water governance in the Netherlands*: fit for the future? OECD studies on water, OECD publishing, 2014, accessed July 20, 2019, http://www.oecd.org/cfe/regional-policy/publicationsdocuments/BrochureWaterNL%20.pdf.

Rutte, Reinout and Jaap-Evert Abrahamse. *Atlas of the Dutch Urban Landscape – A Millennium of Spatial Development*. Hamburg: Thoth, 2016.

Rutte, Reinout and Bram Vannieuwenhuyze. *Stedenatlas Jacob van Deventer*. Hamburg: Toth, 2018.

Sorensen, André. "Taking Path Dependence Seriously: An Historic Institutionalist Research Agenda in Planning History." *Planning Perspectives* 30, no. 1 (2015). https://doi.org/10.1080/02665433.2013.874299

———. "New Institutionalism and planning theory." In *Routledge Handbook of Planning Theory*, edited by Michael Gunder, Ali Madanipour and Vanessa Watson, 250-263. London, New York: Routledge, 2017. https://doi.org/10.4324/9781315696072.ch20

———. “Planning History and Theory: Institutions, Comparison, and Temporal Processes.” In *The Routledge Handbook of Planning History*, edited by Carola Hein. New York, London: Routledge, 2017.

United Nations. “About the Sustainable Development Goals.” Accessed July 20, 2019. https://www.un.org/sustainabledevelopment/sustainable-development-goals/.

van Alphen, Sander. *Tidal dynamics – The hydro-biography as a guide for future water management in the Lauwersmeer*. Vrije Universiteit Amsterdam, 2018.

Willems, Willem and Henk van Schaik, eds. *Water & heritage. Material, conceptual and spiritual connections.* Leiden: Sidestone Press, 2015.

World Heritage Center. “Living with water.” *World Heritage review*, vol. 59 (March 2011).