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Dialogues

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Environmental crisis, sectoral versus integral: The agency of change

Today we experience and acknowledge the nexus of ecology, culture and politics as a moving objective, defined by local realities placed within global developments. Large-scale change is no longer a distant probability but an approaching condition, which forces us to accept instability and envision sustainability transitions as the ground of future inhabitation. When looking closer into atmospheric, water (riverine, maritime, deltaic), and land systems and their inherent uncertainties we realize the agency that local sensitivities, culture and planning regimes have in defining the success or failure of sustainable development. This dialogue will question what the real ground of present and future urbanization is, imagining adaptive and transformative change as material and ecologically sensitive practices to site, context and culture.

This dialogue is the transcription of the round table talk on the International Forum on Urbanism held in Delft on 26 November 2021. Lars Marcus, Chris Zevenbergen and Carola Hein presented their work in the light of the environmental crisis, sectoral versus integral: the agency of change. With moderator Fransje Hooimeijer they elaborated and related their work in a discussion around the main questions of history, the *longue durée*, disciplinarity and agency of change.

*Chris Zevenbergen
Carola Hein
Lars Marcus*

About Lars Marcus

Lars Marcus is professor in Urban Design at Chalmers University of Technology in Gothenburg. He has a long standing career as researcher in the field of spatial morphology and has led the development of two research groups at KTH and Chalmers that both rank at the international lead.

Title: *How digitalisation helps us deliver the knowledge necessary to direct cities into more sustainable trajectories*

Humanity's challenges may today seem overwhelming, but a strong conviction seems to have become established that how we structure and shape the built environment is critical if we are to change our social and environmental trajectories into more sustainable ones. The question about how to do this is however still debated but several developments seem to point in the right direction. Lars Marcus gave a brief introduction on work developed at Chalmers and KTH in Sweden over the last twenty year-period, from identification of the challenges, over development of descriptive methods and finally to actual application in urban development projects. Not least important here is the identification of the particular role the built environment has in cities as resilient systems.

About Chris Zevenbergen

Chris Zevenbergen is professor of Flood Resilience at the Coastal and Cities Risk and Resilience Department of IHE Delft and of Delta Urbanism at the Faculty of Architecture of the TU Delft, The Netherlands. He is expert in the field of environmental engineering, water sensitive design and urban flood management and participates in various national and international advisory boards of governmental and scientific institutions.

Title: *Redesigning Deltas. Towards inclusive and sustainable urbanizing deltas by design*

Unsustainable growth (urbanization) and climate change increase the urgency to radically change our current practice of delta management. There is still too much emphasis on short term solutions which constrains options to consider sustainable solutions in the long term. Moreover, in the coming decades, an opportunity for a 'reset' of the existing infrastructure is near as huge investments in this sector are foreseen in many deltas. However, an integrated strategy, an appealing perspective on the 'delta future' and the knowledge to develop the pathways to a sustainable and inclusive delta, are lacking. It is more important than ever to collectively build the knowledge needed to develop these pathways in which transformations will likely be necessary. Both require a design-based approach in which these different perspectives are recognized, and joint new perspectives are explored, identified and visualized. Chris Zevenbergen presented the methodological underpinning of an ambitious, inter-disciplinary and multi-annual project, which puts design and design-based research at the heart to deliver these outcomes, will be shared. It will briefly touch upon (i) tipping points and (ii) the multi-level safety approach as anchor points to develop these pathways.

About Carola Hein

Carola Hein is Professor and Chair, History of Architecture and Urban Planning at Delft University of Technology. Her research interests include the transmission of architectural and urban ideas, focusing specifically on port cities and the global architecture of oil.

Title: *(Re)Imagining Port city territories: Space, society and culture*

Port city territories, understood as discontinuous spaces connected by maritime activities, largely related to shipping and logistics, are key nodes in planetary urbanization processes. They have long been hubs for the transportation and transformation of fossil fuels. Located at the edge of sea and land, they have facilitated the growth of cities, including major metropolises. Industrial ports in urban deltas are complex areas with multiple environmental polluters that are often detrimental to the health of communities living nearby. As traditional hubs of innovation, they can also be pioneers in the energy transition. However, institutional fragmentation and diverse claims on a limited amount of land can hinder the energy transition. An integrated, collaborative approach to port city territories and towards a sustainable and socially just energy transition is missing. To achieve a socially just and sustainable energy transition requires shared terms, approaches, tools and methodologies.

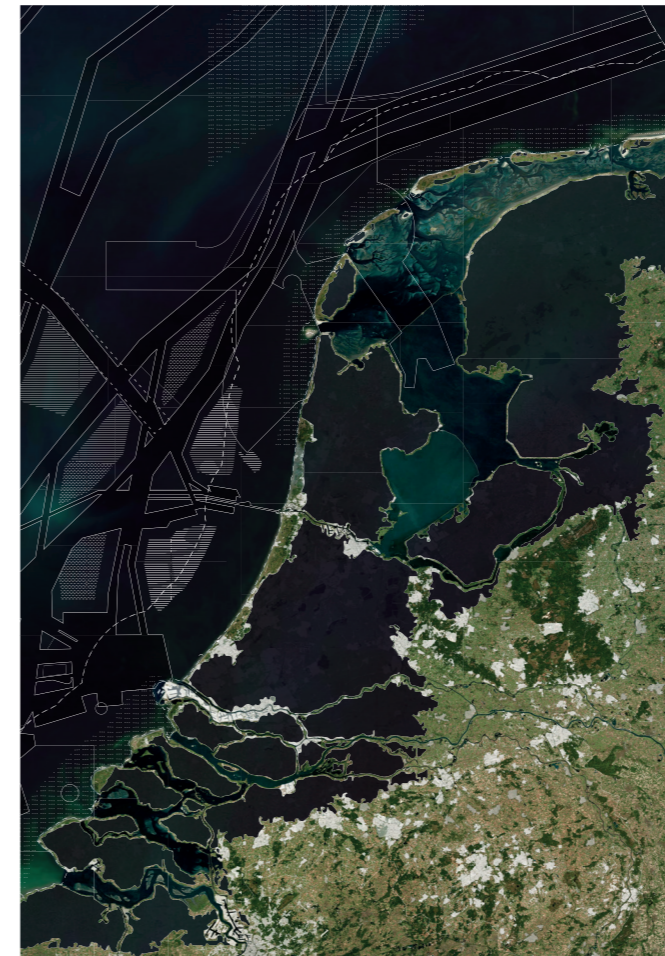


figure 1 The Netherlands, 2070+ scenario, BAU.

The map shows water level of 0.7 meters above the high tide line that could be reached through combinations of sea rise, tides, and storm surge.
Author: Delta Urbanism Research Group

Question: *How is time involved in your work, the past and the future? Where does urban form come from and where is it headed? What is the agency of change?*

Lars Marcus: Yes, that's a very good question. And I absolutely agree that also the Urban Form changes over time, obviously. I think that the digital tools we're developing rapidly now are open for developing new knowledge on how cities momentarily are configured and how they thereby structure and shape many of the faster-moving systems in cities, like everyday life and economic markets. We can also start to build longitudinal models or historical models of cities. That would be extraordinarily informative because I think we are typically working in a situation of past dependency where the old city already points out a lot of what is possible in the future. So, it's not like we start with a blank paper, but rather build on what's already there but by a better understanding of the structure already there and how it is actually performing and what it's kind of pointing towards. We could also build on that. So, we have actually also in Gothenburg built a historic model going back to the 1960s. It shows how different system effects change over time. So, what you actually see is how already existing places move

in the system. Suddenly, they become much more central than before, but they do so at different speeds, so to speak. And this is, of course, typically the process that generates gentrification. What used to be peripheral suddenly becomes central. And that changes the whole conditions for such places. But we can start to understand this better when we also build historic models. And of course, we also then need to understand the societal settings of the creation of these better all these things. But I totally agree with this. It's a very, very good question and very important for the future.

Talking about time and agency over time regarding resiliency and complexity of cities. All complex systems have a certain degree of resilience. That's why they don't totally fall apart. That's why they can change and be rather difficult to predict. But there is also a constant to that. The city is the perfect example as Jane Jacobs pointed out, it's extraordinary how predictable a city is, given that it's in a very small place where social, economic and technological systems interact all the time. But even so, there is certain predictability. Certain flows going on, certain things happening, unpredictable times to an extraordinary degree. So rather, what's extraordinary, which is cities, is actually the predictability of them rather than the unpredictability. And what is creating this is actually the built form of a city's absolutely central and important for that to create that. That's something typical for any complex system, that kind of resilient dimension of a more resilient system that kind of creates resilience in the sense of there is a certain change going on, but within certain limits.

You can trust the slower systems to discipline the faster systems, to structure them in different ways. One of these systems that does that is the built form of the city, and that's what we create in urban planning and design. So, we have a very important role in creating that kind of resilience. Of course, one needs to remember that resilience in itself is not a good thing because we can have systems that operate in a way that we don't wish that they are highly resilient. So we have to break them up to redirect them in a new direction. But then we need to recreate resilience if we want some kind of sustainability. The built form is absolutely essential in this.

Chris Zevenbergen: What triggered me was what Lars was saying about the dynamics of cities and connecting this to the dynamics of deltas, is that there is some predictability in that and that is determined by the slower moving parts. But the challenge which we are facing now, on a delta and city scale, is that a lot of infrastructure is becoming outdated. Our flood protection system is becoming outdated and the urban drainage systems of our cities are becoming outdated. And the question arises, do we still want to build upon those structures and maintain them and preserve them and adjust them to the challenges ahead? Or is it an opportunity to really jump into another trajectory or strategy? And if the approach of Lars, where you look into the dynamics of cities, could also help to identify the tipping points? And the lead times we need to take into account to be prepared, to make proper, well-informed decisions? I think that is crucial. So I see a lot of added value in what you are bringing into the discussion about your approach and your vision.

LM: I totally agree that there is an opportunity now to redirect what I would call the trajectories of the city into more sustainable directions. Let's just take a simple thing like the highway system, which is a highly resilient system that reproduces that kind of use every day. But maybe we want something else today. And then, of course, see if these are getting old, we should not recreate them, but do something else, create another built form that directs things in another direction.

CZ: I was also triggered by what Carola presented that port cities are so adaptive and resilient because the actors all had a common goal to build that port city. Do we need to foster that potential to help find the direction where we want to go as delta or city? And if so, the challenge is how do we get that back?

Carola Hein: The port city territories are potentially stewards of the energy transition of climate adaptation. But you made a really good point about also negative resilience. So, it means understanding past dependencies, understanding what structures are there and then carefully deciding which parts we should keep and which parts we actually need to change to address the challenges of the future. But it means it cannot be a mono-disciplinary approach. There's no technician or no engineer who can sort it out. It needs to happen in conversation with all the various stakeholders and the citizens. And, as you say, the slowest moving element might be the one that is holding us back.

Q: Considering the agency of change, it is also culturally dependent, how can we see that?

CZ: That's a very good question and a very difficult question. What we see in the Netherlands is that we have built a delta community over the past 10 to 15 years, including the risk awareness that we all have a responsibility in keeping our delta safe. The notion that it is a multilevel governance endeavor. The Delta commissioner has brought together all those different actors. In Bangladesh, it's not there yet. It's very much top-down. It's also strongly influenced by the Dutch, who have been quite dominant in shaping this delta and more recently in developing a delta plan. The latter is not a shared approach yet. I have the feeling there is still a long way to go in Bangladesh, albeit that at the level of the communities and the level of the villages, there's a huge potential and ability but not yet the resources to improve their resiliency.

Deltares developed four strategies, which roughly comes down to two routes: the first one encompasses strengthening of our existing flood protection infrastructure. The second one embraces a 'living with water' philosophy. The multi-level safety approach, where we have protection (the dikes), preparedness (evacuation) and planning (reducing the consequences), provides a useful framework to go forward and build resilience in our flood risk management strategy. However, in practice the planning layer is not very well represented in our strategy today. All our FRM resources are going to protection and we do not yet give equal importance

to planning in this process. So I feel that those strategies, which have been developed by Deltares and which are really very important to stimulate the debate, warrants a discussion about revisiting the multi-layer safety approach. And I think we should really embrace that approach albeit with probably a different priority and thus ranking of these three layers.. Because in the end, shaping and defining the pathways to all those futures, it's about planning, it's not about flood protection, which should follow planning.

CH: I was intrigued by what you just said in terms of the multi-layered safety approach because when we look at the inscribed history of cities, and understand the potentials of the historic structures, we also need to rethink the values. By creating new values that support change, that are embedded in new ideas for approaching the water challenge differently, you can bring the community also to want them. But it is important also that the space can be used differently during the day or also during the season. I think we also need to rethink planning by acknowledging the deep components of time and space, acknowledging what has been there and acknowledging what is happening today, bringing back multi-functional approaches. Even in our mapping, it is about finding a way to represent multifunctional port city use as it has traditionally been. We have to rethink planning to facilitate that kind of strategies again.

Q: What do the terms multi-, inter- and trans-disciplinary mean to you?

LM: To my mind, multidisciplinary artists from different disciplines meet and work together interdisciplinary many times creating a new field or new discipline that has merged other disciplines so as to go from multidisciplinary to interdisciplinary. This is quite a long road. It's not just meeting around the table to become interdisciplinary. And finally, transdisciplinary is in my world when academia and different fields of research need practice and to exchange and interact in different ways, and so and together also develop new knowledge.

Transdisciplinary situations quite often happen when we learn together between academia and practice in urban planning and design. We also often talk about interdisciplinarity, I think a little bit hastily, because I don't often see that we have gotten that far that we really exchange with other academic feats on the deep level. However, there is a lot of multidisciplinary going on, where we of course, have looser exchanges between disciplines. But my point here would be that the largest challenge for urban planning and design, I think, is actually to further develop its own discipline. So what do we actually need? What is specific knowledge for urban planning and design? And that's where I put forth this idea about urban forms and urban morphology as absolutely essential because this is the material that you use in practice. Material that is unique for urban planning and design, that is the structuring of space by build form. And this is something we know far too little about today, both in our own discipline and in urban planning and design. But it's also es-

sential for so many other fields working with cities. Often one uses very crude morphological descriptions of space or more built morphology in, for instance, urban sociology, urban economics, urban ecology. You use 100 meter square grids in ecology, concentric circles in urban economics and you use different census areas in sociology. Neither of these are very important for people living in cities or other species living in cities that don't behave according to these geometries. They behave according to the build morphology of the city. So, to all of these other disciplines, we have something to offer: a spatial structure that all of these disciplines play out in. And here we could actually, which I don't think we're there now, but we could develop interdisciplinarity if this spatial dimension could be related to these different social, economic and ecological systems. That would be true interdisciplinarity to my mind. And if we could do that, we could truly enhance the practice of urban planning and design.

CH: Well, I think there's a spatial turn in many of our other disciplines. Anthropology, sociology, and other disciplines are starting to look at space, but the built environment disciplines are already in that field and we should build the bridge from urban planning and design to the other disciplines. But I think this question of disciplinarity and even location-ness, because it's not just about disciplines, it's also about whether you're professional, whether you're citizen, et cetera.

I think there's a need for specific knowledge. We also need mono disciplinarity. And then we need at least a few people who are able to connect and to thrive off or build on and build actual trans-disciplinarity. This call for interdisciplinarity often sounds like everybody has to do everything, I don't think it's the case. I agree with urban designers also emphasizing the disciplinary uniqueness of space, but at the same time building the bridges to the other disciplines.

Q: It is about the distribution of agency?

CZ: Yes I see that we are not there yet, for some reason we are not yet able to really work in a meaningful multi- and trans-disciplinary way. We learnt in the past year in Redesigning Delta when we reached out to the various experts that we first need a shared aspiration to be able to really work together in a different way. What we see now is that there is a strong notion and aspiration among the experts of Redesigning Deltas to have a meaningful contribution to the huge challenges we are facing ahead concerning the future of our delta. So, I see there is an awareness and a willingness and an openness in our team to really step out of our own discipline and to reach out to the others. A different perspective on how we want to work together as academics including the actors is emerging. Along these lines, our Delta Commissioner is fully aware that our climate, water and environmental crisis cannot be resolved in a sectoral way any longer.

There is a real need and desire to do it differently, but where to start and what do we need to do? An integrated strategy, an appealing perspective on the 'delta future' and the knowledge to develop the pathways to a sustainable and inclusive delta, are most needed. It is more important than ever to

collectively build the knowledge needed to develop these pathways in which transformations will likely be necessary. Both require a design-based approach in which these different perspectives are recognized, and joint new perspectives are explored, identified and visualized. We therefore initiated Redesigning Deltas (RDD to build in parallel new partnerships and capacities within the Dutch delta community to contribute to these challenges.

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